

Journal of Contemporary Accounting and Finance

pISSN: 3115-6606; eISSN: 3156-2809

Affiliated with

Department of Accounting, Federal University Dutsin-Ma, Katsina State, Nigeria



How to Cite this Article: Abdulkarim, M. M., Abubakar, U., Ahmed, A. A., & Mohammed, M. A. (2026). Innovative Financing Models and Sustainable Development in the Nigerian Agricultural Sector: A Conceptual and Theoretical Review. *Journal of Contemporary Accounting and Finance (JOCAF)*. 1(2), 80-90. <https://doi.org/10.33003/jocaf-2026.v1i2.20.80-90>

Innovative Financing Models and Sustainable Development in the Nigerian Agricultural Sector: A Conceptual and Theoretical Review

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ABSTRACT

Nigeria's agricultural sector remains central to national development yet continues to face persistent financing constraints, climate vulnerability, and structural inefficiencies that hinder progress toward the Sustainable Development Goals (SDGs). This paper conducts a comprehensive conceptual and theoretical review to examine how innovative financing models, specifically blended finance, agricultural insurance, and digital crowdfunding, can catalyze sustainable agricultural development in Nigeria. Guided by Stakeholder Theory, the study explores how these instruments align with the interests and capacities of key actors, including farmers, government agencies, development finance institutions, private investors, NGOs, and fintech platforms. The review synthesizes evidence from global and Nigerian literature to explain how these models mobilize capital, reduce risk exposure, enhance market integration, and promote climate-smart agricultural practices. Findings show that when supported by enabling policies, digital infrastructure, and robust environmental and social safeguards, innovative financing instruments can overcome traditional barriers to agricultural investment while promoting inclusiveness and resilience among smallholder farmers. The proposed conceptual framework integrates these financing instruments into a multi-stakeholder, systems-oriented model that links capital mobilization, risk management, and capacity enhancement to measurable development outcomes. The study contributes to the emerging literature by highlighting the paucity of empirical research on innovative finance in Nigeria and by offering a theoretically grounded pathway for policy design, investment planning, and future empirical inquiry. The study concludes that stakeholder-aligned innovative financing represents a strategic lever for achieving sustainable, equitable, and climate-resilient agricultural transformation in Nigeria.

Keywords

blended finance, agricultural insurance, crowdfunding and sustainable development

1. Introduction

Sustainable development has become a global imperative, particularly in developing nations like Nigeria, where agriculture is a key economic sector. Guided by the United Nations' 2030 Agenda for Sustainable Development, sustainable development aims to achieve balanced economic, social, and environmental progress. In Nigeria, agriculture remains a major source of employment and livelihoods. Yet, the sector continues to face low productivity and structural constraints that limit its contribution to broader economic transformation and sustainable development (Food and Agriculture Organization of the United Nations [FAO], 2026; World Bank, 2026).

Achieving sustainability in Nigeria's agricultural sector is essential not only to ensure food security but also to eradicate poverty and strengthen environmental stewardship. As climate change intensifies, populations grow,

and resources dwindle, innovative financing models have emerged as critical tools to bridge funding gaps and stimulate sustainable agricultural development. These models, including blended finance, agricultural insurance, and crowdfunding, have immense potential to foster inclusive growth and environmental sustainability.

Stakeholder theory provides the theoretical underpinning for aligning innovative financing strategies with the diverse interests and needs of farmers, governments, investors, NGOs, and the broader community (Freeman, 1984). Despite agriculture's prominence in Nigeria's economy, the sector remains grossly underfunded, inefficient, and vulnerable to environmental and economic shocks. Traditional financing models, driven primarily by public sector funding and external debt, have failed to address the sector's structural weaknesses. These models are often unsustainable and rigid, and they fail to reach smallholder farmers and marginalized communities. Consequently, agricultural productivity remains low, food insecurity persists, and environmental degradation continues unchecked. Innovative financing models, such as blended finance, agricultural insurance, and digital crowdfunding, offer more flexible, inclusive, and sustainable financing alternatives.

However, adoption of these models in Nigeria has been slow and fragmented because of policy inconsistencies, low financial literacy, inadequate infrastructure, and a lack of coordinated stakeholder engagement. There is a pressing need to explore how these innovative models can be effectively harnessed and scaled within a stakeholder-inclusive framework to achieve sustainable agricultural development. This study highlighted the conceptual and theoretical knowledge of the research key variables. We anticipate that our conceptual review in Nigeria will present a balanced understanding of innovative financing acceptability in Nigeria, which has received little emphasis in the literature on blended finance, agricultural insurance, and crowdfunding. This remains useful because extant literature on Nigeria is scarce. Second, the article provides a better understanding of the underlying reasons why formulating policies to adopt blended finance, agricultural insurance, and crowdfunding among smallholder farmers in Nigeria is long overdue. Further, it sensitizes and educates policymakers and smallholder food crop farmers on the importance of embracing innovative finance initiatives. In this connection, this paper aims to review the conceptual and theoretical framework of innovative financing in Nigeria.

2. Review of literature and hypothesis development

2.1 Sustainable development

Sustainable development (SD) is a universal, all-inclusive initiative guided by the United Nations (UN), known as the UN 2030 Agenda for Sustainable Development, which includes the Sustainable Development Goals. The main aim of sustainable development is to promote balanced and inclusive development across different sectors and dimensions of society, including agriculture. Sustainable development is widely recognized as a process that meets present needs without compromising future generations' ability to meet their own. It therefore emphasizes the integration of economic growth, social inclusion, and environmental protection while ensuring the responsible use and preservation of natural resources for both present and future generations (UN, 2023). Moreover, pursuing sustainable development requires international cooperation and local engagement (Moallemi et al., 2020).

Strategies must be tailored to specific regional contexts, acknowledging the diverse social, economic, and environmental conditions across and within countries. In the African context, sustainable development requires policy responses that are responsive to the continent's diverse environmental, economic, and social conditions. Such policies should address persistent challenges, including desertification, water scarcity, poverty, and rapid urbanization, while simultaneously exploiting Africa's considerable development opportunities, particularly its abundant renewable energy resources and youthful population. This context-specific approach is essential because sustainable development in Africa cannot be achieved through uniform policy prescriptions; rather, it requires strategies that integrate environmental sustainability, economic transformation, social inclusion, and effective utilization of the continent's human and natural resources (AUC, 2015; UNECA, 2024). The SDGs also call for private-sector innovation, with businesses increasingly recognized as vital partners in achieving sustainable development (Rashed & Shah, 2021). The private sector can make substantial contributions to broader development objectives by promoting responsible business practices and investing in sustainable technologies. This approach helps mitigate risks, protect ecosystems, open new markets, and ensure long-term economic viability. Sustainable development in Africa faces a unique set of complex, multifaceted challenges. The continent is home to some of the world's fastest-growing economies, yet persistent poverty hinders progress, with a significant portion of the population living below the poverty line (Bhorat et al., 2016).

2.2 Sustainable development and Nigerian agriculture

Agriculture remains a major component of Nigeria's economy and a critical source of employment and rural livelihoods. Between 2021 and 2024, the sector contributed approximately 28% of GDP and employed about 40% of the labor force, while agricultural GDP grew by an average of 2.9% annually. Despite this contribution, the sector continues to face structural constraints, including inadequate financing, limited irrigation, low technology adoption, high production costs, post-harvest losses, climate change, land degradation, conflict, and weak market access (FAO, 2026). Recent World Bank and International Labor Organization estimates also indicate that agriculture's share of employment declined to 33.5% in 2025, highlighting the ongoing structural transformation of the Nigerian economy (World Bank, 2026). At the same time, Nigeria continues to experience significant food and nutrition challenges.

Recent evidence indicates that millions of children fewer than five experience acute malnutrition, with severe wasting remaining a significant public health concern, particularly among children living in vulnerable and conflict-affected communities (UNICEF, 2024). These conditions demonstrate the need to strengthen agricultural productivity, food-system resilience, access to finance, and inclusive value-chain development. Sustainable agricultural development in Nigeria therefore requires an approach that integrates economic productivity, food and nutrition security, social inclusion, and environmental sustainability to improve welfare for present and future generations.

Through the U.S. Global Food Security Strategy known as "Feed the Future," USAID collaborates with the Nigerian government and local communities to enhance agricultural productivity, increase market participation, and improve access to finance and technology. These initiatives aim to deepen the resilience of vulnerable households and create a more favorable business environment for farmers. Similarly, in partnership with the state government, the United Nations Development Programme (UNDP) supported the community to boost local food production by distributing agricultural inputs to the farmers across the community in preparation for the year's planting season in anticipation of the much-awaited rains (UNDP, 2022). The materials provided, including farming equipment, fertilizers, and improved seeds such as maize, cowpea, millet, sorghum, groundnut, and sesame, will enhance the overall farming process and food production. Besides the implements, farmers will also receive training on how to utilize smart agriculture techniques, such as new methods of planting, harvesting, preservation, and storage of harvest, to ensure that they are maximizing the productivity of their farms while also minimizing post-harvest losses. Agricultural development demands higher production, which involves the exploitation of natural resources. It becomes necessary that these resources, especially land, must be maintained and properly managed.

The government, through organizations such as the Federal and State Environmental Protection Agencies and some Non-governmental Organizations like the Nigerian Conservation Society, has been involved in creating awareness of the need to use carefully and thus preserve the environment. Accordingly, the challenge today is how to increase agricultural productivity while enhancing the productive capacity of the natural resources base. This incidentally is the goal of sustainable development, which aims at approaches that reduce environmental degradation, conserve resources, and provide an adequate and dependable farm income through reducing poverty and associated problems. If Nigeria is to meet its food and other agricultural needs, it will be necessary to marshal and utilize natural and human potential effectively and efficiently. Several attempts have been made in the past to provide policies, programmes, and projects dealing with such agricultural issues.

These attempts, among others, include the National Accelerated Food Production Program (NAFPP), Operation Feed the Nation (OFN), Green Revolution (GR), Operation Grow More Food (OGMF), and the Land Use Decree. Others include the River Basin Development Authorities (RBDAs), Agricultural Development Projects (ADPs), Directorate for Food, Road and Rural Infrastructure (DERRI), National Agricultural Land Development Authority (NALDA), and the 1988 Agricultural Policy for Nigeria, etc. Despite the above and many other efforts, agricultural productivity and environmental quality have remained low (Ogbuagu, 1995; Obi et al, 2008). Accordingly, one critical issue for the future is how best to achieve the equilibrium goal of agricultural productivity with that of environmental sustainability. Efforts must therefore be made to ensure that agricultural policies, programmes, and projects in vogue and the food security needs of the country are achieved simultaneously with environmental consciousness and considerations.

2.3 Traditional financing models

Nigeria, like many developing countries, has traditionally relied on conventional financing models to fuel its economic growth. These models often involve heavy reliance on debt financing from international organizations and governments. While these funds have been instrumental in initiating various development projects, they often come with high-interest rates and stringent conditions (Ajide & Raheem, 2020). The burden of debt servicing can divert financial resources away from sustainable business development initiatives, hindering the country's progress towards achieving its sustainable development goals (United Nations Development Programme, 2015). Moreover, the volatility of global financial markets can impact Nigeria's ability to secure affordable financing, making it challenging for businesses to plan for long-term sustainable growth (World Bank, 2019). In recent years, there has been a growing recognition of the need to transition towards more sustainable financing models in Nigeria. Hence the idea of innovative financing.

2.4 Innovative financing

Innovative financing refers to the utilization of creative and unconventional methods to raise funds for development projects, addressing the limitations of traditional funding sources. This concept has gained prominence in recent years, especially in the context of global development challenges. Innovative financing mechanisms encompass a wide array of strategies, including green bonds, blended finance, agricultural insurance, and digital crowdfunding among others. These approaches allow diverse stakeholders, from governments and philanthropists to private investors, to collaborate in funding initiatives that can have a meaningful societal impact. Embracing these emerging financing models can reduce dependency on traditional sources of funding, diversify the economy, and create a much-needed environment for sustainable agricultural growth in Nigeria.

However, the digital revolution has opened up new avenues for innovative financing models in Nigeria. Crowdfunding platforms among other services have democratized access to finance, enabling entrepreneurs to avoid traditional banking barriers (Ogundana, 2021). These fintech solutions have the potential to catalyze sustainable agricultural development by providing flexible and inclusive financial services to a broader spectrum of the population, including those in rural areas (Sahel Consulting Agriculture & Nutrition Ltd., 2020).

One prominent example of innovative financing is the use of crowdfunding platforms which emerged as a powerful tool for financing innovative ideas and projects. This democratization of funding sources enables innovators to bypass traditional financial intermediaries, fostering a direct connection between creators and supporters. Innovative financing is reshaping the landscape of funding agricultural and development projects among others by diversifying funding sources and promoting efficient, outcome-oriented approaches. The utilization of blended finance, agricultural insurance, and digital crowdfunding showcases the diverse strategies employed in innovative financing. As societies face complex challenges, these creative financial mechanisms offer the flexibility and responsiveness needed to address social, economic, and environmental issues effectively.

2.5 Innovative financing models and sustainable agricultural development

It is in no doubt in recent years, innovative financing models have emerged as key drivers of sustainable business and agricultural development globally, including in Nigeria. One of the most impactful methods is that crowdfunding platforms have democratized investment opportunities, allowing smaller investors to contribute to sustainable agricultural businesses. This democratization of investment encourages a diverse range of sustainable agricultural business initiatives in Nigeria, fostering innovation and creativity while bolstering the local economy. These financial instruments not only provide much-needed capital for sustainable agriculture but also encourage collaboration between the public and private sectors, driving positive social and environmental change in Nigeria.

The adoption of innovative financing models, such as blended finance, agricultural insurance, and digital crowdfunding is graceful to significantly influence sustainable agricultural development in Nigeria. These models not only provide financial support to agricultural activities but also encourage the adoption of environmentally friendly practices. As these initiatives gain traction, they will likely contribute to the achievement of Nigeria's sustainable development goals, fostering economic growth, social equity, and environmental conservation in the country.

The OECD (2018) defines blended finance as: "The strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries." Blended finance is the use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable

development. “Blended Finance combines concessional public or philanthropic funds with private capital (with interest rates below market rates or longer grace periods) to de-risk investments. The Development Finance Institutions (DFI) Working Group on Blended Concessional Finance for Private Sector Projects defines “concessional” blended finance as: “Concessional finance from donors or third parties alongside DFI’s normal own-account finance and/or commercial finance from other investors, to develop private sector markets, address the Sustainable Development Goals (SDGs), and mobilize private resources.” (DFI Working Group, 2018). Blended finance can enable smallholder farmers to access more capital and targeted financial products, thereby growing their agricultural businesses and contributing to the achievement of the 2030 Agenda.

Different blended finance instruments can facilitate the mobilization of commercial finance to smallholder farmers in different contexts, and risk mitigation instruments often hold particular potential, given that credit risk is often a key obstacle to financing this market segment. Blended finance models can improve financial inclusion by fostering lending to specific targeted projects such as women-owned and youth-led enterprises, initiatives, or projects. Blended finance models, particularly through technical assistance and/or grants, can stimulate the creation of new markets and value chains around smallholder farmers. Blended finance solutions should respect national ownership, be aligned with national priorities, and be applied as part of a broader national sustainable development financing strategy that takes into account domestic and international, public and private sources of finance.

Blended finance involves using a combination of money from various types of investors in order to create a desired impact. These investors could be governments, banks, so-called “impact investors” or philanthropic organizations. By definition, all of the blended finance team’s deals are transactions that have a positive impact. Agricultural Insurance is a legally binding contract between an insurer and insured that acts as an economic device which transfers risk to a third party, that is, the insurer in exchange for a premium agrees to cover large uncertain financial losses (Atsiaya et al., 2018).

Agricultural insurance is a mechanism primarily used by farmers to cope with farm production losses caused by single or multi-peril events, thus helping to smooth farm income over time (Gunjal, 2016). Agricultural insurance is one of such risk-management methodologies. Agriculture is the backbone of many developing economies, but it is exposed to various risks and highly dependent on the weather. Agriculture insurance can help reduce the vulnerability of agriculture-based households and enterprises. Agriculture insurance can help reduce the vulnerability of women and men, households, and enterprises that work in agriculture by protecting against crop losses due to natural disasters, such as drought, floods, hailstorms, pest attacks, disease outbreaks, and other events that can damage crops or livestock. Agricultural insurance is a relevant mechanism to manage risks to help farmers avoid financial losses and keep their businesses running. Agricultural insurance, as a crucial tool for agricultural risk management, not only adjusts farmers’ judgments regarding anticipated production income but also, through promotional and outreach activities, shapes and reinforces farmers’ risk awareness.

Documented evidence reviewed in the literature and developmental working papers has defined crowdfunding activities. For example, crowdfunding is known as social lending (Hulme & Wright, 2006) and peer-to-peer lending (Freedman & Jin, 2014). Crowdfunding is an umbrella term used to describe a broad form of fundraising (Ahlers et al. 2015). Belleflamme et al. (2013) define crowdfunding as an open call online to receive financial resources to support specific purposes. However, crowdfunding in some cases is regarded to be a type of crowdsourcing, i.e., using the general public’s resources and information technology to support business, State, or society voluntarily.

The crowdfunding platforms eventually are seen to advantage the funding mechanism, including minimal cost and effort involved, multiple transactions could be pooled together to fund less risky projects, and it also could mitigate the asymmetry of information between funders and fund seekers. Further explanations on categories of crowdfunding (extracted from Thaker & Thaker, 2018) are given below:

Donation crowdfunding is where the collection of funds takes place for the purpose such as social, artistic, philanthropic, and other purposes. This type of crowdfunding is not based on any exchange of tangible value.

Reward crowdfunding is the collection of funds, where the investors or donors receive some tangible reward (such as a membership rewards scheme) as a token of appreciation.

Lending crowdfunding is a platform that matches lenders or investors with borrowers or issuers to provide loans with a lower interest rate, which is set by the platform. There are some platforms that arrange loans between individuals, while other platforms collect funds and then lend to small and medium enterprises.

Equity-based crowdfunding refers to the funds raised online by a business, particularly early-stage funding, by offering equity interests in the business to investors. Businesses that are looking to raise capital through this mode typically advertise online through a crowdfunding platform website, which serves as an intermediary between investors and start-up companies.

Based on the above-mentioned definitions and categorisations, we argue that crowdfunding is the process by which individuals or groups called initiators, founders, or entrepreneurs collect monetary funds from the crowd using an online platform, match lenders or investors, or donations to gain support for implementing a project. The number of people providing a relatively small or big monetary contribution, called backers or funders, can vary according to the extent of individual support.

3.0 Theoretical review

Certainly, there are several theories related to innovative financing models and sustainable development in the agricultural sector. Stakeholder theory is being used to underpin this study

3.1 Stakeholder theory

Stakeholder Theory, developed by [Freeman \(1984\)](#), argues that organisations should consider the interests of all groups that can affect or are affected by their decisions and activities. Rather than focusing exclusively on shareholders, the theory emphasises the importance of balancing the interests of employees, customers, suppliers, investors, government institutions, communities, and other relevant actors. Its application to agricultural development is particularly relevant because agricultural financing involves interconnected stakeholders with different interests, resources, expectations, and responsibilities. Farmers require affordable finance and market access, investors seek appropriate returns and risk protection, and governments provide regulatory support, while development institutions, NGOs, cooperatives, and communities contribute financial, technical, social, and institutional resources.

Previous studies demonstrate the usefulness of Stakeholder Theory in explaining sustainable agricultural outcomes. [Guo et al. \(2023\)](#) applied the theory to agricultural enterprises and found that Industry 5.0 practices positively influenced economic, social, and environmental dimensions of sustainable performance. Similarly, [Zhang \(2024\)](#) used an instrumental stakeholder perspective to examine Agriculture 5.0 and Industry 5.0 and found positive relationships with sustainable development, with environmental policy strengthening these relationships. [Marschner et al. \(2026\)](#) also applied Stakeholder Theory to agribusiness projects in Cameroon and demonstrated the importance of stakeholder resources and coordination in sustaining agricultural projects. More recent evidence from agricultural value chains further shows that stakeholder relationships, consumer engagement, and institutional pressures can influence sustainability practices ([Marschner et al., 2026](#); [Santos et al., 2026](#)). These studies collectively demonstrate that sustainable agricultural development depends not only on financial and technological resources but also on effective stakeholder relationships and participation.

Despite these contributions, limited attention has been given to the application of Stakeholder Theory to innovative agricultural financing in Nigeria. Existing Nigerian research has established the importance of agricultural finance for food production and agricultural development, with [Osabohien et al. \(2020\)](#), for example, finding a significant relationship between agricultural financing and food production in Nigeria. However, less attention has been paid to how farmers, government institutions, development finance institutions, investors, fintech companies, NGOs, cooperatives, and communities can jointly influence innovative financing mechanisms and sustainable agricultural outcomes. This study therefore applies Stakeholder Theory to explain how blended finance, agricultural insurance, and crowdfunding can mobilise resources, manage agricultural risks, improve financial inclusion, and support sustainable development. The theory consequently provides an appropriate foundation for understanding how coordinated stakeholder participation can improve the effectiveness and sustainability of innovative financing interventions in Nigeria's agricultural sector.

In the context of innovative financing models for sustainable development, the Stakeholder Theory is crucial. Nigerian agriculture, like many others globally, needs sustainable development strategies that go beyond profit maximization. By considering the needs of diverse stakeholders, such as local communities and environmental

organizations, the agricultural sector can benefit by implementing financing models that not only promote their economic growth but also address societal and environmental challenges, fostering sustainable development in the Nigerian context (Freeman, 1984). In the context of agriculture, farmers, governments, investors, consumers, communities, NGOs, and the environment are all vital stakeholders. When applied to innovative agricultural finance, Stakeholder Theory provides a framework for aligning financial instruments with the diverse needs and goals of these stakeholders. However, by integrating Stakeholder Theory into financial strategies, farmers can potentially create innovative financing mechanisms that address the specific needs of local communities, promote social responsibility, and foster environmentally sustainable practices.

3.2 Proposed Framework

The study proposes a conceptual framework linking blended finance, agricultural insurance, and digital crowdfunding to sustainable agricultural development through three principal mechanisms: capital mobilization and de-risking, risk management and income smoothing, and capacity development and market access (Figure 1). Blended finance can mobilize public, concessional, and private capital by reducing investment risks; agricultural insurance can manage production and climate-related risks and support income stability; while digital crowdfunding can provide alternative finance and strengthen market linkages. These mechanisms are expected to contribute to increased agricultural investment, adoption of climate-smart practices, improved market access, enhanced resilience, and inclusive sustainable agricultural development.

The framework further recognizes stakeholder participation as a cross-cutting governance dimension involving farmers and cooperatives, development finance institutions (DFIs), government, private investors, fintech platforms, and NGOs. Policy and regulatory support, financial and digital infrastructure, and institutional capacity serve as enabling conditions that can facilitate the effectiveness of innovative financing mechanisms. Environmental, social and governance (ESG) safeguards and monitoring and accountability provide cross-cutting controls for transparency, environmental protection, social inclusion, and responsible implementation. Accordingly, framework follows the sequence Financing Instruments → Financing Mechanisms → Sustainable Agricultural Outcomes, while recognizing that stakeholder participation, enabling conditions, and safeguards influence the implementation and effectiveness of this relationship.

Proposed Framework: Integrating Innovative Financing for Sustainable Agriculture

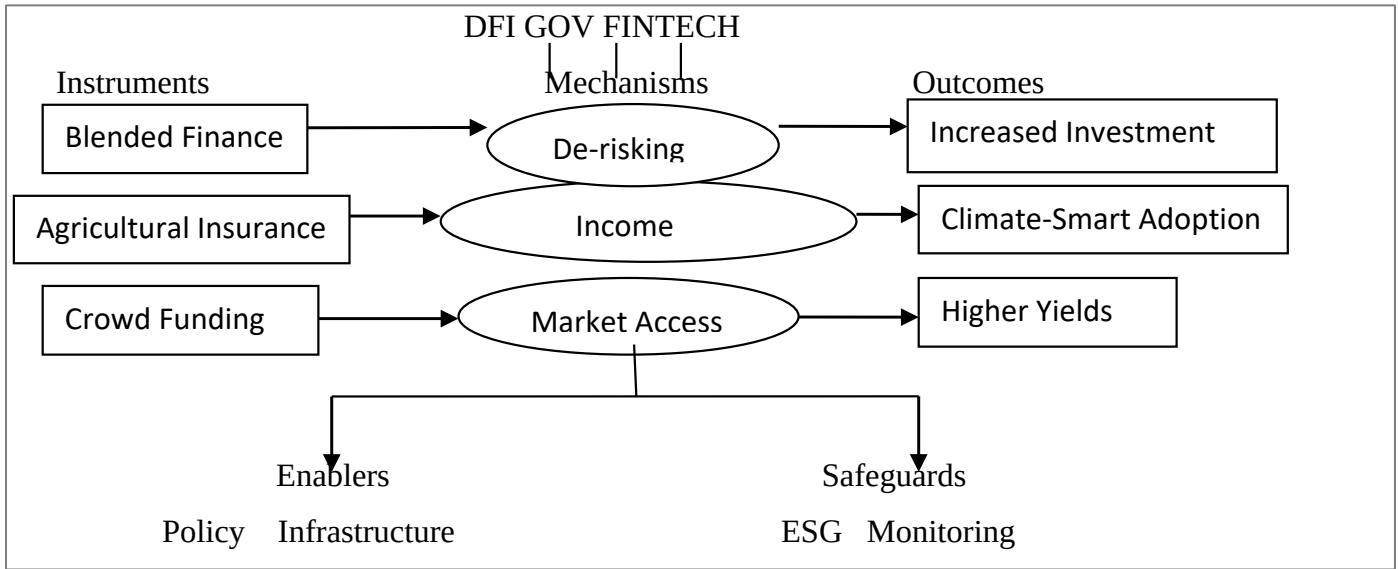


Figure 1: Conceptual Framework

In Figure 1, the conceptual model presented illustrates the pathways through which innovative financing instruments can catalyze inclusive and climate-resilient agricultural transformation. It integrates three principal instruments blended finance, agricultural insurance, and crowdfunding and demonstrates how each interacts with key stakeholders, enabling mechanisms, and system enablers to generate measurable development outcomes. By positioning finance as the entry point and tracing its influence through risk-mitigation, liquidity support, and market expansion, the model provides a holistic framework for understanding how financial innovation can address long-standing structural constraints in smallholder agriculture.

To begin with, the model underscores the differentiated yet complementary roles of the three financial instruments. Blended finance mobilizes private capital by using public or concessional resources to absorb early-stage risk, thereby attracting commercial investors who would otherwise avoid agriculture due to its climate exposure and high transaction costs. Agricultural insurance, in contrast, stabilizes household income by providing protection against climatic and market shocks enabling farmers to make long-term investments and to adopt higher-risk, higher-return technologies. Crowdfunding introduces a decentralized financing channel that links farmers to retail, diaspora, or impact-driven investors through digital platforms, expanding access to micro-capital for underserved rural enterprises. Together, these instruments create a diversified financing ecosystem capable of serving different segments of the agricultural value chain.

The middle column of the model identifies the mechanisms through which these instruments translate into real-world behavioural and economic effects. De-risking reduces uncertainty for both farmers and financiers, facilitating the adoption of climate-smart technologies and encouraging commercial banks, DFIs, and investors to channel greater resources toward agriculture. Income smoothing, primarily enabled by insurance, enhances liquidity during adverse events and prevents distress strategies such as asset liquidation or usurious borrowing. Market access is strengthened through blended finance structures and digital crowdfunding platforms that bundle financing with value-chain services, resulting in stronger linkages between smallholders, aggregators, and off-takers. These mechanisms are critical because they shift both the risk profile and the incentive structure of agricultural production.

The model also highlights the central role of multi-stakeholder interaction. Development finance institutions contribute concessional capital and risk-sharing instruments; government actors provide regulatory clarity, guarantees, and supportive policy environments; fintech firms supply the digital infrastructure that underpins insurance delivery, crowdfunding platforms, and market integration; and farmers contribute local knowledge and act as both the primary beneficiaries and critical adopters of these innovations. This ecosystem perspective aligns with contemporary thinking that agricultural finance succeeds not in isolation but through coordinated partnerships across public, private, and community sectors.

The rightmost column captures the outcomes generated when instruments and mechanisms function effectively. Increased investment flows into agriculture expand productive capacity and support technological upgrading. Climate-smart adoption becomes more viable as risk is reduced and tailored financial products support resilience. Improvements in market integration and input use lead to higher yields, while the combined effects of risk reduction, productivity gains, and diversified income sources contribute to reduced poverty and enhanced economic resilience among rural households. These outcomes reflect both immediate farm-level benefits and longer-term structural changes in rural economies.

Finally, the bottom section of the model emphasises the importance of enablers and safeguards. Effective policies, rural infrastructure, and digital literacy are essential for scaling innovative finance solutions, while robust ESG standards and monitoring systems ensure that investment growth is accompanied by accountability, transparency, and social/environmental responsibility. These foundational elements prevent market distortions, minimise elite capture, and help ensure that financial innovation contributes to equitable and sustainable development. Overall, the model offers a comprehensive framework for interpreting how diverse financing instruments interact with institutional arrangements and digital systems to produce transformative agricultural outcomes. It provides a structured basis for policy design, investment planning, and programme evaluation in contexts where smallholders face persistent barriers related to risk, capital access, and climate vulnerability. By linking instruments to mechanisms and outcomes in a single coherent architecture, the model advances a systemic understanding of how to mobilise finance in support of resilient, inclusive, and climate-smart agricultural growth.

4. Methodology

This study adopts a conceptual and theoretical review approach, informed by an integrative literature-review methodology, to synthesise existing knowledge on innovative financing models and sustainable agricultural development in Nigeria. This approach is appropriate because the study seeks to integrate conceptual arguments, theoretical perspectives, empirical evidence, and policy literature rather than systematically identify and statistically aggregate all available studies. Snyder (2019) explains that integrative literature reviews are useful for combining diverse bodies of literature to develop conceptual understanding and theoretical insights. Accordingly, the review considered relevant literature published primarily between 2000 and 2024, while retaining earlier seminal theoretical works where necessary. Literature was identified through Scopus, Web of Science, Google

Scholar, and relevant policy repositories, including publications from the World Bank, OECD, UNDP, FAO, Nigerian government institutions, development finance institutions, and relevant non-governmental organisations. Searches used combinations of terms such as “blended finance,” “agricultural insurance,” “crowdfunding,” “innovative finance,” “agricultural finance,” “sustainable agriculture,” “sustainable agricultural development,” and “Nigeria.”

Selection of literature was guided by conceptual relevance, theoretical contribution, empirical usefulness, and contextual applicability. Priority was given to peer-reviewed studies, theoretical contributions, policy documents, and institutional reports addressing agricultural financing, sustainable development, financial inclusion, agricultural risk management, stakeholder participation, and innovative financing mechanisms, particularly in Nigeria and comparable developing-country contexts. The selected literature was synthesized thematically around sustainable agricultural development, limitations of traditional agricultural financing, innovative financing mechanisms, and their potential contribution to sustainable agricultural outcomes. Particular attention was given to blended finance, agricultural insurance, and digital crowdfunding and the mechanisms through which they may support capital mobilization, risk management, market access, technical assistance, resilience, and agricultural productivity. The synthesis was subsequently interpreted through Stakeholder Theory to explain the roles and interactions of farmers, cooperatives, government, development finance institutions, private investors, fintech platforms, NGOs, and local communities in shaping the effectiveness of innovative financing and its contribution to sustainable agricultural development in Nigeria.

5. Conclusion

Innovative financing models provide a potentially important pathway for addressing the persistent financing constraints that limit sustainable agricultural development in Nigeria. The review shows that mechanisms such as blended finance, agricultural insurance, and crowdfunding can complement conventional agricultural financing by mobilizing additional capital, reducing investment risks, improving access to finance, and supporting the participation of underserved agricultural actors. These mechanisms can contribute to sustainable agricultural development when financial interventions simultaneously address economic productivity, social inclusion, and environmental sustainability. The application of Stakeholder Theory further demonstrates that the effectiveness and sustainability of innovative financing depend on recognising and incorporating the interests of farmers, government institutions, investors, development finance institutions, NGOs, cooperatives, and local communities into financing decisions. A stakeholder-oriented approach can therefore strengthen the relevance, acceptability, accountability, and long-term sustainability of agricultural financing interventions.

To translate these insights into practice, policymakers should establish a clear and enabling regulatory framework for innovative agricultural finance by developing appropriate guidelines for blended finance, agricultural insurance, crowdfunding, and other emerging financing mechanisms. Such a framework should clarify the roles and responsibilities of participating institutions, strengthen investor and farmer protection, promote transparency, and reduce regulatory uncertainty. The Federal Government and relevant financial-sector regulators should strengthen public-private financing partnerships by creating mechanisms through which commercial banks, fintech companies, investors, development finance institutions, agricultural businesses, and government agencies can jointly mobilize capital, technology, and technical expertise for agricultural development.

Development finance institutions and donor agencies should expand the provision of concessional finance, guarantees, risk-sharing instruments, and technical assistance to reduce the risks associated with agricultural investment and encourages greater private-sector participation, particularly in underserved subsectors and rural areas.

Government agencies, financial institutions, agricultural cooperatives, and fintech providers should implement targeted financial and digital literacy programmes for smallholder farmers and rural agricultural enterprises. These programmes should equip beneficiaries with the knowledge and skills required to evaluate financing options, use digital financial platforms, manage financial risks, and meet the requirements of formal financing arrangements. Fintech companies and government financial institutions should scale up accessible and transparent digital crowdfunding and agricultural financing platforms by improving digital infrastructure, simplifying participation requirements, strengthening consumer protection, and integrating appropriate platforms into the wider financial ecosystem. Particular attention should be given to women, smallholder farmers, rural enterprises, and other financially underserved groups.

Agricultural financing institutions should integrate environmental and social safeguards into the appraisal, approval, monitoring, and evaluation of agricultural investments. Financing decisions should assess potential effects on land, water, biodiversity, livelihoods, and local communities to ensure that increased capital mobilisation does not generate environmental degradation or social exclusion. Government agencies, financial institutions, NGOs, cooperatives, and community representatives should establish structured stakeholder engagement mechanisms that involve relevant stakeholders in the design, implementation, monitoring, and evaluation of agricultural financing programmes. This will strengthen local ownership, improve accountability, and increase the likelihood that financing interventions respond to actual agricultural needs.

Finally, policymakers and financing institutions should align innovative agricultural financing initiatives with Nigeria's national development priorities and the Sustainable Development Goals (SDGs), particularly those relating to poverty reduction, food security, decent employment, responsible production, climate action, and sustainable economic development. Such alignment should be accompanied by measurable performance indicators covering financial access, agricultural productivity, employment, household welfare, environmental outcomes, and the participation of underserved groups. Overall, Nigeria can derive greater developmental value from innovative agricultural finance when capital mobilisation is combined with effective risk management, stakeholder participation, institutional coordination, environmental responsibility, and systematic monitoring of development outcomes.

6. Acknowledgments

Generative artificial intelligence tools (ChatGPT, OpenAI) were used during the preparation of this manuscript to support language editing, grammatical refinement, structural organisation, and clarity of expression. The authors independently developed the study's arguments, interpretation, analysis, and conclusions. All factual claims and references were reviewed and verified against the original sources, and the authors accept full responsibility for the accuracy, originality, and integrity of the manuscript.

References

- African Union. (2015). *Agenda 2063: The Africa we want*. African Union. [\[Link\]](#)
- Ahlers, G. K. C., Cumming, D. J., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice*, 39(4), 955-980. [\[Crossref\]](#)
- Ajide, K. B., & Raheem, I. D. (2020). Institutions and finance: Examining the link in Sub-Saharan Africa. *Review of Development Finance*, 10(1), 44-53. [\[Crossref\]](#)
- Atsiaya, D. D., Wati, M. A., Ingasia, J., & Lagat, J. (2018). Determinants of farmers' uptake of crop insurance in Kenya: Evidence from Kakamega County. *Journal of Development and Agricultural Economics*, 10(3), 70-79. [\[Crossref\]](#)
- Belleflamme, P., Lambert, T., & Schwienbacher, A. (2013). Individual crowdfunding practices. *Venture Capital*, 15(4), 313-333. [\[Crossref\]](#)
- Bhorat, H., Naidoo, K., & Pillay, K. (2016). *Growth, poverty and inequality interactions in Africa: An overview of key issues*. United Nations Development Programme. [\[Link\]](#)
- DFI Working Group. (2018). *Blended concessional finance for private sector projects: Joint report*. International Finance Corporation. [\[Link\]](#)
- Food and Agriculture Organization of the United Nations. (2026). *Nigeria at a glance*. FAO. [\[Link\]](#)
- Freedman, S., Orsi, L., Olper, A., & Stranieri, S. (2026). Sustainability strategies in the cocoa-chocolate value chain: An analysis using stakeholder theory, global value chain theory, and resource dependence theory. *Agribusiness*, 42(2), 694-716. [\[Crossref\]](#)
- Moallemi, E. A., Bhaduri, A., & Rangaswami, N. (2020). Informing national SDG policies through scenario-guided explorations of future goals. *Sustainability Science*, 15(3), 895-911. [\[Crossref\]](#)
- Obi, A., Nwachukwu, I. N., & Agwu, A. E. (2008). Challenges to agricultural development in Nigeria. In A. U. Nnadozie (Ed.), *Agricultural policies and institutions in Africa* (pp. 120-139). African Institute for Applied Economics.
- OECD. (2018). *Making blended finance work for the Sustainable Development Goals*. OECD Publishing. [\[Crossref\]](#)
- Ogbuagu, C. (1995). Agricultural policies and performance in Nigeria: Issues and constraints. *The Nigerian Journal of Economic and Social Studies*, 37(1), 37-50.

- Ogundana, O. M. (2021). Fintech innovations and inclusive growth in Sub-Saharan Africa: Empirical insight from Nigeria. *African Journal of Economic Policy*, 28(2), 65-84.
- Osabohien, R., Adeleye, B. N., & De Alwis, T. (2020). Agro-financing and food production in Nigeria. *Heliyon*, 6(5), e04001. [\[Crossref\]](#)
- Rashed, M. A., & Shah, A. (2021). Corporate social responsibility and sustainable development: A review and agenda for future research. *Sustainability*, 13(2), 837. [\[Crossref\]](#)
- Sahel Consulting Agriculture & Nutrition Ltd. (2020). *Innovative financing for agriculture: Unlocking access to finance for SMEs*. [\[Link\]](#)
- Santos, V., Beuren, I. M., Odelli, A., Rengel, R., & Bernd, D. C. (2026). Does stakeholder pressure promote green innovations and performance of agribusiness companies? *Business Strategy and the Environment*, 1-21. [\[Crossref\]](#)
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333-339. [\[Crossref\]](#)
- Thaker, M. A. B. M. T., & Thaker, H. B. M. T. (2018). A conceptual paper on crowdfunding as an inclusive financial tool for agriculture-based SMEs. *ISRA International Journal of Islamic Finance*, 10(2), 225-232.
- UNICEF. (2024). *Child survival and development: Nigeria situation analysis 2024*. UNICEF Nigeria.
- United Nations Development Programme. (2015). *Human development report 2015: Work for human development*. United Nations. [\[Link\]](#)
- United Nations Development Programme. (2022). *Building food security and future resilience of communities in northeast Nigeria*. UNDP. [\[Link\]](#)
- United Nations Economic Commission for Africa. (2024). *Economic report on Africa 2024: Investing in a just and sustainable transition in Africa*. United Nations. [\[Link\]](#)
- United Nations. (2023, August 8). *Fast facts – What is sustainable development?* United Nations Sustainable Development.
- United States Agency for International Development. (2022). *Nigeria COVID-19 Food Security Challenge: Request for applications*.
- United States Agency for International Development. (2023). *Feed the Future Nigeria Agribusiness Investment Activity: Program overview*.
- World Bank. (2019). *World Development Report 2019: The changing nature of work*. World Bank.
- World Bank. (2026). *Employment in agriculture (% of total employment) (modeled ILO estimate) Nigeria*. World Bank DataBank.
- Zhang, Y. (2024). A path to sustainable development of agri-industries: Analysis of agriculture 5.0 versus industry 5.0 using stakeholder theory with moderation of environmental policy. *Sustainable Development*. [\[Crossref\]](#)