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RESEARCH & PUBLISHING

Priviet Social Sciences Journal

Volume 6
Issue 5 May, 2026

Article 12

08-05-2026

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To cite this article: Ekananda, B., & Shenindita, N. P. (2026). Evaluating the economics of zero-waste retail: A case study on enhancing Indonesia's economic diplomacy. *Priviet Social Sciences Journal, 6*(5), 139–155. https://doi.org/10.55942/pssj.v6i5.1822

To link to this article: https://doi.org/10.55942/pssj.v6i5.1822

Priviet Social Sciences Journal
E-ISSN 2798-6314
P-ISSN 2798-866X
https://doi.org/10.55942/pssj.v6i5.1822

Volume 6
Issue 5
May Edition 2026

Evaluating the economics of zero-waste retail: A case study on enhancing Indonesia's economic diplomacy

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Received 11 March 2026
Revised 17 April 2026
Accepted 08 May 2026

ABSTRACT

This study evaluates the economics of the zero-waste retail market as a strategic instrument for Indonesia's 21st-century economic diplomacy. Utilizing a qualitative case study of a pioneering waste-free refill and supermarket network, the research examines how the transition from linear to circular retail models serves as a bridge between domestic sustainability policy and international economic engagement. Through SWOT analysis and an assessment of closed-loop logistics, the article analyzes the internalization of environmental externalities and the resulting competitive advantages in carbon mitigation and energy efficiency. Beyond operational metrics, the study explores how the scalability of the zero-waste retail market generates reputational capital for Indonesia. This empirical validation is positioned as a source of bargaining power for Indonesian diplomats navigating the UN Treaty on Plastic Pollution, providing a credible domestic 'proof of concept' for reuse-based economies in the Global South. However, the study also addresses the economic fragility of the model, specifically the trade-offs in reverse logistics and the infrastructure requirements for high-functioning reuse systems. By balancing economic viability with strategic foreign policy aims, the research concludes that zero-waste retail infrastructure acts as a pivotal instrument for state-led ESG leadership in an increasingly fragmented global trade environment.

Keywords: zero-waste retail market; economics diplomacy; international environmental economics; circular economy economics.

1. INTRODUCTION

The emergence of decentralized zero-waste retail models serves as a pivotal functional infrastructure for state-led foreign policy. Within the formulation and negotiation of complex frameworks such as the UN Treaty on Plastic Pollution, the domestic implementation of zero-waste systems provides the empirical proof that a circular economy is viable within the dynamics of global economics. For Indonesia, this provides significant reputational capital and bargaining power in international environmental regimes, transforming local operational success into a credible strategic asset.

Consequently, a more comprehensive definition describes economic diplomacy as the suite of diplomatic practices, including negotiation, representation, and communication leveraged by a state to advance and shield its economic interests within the international arena. Unlike purely political or cultural engagement, economic diplomacy functions as a dual-force mechanism: it uses economic tools to bolster diplomatic leverage while simultaneously utilizing diplomatic influence to strengthen the national economy.

The global proliferation of Environmental, Social, and Governance (ESG) concepts has catalyzed a paradigm shift in corporate management, moving beyond philanthropic gestures toward the integration of sustainability into core strategic decision-making. In the contemporary era of internationalization, firms are no longer evaluated solely on short-term financial performance; instead, long-term corporate value is increasingly tethered to comprehensive assessments of environmental stewardship and social equity (Christine., 2025). Within this framework, ESG performance serves as a primary driver for high-quality corporate development, particularly in emerging economies where the internalization of environmental externalities can provide a distinct competitive advantage (Farid & Wati, 2024).

The evolution of sustainability has transitioned from simple risk exclusion to active social innovation, a process of creating new solutions to social problems that strengthen a firm's position while fostering community resilience (Prasetyo, 2023). While traditional Corporate Social Responsibility (CSR) often struggles with the downstreaming phase where production capacity outpaces market access, emerging circular business models are redefining the value chain from upstream to downstream (Edwards & Tams, 2025). Against this backdrop, this study examines the role of zero-waste refill and supermarket networks as a scalable solution for emerging markets.

In this context, the development of hybrid zero-waste retail systems supporting net-zero waste through integrated reuse models serves as a critical case study for international environmental economics. Research conducted by (Leung et al., 2025) across 100 countries demonstrates that economic instability is a primary driver for the decline of sustainability standards in developing nations. Their findings suggest that financial crises do not just impact the economy but actively degrade environmental and social governance due to weakened institutional resilience. To mitigate this, a robust ESG framework must integrate economic stability as a core pillar. This study argues that the zero retail market serves as a bridge between domestic economic stability and international engagement, allowing a country to maintain its environmental commitments even amid the shifting tensions of the 21st-century global economy.

2. LITERATURE REVIEW

The emergence of zero-waste retail market in 2026 represents a critical intersection between grassroots circular economy practices and high-level international environmental diplomacy. This literature review synthesizes perspectives on circular business models, community empowerment, and the macroeconomic foundations of ESG performance to contextualize Zero's role as a strategic asset for Indonesia's global environmental leadership. The integration of circular business models within the framework of Environmental, Social, and Governance (ESG)

leadership represents a significant paradigm shift in international environmental economics. This literature review synthesizes the theoretical underpinnings of community empowerment, the macroeconomic determinants of sustainability resilience, and the strategic role of circular startups in emerging economies. This is a compelling synthesis of two distinct yet complementary mechanisms for global supply chain reform. The Zero retail market model provides a bottom-up economic carrot by demonstrating the scalability of sustainable infrastructure.

Traditional Corporate Social Responsibility (CSR) models often encounter structural failures during the downstreaming phase, where a lack of market access and fragmented distribution networks hinder the scalability of sustainable initiatives (Edwards & Tams, 2025). Emerging research suggests that circular business models redefine the value chain by creating closed-loop systems that integrate upstream production with downstream consumption. For entities like Zero-waste retail market, this transformation is not merely operational but serves as functional infrastructure for foreign policy. By providing empirical validation of the viability of a zero-waste economy in the Global South, such startups generate reputational capital and enhance a nation's bargaining power within international environmental regimes, such as the UN Treaty on Plastic Pollution.

Empirical data from PT Solusi Sirkular Indonesia's operations (over 150,000 reuse cycles) demonstrates that shifting from single-use to zero-waste systems can reduce packaging waste by approximately 5.76 kg per year per participant and lower CO2 emissions by 70–80% (Ekananda & Farida, 2024). This theory focuses on how non-state actors and digital platforms act as shadow legal structures to facilitate cooperation where state enforcement is weak (Shenindita & Nostadi, 2026).

(Fry and Egel, 2021) argue that traditional leadership often operates within closed systems, ignoring the broader environmental impact. In contrast, Zero operates in an open system by addressing the waste generated from daily products. By utilizing a sticker-labeling system that facilitates packaging returns in exchange for cashback, Zero challenges the addiction to consumerism and the linear take-make-waste model. This aligns with the call for responsible leadership, which emphasizes a purposeful and ethical approach to dealing with a diverse population of stakeholders, including the environment (Fry & Egel, 2021).

A central tenet of Global Leadership for Sustainability (GLfS) is the cultivation of a Global Mindset for Sustainability (GMS). This mindset is rooted in an ethic of care and compassion and a sense of self-transcendence (Fry & Egel, 2021). Zero embodies these spiritual qualities by fostering a community-wide responsibility for the planet. While most retail stores do not provide financial incentives for waste reduction, Zero cashback mechanism demonstrates a remote moral responsibility (Fry & Egel, 2021), proving that business can be a tool for both service and environmental restoration. Zero represents more than a retail innovation; it is an enactment of global leadership for sustainability. By integrating economic incentives (cashback) with environmental stewardship (waste reduction), it bridges the gap between theoretical spiritual leadership and practical organizational change. As (Fry and Egel, 2021) suggest, such models are the sine qua non for transitioning to a world where both humanity and nature can flourish. As with the Zero-waste Retail market vision, the success of such models provides the reputational capital necessary for Global South leadership to reshape global ESG narratives.

The Zero-waste retail market circular economy, empowering traditional micro-retailers as refill stations to reduce plastic pollution in Indonesia, represents a pivotal circular economy intervention designed to mitigate the projected 1.1 million tonnes of unrecyclable sachet waste in Indonesia by 2030 (Ocean Grants, 2026). This project proves that environmental interventions are most effective when they are socially and economically grounded. By increasing entrepreneur revenue and providing significant savings to families, the model offers a scalable blueprint for using empowerment to tackle plastic waste in vulnerable maritime regions.

3. METHODOLOGY

This research employs a qualitative descriptive case study approach, utilizing participant observation as the primary mode of inquiry. Given the researcher's direct involvement in the business operations, this method allows for a thick description of the economic and diplomatic nuances of zero-waste retail that are often inaccessible to external observers. Qualitative research is particularly suited for this study as it allows for an in-depth exploration of complex social and economic phenomena, such as the transition from a linear to a circular economy within a specific institutional framework (Creswell & Poth, 2018). The study focuses on how Zero's closed-loop model functions as both a business innovation and a tool for Indonesia's environmental diplomacy.

3.1. Unit of Analysis and Scope

The study is centered on the operational hub of a Zero-Waste Retail (ZWR) market located at the Fresh Market Emerald Bintaro site. The analysis is categorized into three dimensions: 1) Operational infrastructure: Assessing the economic viability of circular distribution models requires shifting the focus from a take-make-waste linear mindset to a closed-loop system. 2) Institutional Frameworks: Focus on standardizing credibility through ESG alignment o bridge the gap between local operations and global perception, the retail site's metrics must speak a universal language. 3) Diplomatic Capital: This level transforms technical data into a strategic asset for Indonesia's engagement in the UN Treaty on Plastic Pollution.

3.2. Secondary Data

This methodology is complemented by an extensive review of policy literature, including scientific journals, international environmental regimes, and direct field observations and the firsthand experience of operating the business model to transform technical data into the evidence-based diplomacy necessary for navigating the UN Treaty on Plastic Pollution. Such an approach is particularly effective for examining evolving strategies and impacts on global trade arising from economic diplomacy; in a field where empirical quantitative data is often rare, this qualitative synthesis validated by direct operational insights allows for a sophisticated understanding derived from theoretical and policy-driven analyses. By filtering out literature that only superficially addresses economic diplomacy, the study ensures that the synthesized data provides genuine theoretical insight, aligning with the relational turn in public diplomacy, where credibility and standardized metrics are prioritized over mere image spin to build international trust and soft power.

3.3. Data Analysis: Coding and Strategic Mapping

The analysis follows a systematic qualitative coding process to bridge the gap between retail operations and economic diplomacy. During initial coding, data from internal reports, policy briefings, and scientific journals are tagged with labels representing recurring strategies in economic diplomacy, such as "non-state actor influence," "circular economy scalability," "multilateral environmental agreements," and "bilateral green partnerships." This is further refined through SWOT operationalization, where the framework acts as a diagnostic bridge: internal strengths (e.g., measurable plastic reduction) are mapped against opportunities in Indonesia's foreign policy (e.g., strengthening bargaining power in global environmental regimes). Finally, strategic mapping is employed to visualize the transition of micro-level data into macro-level diplomatic leverage, illustrating how local green commerce enhances international green diplomacy credentials. This qualitative synthesis, prioritizing theoretical depth over superficial mentions of economic diplomacy, aligns with the necessity of a library-based approach when empirical quantitative data is rare (Arif, 2019).

3.4. Analytical Framework

The data analysis follows a descriptive-analytical approach based on the interactive model consisting of three concurrent activities: data condensation, data display, and conclusion drawing/verification (Miles, Huberman, & Saldaña, 2020). To evaluate the intersection of micro-level operations and macro-level diplomacy, the following tools are applied, SWOT analysis which utilized to identify the case study's competitive advantages and its scalability within the socioeconomic constraints of emerging markets. Externalities modeling, used to examine how the proprietary closed-loop model internalizes environmental costs, specifically regarding carbon emissions and plastic waste mitigation and strategic mapping to frames the empirical success of the model as reputational capital, analyzing its utility as a bargaining tool for Indonesia's positioning in global environmental governance.

3.5. Research Validity and Triangulation

To uphold academic rigor and ensure the integrity of findings, this study employs methodological triangulation by cross-referencing direct field observations with quantitative metrics derived from internal operational reports and qualitative insights from supply chain partners. Recognizing the potential for bias given that one of the authors is the Founder and CEO of the organization serving as the case study, a rigorous reflexivity framework has been implemented to mitigate confirmation bias. This includes segregating raw operational data for validation against third-party sustainability benchmarks, applying a critical evaluation framework to explicitly analyze the model's economic fragility and logistical trade-offs, and maintaining authorial distance, whereby co-authors not affiliated with the entity led the synthesis of the green economic diplomacy arguments. Furthermore, company evaluation was conducted by sharing preliminary findings with participants to ensure that the resulting interpretations accurately reflect the operational and strategic realities of the reuse economy without serving as organizational advocacy.

4. DISCUSSION

4.1. Analysis of Zero's ESG Performance: Enhancing Indonesia's Green Economic Diplomacy

4.1.1. Zero as Functional Infrastructure for Economic Diplomacy

As an archipelagic nation situated at the crossroads of global trade, Indonesia's commitment to the Blue-Green economy is both a necessity and a strategic opportunity. Within this landscape, Zero serves as functional infrastructure for Indonesia's foreign policy and environmental diplomacy. While the public sector negotiates high-level international agreements, such as the UN Treaty on Plastic Pollution, Zero provides the empirical validation that a zero-waste economy is technically and economically scalable within emerging markets. This on-the-ground implementation grants Indonesia significant reputational capital in international environmental regimes, transforming the nation from a passive participant into a proactive leader in sustainable trade (Sungkawati, 2024).

4.1.2. Integration of Blue-Green Principles and SDGs

The integration of Zero into the domestic market aligns directly with Indonesia's pursuit of the Sustainable Development Goals (SDGs). Given Indonesia's vulnerability to climate-related natural disasters as a developing archipelagic nation, the transition toward a circular, waste-free model is a critical risk-mitigation strategy. By reducing plastic leakage into marine ecosystems, Zero supports the preservation of Indonesia's abundant, unexplored marine resources—a cornerstone of the Blue Economy. This synergy between land-based retail innovation and maritime

conservation underscores how a holistic Blue-Green strategy can safeguard the economy and societal progress (Sungkawati, 2024).

4.2. Operational Impact and Global Mindset

In the context of operational impact and global mindset, Zero exemplifies the modern zero-waste supply chain by transitioning beyond mere recycling toward a holistic circular economy model. By integrating zero-waste principles into its core management strategy, the Zero framework moves upstream to prevent waste at the source rather than just managing its disposal. This is achieved through strategic product design and life cycle analysis (LCA), which prioritize reusable materials to eliminate waste across both production and consumption phases. As a pioneering waste-free network in Indonesia, Zero demonstrates that a circular approach is not just an environmental obligation but a strategic tool for enhancing economic efficiency and social value. By adopting these globally recognized sustainability standards, the initiative utilizes circular innovation to meet ecological targets while setting a benchmark for how Indonesian businesses can manage product lifecycles in a resource-conscious global market. This operational success serves as a primary asset for Indonesia's green economic diplomacy, proving the nation's capacity for high-level ESG implementation.

4.3. Governance Structure and Corporate Governance Practices

The governance structure of Zero as a Zero-Waste Refill and Supermarket reflects a high-tier integration of environmental stewardship and commercial accountability. The Board of Directors is responsible for setting the strategic direction that aligns with Indonesia's national sustainability targets. This leadership ensures that corporate operations comply with international ESG (Environmental, Social, and Governance) standards while proactively managing the risks associated with transitioning from linear to circular retail models. The senior management team executes strategies that transform Green Policies into operational realities. By maintaining rigorous internal oversight and financial health reviews, the Zero model guarantees the transparency and fiscal viability necessary to attract global green investment. Simultaneously, the organization acts as a vehicle for green economic diplomacy by advocating for environmental protection and engaging in community programs that demonstrate Indonesia's capacity for scalable social innovation (Rudiany, 2023).

4.3.1. Zero-Waste Retail Infrastructure SWOT Analysis

A SWOT analysis for the Zero-Waste Refill & Supermarket concept requires evaluating the model not merely as a logistics operation, but as an integrated direct-to-consumer (D2C) and business-to-business (B2B) retail solution designed to displace the traditional linear supermarket aisle. The infrastructure is supported by a robust governance framework, featuring a seasoned leadership team of executive and independent directors, including the CEO, CFO, and COO, who provide expert strategic direction. To ensure economic integrity and operational clarity, the enterprise employs rigorous internal auditing and control systems designed to proactively manage and mitigate risks. Furthermore, by integrating environmentally conscious practices and community-focused initiatives into its core operations, the organization demonstrates a profound commitment to sustainable development and corporate social responsibility within the broader circular economy.

4.3.2. Strengths

The circular retail model offers strong price competitiveness by positioning its products as more affordable than conventional eco-friendly alternatives, which are often associated with a "green premium." Beyond personal care products, the supermarket concept also provides a diverse

product portfolio that includes essential food staples, enabling consumers to complete comprehensive grocery shopping within a circular consumption framework. To enhance customer engagement, the system incorporates digital integration through a dedicated platform that tracks the deposit–reward cycle, creating a seamless user experience while encouraging sustainable purchasing behavior through cashback incentives and tax-free benefits. Furthermore, the model achieves high-impact institutional verification through strategic partnerships with multinational financial institutions and consumer goods companies, allowing the system to be professionally audited for its contribution to plastic waste reduction. This empirical validation strengthens credibility among ESG-conscious corporate partners and institutional investors, while simultaneously supporting Indonesia's reputation for transparent and sustainable green commerce.

4.3.3. Weaknesses

The circular retail model also faces several operational challenges, particularly in reverse logistics and sanitation management. The collection, cleaning, and redistribution of empty containers generate significantly higher operational overhead compared to conventional linear retail systems that follow a sell-and-forget approach. In addition, maintaining medical-grade hygiene standards for food and personal care refill products is highly resource-intensive, as it requires precise operational controls and rigorous sanitation procedures to ensure product safety, preserve consumer trust, and comply with quality standards.

4.3.4. Opportunities

The circular retail model is supported by a favorable regulatory environment, as the Indonesian government continues to promote ambitious waste reduction targets and sustainable development initiatives. This policy direction creates opportunities for stronger integration into national green economy programs. In addition, the successful expansion into Bali and East Java in 2025 demonstrated the viability of the model in environmentally conscious urban markets, providing a scalable blueprint for further growth across secondary and tertiary cities in Indonesia. The platform also presents opportunities for financial services diversification, particularly through the integration of micro-credit and digital banking solutions for MSME partners within the existing digital ecosystem, thereby strengthening institutional loyalty and promoting financial inclusion. Furthermore, the zero-retail approach supports multinational FMCG companies in achieving their ESG commitments by helping them comply with evolving global trade standards related to circular material management and sustainable supply chains.

4.3.5. Threats

The circular retail model also faces several external threats that may hinder its long-term scalability and sustainability. One major challenge is the persistence of consumer habits, as encouraging customers to adopt a deposit-and-return system requires continuous educational campaigns and behavioral economics strategies to shift purchasing behavior. In addition, fluctuations in the price of conventional petroleum-based raw materials present a structural risk, since lower prices for virgin plastic resins can reduce the economic attractiveness of circular packaging systems. The model is further challenged by Indonesia's archipelagic geography, where fragmented distribution networks and volatile energy costs significantly increase logistical overhead for the collection and recovery of packaging materials. These conditions create ongoing financial pressures that may limit the efficiency and scalability of circular economy operations across the country.

The Zero-Waste Refill and Retail Infrastructure faces significant operational hurdles due to the inherent complexities of managing reverse supply chains, which often result in coordination bottlenecks and diminished logistical efficiency. Compounding these internal challenges is an intensely competitive retail landscape that demands constant innovation and strategic agility. To maintain market relevance, the circular model must continuously refine its approach to stay ahead

of rival pressures and evolving consumer expectations. The profitability of this decentralized logistics model is fundamentally dependent on geographic density, requiring a high concentration of returns to ensure financial viability. By strategically transforming these retail points into circular hubs, the state effectively avoids the prohibitive capital expenditures associated with developing independent infrastructure while simultaneously amplifying social impact and operational efficiency. This micro-level operational efficiency is inextricably linked to Economic Diplomacy strategies, which are paramount in enhancing a globally competitive national food system. To realize the vision of Golden Indonesia 2045

4.4. Strategic Blueprint: Integrating Diplomatic Capital with Market Access

The data from the Zero-Waste Retail (ZWR) model serve as a strategic blueprint because they address the downstream obstacles that stifle environmental and social innovations. By integrating omni-channel logistics with educated human intervention, the model proves that market access in the circular economy depends heavily on the effectiveness of the social marketing infrastructure. Literature suggests that the primary threat to the sustainability of social innovation is no longer production capacity but rather marketing and market access (Edwards & Tams, 2025). The performance of the ZWR site validates this, showing that product movement is heavily dependent on active intervention. In the context of economic diplomacy, this operational success provides the economic tool necessary to bolster Indonesia's diplomatic leverage. As the ASEAN-UN Plan of Action (2026-2030) seeks to accelerate green transition and decarbonization, this retail model offers a scalable proof-of-concept for how such transitions can be managed at the consumer level.

4.4.1. Empirical Evidence from the Field (Observation)

During the observation period at the Fresh Market Bintaro site, the ZWR model bypassed traditional passive marketing by utilizing a high-authority invitation. Our citation strategy targets Key Opinion Leaders (KOLs) and authoritative speakers to build top-down social proof. This soft diplomatic capital generates immediate credibility, which then trickles down to influence both specific target communities and the general public. This top-down social Proofing, a form of soft diplomatic capital, generated immediate credibility and positive feedback loops within the digital and physical ecosystem. Observations showed during the field study revealed that the retail site successfully harnessed passive discovery, where large numbers of culinary tourists from the Jabodetabek area initially visiting the market for conventional consumption were drawn into the zero-waste ecosystem primarily through visual curiosity and aesthetic engagement. This initial attraction was subsequently converted into actual market participation through The Human Element, where high-touch staff interaction and proactive hospitality served to lower the psychological barriers to entry for circular consumption.

This evidence supports the theory that in global economics, circular products require a high-touch approach to overcome consumer inertia. Without the combination of influencer-driven hype and welcoming, on-site human intervention, even technically superior zero-waste products may fail to achieve the necessary market velocity.

Figure 1. Zero-Waste Retail Market

Source: Researcher Documentation

As illustrated in Figure 1, As defined in the ASEAN-UN Framework, economic diplomacy functions as a dual-force mechanism. The ZWR model acts as the economic tool, which in turn strengthens Indonesia's diplomatic influence. When Indonesian negotiators engage in the UN Treaty on Plastic Pollution, they are presenting a strategic blueprint validated by empirical evidence. Thus, the retail site is not an isolated commercial venture but a micro-level execution of the ASEAN-UN 2026-2030 strategy, illustrating how local green commerce enhances national green diplomacy credentials. The physical manifestation of Zero functions as more than a retail space; it is a sensory touchpoint designed to break down the psychological barriers to sustainable consumption. Field observations during the opening phase highlight three critical elements of the Zero build, illustrating how localized social innovations contribute to Indonesia's broader green economic diplomacy:

4.4.2. The Lifestyle Magnet: Rebranding Green Economics

By merging a traditional supermarket utility with a contemporary cafe aesthetic, the space transforms sustainable consumption from a technical chore into a lifestyle aspiration. This explains the high volume of visitors from the Jabodetabek area who, as observed, originally visited Fresh Market Bintaro for culinary purposes but were drawn into the space by its visual and social appeal. From a diplomatic and economic perspective, this represents the innovation pillar of green growth creating a market-ready model that appeals to mainstream consumer behavior, thereby increasing the domestic viability of green investments (Rudiany, 2023).

4.4.3. Influencer-Driven Social Proof: Strengthening Global Norms

The opening strategy leveraging KOLs and prominent speakers created a premium halo effect that serves as a digital-to-physical bridge. This validated the zero-waste concept for a mainstream audience, turning a technical social innovation into a social-media-friendly destination. This aligns with the normative approach, where Zero acts as an intermediary that assists in strengthening the local regulatory and social framework to align with global environmental norms. By making green growth shareable, the brand helps internalize international sustainability standards into the Indonesian national identity.

4.4.4. Human-Centric Intervention: Capacity Building and Management

Observations confirm that the staff does not merely monitor shelves but acts as educators, guiding visitors through the circular shopping process. This intervention is essential in overcoming

the consumer inertia typical of international environmental economics. This reflects the management approach, focusing on how a specialized entity improves the capacities and capabilities of the public through good governance and process implementation. By providing direct assistance and implementation efforts, Zero demonstrates how green growth concepts are penetrated into daily practice, ensuring that green policies are not just theoretical but are strengthened through active investment in human capital (Rudiany, 2023).

Figure 2. Product Packaging Zero Coffee.

Source: Researcher Documentation

Meanwhile, as illustrated in Figure 2, the integration of zero-waste retail solutions into the Indonesian domestic market functions as a localized manifestation of macroeconomic resilience. By internalizing production loops and optimizing domestic value chains, the state mitigates the volatility of external commodity dependencies. This architecture utilizes a net-zero waste retail market framework, wherein the transactional focus shifts from ownership to access via a deposit-refund mechanism. From the perspective of International Environmental Economically, this system serves as a micro-level intervention to address the tragedy of the commons in marine ecosystems. By institutionalizing these closed-loop mechanisms, Indonesia constructs a green economic foundation that aligns with the Sustainable Development Goals (SDGs), signaling to the international community a transition toward long-term fiscal efficiency and ecological stewardship.

4.5. Economic Viability as Sovereign Strength

While the Circular Economy (CE) is often reduced to technical 3R principles, this study situates circularity within the broader discourse of green economic diplomacy. There remains a critical scholarly gap in how circular transitions augment a state's bargaining power within international regimes. This research employs a structural analysis of circular-driven firms through three pillars value proposition, creation or delivery, and capture, to theorize how domestic sustainability correlates with international influence. The sustainability of a circular model is contingent upon internal operational efficiency, which reduces a nation's reliance on imported raw materials. Efficient take-back systems serve as a form of private governance, where waste management costs are reduced through institutionalized corporate responsibility. In alignment with institutional theory, value recovery systems are most effective when they are adaptable to diverse local and international regulatory environments.

The study offers actionable insights for managers and policymakers aiming to foster and implement commercially viable circular systems. Furthermore, this alignment demonstrates how

circular models transition from theoretical concepts to competitive business advantages, fostering long-term sustainability and economic growth (Rosário et al., 2024).

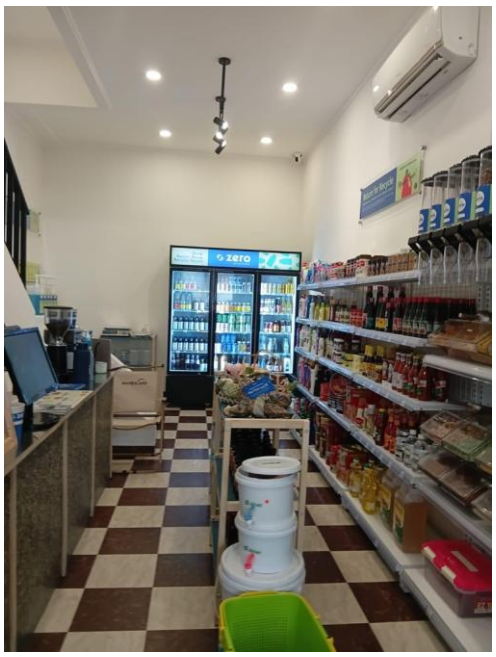

Figure 3. Zero-waste Retail Market 1st Floor

Source: Researcher Documentation

Theoretical frameworks suggest that green development as seen in Figure 3 is a primary driver of long-run resilience through innovation and risk mitigation. Therefore, regarding green innovation and productivity, Zero technology represents a shift from linear waste management to a circular, regenerative model. This reduces resource constraints and exposure to energy or resource price shocks, which are critical for maintaining long-run productivity (Rasoulinezhad & Taghizadeh-Hesary, 2022). Where international-standard ESG norms are established at the substate level, effectively forcing the nation-state to formalize these standards to maintain global competitiveness. The effectiveness of green finance depends on project pipelines and high-quality disclosure. Zero's digital-to-physical bridge provides the digital validation required for green-oriented foreign direct investment (FDI) and green bond issuance, which have been shown to positively influence economic activities (Rasoulinezhad & Taghizadeh-Hesary, 2022). By improving resource efficiency through its refill system, Zero supports long-run resilience against the environmental violations and financial constraints often faced by industry-based economies. Zero builds social capital. This Credibility Over Compliance model ensures that green development is seen as a public interest that drives growth independently of state industrial policy.

4.6. The Strategic Mobilization of Green Human Capital: Assessing the Educated Commoner as a Catalytic Economic Agent

Table 1. Comparative Analysis of Economic Dimensions (2025-2026)

Primary Goal	**Green Economic Growth: Focused on GDP contribution via industrial waste processing.**	**Regenerative Lifestyle & Decoupling: Bypassing the take-make-waste cycle through refill models.**
State Role	Central: The State acts as the primary investor, policy maker, and infrastructure provider.	Secondary: Bypassed by Substate Initiators who set ESG norms before formal State regulation.
Key Technology	Waste-to-Energy (WTE): Industrial solutions to reduce fossil fuel dependency.	Flow Zero / Digital-to-Physical: Decentralized tech providing substate infrastructure (@zero.mrkt).
Social Agent	Industrial Labor Force: Millions of jobs in collection, processing, and manufacturing.	The Educated Commoner: Empowered independent environmental agents and societal elites.
Economic Logic	Strategic Investment: Focus on healthcare cost savings and industrial competitiveness.	Ontological Shift: Public interest drives growth independently of state industrial policy.
Public Diplomacy	National Competitiveness: Building a green economy to boost national standing.	New Public Diplomacy: Using private ESG leadership to project a green national image globally.

In Table 1, the analysis utilizes Essential Waste Management Theory (Amalia, 2026), positioning professionalized waste systems as vital catalysts for green economic growth. Amalia posits that the transition from viewing waste as a liability to a strategic asset creates a virtuous cycle of employment and energy security. While Amalia emphasizes the state's role in fostering industrial-scale recycling and Waste-to-Energy (WTE) systems, recent findings from the Zero-Waste Market (2025-2026) demonstrate an evolutionary shift. This transition moves beyond state-centric models toward a post-state era, where educated commoners and private digital-to-physical infrastructures drive the circular economy through lifestyle-integrated refill experiences. The recycling industry currently generates significant global impact; for context, the sector employs approximately 12 million people worldwide, with the potential to create 6 million additional jobs by transitioning to a fully circular model. Furthermore, by adopting WTE technologies, nations can diminish fossil fuel reliance and fortify local energy resilience.

Drawing on the nexus of public diplomacy and national interest (Panggabean, 2026), the utilization of influencers and digital-to-physical bridges serves as a manifestation of new public diplomacy. Rather than relying solely on government agencies to promote net-zero waste retail, this model leverages media and societal elites to validate circularity. This creates a premium halo effect that functions as a soft power tool, positioning the Indonesian circular economy as a global leader in Environmental, Social, and Governance (ESG) standards. Ontologically, these initiatives prioritize the public interest (environmental health, sustainable biopolitics) over traditional national interest (GDP derived from plastic production or the industrial status quo). As Panggabean argues, the modern nation-state's legitimacy is increasingly linked to its ability to accommodate movements driven by civil society. The lifestyle magnet and human-centric interventions observed in zero-waste retail are applications of behavioral economics used as diplomatic instruments. By framing sustainable consumption as a premium social commodity, these actors conduct alternative diplomacy, projecting a vision of Indonesian ecological leadership more effectively than traditional bureaucratic envoys.

The core mission of this circular transition is rooted in a commitment to mitigate the trajectory of climate change and reverse the degradation of biodiversity. This study advocates for an economy that is inherently beneficial for all global citizens, specifically addressing the historical marginalization of women and minorities within the global trade system.

By fostering an economy of growth as in nature, the objective is to ensure ecological flourishing rather than allowing corporate interests to justify habitat destruction or the perpetuation of conflict under the guise of progress. This framework seeks to dismantle the war-ready industrial status quo in favor of a circular system that respects the agency of nature, the planet, and its diverse biological systems.

5. CONCLUSION AND SUGGESTION

5.1. Conclusion

The evaluation of the Zero-Waste Retail (ZWR) Market demonstrates that the transition to a circular economy in the Global South requires a paradigm shift from passive production to active, high-touch market intervention. The ZWR model transcends the role of a traditional retailer, functioning as a strategic blueprint that integrates operational infrastructure with a robust social marketing framework. By internalizing environmental externalities through a closed-loop system, this model proves that the primary objective of green commerce is not merely compliance but the establishment of regional credibility.

This study underlines that economic diplomacy has emerged as a core feature of national strategy, moving beyond the periphery of foreign policy to become a primary instrument for navigating the complexities of the global economy. In an era of increasing interdependence, the success of the ZWR model in reducing plastic waste and optimizing energy efficiency provides the empirical validation necessary for Indonesia to assert its bargaining power and global ESG leadership. Specifically, within international environmental regimes such as the UN Treaty on Plastic Pollution, such localized economic tools serve as the evidence-based leverage required for modern statecraft.

Furthermore, the research highlights a polycentric effort where corporate innovation, digital social networks, and civil society intersect. The transformation of educated commoners into green human capital serves as the primary engine for this transition. Through high-authority social proofing and proactive staff engagement, the ZWR model has effectively lowered the barrier to entry for circular mechanics. This confirms that in international environmental economics, green products cannot rely on discovery alone; they require deliberate, human-centric facilitation to achieve the market velocity mandated by the ASEAN-UN Plan of Action 2026-2030.

5.2. Suggestions

To thrive in a dynamic and competitive global landscape, the Indonesian state must continue to leverage these micro-level economic successes to bolster its macro-level diplomatic strategies. It is essential to foster institutional frameworks that compel interaction between governmental and non-governmental actors, ensuring that localized circular innovations are scaled into regional standards. Ultimately, the ability to navigate global economic evolution through strategic green economic diplomacy will be essential for maintaining Indonesia's national interests and ensuring long-term stability in an increasingly integrated world.

The analysis of specialized zero-waste infrastructure demonstrates that the transition to a circular economy in the Global South requires a paradigm shift from passive production to active, high-touch market intervention. This model transcends the role of a traditional retailer, functioning as a strategic blueprint that integrates omni-channel logistics with a robust social marketing infrastructure. By internalizing environmental externalities through a proprietary closed-loop framework, the zero-waste retail market proves that compliance is not the ultimate goal; sovereign credibility is.

Its success in reducing carbon emissions and optimizing energy efficiency provides the empirical validation necessary for Indonesia to assert bargaining power and global ESG leadership, particularly within international environmental regimes such as the UN Treaty on Plastic Pollution.

Furthermore, this model highlights the emergence of a polycentric effort where corporate innovation, digital social networks, and civil society intersect. The transformation of educated commoners into green human capital serves as the primary engine for this transition. Through high-authority social proofing and proactive engagement, these market actors have effectively lowered the barrier to entry for circular mechanics, proving that in the global economy, sustainable products cannot rely on organic discovery alone; they require deliberate, human-centric facilitation and strategic institutional support to scale effectively.

5.3. Suggestions for Future Implementation

5.3.1. Quality Control and Institutional Monitoring

To maintain brand equity and consumer safety within the circular market, it is imperative to implement rigorous monitoring of packaging integrity. Establishing standardized protocols for closed-loop cycles is vital to ensure that materials remain optimized throughout their lifecycle. This prevents the degradation of product hygiene or quality through excessive material fatigue, thereby maintaining consumer trust in the circular retail infrastructure.

5.3.2. Strategic Downstream Partnerships

Continued collaboration with digital waste-management platforms and financial technology vendors should be scaled. By converting post-consumer materials into immediate financial value for the participant, the state can foster a tangible circular economy. This aligns environmental goals with the economic realities of the Indonesian market, ensuring that sustainability is perceived as a viable financial strategy rather than an external cost.

5.3.3. Diplomatic Leveraging and Soft Power

The Indonesian government should utilize operational data from domestic zero-waste networks as a strategic diplomatic asset. By showcasing these scalable closed-loop models in high-level multilateral forums such as the G20 and COP30, the state can enhance its soft power and regional legitimacy. This data serves as an evidence-based policy instrument, positioning Indonesia not just as a participant but as a normative leader in the global narrative on ESG. This provides a credible Global South perspective that challenges existing paradigms in international environmental economics and asserts Indonesian leadership in the transition toward a global circular economy.

5.3.4. Deepening Community Engagement and Multi-Stakeholder

Collaborative frameworks with the private sector, government, and State-Owned Enterprises (SOEs) are essential for injecting technological agility and digital infrastructure into the circular market. By aligning corporate ESG (Environmental, Social, and Governance) targets with Indonesia's national diplomatic goals, private firms transition from mere market participants to strategic partners in statecraft. This alignment ensures that the proprietary digital-to-physical bridges required for closed-loop logistics are maintained through market-driven competition and efficiency.

Ethical Approval

Not Applicable

Informed Consent

Not Applicable

Author Contributions

BE contributed to conceptualization, data curation, resources, formal analysis, funding acquisition, and supervision. NPS contributed to conceptualization, investigation, methodology, formal analysis, writing – original draft preparation, validation, and data visualization.

Disclosure Statement

The authors declare that there is no conflict of interest, financial or otherwise, related to the research, results, or conclusions presented in this manuscript.

Data Availability Statement

The findings of this study are based on qualitative primary data. Due to the sensitive nature of corporate operational data and participant privacy, data sharing is restricted. Anonymized records may be made available by the corresponding author upon reasonable request for academic verification purposes.

Funding

This work was supported by the Brunel University Grants for PT Solusi Sirkular Indonesia

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Bintang Ekananda is an environmental engineer, circular economy advocate, and the Founder and CEO of PT Solusi Sirkular Indonesia. In addition to his corporate leadership, he serves as an Assistant Professor in Environmental Engineering (Teknik Lingkungan) at Universitas Muhammadiyah Sorong. In this study, he led the research conceptualization, provided critical primary operational data on circular logistics, and analyzed the intersection of business innovation with international environmental economics and sustainable engineering practices.

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Nadila Putri Shenindita is a Master of International Relations candidate at Universitas Paramadina, specializing in the strategic intersection of economic diplomacy and the alignment of public policy with international economic standards. Her research focuses on integrating innovative economic diplomacy models into foreign policy frameworks, examining how domestic sustainability and circularity serve as a catalyst for state bargaining power in the global arena. In this publication, she oversaw the methodological framework and led the technical application of global ESG benchmarks, ensuring the research met the rigorous reporting requirements of international academic standards and contemporary economic diplomacy theory.

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