

Making Green Finance Work for Everyone in Tanzania: A Case Study of Iringa Municipality

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Abstract: *The concept of "inclusive green growth" aims to simultaneously advance environmental health and economic equity. Achieving this requires channeling capital—green finance—towards sustainable projects like renewable energy and climate-resilient agriculture. This study investigates whether such financial innovations genuinely reach and benefit marginalized communities in Iringa Municipality, Tanzania. Employing a mixed-methods approach with a sample size of 198 respondents, data was gathered through surveys and in-depth interviews. Findings reveal a landscape of constrained potential. General awareness of green finance products is only moderate, with nearly one-third (30.3%) of respondents having little to no knowledge of their existence. Significant accessibility barriers persist, primarily stringent collateral requirements, complex application procedures, and a digital skills gap. For the minority who accessed these services, benefits were evident: approximately 30% reported meaningful income increases, and the tools promoted eco-friendly practices. However, benefits were unevenly distributed due to poorly tailored products, unreliable digital infrastructure, and institutional distrust. The study identifies a strong foundation for growth, including widespread mobile money use and robust community networks. To realize inclusive green growth, deeper structural issues must be addressed: inconsistent policy implementation and the systematic exclusion of vulnerable groups like women. Key recommendations include designing low-collateral financial products, leveraging popular digital channels for dissemination, integrating financial literacy into programs, and improving policy coordination. The study concludes that for green finance to be a true engine of inclusive and sustainable development, it must be fundamentally redesigned around the lived realities and needs of the communities it intends to serve.*

Keywords: Inclusive Green Growth, Green Financial Innovations, Financial Inclusion, Marginalized Groups, Green Finance, Sustainable Development, Climate Resilience, Digital Banking, Socioeconomic Well-Being, Environmental Sustainability, Mobile Money.

1.0 Introduction

Inclusive green growth has emerged as a vital paradigm for addressing the dual challenges of environmental sustainability and socioeconomic inequality. Globally, green finance is recognized as a transformative mechanism that promotes sustainable development by directing financial resources toward environmentally friendly initiatives such as renewable energy, sustainable agriculture, and clean technology. Concurrently, the principle of inclusivity mandates that these financial innovations reach underserved and marginalized groups often excluded from traditional financial systems. In Sub-Saharan Africa, including Tanzania, populations such as smallholder farmers, women, and low-income urban dwellers face limited access to affordable credit, hindering their capacity to engage in sustainable practices. This study explores how green financial innovations can bridge environmental stewardship and social equity in Iringa Municipality, a region characterized by rich natural resources and significant developmental challenges.

1.1 Background of the Study

Globally, Inclusive Green Growth (IGG) is a cornerstone of the Sustainable Development Goals (SDGs), emphasizing economic growth that is both environmentally sustainable and socially inclusive [1], [2]. This framework is critical for tackling poverty and climate change [3]. In Tanzania, national policies like the Tanzania Development Vision 2025 [4] and the National Five-Year Development Plan 2021/22–2025/26 [5] underscore commitments to climate resilience, sustainable agriculture, and renewable energy. Despite this, marginalized groups—women, youth, and smallholder farmers—often encounter a "triple bind" of economic exclusion, social marginalization, and climate vulnerability [7]-[11]. They face barriers like lack of collateral, limited financial literacy, and perceived high risk from lenders [12].

Financial innovations such as green microfinance, Pay-As-You-Go (PAYGo) solar models, blended finance, and green bonds offer promising pathways to bridge this gap [13]-[17]. Iringa Municipality, with its agrarian economy and environmental pressures like deforestation and soil erosion [18], presents a pertinent case study. While mobile money services (e.g., M-Pesa, Tigo Pesa) and microfinance institutions have created a dynamic financial ecosystem [19], [20], the intentional design of these innovations to foster inclusive green outcomes remains underexplored.

1.2 Statement of the Problem

Despite global momentum, marginalized groups in Iringa Municipality remain peripheral to the green finance transformation. There is insufficient empirical evidence on their awareness and accessibility of green financial mechanisms. Furthermore, the

potential of these tools to simultaneously improve socioeconomic well-being and promote environmental sustainability is not fully realized locally. Challenges such as limited financial literacy, inadequate institutional support, and poor infrastructure hinder adoption. This study addresses this gap by investigating awareness, accessibility, benefits, and barriers to green financial innovations among marginalized groups in Iringa Municipality.

1.3 Objective of the Study

1.3.1 Main Objective

To examine how financial innovations in green finance promote inclusive green growth among marginalized groups in Iringa Municipality.

1.3.2 Specific Objectives

- i. To assess the level of awareness and accessibility of green financial innovations among marginalized groups in Iringa Municipality.
- ii. To analyze the role of green finance in improving the socioeconomic well-being of marginalized groups while promoting environmentally sustainable practices.
- iii. To identify the challenges and opportunities facing marginalized groups in adopting and benefiting from green financial innovations.

1.4 Main Contribution of the Study

This study provides localized empirical evidence on the awareness, accessibility, and utilization of green financial services by underserved communities in Tanzania. It offers a dual perspective, linking socioeconomic benefits with environmental sustainability outcomes, and delivers actionable insights for policymakers, financial institutions, and development actors to design more inclusive strategies.

2.0 Related Works

Literature from Europe and America indicates strong awareness but limited inclusivity of green finance, with services often skewed towards higher-income groups [21]. In Asia, awareness has grown through microfinance, yet rural marginalized groups face access barriers due to financial illiteracy [22]. African studies highlight that despite international support, awareness and access remain low due to weak financial systems [23]. In Tanzania, research focuses on institutional frameworks, paying less attention to community-level realities [24].

Regarding socioeconomic and environmental outcomes, green finance in developed regions supports community projects but with urban bias [25]. Asian green microfinance improves living standards, though coverage is uneven [26]. In Africa, climate-smart loans enhance resilience, but access is fragmented [27], [28].

Challenges in adoption globally include high transaction costs and unsuitable products [29], while opportunities arise from digital finance and community models [30]. In Africa, structural barriers are significant, yet PAYGo solar and blended finance show promise [31]. Tanzanian-specific studies note challenges of awareness and literacy but point to opportunities in rural solar initiatives [32].

A comprehensive literature review reveals a gap in localized, empirical studies that holistically examine awareness, socioeconomic impact, and barriers to green finance for marginalized groups in specific Tanzanian municipalities like Iringa.

3.0 Methodology

This study employed a descriptive research design, integrating quantitative and qualitative approaches. The target population was marginalized groups in Iringa Municipality (smallholder farmers, low-income households, women, youth). A sample size of 198 respondents was selected using purposive and simple random sampling techniques.

Primary data was collected via structured questionnaires and semi-structured interviews. Secondary data was sourced from government reports and academic publications. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) to generate descriptive statistics (frequencies, percentages). Qualitative data from interviews was analyzed thematically. Ethical considerations of voluntary participation, informed consent, and confidentiality were strictly observed.

4.0 Results and Discussion

4.1 Level of Awareness and Accessibility of Green Financial Innovations

Table 1: Level of Awareness and Accessibility of Green Financial Innovations (n=198)

Sub-Indicator	Category/Response Option	Frequency	Percentage
Awareness of Green Financial Innovations	High Awareness	66	33.3%

Sub-Indicator	Category/Response Option	Frequency	Percentage
Accessibility to Green Financial Innovations	Moderate Awareness	72	36.4%
	Low/No Awareness	60	30.3%
	Easily Accessible	50	25.3%
	Somewhat Accessible	68	34.3%
	Not Accessible	80	40.4%

4.1.1 Awareness of Green Financial Innovations

Findings show a fragmented awareness landscape. Only 33.3% reported high awareness, often linked to engagement with cooperatives or NGOs. A 28-year-old male youth participant stated: *“I learned about green loans for solar irrigation through our cooperative’s workshops...”* Moderate awareness (36.4%) indicated superficial knowledge, while 30.3% had low/no awareness, particularly among rural women and female sex workers, who cited inadequate outreach. A 32-year-old female sex worker remarked: *“I’ve never heard of anything called green finance.”*

4.1.2 Accessibility to Green Financial Innovations

Accessibility was a greater hurdle, with 40.4% finding products inaccessible. Key barriers were distance, lack of collateral, and digital illiteracy. Easier access (25.3%) was facilitated by mobile money and cooperative support. A 35-year-old female sex worker highlighted systemic exclusion: *“Banks don’t deal with people like me... I don’t have a phone that can use those apps.”*

4.2 Role of Green Finance in Socioeconomic and Environmental Outcomes

Table 2: Role of Green Finance in Socioeconomic and Environmental Outcomes (n=198)

Sub-Indicator	Category/Response Option	Frequency	Percentage
Socioeconomic Well-Being Improvement	Significant Improvement	60	30.3%
	Moderate Improvement	78	39.4%
	No/Limited Improvement	60	30.3%
Promotion of Environmentally Sustainable Practices	High Engagement	45	22.7%
	Moderate Engagement	73	36.9%
	Low/No Engagement	80	40.4%

4.2.1 Socioeconomic Well-Being Improvement

Green finance yielded positive but uneven socioeconomic impacts. 30.3% reported significant improvement, often from larger, well-targeted loans. A retailer noted: *“The green loan... lifted my entire family out of a very difficult situation.”* However, 30.3% saw no or limited improvement, with some citing loans too small to be effective or burdensome repayment terms.

4.2.2 Promotion of Environmentally Sustainable Practices

The environmental impact was limited. Only 22.7% showed high engagement, often linked to integrated training. A farmer engaged in agroforestry stated: *“The finance was the catalyst, but the real change was understanding...”* Conversely, 40.4% demonstrated low/no engagement, frequently treating green finance as a conventional loan, with funds sometimes diverted to urgent needs.

4.3 Challenges and Opportunities in Adopting Green Financial Innovations

Table 3: Challenges and Opportunities in Adoption (n=198)

Sub-Indicator	Category/Response Option	Frequency	Percentage
Challenges in Adoption	High Barriers	70	35.4%
	Moderate Barriers	78	39.4%
	Low/No Barriers	50	25.2%
Opportunities for Adoption	High Potential	70	35.4%
	Moderate Potential	80	40.4%
	Low/No Potential	48	24.2%

4.3.1 Challenges in Adoption

High barriers (35.4%) included stigma, lack of documents, and geographic isolation. Moderate barriers (39.4%) involved complex procedures and unreliable internet. Lower barriers were associated with existing community networks and digital access.

4.3.2 Opportunities for Adoption

Opportunities were recognized in mobile money penetration and community organizations. A youth noted the high potential: "Mobile money apps... made it so easy for me to get a green loan." However, 24.2% saw low potential, primarily due to a lack of targeted outreach and support for the most vulnerable.

5.0 Conclusion and Recommendations

5.1 Conclusion

This study reveals that while green finance holds promise for inclusive green growth in Iringa Municipality, its potential is contested. Awareness is fragmented, and accessibility is severely hampered by structural barriers. Benefits, though real for some, are inconsistently distributed, and environmental engagement remains low without integrated support. The coexistence of strong digital foundations and community networks with deep-seated exclusion points to a need for fundamental redesign of green finance products and delivery mechanisms.

5.2 Recommendations

1. **Product Design:** Develop tailored green financial products (e.g., low-collateral loans, flexible repayment schedules) aligned with local economic cycles.
2. **Capacity Building:** Launch integrated financial literacy and digital skills programs using community-appropriate channels (radio, local dialects).
3. **Infrastructure & Policy:** Incentivize financial institutions to expand rural reach via mobile platforms. Improve policy coordination to create supportive, realistic frameworks that address gender exclusion.
4. **Leverage Intermediaries:** Strengthen community-based organizations and cooperatives as trusted intermediaries for product dissemination and support.

5.3 Suggestions for Future Research

Future studies should employ longitudinal designs to track long-term impacts. Research should also explore the potential of emerging technologies (e.g., blockchain, AI-driven credit scoring) and investigate the interplay between cultural norms, gender dynamics, and financial behavior to design more resonant green finance frameworks.

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