

Toward a Just Circular Economy: Synergizing Waste Transformation within Indonesia's Difapreneur and Skizopreneur Programs

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Abstract. The implementation of the circular economy (CE) is often constrained by the dominance of profit-oriented logic, ignoring essential social pillars like justice and inclusivity. This study aims to explore the distinctive circular economy model embedded in the Difapreneur and Skizopreneur programs in Denpasar, Bali, which integrate social sustainability into environmental practices. Employing an exploratory case study approach, data were collected through in-depth interviews with persons with disabilities, schizophrenia survivors, and facilitators from PT Pertamina Patra Niaga Fuel Terminal Sanggaran. These data were complemented by analyses of strategic documents and reports on environmental impact. The findings reveal that the transformational synergy of coffee grounds waste into herbal incense has successfully created a new value chain that economically and socially empowers marginalized groups. In addition to providing a real ecological solution by mitigating methane emissions, the program effectively redistributes power by transforming vulnerable groups from passive aid recipients into autonomous economic actors. This study highlighted that the transition toward a just circular society can be achieved by pursuing environmental restoration alongside the reduction of social inequalities and the enhancement of human dignity.

Keywords: *Just Circular Economy, Social Inclusion, Difapreneur, Skizopreneur, Waste Transformation.*

A. INTRODUCTION

The circular economy (CE) has emerged as a dominant paradigm that extends beyond generating profit (Burghoorn, 2023). For academics and policymakers, the circular economy has been proposed as a solution to both environmental crises and resource scarcity (Kirchherr et al., 2017). Despite its growing popularity, however, in its implementation, CE continues to face significant challenges regarding its priorities, as economic gain often remains more dominant than environmental objectives and broader sustainability goals (Schröder, 2020). Critics argue that contemporary circularity narratives continue to marginalize non-economic pillars, including social justice, labor rights, and inclusivity (Pansera et al., 2024).

Building a just circular economy, however, is not easy. It requires the equitable redistribution of benefits and burdens, as well as the active participation of marginalized groups in the processes of decision-making (Burghoorn, 2023; Pansera et al., 2024). In the Indonesian context, a unique case can be found in the inclusive initiatives known as Difapreneur and Skizopreneur in Denpasar, Bali. Developed by PT Pertamina Patra Niaga Fuel Terminal Sanggaran in collaboration with the Denpasar Social Affairs Office and Kelompok Usaha Bersama (KUBE) Gantari Jaya, these programs promote an inclusive economic movement designed to foster economic independence, self-confidence, and equal opportunities for persons with disabilities and schizophrenia survivors. Beyond social empowerment, the initiatives strategically incorporate circular economy principles into their operational value chains.

The uniqueness of this case lies in the way the circular economy is cultivated through the Difapreneur program to support the production needs of the Skizopreneur initiative.

Operationally, Difel Café (the business unit managed under the Difapreneur program) employs deaf baristas and empowers individuals with various disabilities, including those with low vision and physical disabilities, in daily production activities that generate substantial quantities of spent coffee grounds. Rather than being discarded as waste, these coffee grounds are redirected and utilized as the primary raw material for producing herbal incense by members of the Skizopreneur group at Rumah Berdaya. This integration has created a new value chain that strengthens collaboration between two marginalized groups within a sustainable ecosystem.

Accordingly, this study seeks to explore the distinctive circular economy practices embedded in the Difapreneur and Skizopreneur programs, which demonstrate a strong commitment to social sustainability and inclusivity amid prevailing forms of circular economy initiatives that primarily prioritize profit (Burghoorn, 2023). Rather than focusing solely on economic gains, both programs make real contributions to the achievement of the Sustainable Development Goals (SDGs), particularly Goal 8 on decent work and economic growth and Goal 10 on reduced inequalities (Program Profile Document, 2026). By examining how spent coffee grounds are transformed into herbal incense through the active involvement of vulnerable groups, this study aims to demonstrate that an inclusive circular economy can serve as a practical solution to environmental challenges while simultaneously functioning as a tool for socially just transformation (Schroeder & Barrie, 2022).

B. METHOD

This study employed an exploratory case study approach to examine in depth the circular economy model implemented through Difapreneur and Skizopreneur programs. The Difapreneur program operates through the Difel Café business unit located at Graha Nawasena. Meanwhile, the Skizopreneur program implemented through Alumni Rumah Sakit Jiwa (ARUSAJI) at Rumah Berdaya Sesetan, Bali, Indonesia. This method was selected to obtain a comprehensive and in-depth understanding of a complex and dynamic phenomenon within its specific social and environmental context (Fichter & Tiemann, 2018). As noted by Ghalwash et al. (2017), exploratory case studies are particularly effective for identifying significant categories and meanings in fields where knowledge remains limited.

By adopting a case study strategy, this research seeks to describe real-life events and their relationships with specific environmental contexts (Agarwal & Lenka, 2016). Primary data were collected through interviews with program participants, including persons with disabilities, schizophrenia survivors, and program facilitators comprising the Community Development Officer (CDO) team of Fuel Terminal Sanggaran, administrators of KUBE Gantari Jaya, and Rumah Berdaya. These interviews aimed to capture their lived experiences and perspectives. In addition, various program documents were analyzed to strengthen the research context, including Program Profile Documents, Strategic Program Plans, and Scope of Work (SOW) documents. The document analysis also encompassed technical records such as Monitoring and Evaluation Reports and Environmental Impact Assessment Reports to provide a comprehensive understanding of the operations and environmental impacts of these circular economy initiatives.

C. RESULTS AND DISCUSSION

1. Beyond Profit Logic: Reintegrating the Social Pillar into the Circular Economy

The circular economy (CE) has emerged as a dominant paradigm proposed to address environmental crises while simultaneously tackling resource scarcity (Kirchherr et al., 2017). However, despite being promoted as a regenerative system, CE implementation often becomes constrained by narrow material ambitions, where economic gain remains the primary priority

over genuine sustainability and environmental objectives. Critics within the industrial ecology literature argue that contemporary circularity narratives continue to marginalize crucial pillars such as social justice, labor rights, and inclusivity (Pansera et al., 2024). This challenge arises because CE is frequently reduced to a project of ecological modernization focused on material efficiency, without giving equal attention to societal structures, cultural dimensions, and human values (Liu, 2025). Valenzuela and Böhm (2017) even identify a strategy of “depoliticization” within circular economy reforms, whereby sustainability issues are reframed as merely managerial and technocratic concerns, overlooking power relations and structural inequalities. Without a strong integration of the social pillar, the transition toward circularity risks perpetuating a status quo that exploits labor through precarious or inadequately protected employment.

The need to move beyond profit logic requires a fundamental shift from a mere “circular economy” (CE) toward a broader concept of a “circular society” (CS). A circular society emphasizes that such a transition cannot be achieved without the commitment and active participation of all social actors, including marginalized groups that have historically been overlooked. Liu’s (2025) empirical investigation demonstrates that the social implications of CE practices in the field are often contradictory. While they may generate income opportunities, they frequently neglect job quality and health protection. Therefore, the social pillar must be organically integrated into every circularity strategy to ensure that human well-being is no longer sacrificed for resource efficiency. This perspective aligns with the concept of a just circular economy, which calls for the equitable redistribution of benefits and labor burdens (Corvellec et al., 2022; Denter, 2025).

In the Indonesian context, the Difapreneur (Difel Café) and Skizopreneur (Rumah Berdaya) programs in Denpasar, Bali, provide an important example of how a circular economy can be built upon a foundation of social inclusion. Rather than focusing solely on profit generation, these initiatives strategically adopt circular principles within their operations to foster economic independence among persons with disabilities and schizophrenia survivors. The uniqueness of this model lies in its waste-transformation synergy that connects two vulnerable groups. Difel Café, which embraces individuals with various forms of disabilities, including visual impairments (low vision), physical disabilities, and hearing impairments, generates spent coffee grounds as a daily by-product. These coffee grounds are then transferred to Rumah Berdaya, where members of the Skizopreneur program process them into herbal incense products. This practice exemplifies social circularity or a circular society (CS), in which waste is not viewed merely as an object of business optimization but as a vehicle for social transformation that promotes self-confidence and decent work for individuals facing structural barriers.

The distinction between technocratic ecological modernization efforts and a more transformative vision of circularity can be observed in how value, labor, and the role of society are conceptualized. While conventional models tend to preserve economic growth patterns through resource efficiency, the social circularity paradigm calls for an economic reorganization that prioritizes social sovereignty and redistributive justice over economic accumulation alone. This fundamental shift from profit-driven circulation to circularity grounded in social pillars is summarized in the following comparison:

Table 1. Comparison Between Profit-Based and Social Pillar-Based Circular Economy Paradigms

Comparison Aspect	Profit-Based Circularity (Conventional)	Social Pillar-Based Circularity (Just CE)
Primary Focus	Material efficiency and green economic growth	Socio-ecological transformation and human well-being
Role of Actors	Passive consumers responding to price fluctuations	Active actors, co-creators, and agents of change
Labor	Job creation focused on quantity	Focus on decent work, inclusivity, and protection of workers' rights
Operational Logic	Ecological modernization and "smart" technologies	Redistributive justice and community self-reliance
Ultimate Goal	Accumulation of economic value within closed loops	Reduction of inequality and enhancement of social sovereignty

Processed by Authors, 2026

The application of social pillars within these two programs is also reflected in efforts to strengthen business professionalization through the development of comprehensive Standard Operating Procedures (SOPs) and the planned establishment of an Inclusive Training Centre in 2026. Such professionalization is essential because economic circularity should not rely solely on goodwill; rather, it must be supported by sound governance structures, legal compliance, and competitiveness to ensure long-term sustainability.

Furthermore, revisiting critiques of profit-driven logic reminds us of the risk of the "rebound effect," whereby improvements in material efficiency may paradoxically encourage excessive consumption due to a false sense of security associated with being an "ethical" consumer (Valenzuela & Böhm, 2017). Hobson (2020) emphasizes the importance of "small stories" in closing consumption loops, stories that can transform everyday material relationships from a simple "use-and-disposal" pattern into one characterized by care and stewardship.

Difel Café and Rumah Berdaya embody such small stories by placing human beings at the center of the circular economy. Continuous evaluation through Monitoring and Evaluation (M&E) mechanisms and the implementation of the 2023–2027 Strategic Plan demonstrate that every innovation, whether product-based or institutional, remains aligned with local community needs and the environmental carrying capacity that can be sustainably supported (Schröder, 2020; Schroeder & Barrie, 2022).

2. Circularity as an Ecological Solution: Addressing Environmental Crises Through Inclusive Waste Innovation

Within contemporary discourse, the circular economy is no longer viewed merely as a strategy for improving material efficiency and generating business profits. Instead, it is increasingly promoted as an instrument of ecological restoration that prioritizes environmental carrying capacity (Setyoningrum et al., 2024). The underlying concept was articulated by Korhonen et al. (2018), who argue that the circular economy is structured around two interconnected patterns: a production–consumption system for society and a linear energy flow connecting nature–society–nature. This concept serves as an antithesis to the conventional linear economic model of "take-make-waste," which has contributed to ecosystem degradation and the accumulation of unmanaged waste, thereby exacerbating global warming (Hawkins Gay,

2026; Setyoningrum et al., 2024). By limiting material flows to levels that can be tolerated by nature, the circular economy utilizes ecosystem cycles while respecting the regenerative capacities of natural systems (Korhonen et al., 2018). Such a strategy is highly effective for mitigating environmental crises because it emphasizes resource efficiency and minimizes carbon footprints (Elke Burghoorn, 2023).

A tangible implementation of this ecological vision can be observed in the organic waste management synergy between Difel Café and the Skizopreneur group at Rumah Berdaya. Through this initiative, spent coffee grounds generated daily by individuals with disabilities are no longer regarded as waste destined for landfills. Instead, they are recognized as possessing “biological nutrients” and are reintegrated into a new value chain. Program outcomes indicate significant achievements, as these coffee grounds are processed into the primary raw material for Arusaji Herbal Incense, produced by schizophrenia survivors (Social Innovation Document, 2026). This practice directly mitigates methane emissions that would otherwise be released from organic waste decomposition in landfills. Methane is known to have a global warming potential approximately 21 times greater than that of carbon dioxide (CO₂) (Setyoningrum et al., 2024). The transformation of waste into valuable products demonstrates that the circular economy seeks to generate growth by preserving material value for as long as possible while minimizing social and environmental harm (Darmawan et al., 2023).

Beyond solid waste management, the inclusive ecological solutions developed by the Difapreneur and Skizopreneur groups have the potential to expand further through an Eco-Innovation Water Recycling initiative for the motorcycle washing services operated by the Skizopreneur group, planned for implementation in 2027 (Dokumen Inovasi Sosial, 2026). As outlined in the Strategic Program Plan, the initiative includes the construction of a water recycling system and the installation of simple oil traps or holding tanks before wastewater is discharged into public drainage systems (Kajian Dampak Lingkungan, 2026). This environmentally friendly technological intervention is projected to significantly reduce freshwater consumption while mitigating water pollution risks associated with detergent and oil residues that may compromise groundwater quality.

Despite these plans, the current focus of the program remains on optimizing the spent coffee grounds value chain, which directly supports the concept of Circular Ecology (CEL). This approach aligns closely with the notion of Circular Ecology, understood as an evolution of the circular economy that incorporates a deeper understanding of the direct and indirect environmental implications of waste management and resource-efficiency strategies (Adami & Schiavon, 2021). Consequently, the environmentally conscious practices adopted within this circular economy initiative also reflect meaningful community participation in waste management, thereby contributing to environmental cleanliness and sustainability. Importantly, persons with disabilities (including individuals with hearing, visual, and physical impairments) and schizophrenia survivors, as the primary actors, serve as central agents of change in maintaining ecosystem balance. This implementation is consistent with the broader objectives of an ideal circular economy, where strong commitments from communities and other stakeholders are essential for sustaining integrated waste management cycles (Purwanti, 2021). As an integrative overview, the relationships among circularity, inclusive innovation, and ecological mitigation impacts are summarized in the following table:

Table 2. Matrix of Economic, Social, and Ecological Circularity Integration

Circularity Component		Waste Innovation & Tangible Outcomes	Ecological Solution (Mitigation Impact)
Biological	Nutrient	Production of Arusaji Herbal Incense from spent coffee grounds generated daily by Difel Café	Reduction of organic waste sent to landfills and mitigation of methane emissions

Green Supply Chain	Collaboration with organic coffee farmers in Tabanan	Supports land conservation and environmentally friendly agricultural practices
Social Circularity	Persons with disabilities serving as business unit managers and agents of change	Reduction of inequality (SDG 10) and promotion of decent work (SDG 8)

Processed by Authors, 2026

The matrix above demonstrates that the circularity implemented within these programs extends beyond a purely technical recycling process; rather, it constitutes an integrated ecosystem of social circularity. The table highlights how the innovation of spent coffee ground management generates significant positive impacts on the local environment by responsibly closing the coffee consumption loop. Consequently, these initiatives reinforce the idea that the success of the circular economy depends greatly on a commitment to building systems that move beyond profit-driven logic and instead prioritize ecological restoration and human well-being. Inclusive waste innovation offers a tangible solution to environmental crises by transforming linear consumption patterns into circular systems that respect the planet's ecological limits (Korhonen et al., 2018). By placing both people and nature at the heart of circularity, the Difapreneur and Skizopreneur programs have established an important precedent for future development models that are just, inclusive, and actively contribute to the restoration of damaged ecosystems (Purwanti, 2021).

3. Redistributing Power and Benefits: Marginalized Groups as Key Agents of Change

The transition toward a circular economy is often trapped within a technocentric narrative that prioritizes material efficiency and economic growth while overlooking its human dimensions (Liu, 2025). A fundamental criticism of mainstream circular economy models is their tendency to marginalize issues of justice, labor rights, and inclusivity (Pansera et al., 2024). In this context, the redistribution of power and benefits becomes essential to ensure that marginalized groups, such as persons with disabilities (including individuals with hearing, visual, and physical impairments) and schizophrenia survivors, are no longer treated merely as passive beneficiaries of assistance but instead become principal actors driving change.

The positioning of these groups as managers and decision-makers within business units, as demonstrated by the Difapreneur and Skizopreneur initiatives, reflects a paradigm shift from rigid ecological modernization toward a more inclusive circular society. Through the implementation of Standard Operating Procedures (SOPs) and the planned Inclusive Training Center, these marginalized groups have transformed their identities into those of independent economic actors who exercise sovereignty over production and distribution processes (Dokumen Profil Program, 2026). This professionalization is not merely an administrative exercise. Rather, it constitutes a political strategy to counter nobodization, a condition in which the economic and social contributions of marginalized actors remain unrecognized and invisible within formal policy frameworks (Wuyts & Marin, 2022).

By adopting legal, standardized, and competitive business governance practices, Difapreneur and Skizopreneur demonstrate that inclusivity does not have to come at the expense of service quality or business efficiency (Kajian Inovasi Sosial, 2026). At Rumah Berdaya, schizophrenia survivors do more than simply work; they manage the value chain that transforms spent coffee grounds into Arusaji Herbal Incense, generating economic independence while simultaneously mitigating environmental impacts (Kajian Dampak Lingkungan Program, 2026). This phenomenon aligns closely with the concept of a just circular

economy, which requires that both economic benefits and labor burdens be distributed equitably among those historically excluded from formal labor markets (Cherrington et al., 2024). Furthermore, the active involvement of persons with disabilities as “influencers” within the local circular economy ecosystem demonstrates that their local knowledge and lived experiences constitute valuable assets for developing solutions that are more resilient and responsive to community needs (Cherrington et al., 2024).

The importance of such capacity-building efforts is further supported by arguments that, without an explicit focus on creating opportunities for vulnerable groups, the Sustainable Development Goals related to decent work and reduced inequalities cannot be achieved (Buettgen et al., 2024). Through its 2023–2027 Strategic Plan, the program is gradually establishing a foundation that enables persons with disabilities to assume leadership roles, thereby providing a pathway for redefining their position within social and economic structures (Dokumen Rencana Strategis, 2023). The use of appropriate technologies in the production of herbal incense demonstrates that marginalized groups, including persons with disabilities and schizophrenia survivors, are fully capable of operating standardized production systems when provided with adequate technical support. This evidence challenges prevailing assumptions about their limitations and confirms their capacity to take leadership roles within circular economy structures.

Ultimately, this transformation demonstrates that the circular economy is not only about closing material loops but also about creating spaces of empowerment that enable people to grow independently and with dignity (Gomide et al., 2024). To provide a global comparative perspective on how marginalized groups and local communities assume central roles within circular economy initiatives, Table 3 summarizes case studies from various countries, further highlighting the importance of the human dimension in circular economy practices:

Table 3. Case Studies of Key Actors in the Circular Economy Across Countries

Country	Key Actors	Focus of Circular Initiative	Transformational Impact	Reference
Indonesia	Persons with Disabilities (Hearing, Visual, and Physical Impairments) & Schizophrenia Survivors	Upcycling spent coffee grounds into incense products and water recycling initiatives	Transformation from aid recipients into business managers and inclusive trainers	(Program Profile Document, 2026)
Ghana	Women in the Informal Sector	Upcycling plastic waste into fashion products (bags, shoes)	Significant income generation and enhanced financial independence	(McKenna North, 2026)
Italia	Social Cooperatives	Solid waste management and furniture upcycling	Integration of workers with disabilities into labor-intensive rather than energy-intensive production chains	(Campagnaro & D’Urzo, 2021)
Brazil & Argentina	Organized Waste Pickers	Selective waste collection through	Recognition as professional service providers and	(Gutberlet & Carenzo, 2020)

		partnerships with large industries	increased political bargaining power	
Belgia	Multicultural Youth Communities	Place-based design and repair hubs	Recognition of care work and disruption of dominant technocratic narratives	(Wuyts & Marin, 2022)
Inggris	Regional Small and Medium-Sized Enterprises (SMEs)	Context-based adaptation of circular economy policies	Strengthened regional identity and collaboration among local economic actors (influencers)	(Cherrington et al., 2024)
Perancis	Users of Assistive Technologies	Reuse programs for disability assistive devices	Reduction of medical waste and provision of more affordable assistive technologies	(Buettgen et al., 2024)

Processed by Authors, 2025

In summary, the case studies above demonstrate that the transition toward an inclusive circular economy requires a fundamental shift in the role of marginalized groups, from passive beneficiaries to empowered actors who exercise sovereignty over their economic futures. Through the implementation of professional Standard Operating Procedures (SOPs) and capacity-building initiatives within the Inclusive Training Centre, persons with disabilities and schizophrenia survivors have shown that professionalization can serve as an effective political strategy for breaking the cycle of nobodization and systemic neglect. Ultimately, this redistribution of power and benefits forms the foundation of a just circular society, where ecosystem restoration progresses alongside the restoration of dignity and economic independence for those historically excluded from formal labor structures.

D. CONCLUSION

The transformation of the circular economy in Denpasar, Indonesia, illustrates a shift from a narrow focus on material efficiency toward the development of an inclusive circular society. Through these initiatives, marginalized groups such as persons with disabilities and schizophrenia survivors are no longer viewed as passive recipients of assistance but as key actors in environmental stewardship. This approach ensures that development is not solely concerned with economic growth but also actively restores human dignity through the creation of decent employment opportunities and the systematic reduction of social inequalities.

The synergy developed by PT Pertamina Patra Niaga Fuel Terminal Sanggaran in collaboration with government partners and local communities demonstrates that organic waste, such as spent coffee grounds, can be transformed into high-value products by schizophrenia survivors. Through the implementation of professional and standardized operational procedures, the program has successfully challenged the stigma of “nobodization” and social exclusion by granting economic sovereignty to vulnerable groups. This strategic approach creates a fair distribution of benefits, where social empowerment becomes the primary driver throughout every stage of a sustainable production chain.

From an ecological perspective, this model of circularity offers a concrete response to the climate crisis through the mitigation of methane emissions generated by spent coffee waste. The success of the initiative reinforces the notion that genuine sustainability cannot be achieved without redistributive justice that reaches all segments of society. By placing both people and

nature at the center of innovation, the program establishes a new benchmark for future economic systems that are more resilient, inclusive, and capable of simultaneously restoring damaged ecosystems.

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