

Business Sustainability Strategies and Green Investment Decisions in Developing Agricultural Economies

Inez Cara Alexander Phoek^{1*}, Hendrik Susanto², Lavenia Lauwinata³, M. Arulmozhi⁴, Hani Haidoura⁵

¹Faculty of Business and Accountancy, Saint Theresa College of Economics, Merauke, South Papua, Indonesia.

²School of Economics, Saint Theresa College of Economics, Merauke, South Papua, Indonesia.

³Department of Business Management Study Program, Saint Theresa College of Economics, Merauke, South Papua, Indonesia.

⁴Department of Science and Humanities, Dhaanish Ahmed College of Engineering, Chennai, Tamil Nadu, India.

⁵Department of Management and Finance, Lebanese French University of Technology and Applied Sciences, Koura, Lebanon.

inez@sainttheresa.ac.id¹, hendrik.susanto@sainttheresa.ac.id², lavenia@sainttheresa.ac.id³, arulmozhi.m@dhaanishchennai.in⁴, hani.haidoura@ulf.edu.lb⁵

*Corresponding author

Abstract: This study examines sustainable business strategies in the agricultural sector of South Papua, Indonesia, with a focus on green investment, Environmental, Social, and Governance (ESG) implementation, environmental governance, and the participation of smallholders and indigenous communities in green agricultural supply chains. Using a qualitative descriptive approach supported by NVivo analysis, the study explores how sustainability-oriented business practices influence corporate performance and long-term agricultural development in frontier regions. The findings reveal that green investment has become a strategic necessity for improving business resilience, reducing ecological and social risks, and strengthening global market competitiveness. Indigenous governance systems, particularly Sasi and customary forest zoning, play an important role in maintaining ecological balance and supporting community-based sustainability. However, structural barriers such as limited access to green financing, technological gaps, weak infrastructure, and high certification costs continue to constrain the participation of smallholders and local communities. The study concludes that sustainable agricultural development in South Papua requires stronger ESG integration, inclusive policy support, and collaboration among government, corporations, and indigenous communities to balance economic growth, environmental protection, and social justice.

Keywords: Sustainable Business Strategy; Green Investment; Sustainable Agriculture; Indigenous Communities; Developing Countries; Environmental Protection; Inclusive Policy Support.

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1. Introduction

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The global agenda for sustainable development has placed developing countries at the centre of critical transformations. While these countries contribute significantly to global food security and agricultural output, they also contribute a disproportionate share to environmental degradation, including deforestation, soil depletion, and greenhouse gas emissions [6]. The agricultural sector in developing countries is simultaneously the backbone of rural livelihoods, the most vulnerable victim of climate change, and a major source of environmental externalities [5]. Indonesia, as the largest economy in Southeast Asia and a global leader in palm oil production, coffee, cocoa, and rubber, presents paradigmatic case studies [13]. However, Indonesia's internal heterogeneity is striking. Amid rapid development in western Indonesia, the eastern region, particularly South Papua Province, faces fundamentally different sustainability challenges [9]. As Indonesia's youngest province (inaugurated on November 11, 2022), South Papua has unique characteristics, including extensive forest cover, indigenous peoples' dependence on natural resources, limited infrastructure, and increasing pressure for agricultural expansion in line with the national accelerated development program. South Papua Province offers a unique and highly relevant natural laboratory for researching business sustainability strategies and green investment decisions, as it has a strategic opportunity to build sustainable agricultural systems at an early stage of its economic transformation [12]. Unlike areas in Sumatra and Kalimantan that have experienced ecological degradation due to commodity expansion, South Papua still boasts strong ecological resilience and the potential to implement green investment pathways from the outset. Decisions regarding agricultural investment and land management will significantly impact the province's future environmental sustainability, economic resilience, and social stability. Furthermore, the region is also home to indigenous communities with traditional natural resource management systems, including Sasi practices and customary forest zoning that reflect local sustainability principles and have maintained ecological balance for generations.

This potential for sustainability is under increasing pressure from large-scale agricultural expansion and national economic development acceleration programs, including the Food Estate initiative and the development of export commodities. This complex pressure creates a dilemma between the ambition of economic growth and the protection of one of the tropical rainforest ecosystems [10]. Limited access to green finance, modern agricultural technology, sustainability certification, and transparent global supply chains remains a major barrier to smallholder farmers participating in the emerging green economy. Therefore, South Papua serves as an important case study to examine how business sustainability strategies and green investment decisions can balance development goals with environmental conservation and the sustainability of indigenous peoples' livelihoods in developing countries [11]. Despite growing academic interest in corporate sustainability and green investment, critical gaps remain in understanding the dynamics of sustainability in South Papua. Existing studies are largely concentrated in western Indonesia or developed countries, leaving South Papua's unique context, characterised by geographic isolation, indigenous land governance, limited infrastructure, and intensive development pressure, underrepresented in global sustainability literature [13]. Furthermore, dominant theories such as Signalling Theory and Transaction Cost Economics have rarely been examined in frontier regions where sustainability signals are weakly institutionalised, and market mechanisms remain underdeveloped [14]. Current Indonesian literature also tends to focus on post-conflict environmental problems rather than on preventive green investment strategies that could reduce future deforestation and social conflict. In addition, studies on Papua remain dominated by anthropological perspectives with limited integration of strategic management and investment analysis. As a result, the voices of indigenous communities and smallholder farmers as active agents of sustainability transition remain largely absent from national and international academic discourse [15].

1.1. Novelty

Novelty of this study lies in providing the first systematic analysis of business sustainability strategies and green investment decisions in South Papua, an underexplored frontier region within sustainability scholarship. The research advances theory by proposing a contextual signalling model for geographically isolated economies, where institutional bridges shape the effectiveness of green investment. Empirically, the study integrates policy analysis, commodity supply chain dynamics, and indigenous land governance through a multi-level approach, offering new insights into sustainability transitions within emerging agricultural economies.

1.2. Research Purposes

This study analyses how business sustainability strategies and green investment decisions shape sustainable agricultural development in South Papua. Specifically, this research examines how sustainability-oriented business practices affect company performance, environmental governance, and the participation of smallholder farmers and indigenous communities in green agricultural supply chains.

1.3. Theoretical Foundations

This study is grounded in four complementary theoretical frameworks that collectively explain how business sustainability strategies and green investment decisions shape sustainable agricultural development in emerging economies, with particular

attention to firm performance, environmental governance, and the participation of smallholder farmers and indigenous communities.

1.3.1. Triple Bottom Line

The Triple Bottom Line (TBL) framework constitutes the philosophical foundation of sustainability discourse. Ayu et al. [1] argue that firm performance cannot be adequately measured by economic dimensions alone (profit) but must encompass social (people) and environmental (planet) dimensions. TBL provides a comprehensive evaluative framework for assessing whether agricultural expansion generates welfare for local communities, maintains ecosystem integrity, and creates sustainable economic value simultaneously [3]. In the context of emerging economies, empirical studies have confirmed the relevance of TBL for evaluating agribusiness sustainability [14]. For South Papua, where the national Food Estate program intersects with intact tropical rainforests and indigenous tenure systems, TBL offers an analytical lens to assess whether sustainability strategies produce balanced outcomes across profit, people, and planet dimensions.

1.3.2. Stakeholder Theory

Stakeholder Theory posits that firms bear responsibility not only to shareholders but to all parties who can affect or are affected by corporate activities, including employees, suppliers, local communities, governments, non-governmental organisations, and consumers [4]. In emerging economy contexts, stakeholder pressures, particularly from global buyers and international investors, have been identified as primary drivers of ESG (Environmental, Social, Governance) disclosure adoption in Indonesian agro-industries [11]. In South Papua, stakeholder identification presents unique characteristics: Indigenous communities with customary land rights (*hak ulayat*), a newly established provincial government (inaugurated in November 2022), active international conservation NGOs, and global buyers enforcing the European Union Deforestation Regulation (EUDR) [1]. Stakeholder Theory thus explains how diverse actor pressures shape firm-level sustainability strategies and the conditions under which smallholder and indigenous participation in green supply chains becomes viable.

1.3.3. Signalling Theory

Signalling Theory explains how parties with superior information (insiders) transmit signals to parties with limited information (outsiders) to mitigate information asymmetry [2]. In sustainability contexts, firms employ green investments, including sustainability certifications (ISPO, RSPO, and Rainforest Alliance), ESG disclosure, and clean technology adoption as credible signals of long-term sustainability commitment. Empirical evidence from Indonesia confirms that ESG disclosure positively influences firm value (Price-to-Book Value), supporting the signalling mechanism. However, signal effectiveness depends on signal credibility and the institutional environment. In South Papua, characterised by extreme geographic isolation, high information asymmetry, weak contract enforcement, and limited market access, signal credibility may require "institutional bridges" such as international auditor involvement, global NGO partnerships, or direct buyer engagement. Signalling Theory thus explains how green investments translate into improved firm performance in contexts where conventional market mechanisms are underdeveloped.

1.3.4. Common-Pool-Resource Theory and Social Capital

Guo et al. [2] Common-Pool Resource (CPR) theory demonstrates that self-governance of shared resources, such as forests, water, and customary lands, can succeed when clear rules, collective participation, mutual monitoring, and graduated success are in place, without requiring privatisation or external government intervention. Communities with high social capital overcome collective action problems more effectively. In South Papua, indigenous practices such as *Sasi* (temporary harvesting moratoriums to replenish resource stocks) and customary forest zoning exemplify successful CPR governance. These systems have sustained resource availability for generations but are disrupted by large-scale agricultural expansion. CPR and social capital theories explain how integration of corporate sustainability strategies with indigenous governance systems can enhance environmental outcomes and community participation, and why approaches that ignore customary institutions may fail.

1.3.5. Conceptual Framework of Sustainability Integration

This research develops a conceptual framework that integrates global sustainability pressures, institutional bridges, and indigenous community-based resource management systems. This framework positions business sustainability and green investment as key factors in shaping sustainable agricultural development, impacting company performance, environmental conservation, and the well-being of smallholder farmers and indigenous communities. The research's novelty lies in developing a frontier sustainability model that adapts green investment dynamics to the characteristics of frontier regions and indigenous governance in South Papua (Figure 1).

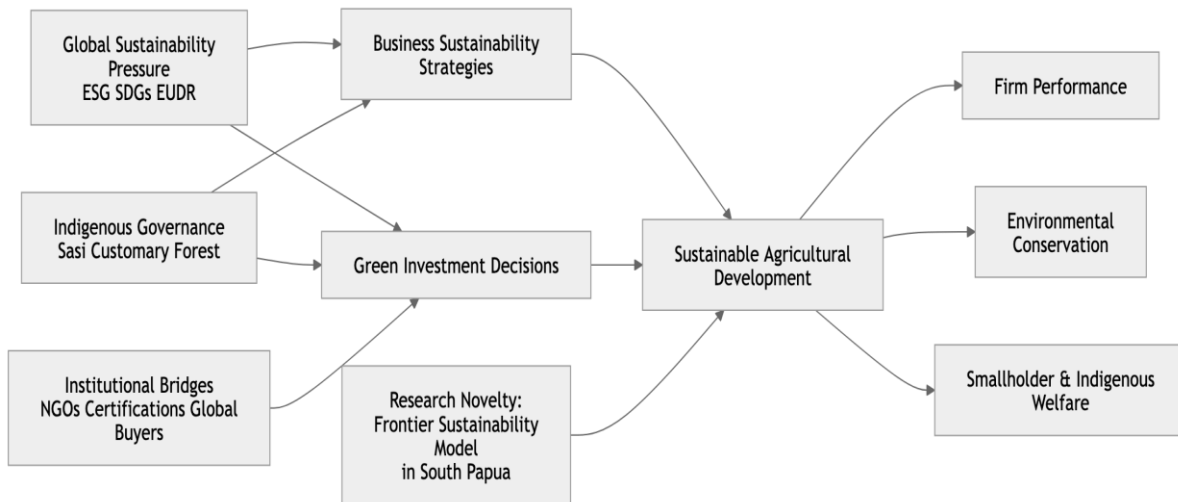


Figure 1: Conceptual framework

The conceptual framework emphasises that the success of the transition to sustainable agricultural development in South Papua is largely determined by integrating business sustainability strategies, green investment, customary governance, and institutional support to address global sustainability pressures.

2. Research Design

This research uses a qualitative, descriptive-analytical approach with a case study to explore agricultural business sustainability strategies in South Papua through green investment and the application of ESG principles. This approach was chosen to deeply understand the social dynamics, environmental challenges, and corporate sustainability practices in a frontier region with unique characteristics. The research's novelty lies in the integrative analysis of green investment, ESG, and sustainable agricultural development in the South Papuan context, a field rarely studied empirically.

2.1. Study Area

The research was conducted in Merauke Regency, South Papua, and Indonesia, which is one of the strategic areas for national agricultural and plantation development and is the location of the National Strategic Project. This region was chosen because it has large natural resource potential but also faces serious challenges related to climate change, deforestation, environmental degradation, and land use conflicts that are relevant in green investment discussions due to the increasing attention to sustainable agricultural practices, the protection of indigenous communities, and global market demands for products that meet sustainability standards such as Environmental, Social, and Governance (ESG) and RSPO (Roundtable on Sustainable Palm Oil). With this context, the research aims to understand how agricultural and plantation companies integrate business sustainability strategies into their operational activities.

2.2. Participants and Sampling

The study used purposive sampling based on involvement and understanding of agricultural business sustainability issues in South Papua. Informants included three agricultural companies in Muting and Eligobel Districts, Merauke Regency; the Food Crops, Horticulture, and Plantation Service of Merauke Regency; five academics from Musamus University; four traditional leaders; and four local farmers. The selection process was carried out in stages until saturation was reached, enabling the collection of relevant, in-depth data on green investment, ESG implementation, and sustainable agricultural development.

2.3. Research Data

The study consists of primary and secondary data. Primary data were collected through in-depth semi-structured interviews, field observations, and informal discussions to gather information on business sustainability strategies, green investment, environmental management, and local community involvement. Observations were conducted to observe agricultural practices and environmental conditions directly. Secondary data were obtained from company sustainability reports, CSR reports, government regulations, and scientific publications. The researcher acted as a human instrument, using interview guides, observation sheets, interview recordings, field notes, observation photos, and company documents to support data analysis.

2.4. Data Analysis

The study used the Miles, Huberman, and Saldaña model with open coding, axial coding, and selective coding. Analysis was conducted during data collection to identify patterns, themes, and relationships within the data. In the data condensation stage, interviews were transcribed and analysed using open, axial, and selective coding to identify key themes related to green investment, ESG, environmental management, indigenous communities, and corporate governance. The data were then presented in the form of a thematic matrix, categorisation tables, and analytical narratives to facilitate interpretation. The verification process was carried out iteratively by comparing field findings, theories, regulations, and previous research. The analysis focused on the Environmental, Social, and Governance (ESG) dimension to systematically examine the sustainability strategies of agricultural businesses in the South Papua context.

2.5. Research Credibility

This research was conducted through source triangulation, method triangulation, and member checking. Source triangulation was conducted by comparing information from companies, the government, indigenous communities, and local farmers. Triangulation of methods compared the results of interviews, observations, and documentation. In addition, member checking and an audit trail were applied to ensure the consistency, validity, dependability, and confirmability of the research data.

3. Findings and Discussion

3.1. Sustainability-Oriented Business Practices and Environmental Governance

The results of data processing using NVivo indicate that sustainability-oriented business practices are strongly associated with improved company performance, environmental governance, and the participation of smallholder farmers and indigenous communities in the green agricultural supply chain in South Papua. Coding analysis yielded several dominant nodes, namely green investment, ESG implementation, agrarian conflict, indigenous community participation, access to financing, Food Estate, and supply chain sustainability. The relationships among nodes show that companies that begin to implement sustainability principles tend to have higher social legitimacy, lower levels of conflict, and greater opportunities for global market access than those that still use conventional resource-exploitation approaches. The paradox between South Papua's ecological richness and the pressures of large-scale agricultural expansion is the most prominent issue emerging. The expansion of palm oil, food estates, and land clearing is directly linked to environmental degradation and social conflict. This demonstrates that economic growth based on land exploitation without a sustainable approach can degrade environmental governance and increase local community resistance. In this context, sustainability-oriented business practices become a long-term tool for risk mitigation.

The implementation of green investment and ESG is perceived not merely as a regulatory compliance strategy but as part of a business strategy to maintain operational stability, strengthen corporate reputation, and increase the competitiveness of agricultural products in an international market that increasingly demands sustainability standards. Other results on local wisdom also show that Sasi practices and customary forest zoning have high coding intensity in the nodes of local wisdom, environmental protection, and community participation. This finding suggests that traditional governance of indigenous communities serves as socio-ecological capital that supports the sustainability of agricultural businesses [15]. From an ESG perspective, integrating the Sasi system into corporate governance can strengthen the social and environmental dimensions by promoting community-based natural resource protection. Companies that respect customary rights and involve local communities in decision-making tend to gain greater social legitimacy and reduce the potential for agrarian conflict. This situation demonstrates that business success in South Papua is significantly influenced by a company's ability to build collaborative relationships with indigenous communities. Table 1 summarises the key indicators, research findings, implications, and policy recommendations resulting from the research analysis.

Table 1: Sustainability orientation and environmental governance

Indicator	Research Findings	Implications of Findings	Recommendation
Sustainable Business Practices	Companies are increasingly implementing green and ESG investments to reduce conflicts and improve their business reputations.	Sustainability increases business stability and global market competitiveness.	ESG integration needs to be strengthened throughout the company's supply chain.

Environmental Governance	Palm oil and Food Estate expansion trigger ecological pressure and environmental degradation.	The risk of environmental damage can increase social conflict and operational costs.	Development needs to be directed towards low-emission agriculture and ecosystem protection.
Local Wisdom and Sasi	Sasi practices have been proven to maintain ecosystem balance and reduce the exploitation of natural resources.	Local wisdom becomes socio-ecological capital for business sustainability.	The Sasi system needs to be integrated into green investment and ESG policies.

Table 1 explains that implementing green investment and Environmental, Social, and Governance (ESG) principles serves not only as an environmental protection strategy but also as an instrument to increase companies' social legitimacy, reduce agrarian conflicts, and strengthen the competitiveness of agricultural products in the global market.

3.2. Participation of Smallholder Farmers and Indigenous Communities in Green Agricultural Supply Chains in South Papua

The analysis of smallholder and indigenous community participation reveals structural barriers that limit smallholder involvement in green supply chains. Access to green finance, technology gaps, and certification costs emerged as key themes in the NVivo visualisation. Most smallholder farmers struggle to access credit because the financing system still uses conventional approaches that are less suited to the characteristics of sustainable agriculture. Furthermore, global certification standards such as the Roundtable on Sustainable Palm Oil (RSPO) and the Indonesian Sustainable Palm Oil (ISPO) are considered inaccessible due to high costs and the limited technical capacity of local farmers (Table 2).

Table 2: Participation of small farmers and indigenous communities in the large-scale plantation industry

Indicator	Research Findings	Implications of Findings	Recommendation
Smallholder Farmer Participation	Smallholder farmers experience limited access to financing, technology, and green certification.	Local farmers are at risk of being excluded from ESG-based global supply chains.	The government needs to provide green credit, subsidies, and technological assistance.
Indigenous Peoples Participation	The involvement of indigenous communities in agricultural investment is still low.	Lack of participation triggers agrarian conflict and social resistance.	Companies need to implement a participatory approach and protect customary rights.

These findings indicate that sustainability-oriented business practices are not yet fully inclusive. Without government intervention through green subsidies, technology assistance, and adaptive financing schemes, smallholder farmers risk being excluded from increasingly ESG-based global supply chains. Discussions regarding the Food Estate Program revealed tensions between the national food security agenda and the protection of South Papua's ecosystems. NVivo coding results revealed a strong link between the Food Estate node, land-use change, and ecological risk. However, the nodes of sustainable intensification and green investment also emerged as potential alternative solutions. These findings indicate that the success of agricultural development in South Papua cannot be measured solely by increased food production but must also consider carbon storage capacity, biodiversity protection, and the well-being of indigenous communities.

Therefore, sustainability-oriented business practices should be directed toward a low-emission development model that uses environmentally friendly technologies, promotes zero-burning land management, and integrates ESG principles throughout the agricultural supply chain. The findings of this study confirm that the success of agricultural development in South Papua is determined not only by increased investment and economic production but also by companies' and the government's ability to balance economic growth, environmental protection, and social justice. Therefore, implementing ESG-based green investments integrated with local wisdom and community empowerment is a key strategy for promoting sustainable agricultural development in South Papua.

Overall, the research findings confirm that sustainability-oriented business practices significantly impact corporate performance, strengthen environmental governance, and expand local community participation in the green economy. NVivo's findings demonstrate that business sustainability in South Papua is not solely about corporate profitability but also about balancing economic growth, environmental protection, and social justice. Therefore, South Papua has a significant opportunity to leapfrog in development through ESG-based green investments integrated with local wisdom and indigenous community empowerment.

3.3. Business Sustainability Strategy in the Agricultural Sector of South Papua

The discussion confirmed that business sustainability strategies in the South Papuan agricultural sector should focus on strengthening green investment by applying precision agriculture technology, promoting agroforestry, using environmentally friendly energy sources, and expanding sustainability certification for smallholder farmers. This strategy not only supports low-emission agriculture but also increases product competitiveness, strengthens food security, and promotes the well-being of local communities and indigenous peoples [8]. Thus, the synergy between green investment, environmental governance, and community participation is a crucial foundation for building a sustainable agricultural development model that balances economic growth, environmental conservation, and social justice in South Papua. Theoretically, green investment in developing countries like Indonesia is often viewed as high-risk due to limited infrastructure, limited access to technology, and market uncertainty. However, research in South Papua shows that green investment is a key strategy for maintaining the long-term sustainability of agricultural businesses. The dependence of agricultural activities on ecological conditions makes companies highly vulnerable to flooding, extreme drought, soil degradation, and climate change [7]. In this context, companies that ignore environmental aspects not only face decreased productivity but also face the potential for social conflict, reduced business legitimacy, and even loss of access to global markets that increasingly demand ESG-based sustainability standards (Environmental, Social, and Governance). The business sustainability strategy developed in this study is then visualised using a fishbone diagram to illustrate the relationships among the main factors that influence the success of sustainable agricultural development, as described below (Figure 2).



Figure 2: Sustainable business strategy in the agricultural sector

The diagram illustrates integrating ESG principles through environmentally friendly agricultural practices, strengthening farmers' and indigenous communities' capacity, protecting ecosystems, promoting transparent corporate governance, and developing green investments to increase the agricultural sector's competitiveness and resilience to climate change.

4. Conclusion

This study demonstrates that sustainability strategies and green investment are becoming essential for the future of agricultural development in South Papua, Indonesia. As a frontier region with rich ecological resources and strong indigenous governance traditions, South Papua faces both major opportunities for sustainable transformation and serious risks from large-scale land

expansion, infrastructure projects, and national food security programs. The findings indicate that sustainability is no longer limited to corporate image building but has become a strategic requirement for maintaining long-term business resilience, environmental protection, and social legitimacy. The research confirms that integrating Environmental, Social, and Governance (ESG) principles into agricultural operations increases resilience against climate change, market pressures, and international regulations such as the European Union Deforestation Regulation (EUDR). Green investments—including agroforestry, renewable energy, sustainable farming technologies, and sustainability certification—improve competitiveness, expand market access, and reduce ecological and reputational risks. The study also highlights the critical role of indigenous governance systems, particularly sasi and customary forest zoning, in protecting ecosystems and supporting sustainable resource management. Indigenous communities, therefore, need to be recognised as active actors in sustainability transitions. However, several structural barriers still limit the participation of smallholders and local communities in green agricultural supply chains. Limited access to green finance, high certification costs, weak infrastructure, technological gaps, and insufficient institutional support continue to hinder inclusive sustainability transitions. This study concludes that stronger collaboration among governments, corporations, financial institutions, NGOs, and indigenous communities is necessary to expand access to green investment and strengthen local capacities. Theoretically, the research contributes to sustainability scholarship by extending the application of ESG and sustainability theories to geographically isolated, institutionally complex frontier economies such as South Papua.

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