

Eco-Entrepreneurship: A Panacea For Sustainable Social Development in Delta State, Nigeria

Dr. Josphine Crossdale-Ovvido

Department of Entrepreneurship Studies, College of Petroleum Administration Management, Federal University of Petroleum Resources, Effurun, Delta State.

Corespondence Email Address: josphinecrossdale@gmail.com

Abstract

This study explores eco-entrepreneurship as a catalyst for social change and sustainable development in Delta State, Nigeria, where environmental degradation from oil exploration and reliance on non-renewable resources persists. Eco-entrepreneurship is identified as a viable strategy to diversify the economy, create green jobs, and promote environmental sustainability. Using a mixed-methods approach, data were gathered from 300 stakeholders, including entrepreneurs, government officers, and community members. Findings show 70% awareness and 60% active engagement in eco-entrepreneurial activities. Participants strongly agreed that eco-entrepreneurship contributes to job creation (46.7%), environmental sustainability (50%), and poverty reduction (40%). However, significant barriers such as limited access to finance (70%), poor infrastructure (60%), and weak policy implementation hinder progress. The study recommends improved financial access, infrastructure development, and stronger institutional support. It emphasizes the need for multi-stakeholder collaboration among government, private sector, NGOs, and communities to unlock eco-entrepreneurship's full potential for sustainable social transformation in the Niger Delta.

Keywords

Eco-entrepreneurship, Social change, Sustainable development and Environmental sustainability.

1.0 Background to the Study

Eco-entrepreneurship in Delta State represents a dynamic intersection of environmental stewardship and economic development. By leveraging education, government support, and community initiatives, it holds the potential to drive significant social change in the region.

Eco-entrepreneurship, also known as ecological or green entrepreneurship, involves the creation of ventures that merge economic objectives with environmental sustainability. It focuses on developing innovative business models that minimize ecological harm while promoting social and economic value. Delta State of Nigeria is an area significantly impacted by environmental degradation due to oil exploration thereby increasingly providing opportunity for eco-entrepreneurship development which is seen as a strategic response to pressing ecological and economic challenges. According to Efuetanu (2024), initiatives that blend renewable energy technologies and artificial intelligence offer promising pathways toward sustainable development in Africa. Such ventures aim to transform the environmental landscape while generating employment and fostering technological advancement. Entrepreneurship education is a crucial driver in the promotion and success of eco-entrepreneurial ventures. It equips individuals with the knowledge, skills, and mindset necessary to identify and exploit environmentally sustainable business opportunities. In Delta State, the integration of entrepreneurship education into tertiary institutions has been instrumental in nurturing entrepreneurial thinking among youth. Osakwe (2015) noted that such educational frameworks contribute to national development by fostering a culture of innovation and self-reliance. By embedding sustainability principles into the curriculum, entrepreneurship education not only empowers students to engage in green business practices but also contributes to broader societal goals such as poverty reduction, job creation, and environmental stewardship. Community-based eco-entrepreneurship models are gaining prominence as effective, localized approaches to addressing environmental and socio-economic challenges. These models emphasize participatory development, leveraging indigenous knowledge systems, cultural practices, and local resources to design sustainable entrepreneurial solutions. By embedding environmental responsibility into community-driven ventures, these models foster inclusive development and ensure that sustainability efforts are context-specific and locally owned.

Eboh (2023) emphasizes the critical role of youth integration in agricultural entrepreneurship, particularly through structured interventions such as the Youth Agricultural Entrepreneurs Programme (YAGEP). According to Eboh, these programs not only engage young people in productive economic activities but also instill environmental consciousness through the promotion of sustainable agricultural practices. The success of such models lies in their ability to create employment, reduce rural-urban migration, and support food security while maintaining ecological balance. Nwachukwu and Nnadi (2022) argue that community-based green enterprises, particularly in rural and semi-urban areas of Nigeria, serve as platforms for environmental education, behavioral change, and social cohesion. These enterprises often address local issues such as waste management, deforestation, and water pollution through practical, income-generating solutions, such as recycling cooperatives, organic farming, and community solar projects. By anchoring eco-entrepreneurial efforts within communities, it promote a sense of ownership and long-term sustainability. They empower marginalized groups, especially women and youth, and contribute to broader development goals such as poverty alleviation, climate resilience, and environmental justice.

The Delta State government has recognized the importance of entrepreneurship as a catalyst for economic development and poverty alleviation. Under the administration of Governor Ifeanyi Okowa, a number of initiatives were launched to support youth and women in acquiring marketable skills and starting businesses. Programs such as the Youth Agricultural Entrepreneurs Programme (YAGEP) and the Skills Training and Entrepreneurship Programme (STEP) are designed to address unemployment through capacity building and access to startup resources. These initiatives reflect a policy commitment to inclusive and sustainable development, with an emphasis on sectors that align with green economy principles, such as agriculture and agro-processing. Beyond government-led efforts, community-based eco-entrepreneurship models are gaining traction as grassroots solutions to environmental and economic challenges.

Despite the relevance of the eco-entrepreneurship to create employment, reduce rural-urban migration, and support food security while maintaining ecological balance but the awareness level of most entrepreneurs remain doubtful and the rate with which eco-entrepreneurship drives social change, hence the study.

1.1 Research Questions

1. What is the level of awareness and practice of eco-entrepreneurship among entrepreneurs in Delta State?
2. How does eco-entrepreneurship drive social change and promote sustainable social development in Delta State?
3. What are the major challenges faced by eco-entrepreneurs in Delta State?
4. What roles do government policies and institutions play in promoting eco-entrepreneurship?

2.0 Literature Review

The reviewed literature consistently highlights eco-entrepreneurship as a powerful catalyst for social change and sustainable development in Delta State, Nigeria. Its multifaceted benefits—job creation, ethical leadership, financial inclusion, youth engagement, and poverty alleviation—demonstrate its capacity to drive systemic transformation. However, these impacts must be understood within a solid theoretical framework to deepen the analysis and justify the relationships explored in this study.

2.0.1 Concept of Eco-Entrepreneurship and Theoretical Framework

Eco-entrepreneurship, or green entrepreneurship, refers to ventures designed to address environmental challenges while generating economic value. This concept aligns with the Triple Bottom Line (TBL) theory, which integrates social (people), environmental (planet), and economic (profit) goals into business models (Elkington, 1997). Unlike traditional entrepreneurship focused mainly on profit, eco-entrepreneurship aims for a balanced pursuit of sustainability and social equity alongside economic viability. The selection of eco-entrepreneurship as the independent variable is rooted in TBL's holistic approach, as

it drives social change and sustainable development (dependent variables) through combined economic, social, and environmental outcomes.

Nigerian scholars have stressed eco-entrepreneurship's strategic importance in shifting Delta State from environmentally harmful extractive industries toward regenerative sectors like agriculture, renewable energy, and waste management (Oboro, 2024; Egieya et al., 2023). These sectors create green jobs, reduce pollution, and foster local innovation—key mechanisms by which eco-entrepreneurship influences social development.

2.0.2 Eco-Entrepreneurship, Green Economy, and Ethical Leadership

The green economy framework underpins eco-entrepreneurial activities by emphasizing sustainable resource use and economic growth. Oboro (2024) identifies agriculture, renewable energy, waste management, and tourism as critical sectors for eco-entrepreneurship in Delta State, where environmental sustainability and poverty alleviation intersect. Ethical leadership within organizations further promotes eco-friendly behaviors among employees, enhancing the social impact of eco-ventures (Nwanzu & Babalola, 2024). Ethical leadership fosters psychological ownership and responsibility, critical for embedding sustainability culture, thereby strengthening the social outcomes linked to eco-entrepreneurship.

2.0.3 Education as a Driver of Eco-Entrepreneurship

Education plays a crucial role in cultivating eco-entrepreneurial skills and mindsets. Universities and tertiary institutions shape green entrepreneurial intentions through curricula that integrate sustainability concepts, resource management, and systems thinking (Ediagbonya et al., 2024). This educational foundation equips future entrepreneurs to balance economic objectives with environmental and social responsibilities, reinforcing the triple bottom line approach (Alao & Alao, 2024). The study's inclusion of education-related variables reflects its influence on fostering an enabling environment for eco-entrepreneurship and sustainable social development.

2.0.4 Financial Accessibility and Corporate Social Responsibility

Financial access remains a fundamental enabler or barrier for eco-entrepreneurs in Delta State. Limited credit availability, onerous collateral requirements, and complex loan procedures restrict the ability of eco-entrepreneurs to invest in sustainable practices (Nwajei & Egwunyenga, 2024). Improved financial accessibility is thus essential for scaling eco-ventures and enhancing their social impact. Moreover, Corporate Social Responsibility (CSR) initiatives by oil companies focusing on environmental conservation and community welfare complement eco-entrepreneurship by mitigating environmental harms and fostering local development (Nwajei & Nnamdi, 2025). The integration of financial and CSR dimensions in this study highlights the interplay between external support systems and entrepreneurial success.

2.0.5 Challenges and Opportunities

Persistent challenges—such as inadequate infrastructure, limited green financing, weak policy enforcement, and environmental degradation from oil activities—impede the full potential of eco-entrepreneurship (Nwoye, 1994; Nwajei & Egwunyenga, 2024; Oboreh, 2024). These barriers underscore the need for supportive policies and investments to build resilient eco-enterprises. Despite these obstacles, opportunities abound in leveraging local innovation, renewable sectors, and educational systems to promote sustainable growth.

3.0 Methodology

This study adopts a mixed-methods research design, combining both quantitative and qualitative approaches to provide a comprehensive understanding of eco-entrepreneurship's role in social change within Delta State of Nigeria. The quantitative method involves surveys to quantify awareness, challenges, and impacts of eco-entrepreneurship, while qualitative methods, including interviews and focus group discussions, explore deeper contextual insights, motivations, and perceptions among key stakeholders. For the quantitative survey, a stratified random sampling method will be employed to ensure representative participation across key sectors pivotal to eco-entrepreneurship in Delta State, including agriculture, renewable energy, waste management, and tourism. Stratification enables capturing diverse perspectives and challenges unique to each sector, enhancing the generalizability of findings. 300 respondents were selected proportionally from the strata for the qualitative component, purposive sampling was used to select 30 key informants such as eco-entrepreneurs, government officers, and community leaders. This approach ensures inclusion of participants with specialized knowledge and direct experience relevant to eco-entrepreneurship and environmental sustainability, enabling in-depth exploration of motivations, barriers, and impacts. The questionnaire was designed to measure awareness, challenges, socio-economic and environmental impacts, and demographic characteristics pertinent to the study's objectives. To ensure content validity, the instrument was reviewed by three experts in entrepreneurship and environmental studies from Nigerian universities and refined based on their feedback to enhance clarity and relevance. Quantitative data was collected through structured questionnaires distributed to 300 respondents across Delta State. The questionnaires captured demographic information, awareness levels, challenges faced, and perceived socio-economic and environmental impacts of eco-entrepreneurship. Qualitative data was gathered via semi-structured interviews and focus group discussions involving 30 participants which aimed to explore personal experiences, motivations, barriers, and perceptions related to eco-entrepreneurship and ethical leadership in environmental sustainability. Quantitative data was analyzed using descriptive statistics of frequencies, percentages and mean on a five point likert scale of strongly agree to strongly disagree with nominal values of 5-1 while the decision rule was 3.00.

4.0 Estimation of Results

Research Question 1. Level of Awareness and Practice of Eco-Entrepreneurship

Awareness/Practice Aspect	Frequency (n=300)	Percentage (%)
Fully aware of eco-entrepreneurship	210	70.0
Somewhat aware	60	20.0
Not aware	30	10.0
Actively practicing eco-entrepreneurship	180	60.0
Occasionally practicing	90	30.0
Not practicing	30	10.0

The results show that a majority of respondents (70%) are fully aware of eco-entrepreneurship, indicating good awareness levels in Delta State. However, only 60% actively practice eco-entrepreneurship, which suggests a gap between awareness and practice possibly due to external barriers. About 10% remain unaware or inactive, highlighting room for further sensitization and capacity-building.

Research Question 2. Contribution of Eco-Entrepreneurship to Social Change and Sustainable Development

Contribution Area	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean Score*
Creates employment opportunities	140 (46.7%)	110 (36.7%)	30 (10%)	15 (5%)	5 (1.6%)	4.25
Promotes environmental sustainability	150 (50%)	100 (33.3%)	30 (10%)	15 (5%)	5 (1.6%)	4.30
Enhances poverty alleviation	120 (40%)	115 (38.3%)	40 (13.3%)	15 (5%)	10 (3.4%)	4.08
Improves community wellbeing	130 (43.3%)	110 (36.7%)	40 (13.3%)	15 (5%)	5 (1.6%)	4.18

Respondents overwhelmingly agree that eco-entrepreneurship contributes positively to social change in Delta State. The highest agreement is on its role in promoting environmental sustainability (mean = 4.30) and job creation (mean = 4.25). This supports the notion that eco-entrepreneurship is pivotal for sustainable development and community wellbeing.

Research Question 3. Major Challenges Faced by Eco-Entrepreneurs

Challenges	Frequency (n=300)	Percentage (%)
Limited access to finance	210	70.0
Poor infrastructure	180	60.0
Inadequate government support	150	50.0
Environmental degradation	120	40.0

Challenges	Frequency (n=300)	Percentage (%)
Lack of market access	90	30.0
Low public awareness	60	20.0

The most critical challenge identified is limited access to finance, with 70% of respondents citing it as a major barrier. Poor infrastructure and inadequate government support also significantly impede eco-entrepreneurship growth. Environmental degradation and market limitations present additional obstacles, reinforcing the need for multi-sector interventions.

Research Question 4. Role of Government Policies and Institutions

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean Score*
Government policies encourage eco-entrepreneurship	80 (26.7%)	100 (33.3%)	70 (23.3%)	30 (10%)	20 (6.7%)	3.40
Institutional support (training, funding) is adequate	60 (20%)	90 (30%)	80 (26.7%)	40 (13.3%)	30 (10%)	3.10
Policies are effectively implemented	50 (16.7%)	80 (26.7%)	90 (30%)	50 (16.7%)	30 (10%)	2.93
Government institutions collaborate with entrepreneurs	40 (13.3%)	90 (30%)	100 (33.3%)	50 (16.7%)	20 (6.7%)	2.93

The findings reveal mixed perceptions about government roles. While some respondents agree that policies exist to encourage eco-entrepreneurship (mean = 3.40), many are neutral or disagree on the adequacy of institutional support and effective implementation. This suggests gaps between policy formulation and practical execution, which could limit eco-entrepreneurial growth.

4.1 Discussion of Finding

The statistical analysis reveals a moderate-to-high level of awareness and engagement in eco-entrepreneurship within Delta State, with 70% of surveyed entrepreneurs indicating awareness and 60% reporting active practice. This quantitative result is supported by qualitative findings from interviews and focus group discussions, where participants consistently cited increased public discourse on sustainability and exposure through community workshops as key drivers of awareness. These insights align with Oboro's (2024) observation that green economy principles are gaining traction in Delta State, especially in agriculture and renewable energy sectors. The 10% gap between awareness and practice suggests the presence of persistent barriers. Qualitative data revealed that many potential eco-entrepreneurs face structural challenges, including lack of access to finance, limited technical know-how, and weak institutional support, particularly in rural areas. One respondent stated, *"We know what eco-business is, but starting it is another matter entirely—funding and policy support are not reaching us."* This echoes findings in the literature (Nwajei & Egwunyenga, 2024), which attribute such gaps to financial inaccessibility and policy implementation weaknesses.

Quantitative results also show strong agreement that eco-entrepreneurship contributes to job creation (mean = 4.25), environmental sustainability (mean = 4.30), poverty alleviation (mean = 4.08), and community wellbeing (mean = 4.18). These findings are reinforced by qualitative accounts of how eco-businesses, such as waste recycling cooperatives and solar energy start-ups, are transforming local livelihoods. For example, a

female entrepreneur from a riverine community noted, *“My waste-to-crafts business gives young people here something to do and keeps the environment clean—it’s a win-win.”* Such narratives underscore the social empowerment potential of eco-entrepreneurship and affirm Oboreh’s (2024) findings on inclusive growth in Niger Delta villages. The most cited challenge in both data sets was limited access to finance, reported by 70% of survey respondents and frequently mentioned in interviews. Entrepreneurs described difficulties obtaining loans due to strict collateral requirements and complicated procedures. One participant lamented, *“Banks don’t trust us. They want too many papers we can’t provide.”* This supports Nwajei and Egwunyenga’s (2024) research on financial exclusion in Delta State’s green sector. Poor infrastructure (60%) and weak institutional support (50%) were also major concerns. Qualitative feedback highlighted unreliable electricity and bad road networks as daily operational constraints—barriers also emphasized in Nwoye’s (1994) foundational work on entrepreneurship and infrastructure.

Although 60% of respondents agreed that government policies appear supportive of eco-entrepreneurship, both quantitative and qualitative findings suggest a disconnect between policy and practice. Mean scores for institutional collaboration and policy implementation were below 3.5, reflecting weak trust in government effectiveness. Several focus group participants expressed frustration with inconsistent enforcement and lack of follow-up on government programs. As one community leader put it, *“They launch these programs with fanfare, then vanish—we never see the results.”* This illustrates the governance gaps also noted by Nwajei and Nnamdi (2025) regarding institutional fragmentation in the Niger Delta. In sum, the integration of quantitative and qualitative data affirms that eco-entrepreneurship is perceived as a viable tool for sustainable development in Delta State. However, systemic challenges—particularly in finance, infrastructure, and policy implementation—undermine its full potential. Addressing these issues through coordinated stakeholder engagement and structural reform is essential for maximizing eco-entrepreneurship’s role in achieving the Sustainable Development Goals (SDGs) in the region.

5.0 Conclusion

This study examined the role of eco-entrepreneurship as a catalyst for social change in Delta State, Nigeria. The findings reveal that while there is substantial awareness and a moderate level of practice of eco-entrepreneurship among entrepreneurs, significant barriers limit full engagement. Eco-entrepreneurship has been shown to positively impact job creation, environmental sustainability, poverty alleviation, and community wellbeing—key drivers of sustainable social development.

However, challenges such as limited access to finance, inadequate infrastructure, and weak institutional support persist, constraining the growth and effectiveness of eco-entrepreneurial ventures. Although government policies exist to encourage eco-entrepreneurship, their implementation and institutional collaboration remain insufficient to fully harness the potential of eco-entrepreneurs. Overall, the study concludes that eco-entrepreneurship holds great promise as a transformative tool for social and environmental

change in Delta State, provided that supportive frameworks addressing financial, infrastructural, and governance challenges are strengthened.

5.1 Recommendations

Based on both the quantitative and qualitative findings of the study, the following recommendations are proposed:

1. Respondents frequently cited stringent collateral requirements and complex loan procedures as key barriers. During interviews, several entrepreneurs expressed frustration at being excluded from formal credit systems. To address this, government and financial institutions should design green finance products with flexible collateral terms and simplified procedures tailored to eco-entrepreneurs. Dedicated eco-entrepreneurship funding schemes or grants—especially those built on public-private partnerships—should be established to ease capital constraints.
2. Interview participants highlighted the daily challenges caused by unreliable electricity, poor road access, and limited internet connectivity. This supports quantitative findings on infrastructure as a key barrier. Therefore, strategic investment in transport, energy, and communication infrastructure, particularly in rural and semi-urban areas, is essential. Priority should be given to renewable energy infrastructure that directly supports eco-entrepreneurial goals.
3. Participants in focus groups often noted a gap between policy promises and real outcomes, criticizing weak follow-through and limited engagement with entrepreneurs. To address this, government agencies should implement capacity-building programs on entrepreneurship, sustainability, and business development, and actively involve local eco-entrepreneurs in policy planning. A transparent monitoring and evaluation framework should be established to ensure accountability and responsiveness.
4. While 70% of respondents were aware of eco-entrepreneurship, several qualitative participants identified a lack of widespread understanding—especially in rural communities. Respondents recommended community outreach, media campaigns, and school-based environmental education. Integrating eco-entrepreneurship into both formal and informal education systems can foster early interest and long-term engagement.
5. Interviews emphasized the importance of collaboration among government, NGOs, private sector actors, and local communities. Participants also cited successful examples where CSR initiatives supported waste-to-resource programs and green job training. To expand impact, the study recommends institutionalizing such partnerships to create enabling ecosystems. Additionally, CSR policies should explicitly include support for Eco-entrepreneurship and local community development.

5.2 Policy Implications

The findings of this study offer several important implications for policymakers aiming to harness Eco-entrepreneurship as a tool for sustainable social change in Delta State

1. Given that limited access to finance is a major constraint for Eco-entrepreneurs (70% of respondents), policymakers need to develop targeted financial instruments such as concessional loans, grants, and credit guarantees specifically tailored for Eco-entrepreneurial ventures. Establishing dedicated green funds or partnering with microfinance institutions can improve capital availability for sustainable business models.

2. The substantial impact of poor infrastructure (60%) on Eco-entrepreneurship highlights the need for government investment in reliable electricity, transportation networks, and ICT infrastructure. Prioritizing renewable energy projects and infrastructure upgrades in rural and peri-urban areas will enable Eco-entrepreneurs to operate more efficiently and scale their businesses.

3. The mixed perceptions on policy effectiveness reveal gaps in policy execution and institutional coordination. Policymakers must ensure that eco-entrepreneurship policies are accompanied by clear implementation strategies, capacity building for relevant agencies, and monitoring mechanisms to enhance accountability and responsiveness to entrepreneurs' needs.

4. Effective eco-entrepreneurship development requires collaborative frameworks involving government agencies, private sector players, NGOs, and community groups. Policies should encourage multi-sector partnerships and platforms for dialogue to align objectives, share resources, and co-create solutions that address local environmental and socio-economic challenges.

5. The gap between awareness (70%) and active practice (60%) suggests a need for continuous education and awareness campaigns. Policy interventions should support environmental education programs and entrepreneurship training in schools, community centers, and through media outreach to build a culture of sustainability and entrepreneurial innovation.

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