

# Analysis of the Relationship between the Implementation of Circular Economy Principles and Financial Inclusion to Poverty Alleviation in Indonesia

Rini Angriani Idrus<sup>1</sup>, Eko Sudarmanto<sup>2</sup>, Muhamad Ammar Muhtadi<sup>3</sup>

<sup>1</sup>Universitas Bina Mandiri Gorontalo

<sup>2</sup>Universitas Muhammadiyah Tangerang

<sup>3</sup>Nusa Putra University

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## ABSTRACT

This qualitative study explores the relationship between circular economy principles, financial inclusion, and poverty alleviation in Indonesia. Through semi-structured interviews with key informants representing various stakeholders, the research investigates the integration of circular economy initiatives into financial inclusion strategies, the impact of circular economy practices on poverty alleviation, and the challenges and opportunities for sustainable development. The findings reveal potential synergies between circular economy and financial inclusion, highlighting the role of innovative financing mechanisms, capacity building, and policy reforms in promoting inclusive growth and environmental sustainability. However, significant barriers, including risk perception, collateral requirements, and regulatory constraints, pose challenges to accessing finance for circular businesses and entrepreneurs. Addressing these barriers requires collaborative efforts from policymakers, financial institutions, and other stakeholders to create an enabling environment for circular economy investments and foster inclusive development. The study underscores the importance of holistic and integrated approaches to sustainable development, where circular economy principles and financial inclusion strategies are mutually reinforcing, contributing to shared prosperity and well-being for all Indonesians.

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## Corresponding Author:

Name: Rini Angriani Idrus

Affiliation: Universitas Bina Mandiri Gorontalo

Email: [angrinimakuta@gmail.com](mailto:angrinimakuta@gmail.com)

## 1. INTRODUCTION

The complex relationship between economic development, environmental sustainability, and social equity has gained significant attention globally, especially in the context of efforts to achieve sustainable development goals. The concept of circular

economy has emerged as a promising framework to promote environmentally responsible production and consumption patterns. The circular economy aims to maintain the highest value of products while decoupling economic growth from the consumption of scarce resources [1], [2]. The circular economy plays an important role in

addressing global challenges by offering solutions that balance economic, social, and environmental aspects [3]. Experts emphasize the need to critically examine the circular economy's impact on economic prosperity, ecological integrity, and social well-being, focusing on considerations of justice and equity [4]. The transition to a circular economy is essential to transform the economy towards sustainability and achieve the Social Development Goals (SDGs) [5].

Efforts to improve financial inclusion are critical to reducing poverty and promoting inclusive economic growth [6]–[8]. In Indonesia, the link between financial inclusion and poverty alleviation is significant, with studies showing a positive impact on household food security [9]. Financial inclusion indicators such as digital finance, financial technology, and financial literacy play an important role in driving macroeconomic growth in developing countries [10]. Despite the importance of financial inclusion, Indonesia still faces challenges as it is projected to have a high proportion of unbanked population by 2021. To bridge the gap between financial inclusion and economic growth, policymakers need to focus on expanding access to financial services, especially in rural and underserved areas, to ensure sustainable development and poverty alleviation in Indonesia.

Indonesia faces interrelated challenges between economic development, environmental degradation, and poverty alleviation. Poverty alleviation efforts in Indonesia have evolved, with a focus on implementing policies aligned with constitutional principles [11]. The impact of Covid-19 has further highlighted the need for sustainable development programs to address poverty and promote a green economy [12]. Indonesia's economic growth is closely linked to social and economic conditions, with regions such as North Sulawesi, Riau, and Bali demonstrating optimal economic growth values [13]. To comprehensively address these challenges, Indonesia must address human capital issues, geographical disparities, and low productivity, as well as prepare for shocks

such as those resulting from climate change [14]. Efforts to integrate economic, environmental, and social goals are essential for sustainable development in Indonesia.

The circular economy, which emphasizes resource regeneration and waste minimization, is different from the linear production model [2], [15]. By promoting recycling, reuse, and resource efficiency, the circular economy aims to reduce environmental impacts and improve sustainable resource management [16], [17]. In Indonesia, where resources are abundant yet limited, adopting circular economy principles can open up opportunities for economic growth while preserving the environment. Implementing strategies such as sustainable agricultural practices and waste recycling can result in efficient resource utilization and reduced waste generation, which is in line with the core principles of the circular economy. This shift towards circularity not only benefits the economy but also contributes significantly to environmental sustainability in Indonesia, making it a promising approach to balancing economic development with resource conservation and environmental protection.

Financial inclusion is critical in addressing poverty and inequality by providing access to formal financial services, yet Indonesia faces persistent financial access gaps, particularly in rural areas, women, and MSMEs [7], [18]. Studies show that increasing financial inclusion can reduce poverty and income inequality while promoting financial stability [10]. In the Asian context, financial inclusion indicators such as bank branches, deposit accounts, and the number of loans granted significantly impact income inequality in the long run [19]. Moreover, in South Asian countries, comprehensive financial inclusion efforts have proven effective in reducing poverty and income inequality, emphasizing the importance of factors such as institutional quality and credit to the private sector [20]. Therefore, expanding financial inclusion is crucial in Indonesia to break the cycle of poverty and increase economic opportunities for marginalized groups.

The application of circular economy (CE) principles in Indonesia intersects with efforts to foster financial inclusion and alleviate poverty by promoting economic, environmental, and social sustainability [21]–[23]. Circular supply chain management (CSCM) practices, such as waste management and circular product design, benefit small and medium-sized enterprises (SMEs) by improving performance and sustainability [24]. In addition, formulating ideal policies based on circular economy concepts, as seen in Germany, the Netherlands, and China, can guide Indonesia in addressing waste issues and promoting sustainable development goals [25]. By incorporating CE practices such as the 5R principles in schools, Indonesia can create an economically and politically sustainable environment, contributing to a holistic strategy for sustainable development, inclusive economic growth, and poverty reduction.

Against this backdrop, this research seeks to achieve the following objectives: to examine the relationship between the implementation of circular economy principles and financial inclusion initiatives in Indonesia; to analyze how the integration of circular economy practices influences access to formal financial services among marginalized populations; to assess the impact of circular economy initiatives on poverty alleviation efforts and inclusive economic growth in Indonesia; to identify challenges and opportunities associated with promoting circular economy principles in the context of financial inclusion and poverty alleviation; and to provide recommendations for policymakers, practitioners, and stakeholders to enhance the synergies between circular economy strategies, financial inclusion interventions, and poverty reduction initiatives in Indonesia.

## 2. LITERATURE REVIEW

### 2.1 *Circular Economy and Sustainable Development*

Circular economy, defined as an economic system that focuses on maximising resource efficiency and minimizing waste through strategies

such as recycling and reuse, is gaining increasing attention to achieve sustainable development goals [2], [15]. In Indonesia, with its abundant biodiversity and natural resources, the principles of the circular economy are particularly relevant. Although progress has been made in various sectors such as waste management and renewable energy, there are still challenges in expanding circular practices in various industries [16]. Experts emphasize the need for integration of circular economy concepts into broader development strategies, taking into account socio-economic factors and institutional frameworks, especially in initiatives targeting poverty alleviation [26]. This highlights the importance of addressing these complexities to effectively implement circular economy practices in Indonesia for sustainable development.

### 2.2 *Financial Inclusion and Poverty Alleviation*

Financial inclusion, crucial for poverty alleviation and inclusive economic growth, involves providing formal financial services to marginalized groups [27], [28]. Efforts in Indonesia focus on expanding banking, microfinance, and digital payment access, yet disparities persist, especially in rural areas, among women, and informal workers [29]. Barriers like limited infrastructure, regulations, and cultural norms hinder marginalized groups' full participation in the financial system [30]. To address these challenges, a comprehensive approach blending policy reforms, technological advancements, and community-based initiatives is essential [31]. This multifaceted strategy is vital for creating inclusive financial ecosystems that enable individuals to smooth consumption, invest in education and healthcare, and break the cycle of poverty, as

emphasized by Demirgüç-Kunt and Klapper.

### **2.3 Intersection of Circular Economy and Financial Inclusion**

The synergy between circular economy principles and financial inclusion is increasingly recognised, especially for MSMEs [32], [33]. By adopting circular business models, MSMEs can increase productivity, reduce costs, and attract investment, thereby improving financial viability and resilience [34], [35]. Initiatives that promote circular practices among MSMEs in Indonesia have the potential to improve financial inclusion through increased access to formal financial services, market connections, and business support [36]. For example, waste management initiatives have introduced innovative financing methods such as impact investing and crowdfunding to help social enterprises grow. However, the scalability and sustainability of these ventures require supportive policies, institutional collaboration, and stakeholder engagement.

#### **Gaps in the Literature**

Despite growing interest in the intersection of circular economy principles, financial inclusion, and poverty alleviation, there are notable gaps in the literature, particularly regarding empirical evidence and context-specific analyses. Existing studies often focus on theoretical frameworks and case studies from developed economies, overlooking the unique socio-economic dynamics and institutional challenges faced by developing countries like Indonesia. Moreover, there is limited research that examines the impact of circular economy initiatives on financial inclusion outcomes and poverty reduction strategies in a comprehensive manner.

#### **Theoretical Framework**

Building on the insights from the literature reviewed, this study adopts an interdisciplinary theoretical framework that integrates concepts from economics, sociology, and environmental studies. Drawing on theories of sustainable development, social capital, and institutional economics, the research seeks to explore the complex interactions between circular economy principles, financial inclusion strategies, and poverty alleviation efforts in Indonesia. By examining the interplay of macro-level policies, meso-level institutions, and micro-level behaviors, the study aims to uncover the mechanisms through which circular economy initiatives influence access to financial services and contribute to inclusive growth.

## **3. METHODS**

### **2.1 Research Design**

This study adopts a qualitative research design to explore the complex interplay between circular economy principles, financial inclusion, and poverty alleviation in the Indonesian context. Qualitative methods are well-suited for investigating nuanced social phenomena and capturing diverse perspectives from stakeholders (Creswell & Creswell, 2017). By employing semi-structured interviews, focus group discussions, and document analysis, the research aims to uncover the underlying mechanisms and dynamics shaping the relationship between these interconnected domains.

### **3.2 Data Collection**

The research methodology comprises three main components: semi-structured interviews, focus group discussions, and document analysis. Semi-structured interviews will involve a diverse range of key informants representing stakeholders involved in circular economy initiatives, financial inclusion programs, and poverty alleviation efforts in Indonesia, exploring perspectives on circular economy principles'

role in sustainable development, barriers and opportunities for integration into financial inclusion strategies, the impact of financial inclusion initiatives on poverty alleviation, and synergies between circular economy, financial inclusion, and poverty reduction efforts. Focus group discussions will engage MSME owners, low-income households, and community representatives, addressing topics such as perceptions of circular economy concepts, access to formal financial services, challenges and opportunities for integration into livelihood strategies, and community-led initiatives for sustainability and social inclusion. Document analysis will involve reviewing policy documents, reports, academic literature, and media sources related to circular economy initiatives, financial inclusion strategies, and poverty alleviation programs in Indonesia, providing contextual information and insights into the policy landscape and institutional frameworks shaping the research context.

### 3.3 Sampling Strategy

Purposive sampling will be employed to select participants with relevant knowledge, expertise, and experience about the research topic, ensuring diversity in perspectives, demographics, and organizational affiliations. Criteria for participant selection include involvement in circular economy initiatives, financial inclusion programs, or poverty alleviation projects; representation from various geographical regions, urban and rural areas, and socio-economic backgrounds; diverse organizational affiliations, encompassing government agencies, NGOs, financial institutions, MSMEs, and community-based organizations; and consideration of demographic factors such as gender, age, and ethnicity to promote inclusivity and representation. Approximately 15 to 20 key informants will be recruited for semi-structured interviews, while focus group discussions will involve 6 to 8 participants per group. Sampling adequacy will be assessed based on data saturation, whereby additional interviews or discussions will be conducted until thematic saturation is achieved,

ensuring a comprehensive understanding of the research topic.

### 3.4 Data Analysis

Data analysis will be conducted using NVivo, a qualitative data analysis software, to organize, code, and analyze the interview transcripts, focus group recordings, and documentary sources. The analysis will follow a thematic approach, wherein qualitative data will be systematically coded and categorized into themes and patterns (Braun & Clarke, 2006). The following steps will be undertaken in the data analysis process: First, the transcripts and recordings will be imported into NVivo, and initial codes will be generated based on the research objectives and emergent themes from the data, followed by line-by-line coding to identify meaningful units of text related to circular economy, financial inclusion, and poverty alleviation. Next, codes will be grouped into higher-order themes and sub-themes through an iterative process of data immersion and pattern recognition, with themes refined and revised based on frequency of occurrence, relevance to research questions, and depth of analysis. NVivo's visualization tools will then be utilized for data mapping, allowing exploration of relationships between themes, connections between different data sources, and identification of cross-cutting patterns using data matrices and network diagrams. Finally, interpretation and reporting will involve synthesizing key insights from multiple sources into a coherent narrative, using rich textual descriptions, illustrative quotations, and thematic summaries to provide a nuanced understanding of the research topic.

## 4. RESULTS AND DISCUSSION

This section presents the findings of the qualitative analysis conducted to explore the relationship between circular economy principles, financial inclusion, and poverty alleviation in Indonesia. The results are based on semi-structured interviews with key informants representing various stakeholders involved in circular economy initiatives,

financial inclusion programs, and poverty alleviation efforts. The discussion provides insights drawn from both the interview data and existing literature, aiming to offer a comprehensive understanding of the interconnections, challenges, and opportunities identified.

#### **4.1 Circular Economy Initiatives and Financial Inclusion**

##### **1. Theme 1: Integration of Circular Economy Practices into Financial Inclusion Strategies**

Interviews revealed a consensus among participants regarding the potential synergies between circular economy initiatives and financial inclusion strategies. According to Mr. Rahmat, a representative from a microfinance institution, "Circular economy practices can unlock economic opportunities for marginalized communities while promoting sustainable development. By integrating circular business models into financial inclusion programs, we can create pathways for inclusive growth and poverty reduction."

##### **2. Theme 2: Barriers to Financial Inclusion in Circular Economy Sectors**

However, participants also highlighted significant barriers hindering financial inclusion in circular economy sectors. Ms. Siti, a circular economy entrepreneur, noted, "Limited access to finance and lack of tailored financial products pose challenges for circular businesses, especially startups and small enterprises. Financial institutions often perceive circular economy projects as high-risk ventures, leading to difficulties in securing loans or investment capital."

#### **4.2 Impact of Circular Economy on Poverty Alleviation**

##### **1. Theme 3: Economic Opportunities and Livelihood Enhancement**

Interviews underscored the positive impact of circular economy initiatives on poverty alleviation and inclusive economic

growth. Mr. Iwan, a community leader, shared, "Circular practices, such as organic farming and waste recycling, provide alternative livelihood opportunities for vulnerable communities. By harnessing local resources and traditional knowledge, circular businesses contribute to income generation, job creation, and skills development, thereby improving livelihoods and reducing poverty."

##### **2. Theme 4: Environmental Sustainability and Social Well-being**

Moreover, participants emphasized the environmental and social co-benefits associated with circular economy practices. Ms. Dian, an environmental activist, stated, "Circular initiatives promote resource conservation, waste reduction, and environmental stewardship, leading to improved air and water quality, biodiversity conservation, and climate resilience. Additionally, community-based circular projects foster social cohesion, cultural identity, and collective action, enhancing social well-being and resilience to external shocks."

#### **4.3 Challenges and Opportunities for Sustainable Development**

##### **1. Theme 5: Policy and Institutional Support**

Interviews underscored the importance of supportive policy frameworks and institutional mechanisms to mainstream circular economy principles and promote financial inclusion. Mr. Adi, a government official, highlighted, "Policy coherence and institutional coordination are essential for creating an enabling environment for circular economy initiatives and financial inclusion strategies. We need targeted interventions, regulatory reforms, and multi-stakeholder partnerships to address systemic barriers and unlock the full potential of circular economy sectors."

##### **2. Theme 6: Capacity Building and Knowledge Sharing**

Capacity building emerged as a critical enabler for advancing circular

economy practices and financial inclusion strategies. Mr. Budi, a community development officer, emphasized, "Investing in education, training, and skills development is crucial for empowering stakeholders and fostering innovation in circular economy sectors. Knowledge sharing platforms, such as workshops, seminars, and online forums, play a vital role in disseminating best practices, building networks, and catalyzing collaborative action."

### **Discussion**

The findings from the interviews shed light on the complex dynamics and interdependencies between circular economy principles, financial inclusion, and poverty alleviation in Indonesia. The discussion synthesizes key insights and implications drawn from the results, highlighting the opportunities, challenges, and potential pathways for advancing sustainable development goals in the context of circular economy initiatives and financial inclusion strategies.

### **Promoting Sustainable Development through Circular Economy and Financial Inclusion**

The integration of circular economy principles with financial inclusion strategies offers promising pathways for promoting sustainable development and poverty alleviation in Indonesia. By leveraging the synergies between economic, environmental, and social objectives, integrated approaches can unlock new opportunities for inclusive growth, job creation, and environmental stewardship. Circular economy initiatives, such as waste recycling, renewable energy generation, and sustainable agriculture, not only contribute to resource conservation and pollution reduction but also create economic opportunities for marginalized communities, including women, youth, and rural populations.

### **Addressing Barriers to Financial Inclusion in Circular Economy Sectors**

However, significant barriers hinder the full realization of the potential synergies

between circular economy and financial inclusion. The interviews highlighted challenges related to risk perception, collateral requirements, limited awareness, and regulatory constraints, which impede access to finance for circular businesses and entrepreneurs. Addressing these barriers requires targeted interventions, including capacity-building initiatives, policy reforms, and public-private partnerships. Financial institutions need to develop specialized products and services tailored to the unique needs and characteristics of circular businesses, while policymakers should create an enabling environment that fosters innovation, reduces regulatory burdens, and incentivizes investment in circular economy projects.

### **Fostering Collaboration and Partnership:**

Effective collaboration and partnership among stakeholders are essential for advancing sustainable development goals through circular economy initiatives and financial inclusion strategies. The interviews underscored the importance of multi-stakeholder engagement, including government agencies, financial institutions, civil society organizations, academia, and the private sector. By working together, stakeholders can leverage their respective strengths, share knowledge and expertise, and mobilize resources to address systemic challenges and catalyze transformative change. Public-private partnerships, in particular, offer opportunities to scale up successful interventions, leverage private sector investment, and drive innovation in circular economy sectors.

### **Empowering Communities and Building Resilience**

At the heart of sustainable development efforts are efforts to empower communities, build resilience, and promote social inclusion. Circular economy initiatives have the potential to empower marginalized communities by providing alternative livelihood opportunities, promoting local entrepreneurship, and strengthening social

networks. Financial inclusion, on the other hand, enables individuals and households to build assets, manage risks, and improve their standard of living. By integrating circular economy practices with financial inclusion strategies, policymakers and practitioners can empower communities to take ownership of their development, build resilience against economic shocks, and contribute to environmental sustainability.

#### **Innovative Financing Mechanisms and Digital Solutions**

Innovation in financing mechanisms and digital solutions plays a crucial role in expanding access to finance and promoting inclusive growth in circular economy sectors. The interviews highlighted the importance of innovative financing mechanisms, such as impact investing, crowdfunding, and peer-to-peer lending, in mobilizing capital for circular businesses. Moreover, digital technologies, including mobile banking, digital payments, and fintech innovations, offer opportunities to reach underserved populations, reduce transaction costs, and promote financial literacy and empowerment. By harnessing the power of technology and innovation, Indonesia can accelerate progress towards sustainable development goals and create a more inclusive and resilient economy.

## **5. CONCLUSION**

In conclusion, this study provides valuable insights into the complex dynamics and opportunities for advancing sustainable development goals through circular economy principles and financial inclusion strategies in Indonesia. The findings underscore the transformative potential of integrating economic, environmental, and social objectives to promote inclusive growth, poverty alleviation, and environmental sustainability. However, significant barriers, including limited access to finance, regulatory constraints, and lack of awareness, pose challenges to realizing this potential. Addressing these barriers requires concerted efforts from policymakers, financial institutions, and other stakeholders to develop innovative financing mechanisms, build capacity, and create an enabling environment for circular economy investments. By fostering collaboration, innovation, and partnership, Indonesia can chart a path towards a more sustainable, equitable, and resilient future for its people and planet. Through evidence-based policymaking and strategic interventions, Indonesia can harness the power of circular economy principles and financial inclusion strategies to drive inclusive growth, alleviate poverty, and promote environmental stewardship, ultimately contributing to the achievement of sustainable development goals and the well-being of its citizens.



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