



Effect of Environmental Policy Incentives on Growth of Green Entrepreneurship in Nyarugenge District, Rwanda

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Abstract: This study examined the effect of environmental policy incentives on the growth of green entrepreneurship in Nyarugenge District, Rwanda. Specifically, it examined the effect of financial incentives on the growth of green entrepreneurship. The study employed a descriptive and correlational research design using both quantitative and qualitative approaches. The target population comprised 395 individuals, including green enterprise owners, environmental officers, policy implementers, and community representatives. Questionnaires were distributed to 185 community representatives, of which 176 were completed and returned, while 14 key participants were interviewed separately. Data were collected using questionnaires and interview guides and analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics, Pearson correlation analysis, regression analysis, and thematic analysis were used to analyze the data. The findings indicated that financial incentives were positively associated with the growth of green entrepreneurship. Pearson correlation analysis revealed a positive and statistically significant relationship between financial incentives and green entrepreneurship growth ($r = .677$, $p < .001$). The regression model summary reported an R-value of .788 and an R-squared value of .621, suggesting that the model accounted for 62.1% of the variation in green entrepreneurship growth. The study highlights the relevance of financial support mechanisms, including grants, affordable loans, and other forms of financial assistance, in supporting the establishment and expansion of green enterprises. It concludes that financial incentives are an important factor associated with green entrepreneurship growth in Nyarugenge District. The study recommends improving access to green financing, increasing entrepreneurs' awareness of available financial support, and strengthening the implementation of incentive programs to support sustainable business development.

Keywords: Environmental policy incentives; Financial incentives; Green entrepreneurship; Green business growth; Nyarugenge District; Rwanda.

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1. Introduction

Environmental policy incentives are government-led measures designed to encourage businesses and individuals to adopt environmentally sustainable practices (Kale, 2024). These incentives such as tax breaks, subsidies, carbon credits, and green financing play a critical role in

fostering green entrepreneurship, which involves creating businesses that prioritize environmental sustainability while generating economic value. By reducing financial barriers, creating market opportunities, and providing technical support, environmental policy incentives stimulate innovation and investment in eco-friendly products, services, and technologies. Understanding their

effect on green entrepreneurship is essential for promoting sustainable development and achieving global climate goals (OECD, 2025).

Globally, environmental policy incentives have proven instrumental in accelerating green entrepreneurship (OECD, 2025). Countries in Europe and North America have implemented robust frameworks, including feed-in tariffs for renewable energy, green tax credits, and carbon trading schemes, which have led to significant growth in clean energy startups and sustainable businesses. For instance, the European Union's Green Deal and the U.S. Inflation Reduction Act provide billions in subsidies and tax incentives for renewable energy and electric vehicle production. These policies not only reduce greenhouse gas emissions but also create new markets and employment opportunities, demonstrating the strong link between environmental incentives and entrepreneurial growth worldwide (Xian, 2025).

In West Asia, environmental policy incentives are emerging as key drivers of green entrepreneurship, particularly in countries like the United Arab Emirates and Saudi Arabia (Shivani et al., 2025). Initiatives such as the UAE's Green Economy Strategy and Saudi Arabia's Vision 2030 emphasize renewable energy, waste management, and sustainable construction. Governments offer financial incentives, including low-interest loans and grants for solar energy projects, as well as regulatory support for green startups. These measures have spurred the development of eco-friendly businesses in sectors like energy, water conservation, and sustainable tourism, positioning the region as a growing hub for green innovation despite its reliance on fossil fuels (Wei et al., 2023).

In Sub-Saharan Africa, environmental policy incentives are increasingly recognized as tools for promoting sustainable entrepreneurship (World Bank, 2023). Governments and development partners have introduced programs that provide subsidies for renewable energy technologies, tax exemptions for eco-friendly products, and capacity-building initiatives for green startups. For example, countries like South Africa and Ghana have implemented feed-in tariffs and green financing schemes to encourage investment in solar and wind energy. However, challenges such as limited access to capital and weak enforcement of environmental regulations persist, highlighting the need for stronger policy frameworks to fully realize the potential of green entrepreneurship in the region (IRENA, 2024). Recent reports stress that blended finance and green bonds could unlock billions in climate-smart investments, creating opportunities for SMEs in renewable energy and waste management sectors.

Nigeria has made notable progress in integrating environmental policy incentives to support green entrepreneurship (Agbayekhai, 2025). Policies such as the Renewable Energy Master Plan and the National Climate Change Policy promote clean energy adoption through tax incentives, grants, and public-private partnerships. Green entrepreneurs in Nigeria are increasingly investing in solar energy, waste recycling, and biofuel production, driven by government-backed programs and international funding. Despite these efforts, barriers such as inadequate infrastructure and policy implementation gaps remain, underscoring the importance of strengthening institutional capacity and financial support to scale green businesses in Nigeria (Abideen et al., 2024).

Kenya stands out in East Africa for its proactive approach to environmental policy incentives (KCIC, 2023). The government has introduced tax exemptions for renewable energy equipment, feed-in tariffs for electricity generated from renewable sources, and green financing programs through institutions like the Kenya Climate Innovation Center. These incentives have catalyzed the growth of green enterprises in sectors such as solar energy, biogas, and sustainable agriculture. Kenya's success demonstrates how targeted policy measures can create an enabling environment for green entrepreneurship, contributing to economic growth and environmental sustainability simultaneously (ANDE, 2023). Recent developments include the introduction of a Green Fiscal Incentives Policy Framework and carbon market participation, which further enhance opportunities for SMEs in clean energy and climate-smart agriculture.

In Rwanda, environmental policy incentives are central to the country's green growth strategy, aligned with Vision 2050 and the Green Growth and Climate Resilience Strategy (Ministry of Environment, 2023). The government offers tax incentives for renewable energy projects, supports green financing through institutions like the Development Bank of Rwanda, and promotes eco-friendly business practices through regulatory frameworks. Initiatives such as the National Fund for Environment (FONERWA) provide grants and technical assistance to green startups, encouraging innovation in sectors like clean energy, waste management, and sustainable agriculture. Rwanda has also launched a National Carbon Market Framework to attract climate finance and incentivize private sector participation in green projects (RDB, 2023). At the district level, Nyarugenge one of Kigali's key urban centers has become a focal point for green entrepreneurship, with SMEs leveraging tax incentives and green financing programs to invest in solar energy, recycling, and eco-friendly manufacturing. Local initiatives supported by FONERWA and municipal authorities aim to create green jobs and promote sustainable urban development, making Nyarugenge a

model for integrating environmental policy incentives into city-level economic planning.

1.2 Statement of the Problem

Environmental policy incentives are designed to stimulate green entrepreneurship by reducing barriers to entry, providing financial support, and creating an enabling environment for sustainable business practices (Terry, 2022). These incentives including tax breaks, subsidies, and green financing, are expected to encourage innovation and investment in eco-friendly sectors such as renewable energy, waste management, and sustainable agriculture. Ideally, the implementation of such policies should lead to the widespread adoption of green technologies, creation of green jobs, and progress toward climate resilience and low-carbon development objectives (Wallas, 2024).

However, the reality in Rwanda, particularly in Nyarugenge District, reveals a significant gap between policy incentives and practical outcomes. Despite the government's commitment through initiatives like the Green Growth and Climate Resilience Strategy, FONERWA, and Ireme Invest, the uptake of green entrepreneurship remains low. According to the Rwanda Development Board (2023), only approximately 12% of SMEs in Kigali have integrated green practices, while fewer than 8% have accessed green financing opportunities. For instance, although Ireme Invest disbursed RWF 2.7 billion to green SMEs in 2024, only 16 businesses benefited from this funding out of an estimated 49,000 SMEs operating in Nyarugenge District (Green Fund, 2024). This limited adoption undermines Rwanda's Vision 2050 target of becoming a climate-resilient, low-carbon economy and slows progress toward the national goal of reducing emissions by 38% by 2030 (Ministry of Environment, 2023). Consequently, economic opportunities are missed, reliance on non-renewable resources persists, and communities remain vulnerable to climate-related risks.

Evidence from other African contexts highlights similar challenges. In Kenya, ANDE (2023) observed that despite the existence of tax incentives and green financing programs, many SMEs lacked awareness and technical capacity to benefit from these policies effectively. Similarly, in Nigeria, Raji (2024) reported that environmental incentives often fail due to poor policy implementation, limited institutional support, and inadequate access to credit facilities. In Rwanda, studies by Twesige and Gasheja (2019) indicate that while tax incentives such as VAT refunds and loss carry-forward provisions are in place, bureaucratic hurdles and low awareness constrain their impact on SME growth. These

findings collectively suggest that policy incentives alone are insufficient to drive green entrepreneurship; factors such as accessibility, awareness, institutional support, and technical capacity are critical determinants of success.

Despite Rwanda's robust commitment to green growth and sustainable development, there is limited empirical evidence on how environmental policy incentives affect the growth of green entrepreneurship at the local or district level. Most existing research has focused on national strategies or sector-specific initiatives, leaving a notable gap in understanding how these policies impact SMEs operating in urban districts like Nyarugenge. Without localized evidence, policymakers face challenges in designing interventions tailored to the unique barriers and opportunities faced by district-level green entrepreneurs. Addressing this gap is essential for developing context-specific strategies that can enhance the adoption of green practices, improve access to financing, and ultimately contribute to Rwanda's climate and economic targets.

1.3 Objective of the Study

This research was guided by the following study objectives:

1.3.1 General Objective

The general objective of this study is to examine the effect of environmental policy incentives on the growth of green entrepreneurship in Nyarugenge District, Rwanda.

1.3.2 Specific Objectives

Specifically, the study attempted:

- i. To examine the effect of financial incentives on the growth of green entrepreneurship in Nyarugenge District, Rwanda

2. Literature Review

This section provides an overview of key concepts relevant to the study, focusing on environmental policy incentives and their role in promoting green entrepreneurship. It examines different forms of incentives, including financial, tax, and capacity-building measures, and explains how these mechanisms contribute to the growth of sustainable businesses. The review also contextualizes these concepts within Rwanda, highlighting their significance for fostering innovation and supporting the transition toward a green economy.

2.1.1 Environmental Policy Incentives

Environmental policy incentives are formal mechanisms designed to influence behavior toward environmentally sustainable practices by adjusting the relative costs and benefits of actions that impact the environment (Opschoor & Turner, 2024). These incentives include financial tools such as subsidies, tax credits, and grants, as well as market-based instruments like carbon trading and pollution permits. Their primary purpose is to internalize environmental externalities and encourage innovation in green technologies, thereby reducing ecological degradation and promoting resource efficiency. Scholars argue that these policies represent a shift from traditional command-and-control regulations to more flexible, cost-effective approaches that stimulate voluntary compliance and technological advancement (Faure, 2022).

Environmental policy incentives play a pivotal role in fostering green entrepreneurship by reducing entry barriers and operational costs for eco-friendly businesses (Kale, 2024). Financial incentives such as tax breaks and subsidies enable entrepreneurs to invest in renewable energy, waste management, and sustainable production processes, while regulatory support simplifies licensing and compliance requirements. Studies highlight that structured policy frameworks create an enabling environment for green startups, enhancing their competitiveness and profitability in markets increasingly driven by sustainability goals. Empirical evidence suggests that government-led initiatives, including green subsidies and capacity-building programs, significantly accelerate the adoption of sustainable business models and innovation in green technologies (Nandhini & Sowmya, 2025).

In the context of this study, environmental policy incentives are examined as critical drivers of green entrepreneurship growth in Rwanda and East Africa. The research focuses on how localized policy instruments such as tax exemptions for renewable energy projects, grants for eco-friendly startups, and training programs impact entrepreneurial activity in the green sector. While global literature emphasizes the effectiveness of such incentives in promoting sustainability, there is a notable gap in region-specific studies assessing their practical implementation and outcomes. This study aims to bridge that gap by analyzing the extent to which these incentives influence business formation, innovation, and scalability in Rwanda's emerging green economy (Lee, 2025).

2.1.2 Financial Incentives

Financial incentives are economic tools designed to encourage businesses and individuals to adopt environmentally sustainable practices by reducing the financial burden associated with green investments (Khoat, 2025). These incentives include grants, subsidies, concessional loans, and green credit schemes aimed at promoting renewable energy, energy efficiency, and sustainable production processes. Recent studies emphasize that financial incentives are critical for overcoming the high upfront costs and market risks that often hinder green projects, particularly in developing economies. By mobilizing private capital and reducing investment risks, these instruments play a central role in accelerating the transition toward a low-carbon economy (Raman et al., 2025).

Financial incentives are closely linked to the growth of green entrepreneurship because they provide the necessary financial support for startups and small enterprises to innovate and scale sustainable solutions (Mukherjee et al., 2024). Empirical evidence shows that mechanisms such as green investment funds, credit guarantees, and blended finance models significantly enhance the ability of entrepreneurs to access capital and implement clean technologies. These incentives not only stimulate innovation but also create competitive advantages for green businesses in emerging markets. Studies highlight that public-private co-financing and targeted financial instruments are essential for fostering entrepreneurial ecosystems that prioritize sustainability and resilience (Hu & Gan, 2025).

In the context of this study, financial incentives are examined as a key driver of green entrepreneurship in Rwanda and East Africa (Nasir & Ahmed, 2024). The research focuses on how localized financial instruments such as government grants for renewable energy projects, concessional loans for eco-friendly manufacturing, and green credit programs impact entrepreneurial activity in the region. While global literature underscores the effectiveness of financial incentives in promoting sustainability, there is limited empirical evidence on their practical implementation and outcomes in African economies. This study aims to address this gap by assessing the role of financial incentives in fostering innovation, scalability, and long-term viability of green businesses in Rwanda's emerging green economy (Burrell et al., 2025).

2.1.3 Green Entrepreneurship

Green entrepreneurship refers to the creation and management of businesses that prioritize environmental sustainability alongside economic viability (Singh, 2024). It integrates ecological responsibility into core business

models, aiming to reduce environmental degradation while fostering innovation and competitiveness. Recent studies highlight that green entrepreneurship is not only a response to global environmental challenges but also a strategic approach to achieving sustainable development goals. It encompasses practices such as renewable energy adoption, circular economy principles, and eco-innovation, which collectively contribute to reducing carbon footprints and promoting resource efficiency (Thabsheera & Udayakumar, 2024).

The growth of green entrepreneurship is strongly influenced by policy frameworks, market dynamics, and technological advancements. Supportive environmental policies, financial incentives, and consumer demand for sustainable products are key drivers of this growth. Green ventures are increasingly recognized for their ability to create green jobs, stimulate innovation, and enhance resilience in the face of climate-related risks. Collaboration among stakeholders and integration of sustainability into supply chains significantly accelerates the expansion of green businesses, particularly in emerging economies (Prasetio et al., 2025).

In the context of this study, the growth of green entrepreneurship is considered a key pathway for promoting sustainable economic development in Rwanda. It represents an opportunity to create green jobs, foster innovation, and build resilience against environmental challenges. By examining how environmental policy incentives, financial support, and capacity-building programs contribute to this growth, the study aims to highlight strategies that can strengthen green business ecosystems and accelerate the transition toward a sustainable economy (World Economic Forum, 2025).

2.2 Theoretical Review

The theoretical review provides a foundation for understanding the relationship between environmental policy incentives and the growth of green entrepreneurship. It explores established theories that explain how resources, institutional pressures, and individual intentions influence business behavior and entrepreneurial outcomes. By examining these theories, the study gains a structured lens to analyze how financial, tax, and capacity-building incentives can enhance the capabilities, legitimacy, and motivation of green entrepreneurs in Rwanda.

2.3.1 Resource-Based View (RBV) Theory

The Resource-Based View (RBV) was first introduced by Birger Wernerfelt in 1984 and further developed by Jay Barney in 1991 (Bernmondo, 2022). The theory emerged as a framework in strategic management to explain why firms achieve sustainable competitive advantage. Unlike

traditional approaches that focus primarily on market positioning or external factors, RBV emphasizes the importance of internal resources and capabilities that are unique to the firm. Over time, the theory has evolved to include both tangible and intangible resources, such as knowledge, technical skills, managerial expertise, innovation capabilities, and organizational culture, as critical assets for long-term success (Wernerfelt, 2024).

According to RBV, resources that are valuable, rare, inimitable, and non-substitutable (VRIN) provide firms with the ability to outperform competitors (Briallana & Rucef, 2020). These resources include financial capital, technical expertise, intellectual property, human capital, and operational processes. Firms that strategically leverage such resources can create value that is difficult for competitors to replicate, ensuring sustained competitive advantage. RBV also underscores the role of dynamic capabilities an organization's ability to adapt, integrate, and reconfigure resources in changing environments to maintain competitiveness over time (Oceana, 2020).

In the context of this study, RBV is highly relevant because environmental policy incentives such as financial grants, tax breaks, and capacity-building programs strengthen the resource base of green entrepreneurs. These incentives provide access to capital, technical knowledge, and training that enhance the capacity of businesses to innovate and adopt sustainable practices. By equipping green entrepreneurs with the necessary resources, RBV provides a theoretical justification for understanding how environmental incentives contribute to the growth and competitiveness of green enterprises in Rwanda and the wider East African region (Ioakeimidou et al., 2023).

2.3 Empirical Literature

This section presents a synthesis of previous empirical studies related to environmental policy incentives and their impact on the growth of green entrepreneurship. It examines evidence from global, regional, and local contexts to understand how financial incentives influence sustainable business development. The review highlights patterns, key findings, and gaps in existing research, providing a foundation for the current study. By analyzing these studies, the section aims to identify areas where further investigation is needed, particularly in the context of Rwanda.

2.4.1 Financial Incentives and Growth of Green Entrepreneurship

Globally, financial incentives have been widely recognized as an important driver for stimulating the growth of green

entrepreneurship by reducing the financial burden and encouraging investment in sustainable technologies. A global survey conducted by Harrison & Khan (2024) involving 200 green enterprises across five continents employed a mixed-method approach using questionnaires and interviews. The study found that firms accessing financial incentives, including government subsidies, concessional loans, and grants for renewable energy projects, experienced an average 45% increase in green business formation. The research emphasized that these incentives play a critical role in lowering barriers to entry for new green businesses and fostering the adoption of environmentally friendly practices. Despite the significant global impact, the study highlighted a research gap, noting the lack of longitudinal evidence on the sustained effectiveness of financial incentives, particularly in developing countries where implementation and enforcement may vary (Terry, 2024).

In developed countries, structured financial policies are designed not only to encourage the establishment of green enterprises but also to enhance their competitiveness and capacity for innovation. A study by Moreau & Dupont (2024) in 50 European green enterprises revealed that organizations receiving financial support through green credit schemes, innovation grants, and subsidized loans had a 48% higher adoption of clean technologies and a 42% increase in revenue growth compared to firms without such incentives. The findings underscored the importance of institutionalized financial mechanisms in accelerating the transition to sustainable business models. The study also noted that while developed countries benefit from strong regulatory frameworks and sophisticated financial systems, this creates a gap in understanding how similar incentives could perform in countries like Rwanda, where fiscal capacity and policy awareness are comparatively lower.

In Asia, financial incentives have also been shown to significantly influence green entrepreneurship, especially in emerging economies. A mixed-method study by Ali & Petrov (2025), involving 30 renewable energy firms in Japan, reported that 37% of firms expanded operations following the provision of concessional loans and government subsidies (Abdallah, 2025). The study highlighted that financial incentives not only increase the availability of capital but also encourage entrepreneurial experimentation with new technologies and sustainable business models. However, the researchers identified challenges related to cultural norms and administrative procedures that sometimes hinder the full realization of the benefits of financial incentives. The gap identified for this study is the lack of localized, region-specific analysis of how financial incentives impact smaller, less industrialized economies, such as Rwanda.

In East Africa, financial incentives have been observed to play a key role in supporting green business development and market entry. Bukuru & Mwangi (2024) conducted a mixed-method study with 15 green enterprises across Kenya, Tanzania, and Uganda. They found that 44% of green startups accessed financial incentives, which contributed to a 36% improvement in operational capacity. These incentives, including small business grants, subsidized loans, and startup funding, enabled green entrepreneurs to adopt eco-friendly technologies and expand their operations in competitive markets (Pinto, 2025). Despite these positive effects, the study noted a significant gap in long-term impact assessment and observed that rural-based enterprises often face more challenges in accessing financial support compared to their urban counterparts. This limitation highlights the importance of localized studies in understanding the specific context of Rwanda's green entrepreneurship landscape.

In Rwanda, financial incentives have increasingly been used to promote the growth of green entrepreneurship, particularly in urban centers such as Kigali and districts like Gasabo. A cross-sectional survey and semi-structured interviews conducted by Kamanzi (2025) among 20 green enterprises revealed that 46% of businesses accessed government-backed financial incentives, leading to a 39% increase in green technology adoption and improved access to credit for eco-friendly projects. The study emphasized that financial incentives are critical in enabling green enterprises to scale their operations, enhance innovation, and strengthen their market presence. However, it also identified gaps in implementation, such as limited resources, insufficient monitoring, and lack of longitudinal data to evaluate the sustained impact of these incentives across multiple districts. This research gap underscores the need for context-specific studies to assess how financial incentives can be optimized to support long-term green entrepreneurship growth in Rwanda.

3. Methodology

This study employed a descriptive and correlational research design to examine the effect of financial incentives on the growth of green entrepreneurship in Nyarugenge District, Rwanda. Research design provides a structured framework for collecting, measuring, and analyzing data to address research objectives (Saylor, 2020). The descriptive design enabled the researcher to describe existing practices, perceptions, and conditions related to financial incentives and green entrepreneurship (Creswell, 2018). The correlational design was used to examine the strength and direction of the relationship between financial incentives and the growth of green

entrepreneurship (Trochim, 2021). The study also adopted a mixed-methods approach, integrating quantitative and qualitative data to provide measurable evidence and a deeper understanding of how financial incentives influenced green business development (Johnson & Onwuegbuzie, 2019).

The target population consisted of 395 individuals operating or living within Nyarugenge District, including green enterprise owners, environmental officers, policy implementers or regulators, and community representatives. These participants were selected because they were directly involved in or affected by financial incentives and could provide relevant information about green entrepreneurship. Specifically, the population comprised 12 green enterprise owners involved in renewable energy, waste recycling, eco-friendly manufacturing, and sustainable technology services; 8 environmental officers responsible for policy implementation and monitoring; 8 policy implementers or regulators involved in developing or enforcing financial incentives; and 367 community representatives knowledgeable about local environmental initiatives. The population was compiled based on Nyarugenge District records (2024).

The sample design provided a systematic approach to selecting participants from the target population to ensure the inclusion of relevant stakeholder groups (Terry, 2022). The sample size was determined using Yamane's (1967) formula, based on a population of 395 individuals and a margin of error of 0.05. The calculation resulted in a sample of approximately 199 respondents. The sample consisted of 6 green enterprise owners, 4 environmental officers, 4 policy implementers or regulators, and 185 community representatives. This distribution was intended to ensure that the different categories of participants were represented in the study and that the information collected reflected the experiences of stakeholders involved in green entrepreneurship in Nyarugenge District.

The study employed purposive and simple random sampling techniques. Purposive sampling was used to select green enterprise owners, environmental officers, and policy implementers because of their specific knowledge and experience concerning financial incentives and their influence on green entrepreneurship. Simple random sampling was applied to select community representatives, giving each eligible community member an equal chance of being included in the study. Both primary and secondary data were used. Primary data were collected through structured questionnaires and semi-structured interviews with relevant stakeholders, while secondary data were obtained from government reports, district environmental policy documents, academic journals, and previous

research on green entrepreneurship and financial incentives (Sauda, 2020; Galver, 2020).

Three main data collection instruments were used: questionnaires, interview guides, and documentary review. Questionnaires containing Likert-scale and closed-ended questions were administered to community representatives to collect quantitative information about financial incentives and green entrepreneurship. Semi-structured interviews were conducted with green enterprise owners, environmental officers, and policy implementers to obtain detailed information about the implementation and perceived effects of financial incentives. Documentary review was used to examine environmental policy frameworks, green growth strategies, financial incentive programs, and sustainability reports. These instruments enabled the researcher to obtain quantitative and qualitative information, identify relevant patterns and challenges, and compare information from different sources (Kothari, 2019; Kate, 2020; Kakooza, 2022).

A pilot study involving approximately 20 respondents, representing 10% of the sample size, was conducted to assess the clarity, relevance, and feasibility of the research instruments. These respondents were excluded from the main study. The validity of the instruments was assessed through content, construct, and face validity. Experts reviewed the questionnaires and interview guides, and the Content Validity Index (CVI) was calculated based on 18 out of 20 items rated relevant by at least three experts, producing a CVI of 0.90. Reliability was assessed using test-retest and Cronbach's Alpha. The test-retest procedure produced a Pearson correlation coefficient of 0.82, while the Cronbach's Alpha values were 0.861 for financial incentives and 0.889 for growth of green entrepreneurship. The overall reliability coefficient was 0.855, exceeding the acceptable threshold of 0.70 and indicating good internal consistency.

Quantitative data were analyzed using descriptive and inferential statistics to examine the relationship between financial incentives and the growth of green entrepreneurship. Pearson's correlation coefficient was used to assess the strength and direction of the relationship between the independent variable, financial incentives, and the dependent variable, growth of green entrepreneurship. Analysis of Variance (ANOVA) was applied to examine differences in stakeholder perceptions. Simple linear regression analysis was used to assess the influence of financial incentives on green entrepreneurship growth, using the model $Y = \beta_0 + \beta_1 X_1 + \epsilon$, where Y represented growth of green entrepreneurship, X_1 represented financial incentives, β_0 represented the intercept, β_1 represented the regression coefficient, and ϵ represented the error term. A p -value below 0.05 was considered statistically significant.

Qualitative data from interviews and open-ended questionnaire responses were analyzed thematically. Ethical considerations included voluntary participation, informed consent, confidentiality, anonymity, the right to withdraw, and the avoidance of harm. Data were securely stored, participants' identities were protected through codes or pseudonyms, and ethical clearance was sought from relevant authorities in Nyarugenge District before data collection.

4. Results and Discussion

This section presents, analyzes, and interprets the findings of the study on the effect of environmental policy incentives on growth of green entrepreneurship in Nyarugenge District, Rwanda

4.1.1 Response Rate

Table 1. Table showing response rate of respondents

Category	Total Population	Response Rate	Percentage
Survey Respondents (Questionnaires)	185	176	92.6
Key Participants (Interviews)	14	14	7.4
Total	199	190	100

Source: Field data, 2026

Table 1 shows that out of the 185 distributed questionnaires, 176 were completed and returned, yielding a response rate of 95.1%. This indicates a high level of engagement from the respondents and suggests that the sample is highly representative of the target population. Additionally, 14 key participants (7.4% of the total respondents), including green enterprise owners, environmental officers, and policy implementers/regulators, were interviewed separately, further enriching the study findings. According to Mugenda and Mugenda (2009), a response rate above 80% is considered excellent for academic research. Therefore, the response rate achieved in this study was excellent,

The survey targeted a diverse group of participants, including 6 green enterprise owners, 4 environmental officers, 4 policy implementers/regulators, and 185 community representatives involved in environmental sustainability and green entrepreneurship activities in Nyarugenge District. Interviews were conducted with green enterprise owners, environmental officers, and policy implementers/regulators, while questionnaires were administered to community representatives. A census and sampling approach was used for data collection, where all selected respondents were invited to participate in the study. Of the 185 questionnaires distributed to community representatives, 176 were completed and returned, resulting in a response rate of 95.1%. Additionally, 14 (7.4%) key participants comprising green enterprise owners, environmental officers, and policy implementers/regulators were interviewed separately. The following table shows the response rate of respondents.

satisfactory, and adequate for drawing reliable conclusions regarding the effect of environmental policy incentives on the growth of green entrepreneurship in Nyarugenge District, Rwanda.

4.1.2 Descriptive statistics of Financial Incentives

The first objective of this study was to examine the effect of financial incentives on the growth of green entrepreneurship in Nyarugenge District, Rwanda. The findings are presented in Table 2 below:

Table 2. Level of agreement of financial incentives on growth of green entrepreneurship

Statements	N	M	SD
Government financial support encourages green business growth	176	4.7	0.46
Subsidies help entrepreneurs adopt green technologies	176	4.1	0.31
Access to green financing improves business expansion	176	4.1	0.75
Financial incentives reduce operational costs of green enterprises	176	4.2	0.43
Grants and loans motivate investment in eco-friendly businesses	176	4.6	0.64

Source: Field data, 2026-Key: M=Mean, SD=Standard Deviation

Table 2 provides important insights into how financial incentives influence the growth of green entrepreneurship in Nyarugenge District. The statement “Government financial support encourages green business growth” received the highest mean score of 4.7, indicating that respondents strongly agreed that government financial support plays a major role in promoting green entrepreneurship. The low standard deviation of 0.46 further suggests that respondents had similar views regarding the importance of government financial assistance in supporting environmentally sustainable businesses. This implies that government support mechanisms such as grants, subsidies, and green financing programs are highly valued by entrepreneurs and contribute significantly to business growth and sustainability.

The statement “Grants and loans motivate investment in eco-friendly businesses” obtained a high mean score of 4.6 with a standard deviation of 0.64. This finding suggests that respondents strongly agreed that grants and loans encourage entrepreneurs to invest in environmentally friendly business activities. Financial support enables green entrepreneurs to acquire modern technologies, improve production processes, and expand their operations. The findings therefore indicate that access to affordable financing is essential in stimulating investment in green enterprises and encouraging innovation in sustainable business practices.

Similarly, the statement “Financial incentives reduce operational costs of green enterprises” received a mean score of 4.2 and a standard deviation of 0.43. This implies that respondents generally agreed that financial incentives help reduce the operational expenses associated with green businesses. Financial support mechanisms may assist entrepreneurs in managing costs related to renewable energy technologies, waste management systems, and environmentally sustainable production methods. The relatively low standard deviation also indicates consistency in respondents’ opinions regarding the positive contribution of financial incentives toward reducing business operational costs.

The statements “Subsidies help entrepreneurs adopt green technologies” and “Access to green financing improves business expansion” both recorded mean scores of 4.1. These findings indicate that respondents agreed that subsidies and access to green financing positively influence the adoption of environmentally friendly technologies and facilitate business expansion. However, the statement regarding access to green financing had a relatively higher standard deviation of 0.75, suggesting that respondents had varying opinions regarding the accessibility and effectiveness of green financing opportunities. This

variation may be attributed to differences in awareness, eligibility requirements, or difficulties in accessing available financial support programs.

The findings generally demonstrate that financial incentives significantly contribute to the growth of green entrepreneurship in Nyarugenge District. Government support, grants, loans, subsidies, and green financing schemes help entrepreneurs overcome financial barriers, adopt sustainable technologies, and expand eco-friendly business operations. These results imply that strengthening financial incentive programs and improving accessibility to green financing could further enhance the development and sustainability of green entrepreneurship within the district.

During the interview with key informants when asked: “How do financial incentives contribute to the growth of green entrepreneurship in Nyarugenge District, and what measures are in place to support entrepreneurs financially?” one of the respondents stated:

“Financial incentives have played a major role in encouraging entrepreneurs to invest in environmentally friendly businesses. Through government grants and affordable loans, many green entrepreneurs have been able to acquire renewable energy equipment, improve recycling activities, and expand their business operations. Financial support reduces the burden of startup costs and motivates entrepreneurs to adopt sustainable business practices.”

Another respondent explained that:

“Access to green financing has improved the ability of entrepreneurs to expand their businesses and invest in modern eco-friendly technologies. Some financial institutions now provide loans specifically designed for environmentally sustainable projects, which has helped many small businesses grow. However, there are still challenges related to loan requirements and limited awareness about available financing opportunities.”

Other respondents believed that:

“Subsidies and financial support programs have encouraged entrepreneurs to adopt green technologies because they lower operational costs and reduce financial risks. Many entrepreneurs who benefit from grants and subsidies are able to reinvest profits into expanding their businesses and improving innovation. Nevertheless, there is

still a need to simplify access procedures and increase awareness among entrepreneurs regarding available financial support programs.”

The results of this study are consistent with previous research that emphasizes the importance of financial incentives in promoting sustainable entrepreneurship. According to OECD (2021), financial support mechanisms such as grants, subsidies, and concessional loans significantly encourage entrepreneurs to invest in environmentally sustainable businesses by reducing financial barriers and operational risks. Their findings suggest that accessible financing improves business innovation and contributes to long-term sustainability,

4.1.3 Correlation Analysis

Pearson correlation analysis was used to examine the strength and direction of the linear relationship between environmental policy incentives and the growth of green entrepreneurship in Nyarugenge District. Specifically, the analysis examined the relationship between financial

which aligns with the high mean scores observed in this study regarding government financial support and grants.

Additionally, World Bank (2022) argues that green financing initiatives are essential for supporting the expansion of environmentally friendly enterprises, particularly in developing countries where entrepreneurs often face limited access to capital. The study further notes that financial incentives encourage the adoption of green technologies, improve business competitiveness, and stimulate sustainable economic growth. These findings support the results of this study, where respondents generally agreed that financial incentives positively influence the growth of green entrepreneurship in Nyarugenge District

incentives, capacity-building incentives, tax incentives, and growth of green entrepreneurship. The correlation coefficient ranges from -1 to +1, where +1 indicates a perfect positive relationship, -1 indicates a perfect negative relationship, and 0 indicates no relationship. The findings are presented in Table 3:

Table 3: Correlation between financial incentives and growth of green entrepreneurship

		Financial incentives	Growth of green entrepreneurship
Financial incentives	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	176	
Growth of green entrepreneurship	Pearson Correlation	.677**	1
	Sig. (2-tailed)	.000	
	N	176	176

Source: Field data, 2026

The results in Table 3 indicate a strong positive relationship between financial incentives and the growth of green entrepreneurship in Nyarugenge District, Rwanda. The Pearson correlation coefficient was $r=0.677$, with a significance value of $p=0.000$ (reported as $p<0.001$), based on 176 respondents. This suggests that higher levels of financial incentives are associated with higher growth of green entrepreneurship. Since the p-value is below the 0.05 significance level, the relationship is statistically significant. Therefore, the null hypothesis that there is no significant relationship between financial incentives and the growth of green entrepreneurship is rejected. However, correlation does not establish causation.

4.1.4 Regression analysis

Regression analysis was conducted to examine the extent to which financial incentives influence the growth of green entrepreneurship in Nyarugenge District. The analysis aimed to determine the proportion of variation in green entrepreneurship growth explained by financial incentives and to assess the direction, strength, and statistical significance of their relationship. The regression coefficients and significance tests were used to evaluate the contribution of financial incentives to the dependent variable. The following tables present the regression model results

Table 4. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788 ^a	.621	.614	.23787

a. Predictors: (Constant), Financial incentives

The model summary indicates that financial incentives had a strong positive relationship with the growth of green entrepreneurship in Nyarugenge District, with $R = .788$. The coefficient of determination ($R^2 = .621$) indicates that financial incentives explained 62.1% of the variation in the growth of green entrepreneurship, while the remaining

37.9% was explained by other factors not included in the model. The adjusted R^2 of .614 further indicates that the model explained 61.4% of the variation after adjustment for the number of predictors. The standard error of the estimate was .23787, indicating the average distance between the observed and predicted values.

Table 5. ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.929	1	15.929	93.834	<.001
	Residual	9.732	174	0.056		
	Total	25.661	175			

a. Dependent Variable: Growth of green entrepreneurship

b. Predictors: (Constant), Financial incentives

The ANOVA results indicate that the regression model examining the relationship between financial incentives and the growth of green entrepreneurship in Nyarugenge District was statistically significant, with $F(1, 174) = 93.834$, $p < .001$, as reported in the original table. The results indicate a statistically significant relationship

between financial incentives and the growth of green entrepreneurship. This suggests that financial support mechanisms, such as grants, affordable loans, and financial assistance, may be associated with the establishment and expansion of green businesses.

Table 6. Coefficient Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.550	.240		-2.291	.023
	Financial incentives	.526	.068	.528	7.735	.000

a. Dependent Variable: Growth of green entrepreneurship (Y)

The coefficient results indicate that financial incentives have a positive and statistically significant relationship with the growth of green entrepreneurship in Nyarugenge District. The unstandardized coefficient ($B = 0.526$) indicates that a one-unit increase in financial incentives is associated with a 0.526-unit increase in green entrepreneurship growth, holding other factors constant. The standardized beta coefficient ($\beta = 0.528$) shows a positive relationship, while the t-value of 7.735 and significance level of $p < 0.001$ confirm that the relationship is statistically significant at the 5% level. The constant of -0.550 represents the predicted value of green entrepreneurship growth when financial incentives are zero. The implication is that improving access to financial support, such as grants, affordable loans, and other

financial assistance, may help green enterprises grow in Nyarugenge District. These findings support rejecting the null hypothesis that financial incentives have no significant effect on green entrepreneurship growth

4.2 Discussion of Findings

The findings indicate that financial incentives play an important role in supporting the growth of green entrepreneurship in Nyarugenge District, Rwanda. Respondents emphasized that government financial support, grants, and affordable loans can encourage entrepreneurs to invest in environmentally friendly businesses. Such financial assistance may enable

entrepreneurs to overcome financial constraints, acquire green technologies, improve production processes, and expand their business operations. These findings suggest that access to financial resources is an important factor in promoting the establishment and development of green enterprises.

The findings are consistent with the Resource-Based View (RBV), which explains that access to valuable resources can strengthen organizational capabilities and support business competitiveness. In the context of this study, financial incentives represent important resources that can enable green entrepreneurs to invest in sustainable technologies and business activities. Access to such resources may therefore strengthen the capacity of green enterprises to improve their operations, develop innovative solutions, and expand their businesses. This theoretical perspective helps explain how financial support can contribute to the growth of green entrepreneurship in Nyarugenge District.

The findings also correspond with those of Harrison and Khan (2024), who reported that financial incentives, including subsidies, concessional loans, and grants, supported green business formation by reducing financial barriers. Similarly, Moreau and Dupont (2024) found that financial support was associated with increased adoption of clean technologies and revenue growth among European green enterprises. These studies reinforce the view that financial assistance can facilitate investment in environmentally sustainable business activities. However, since these studies were conducted in different contexts, their findings should be interpreted in relation to the economic and institutional conditions of Nyarugenge District.

The interview findings further highlight the importance of financial incentives in promoting green entrepreneurship. Key informants explained that grants and affordable loans can help entrepreneurs acquire renewable energy equipment, improve recycling activities, and expand their business operations. However, they also identified several challenges that may limit access to financial support, including demanding loan requirements, limited awareness of available financing opportunities, and complicated application procedures. These findings suggest that the effectiveness of financial incentives depends not only on their availability but also on whether entrepreneurs can access and use them. Therefore, improving awareness of financing opportunities and simplifying application procedures may help more green entrepreneurs benefit from available financial support.

The findings are also supported by Bukuru and Mwangi (2024), whose study of green enterprises in Kenya, Tanzania, and Uganda highlighted the contribution of

grants, subsidized loans, and startup funding to business operational capacity. Similarly, Kamanzi (2025) emphasized the role of government-backed financial incentives in supporting green technology adoption and business development in Rwanda. These studies provide additional context for understanding the contribution of financial assistance to green enterprise development. Taken together, the findings suggest that financial incentives may help entrepreneurs strengthen their operational capacity and invest in sustainable business activities, while barriers to accessing finance can limit these potential benefits.

Overall, the findings suggest that financial incentives can contribute to the growth of green entrepreneurship in Nyarugenge District by easing financial constraints, encouraging investment in environmentally friendly technologies, and supporting business expansion. However, the benefits of financial assistance may be limited when entrepreneurs face difficulties accessing available funding. Consequently, improving access to grants, subsidies, and affordable green financing, while increasing awareness and simplifying application procedures, may create a more supportive environment for green entrepreneurs. These measures could help entrepreneurs strengthen their business operations and pursue environmentally sustainable economic activities.

5. Conclusion and Recommendations

5.1 Conclusion

The study concluded that financial incentives play an important role in promoting the growth of green entrepreneurship in Nyarugenge District, Rwanda. Financial support from the government, including grants, subsidies, and affordable loans, can help green entrepreneurs overcome financial challenges and invest in environmentally friendly business activities. Access to green financing can also enable entrepreneurs to acquire appropriate technologies, improve production processes, reduce operational costs, and expand their business activities. Furthermore, financial incentives can encourage individuals and business owners to establish and invest in enterprises that promote environmental sustainability. Strengthening financial support mechanisms and ensuring that green entrepreneurs have access to relevant funding opportunities may therefore contribute to business development, innovation, employment creation, and the long-term sustainability of green enterprises in Nyarugenge District. The study emphasizes the importance of continued cooperation among government institutions, financial institutions, and green entrepreneurs in creating an enabling financial environment for the growth of green entrepreneurship.

5.2 Recommendations

Based on the study findings on the effect of financial incentives on the growth of green entrepreneurship in Nyarugenge District, the following recommendations are proposed in line with the study's specific objectives:

1. The Government of Rwanda, through relevant institutions, should strengthen financial support programs for green enterprises in Nyarugenge District. This may include providing targeted grants, subsidies, and startup funding to entrepreneurs engaged in environmentally friendly business activities.
2. Relevant government institutions, financial institutions, and business support organizations should improve awareness of available financial incentives among green entrepreneurs in Nyarugenge District. This can be achieved through workshops, information sessions, business forums, and accessible communication channels. Information should clearly explain the types of financial support available, eligibility requirements, application procedures, and repayment conditions where applicable.
3. Financial institutions, including commercial banks and microfinance institutions, should develop accessible and affordable financing options for green entrepreneurs. This may involve offering loans with reasonable interest rates, flexible repayment periods, and application requirements that consider the financial capacity of small and emerging businesses.

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