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Governance and sustainability in community agriculture: Insights from Lagos State development projects

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Abstract

Sustainable leadership is pivotal to the long-term success of community-based agricultural initiatives. This study critically examines governance related challenges undermining the sustainability of farm settlement projects in Lagos State, Nigeria. Employing a mixed methods approach, quantitative data were analysed using descriptive and inferential statistics to reveal key patterns and relationships, while qualitative insights were drawn through thematic content analysis. Findings highlights systematic barriers such as weak institutional frameworks, inadequate infrastructures, and limited professional capacity. These issues significantly hinder project sustainability and community engagement. The study emphasizes the need for strengthened governance structures, supported by active government involvement to foster operational efficiency, environmental health, and improved livelihoods. Practical recommendations are offered to address leadership and governance gaps, with broader implications for enhancing the resilience and scalability of similar agricultural development efforts. This research contributes valuable evidence to the discourse on sustainable rural development and offers a roadmap for policy and institutional reform.

Keywords: Governance; Sustainable; Leadership; Farm; Settlement

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1. Introduction

The farm settlement estate project, initiated in 1977 with the establishment of the Ikorodu farm settlement, was envisioned as model for sustainable agricultural development through structured land allocation, technical support and mechanized farming. Initially supported by the Lagos State Ministry of Agriculture and cooperatives, the project provided infrastructure, training and extension services to trained agriculturists. However, over the decades, the governance structure underpinning the project deteriorated significantly.

A critical governance issue affecting the farm estate project lies in the absence of a formalised institutional framework to regulate land tenure, leadership accountability and operational continuity. The informal transfer of land rights, lack of legal backing for the estate's governing body ("Amuludun") and the withdrawal of estate services have collectively undermined the project's sustainability. Despite the presence of a leadership structure, the absence of codified bylaws and legal authority has rendered the governing body ineffective in enforcing standards, resolving disputes or attracting investment.

This study addresses a significant research gap: the lack of empirical analysis on how weak governance structures affect the sustainability and development outcomes of state-led agricultural settlement projects in Nigeria. While previous studies have focused on agricultural productivity and land use, few have examined the institutional and governance dimensions that determine long-term viability. The paper argues that, the decline of the Lagos State farm settlement estate project is not merely a result of resource constraints or policy neglect, but lack of legal framework and inadequate institutional oversight.

Farm settlement initiative was later expanded to include settlement in Epe, and Badagry (Boge,2015). Initially, the project functioned as an Agricultural Institute aimed at training qualified agriculturists. The first cohort of 22 graduates was each allocated a two-bedroom bungalow and one hectare of land for subsistence farming, with an additional 200 hectares collectively designed for mechanized agriculture. Land allocation and technical support were managed by the Lagos State Ministry of Agriculture and Cooperatives. This ministry also provided extension services and mechanized tools such as tractors and harvesters to support productivity. This aligned with Okeowo (2016) who emphasize that government support is a critical component for establishing sustainable government system. Over time, farmers diversified into livestock production, including poultry, piggery and fisheries.

However, the transformation of the Agriculture Institute into the Lagos State Polytechnic in 1977 and later into the Lagos State University of Science and Technology in 2023, led to the discontinuation of agricultural training and support services. Consequently, farmers were left without access to technical assistance or government – provided machinery. Currently farm estate is fully occupied, and new entrants must lease or purchase facilities from existing farmer. Most current occupants are retired professionals who acquired plots from pioneer beneficiaries. These smallholder farmers are loosely organized under a governing body known as the "Amuludun" farm Estate Association, which lacks formal legal backing or enforceable by-laws. The association meets monthly but is limited in its capacity to enforce governance or sustainability measures. Yimer (2015) advocates for the establishment of a by-law that clearly delineates the roles and responsibilities of all stakeholders, arguing that such legal clarity is essential for empowering each governing body and trust among stakeholders, which are foundational to sustainable governance system. This historical and institutional context underscores the governance and suitability challenges.

2. Research questions and objectives

A key challenge in understanding farm settlement governance is identifying the barriers that hinder effective management and decision-making within these communities. The following research questions were explored to gain insight into the complexities of farm settlement governance, with the aim of proposing solutions that foster sustainable and equitable development within the community.

- What are the barriers to the full realisation of sustainable farm settlement projects in Lagos State Nigeria?
- How can farmers' perception, knowledge and attitude about sustainability of farm settlement project be measure?
- What governance arrangement exists within the farm settlement project in Lagos State and its impact on the overall sustainability of the farm settlement project?

The objectives of the research were to:

- Provide critical information on community needs and priorities to achieve sustainable farm settlement project;
- Evaluate the knowledge, perceptions and attitudes of farmers regarding the sustainability of farm settlement projects;
- Assess the existing governance structures within the farm settlement projects in Lagos State, and their effects on the overall projects' sustainability.

3. Methodology

3.1. Design of tools

This study adopted a mixed-methods approach, combining both qualitative and quantitative techniques to explore the governance challenges affecting the sustainability of the Lagos State farm settlement estate. The qualitative component was prioritized to gain in-depth insights into institutional dynamics, leadership structures, and stakeholder experiences, while the quantitative aspect supported descriptive analysis of demographic and operational patterns.

The information gathered and analysed focused primarily on the following sustainability elements as highlighted below:

- *Social issues*: Historical background of the farm estate, demographic physiognomies, infrastructural development, partnership issues, levels of poverty in the farm estate settlement, health status of the farmers, transportation, media support, digital support and needs assessment for the farm settlers.
- *Economic issues:* Land ownership, population of farmers and labourers, number of pens, poultry cages and fishponds in the farm estate, sales of product and its trend/variation, tax and insurance issues, source, cost and adequacy of energy/power supply to the farm estate, adequacy and cost of veterinary services, labour engagement and cost, and needs assessment.
- *Environmental situations of the farm estate:* Sanitation and health, current agricultural practices, and waste management, housing pattern, availability of adequate water supply, environmental education

awareness, energy and/or power supply, pollution, availability of adequate drainage system, current challenges and emergency preparedness.

- *Governance and administrative structure:* Transparency, accountability, security, diversity and inclusion, farm operation resilience (natural disaster, physical security, regulatory issues), crisis preparedness, and financial exigency.

3.2. Data collection

Semi-structured interviews were conducted with farmers and estate leaders to explore governance practices, leadership challenges, and institutional gaps. Key informant interviews were held with ministry officials to understand policy intentions and historical support mechanisms. Questionnaires were administered to collect demographic and operational data from farmers, including land tenure, access to resources, and perceptions of governance.

3.3. Study area and population

The study was conducted across the three major farm settlements in Lagos State: Ikorodu, Epe, and Badagry. The target population included farm estate residents, members of the "Amuludun" governing body, officials from the Lagos State Ministry of Agriculture, and other relevant stakeholders.

3.4. Sample design and sample technique

A purposive sampling technique was employed to select participants with direct knowledge or involvement in the farm settlement governance structure. This included:

- 170 smallholder farmers (across each farm settlement)
- 3 executive members of the "Amuludun" governing body
- 2 officials from the Lagos State Ministry of Agriculture

This sample size was deemed sufficient for qualitative saturation and allowed for triangulation of perspectives across different stakeholder groups.

3.5. Justification of tools

Semi-structured interviews allowed for flexibility in probing deeper into governance issues while maintaining consistency across respondents. Questionnaires provided structured data for descriptive statistical analysis. Review of policy documents, estate records, and historical reports supplemented primary data and provided contextual grounding.

3.6. Data analysis

Quantitative data were analysed using descriptive statistics (frequencies, percentages) to summarize demographic characteristics and operational patterns. Qualitative data were analysed using thematic content analysis. Interview transcripts were coded manually to identify recurring themes related to governance,

leadership, institutional support, and sustainability. data were grouped into categories and interpreted in relation to the research objectives. To ensure reliability, data triangulation (using multiple sources of data e.g., different interviewees and different locations) was employed by comparing responses across different stakeholder groups. Ethical consideration, including consent and confidentiality were strictly observed throughout the study.

3.7. Questionnaire

A structured questionnaire was distributed among the farmers. The questionnaire had four sections. The first section, A, consists of demographic information of the respondents and it had questions in nominal scale. Sections B to F comprise of information on factors impacting sustainability of the farm settlement estate and 5-point Likert scale was used. According to Lekesanyal (2021), questionnaire can be used to obtain data about phenomena that are not easily evident through personal experiences, judgements, awareness, and are more convenient to use than direct observation for data collection with so many advantages such as distribution among larger groups concurrently and respondent can complete the questionnaire at their own convenience. The researcher employed “drop off” and “pick up later” method of questionnaire distribution in order to allow the respondents complete all the sections appropriately.

4. Data appraisal

Data collected were collated and analysed using descriptive statistics tools for quantitative analysis and the data was subsequently appraised to determine the status and sustainability challenges being faced by the farmers.

4.1. Social appraisal

The farming community comprises individual with diverse education and professional backgrounds, including agricultural specialists, retired bankers, and former civil servants from various sectors. Farming activities are typically carried out six days a week from Monday to Saturday, with Sunday reserved as a rest day. Daily working hours on the farm span from 6: 00a.m to 6 :00 p.m. (12 hours). However, the area suffers from inadequate infrastructure. Essential facilities such as roads, drainage systems, electricity, centralised sewage treatment, waste disposal, water supply and sanitation are either lacking or poorly developed. This reflects a significant level of unplanned and unsustainable development.

Sustainability in community development projects is crucial, as it directly impacts the standard of living of the beneficiaries. As noted by Veta and Oghenechoja (2020), sustainable projects are more likely to improve the well-being of the communities they serve. Initially, farmers received technical and managerial support from government agencies during the early stages of the farm estate project. The Agricultural institute primarily established to train generation of Agricultural specialist has been transitioned to become an independent institution of higher learning with focus on the provision of a global-wide educational needs of the larger society thereby, leaving the farm estate project without any skill acquisition institute again.

4.2. Environmental appraisal

The farmers demonstarte a general awareness of their environmental responsibilities, likely due to their educational backgrounds. However, there is no formal committess dedicated to waste managmenet or environmental n training, Instead, environmental training is providwed by the Lagos State Ministry of Environment. Ecah farmer is responsible for inspevcting their own farm plots to mainatin hygiene and comply with basic environmental regulations. When violation occur, the response is typically limited to verbal warnings. Despite this awareness, overall sanitary practices are poor and largely reliant on individual efforts. Unplesant odours from piggery and poultry farm are common, worsened by indisrimnate waste dumping and an unprotected drainiage system that chanels wastewater into nearby canals. Waste from poultry and piggery operations is typically dumped at individual sites and burned, contributing signifincantly to air pollution. There is no recycling of wate materials. Animal dung is disposed of in open areas and also burned. Dead animals are chemically treated and burried in designated dumping grounds. A major environmental concern is the improper managmenet of blood from slaughtered animals which poses seriuos santtation and health risk within the farm estate.

Poor waste management can have serious and wide-ranging consequences for the environment, public health, and the economy. Here's a breakdown of the key impacts:

- Environmental Consequences
  - *Soil and water pollution:* Leachate from improperly disposed waste can contaminate soil and ground water, affecting agriculture and drinking water sources
  - *Air pollution:* Burning waste, especially organic and plastic materials, release harmful gases like dioxins, furans, and methane, contributing to air pollution and climate change
  - *Eco system damage:* Burning of natural habitats can harm wildlife, disrupt ecosystems, and lead to biodiversity loss
- Public health risks
  - *Disease Outbreaks:* accumulated waste attracts pests such as rats, flies and mosquitos, which can spread diseases like malaria, Cholera and typhoid.
  - *Respiratory Issues:* Airborne -pollutants from burning waste or decomposing organic matter can cause respiratory problems and other health issues
  - *Waterborne Illnesses:* Contaminated water sources due to poor disposal can lead to widespread waterborne diseases
- Economic Impacts
  - *Increased healthcare costs:* Poor sanitation and pollution-related illness increase the burden on health care systems.
  - *Reduced agricultural productivity:* Soil contamination can reduce crop yields and affect food safety.
- Social and aesthetic issues
  - *Unpleasant Living Conditions:* Foul odours, unsightly waste piles, and polluted surrounding reduces the quality of life.
  - *Community tensions:* Inequitable waste management can lead to disputes among residents or between communities and authorities

Improving waste management practices involves a combination of policy, education, infrastructure and community engagement. Here are some suggested effective strategies.

- Establish a waste management committee
  - Form a local committee responsible for overseeing waste collection, disposal, and environmental education.
  - Include representative from the farming community, local government, and environmental education.
- Promote waste segregation at source
  - Educate farmers and residents on separating organic, recyclable, and hazardous waste.
  - Provide color-coded bins and clear signage to support this practice
- Introduce composting and recycling
  - Encourage composting of organic farm waste like animal dung and crop residues
  - Set up small-scale recycling centres for plastics, metals and materials
- Improve infrastructure
  - Construct protected drainage systems to prevent contamination
  - Designate and maintain proper waste disposal sites
  - Provide covered bins and regular waste collection services
- Ban open burning
  - Enforce regulations against burning waste, especially plastics and animal waste.
  - Offer alternatives like composting or biogas production
- Training and education
  - Partner with environmental agencies to provide regular training on hygiene, waste handling and sustainable practices
  - Use workshops, posters and community meetings to create awareness
- Enforce penalties and incentives
  - Implement a system of fines for non-compliance and rewards for good practices
  - Recognize and support farmers who adopt sustainable waste management methods
- Explore resources recovery
  - Convert animal waste into biogas or organic fertilizer
  - Consider partnerships with companies that can process and reuse farm waste

4.3. Economic appraisal

There is no insurance cover for the farm estate whether individually or co-operatively. There is also no tax being paid to government every year. Although, there are bank loans but not all the farmers could access the loans due to the conditions of service attached to loan by the Bank. In addition, the farmers were of the opinion that the interest rates are too high on agricultural loans. There was a general consensus by the farmers interviewed that the best loans came from co-operative societies within the farm estate. Bisbey*, et al*., (2020.) proposed that access to credit facilities at affordable rates is a critical enabler of sustainable micro project governance. By reducing financial barriers for small holder farmers, such credit mechanisms empower local stakeholders to invest in productive assets, adopt improved technologies, and maintain project continuity. This financial inclusion not only enhances project ownership and accountability but also strengthens the long-term

viability and impact of community based agricultural initiatives. The farmers complained that family members especially children were showing a lack of involvement in the farming business. Many of the farmers were distressed about this, as it meant a lack of family succession. In spite of this, they do encourage others to be involved in farming activities. According to Yimer (2015). inclusive participation at all levels, particularly the active involvement of youth in community development projects is essential for achieving long term sustainability objectives. Engaging young people not only fosters innovation and energy but ensures continuity, as their participation strengthens local ownership, enhances accountability and build the capacity needed for resilient and adaptive governance structure.

5. Major sustainability challenges faced by farmers in the farm estates project in Lago State

Most farm estates in Lagos State are faced with a myriads of sustainability challenges that has stalled their progress and impact on the society. The various challenges identified in this study requires urgent need for innovative and sustainable solutions to achieve the long-term success objectives and feasibility of the farm estate settlement.

5.1. Environmental challenges

Animal wastes, particularly dung and urine from pigs and poultry, are significant sources of ammonia (NH3) emissions. These emissions occur due to the microbial breakdown of nitrogenous compounds such as urea and uric acid in the waste. Ammonia is a colourless gas with a pungent odour that is easily detectable even at low concentrations (Lingying, et., al 2014).

Ammonia released into the atmosphere from animal housing and manure storage facilities can accumulate, especially in poorly ventilated areas. Inhalation of ammonia even at relatively low concentration (as low as 50ppm), can cause eye, nose and throat irritation. At higher concentrations (100-700ppm), it can lead to severe respiratory tract irritation, coughing, Chronic exposure has been associated with increased coughing, wheezing and asthma, this was acknowledged by Lingying, et., al (2014); Charles, (2018).

The UK health Security Agency (2024) also notes that acute inhalation of ammonia can cause upper respiratory tract irritation and alveolar edema and in severe cases, airway obstruction and respiratory distress. Chronic exposure has been associated with increased coughing, wheezing and asthma (Kiera,2024). These findings support the assertion that ammonia emission from pig urine and bird faeces are not only a source of environmental pollution but pose direct health risk to humans, including dizziness and toxicological effects on the lungs.

Global warming has been characterized with health issues such as skin cancers, infertility, loss of biodiversity and population changes as affirmed by (Hayes, et al., 2018; Umair 2015). Underground water table may also be undermined due to poor waste management as some animal waste products on the ground surface percolate through porous soil and get into underground water table. Some organisms will feed on the water while higher animals will feed on these organisms thereby resulting into ecosystem disruption as both human and animals feed on the water with contaminants. The lack of a centralized water system with each person being responsible for their sources of water also poses a big problem and contributes ultimately to disease infestation within the farm estate.

5.2. Economic challenges

The current marketing strategy employed by the farm estate is insufficient, resulting in a limited market reach. This limitation is evident in the fact that the majority of sales are made directly to local buyers who physically visit the farm. A perceptible decline in patronage may be attributed to several factors, including the emergence of alternative markets offering more competitive prices (Bisbey, et al., 2020), as well as a growing trend toward health-conscious consumer behaviour. Moreover, the absence of critical processing infrastructure such as standardized abattoirs and cold storage facilities has significantly constrained the farm estates' ability to market value-added products, which typically command higher prices than live animals.

The effective utilization of animal by-products presents an opportunity to generate employment and improve the socio-economic conditions of the surrounding community. Additionally, the implementation of a biogas project within the estate could provide direct benefits to local residents and serve as an incentive for other industries to establish operations in the area, thereby fostering broader economic development. However, the persistent lack of infrastructural amenities, such as cold rooms, abattoirs, and packaging plants, continues to pose a major challenge to the efficient marketing and distribution of farm products (Bisbey, et al., 2020).

These infrastructural elements are often prerequisites for accessing grants and concessional loans from international financial institutions, including the international Finance Corporation (IFC), African Development Bank (AFDB), and the Bank of Industry (BOI), As Miko and Kamardin (2016) emphasize robust governance structures and intuitional readiness are critical determinants in securing financial support, particularly in developing economies where transparency and accountability are closely scrutinized by funding bodies.

The current practices whereby untreated farm sewage from the farm leads into a gully which run into the canal and then finally into the Lagoon does not meet the best practice criteria. The untreated farm sewage increases the organic burden of the water body thereby impacting on the biochemical oxygen demand (BOD) due to the decaying process (Lismining, et al., 2014).

6. Suggested intervention needed to ameliorate the sustainability challenges

The individual approach of the farm estate operators (farmers) towards farm practices has impacted negatively in their ability to benefit from economies of scale especially for facilities that are better managed centrally such as:

- *Water treatment plant:* This will improve the hygiene of the farm estate, reduce costs, reduce depletion of natural resources, improved water conservation as a result of recycling and reuse.
- *Power generation system:* Renewable energy such biogas can be explored using animal dung to reduce cost of power generation. Such intervention will be more environmentally friendly as compared to the utilization of fossil-fuel powered engines by individual farmers. (Al Hammadi and Nobanee, 2019) suggested that, efforts on the feasibility of converting waste into fuel for power generation could contribute to energy sustainability and reducing environmental impact

- *Sanitary facilities such as toilet, septic tanks, sewage treatment plant:* The provision of these facilities will provide a healthy environment in the farm estate.
- *Infrastructure:* Provision of an administrative and sales office, good road network, central borehole water system, internet services and digital media is required to aid ease of access to farm products by the buyers.
- *Credit facilities:* The numerical strength and size of the farmers can be harnessed to provide access to attractive financial facilities to the farmers on an individual basis and also guarantee fund repayment. Farmers' access to financial credit facilities will enhance their buoyancy to fulfil transactional obligations they might want to undertake (Amusa,*. et al*, 2020)
- *Technology:* The lack of technology has impacted several activities within the farm estate. The farm leadership can seek government's support for the establishment of a 'fit for purpose' biosafety laboratory.
- *Security:* A cost effective surveillance facility can be acquired by the farmers through the government to provide a centralised monitoring system to improve the security of the entire farm estate.
- *Marketing:* The use of the Internet and social media can be harnessed to potentially provide access to markets beyond the immediate environment where higher prices can be paid.
- *Central processing unit:* The provision of a standard modern abattoir and cold room using simple technology for pig, poultry and fish processing will enhance the quality of products, provide an opportunity to sell at retail prices, improve hygiene, and attracts more industrious buyers.

7. Sustainable solution to governance ghallenges plaguing the farm settlement project in Lagos State

Governance in the context of farm settlement project refers to how the farm settlement is controlled and succeeded in leadership administration to managing risks and opportunities related to environment, social, economic and governance criteria. (Boeva, et al., 2017).

7.1. Ownership structure

The individual ownership structure of the farm estate has significantly hindered their growth over time, primarily due to lack of effective oversight and the prevalence of unsustainable practices. The stagnation effects of broader leadership gap, where current leaders lack the strategic orientation and mindset necessary for sustainable development. As Tideman et al., (2013) argue, sustainable leadership requires a shift from short term, individualistic approaches to a more holistic, future oriented perspective that integrates social, environmental and economic dimension of value creation. Given the increasing scarcity of public resources and the growing complexity of development challenges, collaborative partnership is essential for mobilizing both financial and operational support. However, the current leadership within the farm estate is not equipped with the transformational mindset or the negotiation competence required to engage effectively with external stakeholders. According to Tideman et al., (2013), the development of such leadership capacities rooted in purpose, systems thinking, and stakeholder engagement is critical for enabling organizations to navigate sustainability challenges and seek partnership opportunities

7.2. Ethical and integrity responsibility

The absence of a formal code of conduct that fosters ethical and responsible decision making at both administrative and technical levels ha significantly impeded the sustainable development agenda of the farm estate project. This governance gap has contributed to operational inefficiencies and a lack of accountability, undermining long term growth and stakeholder trust. As Miko and kamardin (2016) highlight, the establishment of a robust corporate governance framework is essential for institutional integrity and performance, particularly in environments where public resources are limited and oversight mechanisms are weak.

Transitioning the farm estate towards a more sustainable and accountable model requires the adoption of a rule-based governance system. Unlike process-based models that may be more flexible but less enforceable, a rule -based approach provides a clear standards and legal boundaries that help mitigate ethical and legal risks. By embedding such governance structure, the farm estate can enhance transparency, attract investment and align with national and international development goals (Miko and Kamardin,2016)

7.3. Sustainable financial asset

The absence of an innovative investment strategy has hindered the farm estate's ability to attract capital from both local financial institutions such as the Bank of Industry and Bank of Agriculture and international development financiers like the International Financial Corporation (IFC0 and the African Development Bank (AFDB). This strategic gap has contributed to the persistence of outdated subsistence farming practices, preventing the transition to a modern, mechanized agricultural system as originally envisioned.

Miko and Kamardin (2016) emphasize, the presence of a sound governance structures and strategic financial planning is essential for accessing institutional funding and ensuring sustainable development. Similarly, Bisbey et al., (2020) argue that the development challenges particularly in infrastructures and strategic and agriculture requires market-based solutions supported by robust investment frameworks. Financial institutional are increasingly willing to engage in agricultural markets, but their participation is contingent upon the presence of credible, well-structured proposals that align with sustainable development goals.

To unlock these funding opportunities, the farm estate must adopt a comprehensive investment strategy that integrates governance reforms, infrastructure planning, and stakeholder's engagement. Such a framework would not only attract capital but also catalyse the transformation of the farm estate into a sustainable commercially viable agricultural hub (Miko and Kamardin, 2016; Bisbay et al., 2020)

7.4. Environmental, social and governance oversights

Environmental and social concerns, particularly those linked to climate change have become central to the global sustainability agenda and are increasingly prioritized by responsible investors. For the farm estate to realise its potential for sustainable growth, it is imperative that leadership recognizes and respond to the ESG metrics that matters most to stakeholders. Krechovska and Prochazkova (2013) uphold the integration of sustainability into corporate strategy requires a shift in leadership focus towards long term value creation,

transparency and accountability in environmental and social performance. By aligning this operational goal with these sustainability metrics, the farm estate can potion itself as a viable candidate for responsible investment. Leadership that is attuned to these evolving expectations is better equipped to drive transformation and secure the financial and institutional support necessary for agricultural development (Krechovska and Prochazkova 2013)

8. Suggested strategy: Implementing research evidence for sustainable governance in farm estate

Corporate governance is a foundational element in the pursuit of a sustainable business success, yet it is frequently underestimated or overlooked by business owners, particularly small and medium sized enterprises. Krechovska and Prochazkova (2013) assert, effective governance structures are not merely administrative formalities, they are strategic tools that enhance accountability and, transparency and long-term value creation. In today's dynamic and sustainability focused business environment, good governance is more critical than ever for firms of all sizes and at every stage of development.

For the farm estate project, embedding strong corporate governance practices can serve as a catalyst for transformation, enabling better decision-making stakeholder engagement and access to funding. By prioritizing governance, the initiative can align with global standards of responsible business conduct and position itself for sustainable growth and resilience (Krechovska and Prochazkova,2013).

- An effective corporate governance structure can lead to:
- Better access to favourable strategic transactions, such as finance,
- Improved performance of the business,
- Reduced risk of corporate crisis or outrage,
- Better shareholder relationships and investor confidence,
- Favourable professional reputation in the industry, which often leads to a higher valuation of the business.

The development of farm estate projects is increasingly expected to align with national sustainable development goals (SDGs), reflecting a broader global emphasis on responsible and inclusive growth. In line with Chien (2022), opinion, achieving these goals requires more than policy alignment, it demands that integration of a comprehensive corporate governance framework that supports environmental and social accountability.

To ensure the farm estate evolves sustainably, governance structures must incorporate key elements such as transparency, stakeholder engagement, ethical leadership and performance monitoring. These components are essential for embedding the principle of sustainable development in both strategic and planning and day to day operations. Chien (2022), emphasizes that such governance systems not only enhance institutional credibility but also attract responsible investment and foster long term resilience. Therefore, adopting a governance model grounded in sustainability principles is critical for transforming the farm estate project into a model of responsible agricultural development.

9. Data analysis and results

This section presents the analysis, interpretation and results of the collected data. Quantitative data were examined using both descriptive and inferential statistical methods to uncovered patterns and relationship relevant to the study objectives. Qualitative data were analysed through content analysis to extract thematic insights. The results are presented using frequency distribution, percentages, and tabulated summaries for clarity and accessibility. In alignment with Gebrehiwet, (2022), Likert scale responses were employed to categorize the responses options to the five- point Likert scale as shown below. Similarly, Likert scale was used to quantify awareness about the issues being addressed thereby, enabling a structured and measurable approach to analysing subjective data. This methodological framework ensures that numerical and narrative data are systematically interpreted to support evidence-based conclusions.

Strongly Agree (SA) = 5

Agree (A) = 4

Moderately Agree (MD) = 3

Disagree (D) = 2

Strongly Disagree (SD) = 1

A cut-off point of 3.00 was used as a benchmark for interpreting the results. Hence, any component with a mean value of 3.00 or above was regarded as Agreed (accepted) while those with less than 3.00 were regarded as Disagreed (rejected).

Inferential Statistical Technique: Quantitative data were analysed using SPSS (Statistical Package for Social Sciences). The following inferential statistical techniques were employed:

- Pearson correlation was used to examine relationship between continuous variables such as years of farming experience and satisfaction with governance.
- Average scores were calculated to determine he mean responses between groups
- Standard deviation was used to measure the dispersion of scores around the mean

Qualitative data from interviews and open questionnaires responses were analysed using thematic content analysis.

The process involved:

- Transcription of recorded interviews
- Data gathering to identify recurring patterns and concepts
- Categorization of data into broader themes such as leadership gaps and institutional support and policy disconnect. Triangulation was used to validate findings by comparing the insights from different respondent groups (Farmers, estate leaders and government officials in the farm estate settlement.

9.1. Sample selection description

The selection process involved the following steps:

- Distribution: Questionnaires were proportionally distributed among the three communities based on their population size or relevance to the study.

- Response rate: Out of 175 questionnaires distributed across the three farm settlement communities (Ikorodu, Epe and Badagry) a total of 148 were completed and returned, yielding a response rate of 84.6%. This is considered highly satisfactory for survey-based research, particularly in line with the benchmark of minimum 50% response rate recommended by (Gebrehiwet, (2022). The details of the response distribution are presented in Table 1. This high response rate enhances the validity and reliability of the study's findings as it reflects a strong level of engagement from the target population. It also reduces the risk of non-responses bias, thereby strengthening the generalization of the broader population of farmers within the Lagos State farm settlement.
- Inclusion criteria: Only questionnaires that were fully completed and met the study's inclusion criteria (e.g. respondent eligibility, consistency of responses, inconsistences, and failure to meet the inclusion criteria)
- Exclusion: 27 (15.4%) questionnaires were excluded due to incomplete responses, inconsistences and failure to meet inclusion criteria.
- Statistics: Descriptive statistics were deployed to summarize the data into frequency table.

This approach ensured that the data analysed was both representative and reliable for drawing meaningful conclusion.

Table 1. Response rate result

Responses	**Frequency**	**Percentage (%)**
Returned questionnaires	148	84.6
Unreturned questionnaires	27	15.4
Total	**175**	**100**

(Source: Field Survey, 2022)

9.2. Descriptive statistics

9.2.1. Distribution of respondents by gender

To ensure balance representation in the study, questionnaires were administered to both genders, and participants were required to indicate their gender. As shown in Table 2, the gender distribution reveals that the majority (52.7%) of the respondents were male, while 47.3% were females out of 148 participants. This indicates that both genders are involved in different forms of agricultural practices within the farm estate settlement in Lagos State. Thus, they are fairly involved in the study. The relevance of the distribution lies in its implication for gender inclusivity in agricultural activities.

Table 2. Gender of respondents

Genders	Frequency	Percentage (%)
Male	78	52.7
Female	70	47.3
Total	148	100

(Source: Field Survey, 2022)

9.2.2. Distribution of respondents by age bracket

Understanding the age of the respondents provides insights into the demographic most actively engaged in agricultural practices with the farm estate settlement. As shown in Table 3, the largest percentage (48.65%) of respondents are within the age bracket of 40-49 years, this is followed by those aged 60 and above (22.9%) and 50-59 years (20. 27%).A smaller percentage (8.11%) are below 30-39years whereas none of the respondents falls within the 18-29 years' age bracket.

The absence of younger participants (18-29 years) is particularly significant, as it may reflect a declining interest or involvement of youth in agriculture, possibly due to urban migration, lack of incentives or perceived unattractiveness of farming as a career. Conversely, the dominance of middle-aged and older adults suggests that agricultural activities in the areas studied are largely sustained by more experienced individuals. This demographic trend has implication for the sustainability of agricultural practices and highlights the need for policy or program that encourage youth participation in the sector.

Table 3. Age brackets of respondents

Age brackets (Years)	Frequency	Percentage (%)
18 – 29	0	0.0
30 - 39	12	8.11
40 – 49	72	48.65
50 – 59	30	20.27
60 and above	34	22.97
Total	**148**	**100**

(Source: Field Survey, 2022)

9.2.3. Distribution of respondents by religion

Religious affiliation is an important social-cultural factor that can influence individuals' values, practices and perspectives including those that related to agriculture and community development. As shown in Table 4, all respondents identified with the two major religions in Nigeria (Christianity and Islam). A majority of the respondents (59.46%) are Christians. While 40.54% are Muslims. Notably, there were no respondent

identified with traditional religion or atheists. Understanding this religious land scape is relevant for designing agricultural policies or interventions that are culturally sensitive and inclusive, especially when community mobilization or cooperative efforts are involved.

Table 4. Religion of respondents

Religions	Frequency	Percentage (%)
Islam	60	40.54
Christianity	88	59.46
Traditional religion	0	0.0
Atheist	0	0.0
Total	**148**	**100**

(Source: Field Survey, 2022)

9.2.4. Distribution of respondents by the period of stay in the farm settlements

The length of time respondent has lived in the farm estate settlements provides valuable insights into their level of experience, familiarity with agricultural practices and potential influence within the community. As presented in the Table 5, the majority of the respondents (41.89%) have resided in the settlement for 21-30 years, followed by (25.68%) who have stayed for 31-40 years. A smaller proportion (16.89%) have lived there for over 40years while only (3.38%) have been resident for 1- 10yeras. The distribution suggest that most respondents are long-term settlers with deep-rooted ties to the community and extensive experience in farming activities. On the other hands, the low percentage of newer settlers could indicate limited recent migration into the settlements, which may have implications for generational renewal and the introduction of new farming techniques or innovation.

Table 5. Period of respondents' stay in the farm settlements

Duration of stay in the farm settlement (Years)	Frequency	Percentage (%)
1 - 10	5	3.38
11 - 20	18	12.16
21 - 30	62	41.89
31 - 40	38	25.68
40 and above	25	16.89
Total	**148**	**100**

(Source: Field Survey, 2022)

9.2.5. Distribution of respondents by family structure

Family structure can significantly influence agricultural labour dynamics, decision-making and resource allocation within rural communities. A shown in Table 6, the overwhelming majority of respondents (97.30%) reported living in monogamous households, while a small minority (2.70%) practice Polygamy. Notably, none of the respondents identified as single.

The distribution suggests a strong prevalence of traditional family units, particularly monogamous households, within the farm settlement. The dominance of monogamy may reflect cultural norms and social expectation in the region. It also implies a relatively stable family environment, which can contribute to consistent labour availability and cooperative participation in farming activities.

Table 6. Family structure of respondents

Family structures	Frequency	Percentage (%)
Single	0	0.0
Monogamy	144	97.30
Polygamy	4	2.70
Total	**148**	**100**

(Source: Field Survey, 2022)

9.2.6. Distribution of respondents by family size

Family size is a key demographic factor that can influence labour availability, consumption needs, and economic responsibilities within agricultural households. As shown in Table 7, a significant majority of respondents (84.46%) reported having a family size of 1-5 members, while only (15.4%) have 6-10 members. Notably, none of the respondents reported having a family size greater than 10.

Table 7. Family size of respondents

Family size	Frequency	Percentage (%)
1 – 5	125	84.46
6 – 10	23	15.54
11 - 15	0	0.00
16 - 20	0	0.00
20 and above	0	0.00
Total	**148**	**100**

(Source: Field Survey, 2022)

This distribution suggests that small to medium-size families are predominant in the farm settlement. From an agricultural perspective, smaller families may face challenges in terms of labour availability for farm work, potentially increasing reliance on hired labour or mechanization. On the other hand, they may also benefit from lower household consumption demands. Allowing for more efficient resource management.

9.2.7. Distribution of respondents by highest educational level attainment

Educational background plays a crucial role in shaping individual's ability to comprehend, interpret, and respond to effectively to research inquiries. To evaluate the respondents' capacity to engage meaningfully with the study, they were asked to indicate their highest level of educational attainment. As shown in Table 8, all respondents had education beyond the secondary school level. A significant majority (85.81%) hold a Bachelor's degree, while (8.11%) possess Diploma and (6.08%) have attained Post graduate qualifications.

The higher level of educational attainment among respondents suggests that they are well-equipped to understand and provide informed responses to the research questions. It also implies a relatively high level of literacy and awareness, which can influence their agricultural practices, openness to innovation, and participation in development programs.

Table 8. Educational level of respondents

Educational levels	Frequency	Percentage (%)
Primary school	00	0.00
Secondary school	00	0.00
Diploma	12	8.11
Graduate	127	85.81
Postgraduate	09	6.08
Total	**148**	**100**

(Source: Field Survey, 2022)

9.2.8. Distribution of respondents by farm ownership

Understanding the structure of the farm ownership among respondents provides insight into land tenure dynamics and the evolution of agricultural land use within the farm estate settlement. As shown in Table 9, only (12.16%) of the respondents are pioneer government allotters, the original beneficiaries of the farm settlement scheme. The vast majority (87.84%) operate under sub-leased agreements, having acquired access to the land from the pioneer allotters

This distribution highlights a significant shift in land control and usage patterns over time. The dominance of sub-leased arrangements suggest that land leasing has become a common practice, possibly due to generational transitions, migration, or changing economic priorities among the original allotters. This trend has implications for land tenure security, investment in long- term agricultural improvements, and policy

planning. It also underscores the importance of formalising lease agreements to ensure stability and productivity in the agricultural sector.

Table 9. Distribution of respondents by farm ownership structure

Farm ownership	Frequency	Percentage (%)
Pioneer Government Allotters	18	12.16
Sub-Leased Agreement	130	87.84
Total	**148**	**100**

(Source: Field Survey, 2022)

9.3. An overview of the needs and priorities of residents within the three farm settlements

This study focused on three basic needs and priorities which residents of a farm settlement desire. These includes: engagement of community members in the sustainable management of farm settlement project; amenities and social life of residents in the farm settlement; and the environmental conditions within and around the farm settlement.

9.3.1. Engagement of community members in the sustainable management of farm settlement projects

The majority (86.49%) of respondents agreed that community members are engaged to a moderate extent in the management of projects within the three farm settlements under focus. Whereas 8.78% and 2.70% of respondents agreed that community members are engaged to a great extent and very great extent respectively in the management of community projects. Only 2.03% of respondents maintained that community members are engaged to a low extent in the management of community projects.

The results of the assessment of the community members' engagement in the sustainable management of farm settlement projects is presented in Table 10. Respondents agreed with nine (9) of the eleven (11) research questions and rejected two (2). Respondents disagreed that Communities have a robust plan to engage those who are likely to be affected by any resolution and those with vested interests with mean score of 1.75. They equally disagreed that the project beneficiaries are involved in the various stages of the project process with mean score of 1.68.

However, respondents agreed among others that: community members participate in the planning phase of development projects with mean score 3.57; community members are involved in the process of monitoring and evaluating development projects with mean score 4.42; participation in projects ensures communities have a chance to shape the outcome and project sustainability with mean score 4.82; satisfying key community requirements is central to achieving successful project outcomes and sustainability with mean score 4.86; and there is a need for communities to be given a chance for voting and decision-making in project selection with mean score 4.87. This corroborates Shabani, (2020) which affirmed that sustainability of community-based project is also dependent on community participation.

Table 10. Assessment of the community members' engagement in the sustainable management of farm settlement projects

S/N	Assessment of the community members' engagement in the sustainable management of farm settlement project	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
1	Community members participate in the planning phase of development projects	148	1	5	3.57	1.18	***Agree***
2	The community members are fully involved in the implementation phase of development projects executed in the farm settlements	148	1	5	4.13	1.01	***Agree***
3	Community members are involved in the process of monitoring and evaluating development projects	148	1	5	4.42	0.87	***Agree***
4	Communities have a robust plan to engage those who are likely to be affected by any resolution and those with vested interests	148	1	5	1.75	1.40	***Disagree***
5	Participation in projects ensures communities have a chance to shape the outcome and project sustainability	148	2	5	4.82	0.49	***Agree***
6	Satisfying key community requirements is central to achieving successful project outcomes and sustainability.	148	2	5	4.86	0.45	***Agree***
7	The project beneficiaries are involved in the various stages of the project process	148	1	4	1.68	0.95	***Disagree***
8	The community feels a sense of duty and willingness to participate in their own development	148	2	5	4.85	0.43	***Agree***
9	Participation is critical to providing local solutions to local problems	148	2	5	4.16	0.48	***Agree***
10	There is a need for communities to be given a chance for voting and decision-making in project selection.	148	1	5	4.87	0.46	***Agree***
11	The participation capacity-building gives the community a better sense of understanding of their needs	148	3	5	4.36	0.50	***Agree***

(Benchmark = 3.0; Source: Field Survey, 2022)

9.3.2. Assessment of the available amenities and social life of residents in the farm settlements

The majority of respondents (72.97%) believed the existing governance structure promotes good social life to a low extent for residents of the Farm Settlements while another 24.32% of respondents revealed that the existing governance structure promotes good social life to a very low extent for residents of the Farm

Settlements. The remaining 2.70% believed that the existing governance structure only promotes good social life to a moderate extent for the residents. The available amenities and social life of residents in the Farm Settlements were further examined and the results were presented in Table 11.

The respondents accepted only three of the ten research questions contained in this section. They agreed that: adequate and functional storage facilities are provided for use of farmers within the farm settlements with mean score 3.25; to the best of their knowledge, social sustainability is about people's quality of life, now and in the future with mean score 4.62; and that the existing governance structure is largely responsible for the under provision of amenities and under promotion of social life within the farm settlements with mean score 4.47. In other words, respondents disagreed that: the road networks within the farm settlements are in good condition and regularly maintained with mean score 1.14; there is adequate supply of pipe-borne water for the use of farmers in the farm settlements with mean score 1.38; there is the provision of adequate, well-equipped health facilities within the farm settlements with mean score 1.38; the housing facilities provided for farmers within the farm settlements are adequate and well maintained with mean score 1.09; and adequate, well-maintained elementary schools are provided for the use of farmers and their family within the farm settlements with mean score 1.24; among others.

Table 11. Assessment of the available Amenities and Social Life of Residents in the Farm Settlements

S/N	Assessment of the available amenities and social life of residents in the farm settlements	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
1	The road networks within the Farm Settlements are in good condition and regularly maintained.	148	1	5	1.14	0.49	***Disagree***
2	There is adequate supply of pipe-borne water for the use of farmers in the farm settlements	148	1	5	1.38	0.59	***Disagree***
3	There is the provision of adequate, well-equipped health facilities within the farm settlements	148	1	4	1.38	0.54	***Disagree***
4	The housing facilities provided for farmers within the farm settlements are adequate and well maintained.	148	1	3	1.09	0.33	***Disagree***
5	Adequate and functional storage facilities are provided for use of farmers within the farm settlements	148	2	5	3.25	1.47	***Agree***
6	Adequate security framework is provided for the protection of lives and properties within the farm settlements	148	2	5	2.73	1.28	***Disagree***
7	Appropriate technological innovations are available within the farm settlements to enhance farming activities and agricultural processing.	148	1	3	1.20	0.43	***Disagree***

S/N	Assessment of the available amenities and social life of residents in the farm settlements	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
8	Adequate, well-maintained elementary schools are provided for the use of farmers and their family within the farm settlements	148	1	4	1.24	0.51	***Disagree***
9	To the best of my knowledge, social sustainability is about people's quality of life, now and in the future.	148	2	5	4.62	0.56	***Agree***
10	The existing governance structure is largely responsible for the under provision of amenities and under promotion of social life within the farm settlements	148	1	5	4.47	0.94	***Agree***

(Benchmark = 3.0; Source: Field Survey, 2022)

9.3.3. Assessment of the environmental conditions within and around the farm settlements

The majority of the respondents (78.38%) admitted that the existing governance structure in the farm settlements promotes good environmental conditions to a very low extent, while additional 20.95% acknowledged that the existing governance structure in the farm settlements promotes good environmental conditions to a low extent. Just 0.68% of respondents opined that the existing governance structure in the farm settlements promotes good environmental conditions to a moderate extent. The results of the study carried out to assess the environmental conditions within and around the farm settlements were presented in Table 12.

The respondents agreed that: the actions of most farmers at the farm settlements can harm the natural environment with mean score 4.09; there is evidence of erosion and land degradation around the farm settlements with mean score 4.61; the leadership of the farm settlements should strictly enforce the rules and regulations that protect the environment with mean score 4.83; and that it is important to adopt the "Polluters-Pay-Principle," which states that people who pollute the land, water, or air should pay for the damage(s) they cause to the environment with mean score 4.78.

Table 12. Assessment of the environmental conditions within and around the farm settlements

S/N	Assessment of the environmental conditions within and around the farm settlements	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
1	The existing waste management system within the farm settlements is adequate and appropriate.	148	1	5	1.16	0.60	***Disagree***
2	The actions of most farmers at the farm settlements can harm the natural environment.	148	1	5	4.09	0.64	***Agree***

S/N	Assessment of the environmental conditions within and around the farm settlements	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
3	The leadership of the farm settlements regularly creates awareness and educates the farmers on the principles of waste management i.e. Reduce, Re-use and Recycling.	148	1	5	1.54	0.73	***Disagree***
4	Customers at the farm settlements are always informed about the environmental aspects and impacts of the farm products	148	1	5	1.12	0.66	***Disagree***
5	Goods and services procurement in the farm settlements are evaluated for environmental friendliness.	148	1	4	1.12	0.59	***Disagree***
6	There is evidence of erosion and land degradation around the farm settlements	148	2	5	4.61	0.64	***Agree***
7	The leadership of the farm settlements should strictly enforce the rules and regulations that protect the environment	148	3	5	4.83	0.38	***Agree***
8	Government regulatory agencies (e.g. Lagos state environmental protection agency) show a high level of commitment to environmental protection within the farm settlements	148	1	2	1.26	0.44	***Disagree***
9	It is important to adopt the "Polluters-Pay-Principle", which states that people who pollute the land, water, or air should pay for the damage(s) they cause to the environment.	148	1	5	4.78	0.55	***Agree***

(Benchmark = 3.0; Source: Field Survey, 2022)

9.4. Assessment of the overall sustainable development concepts within farm settlements

The results of the assessment of the overall sustainable development concepts within the three farm settlements, i.e., Ikorodu, Epe, and Badagry are presented in Table 13. The results showed that all seven research questions have a mean score that was greater than 3.0, meaning that respondents agreed with them. The respondents exhibited a satisfactory level of knowledge, perceptions and attitudes regarding the sustainable management of farm settlement projects.

In other words, the respondents agreed that it is important to understand the concepts of sustainable development to promote economic growth among farm owners in the farm settlements and that the adoption of the concepts of sustainable development would promote the understanding of economic functions within the society. Equally, they agreed that the leadership of the farm settlements should regularly create awareness and educate farm owners on how to operate sustainably, while also exhibiting enhanced social commitment e.g., setting up cooperative societies, partnering with NGOs, and implementing social projects.

Furthermore, respondents believed that the provision of financial aid and grants to farm owners in the farm settlements would encourage more people to consider agriculture as a valuable business, emphasizing that the sustainability of community-based projects is dependent on reliable financial resource. Finally, respondents agreed that for farm settlement schemes to remain sustainable, relevant government agencies must coordinate regular management of the beneficiaries and integrate them into the general management of the project.

Table 13. Assessment of the overall sustainable development concepts within the three farm settlements

S/N	Assessment of the overall sustainable development concepts	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
1	It is important to understand the concepts of Sustainable Development to promote economic growth among farm owners in Farm Settlements	148	1	5	4.40	0.89	***Agree***
2	The leadership of the farm settlements should regularly create awareness and educate farm owners on how to operate sustainably.	148	1	5	4.81	0.43	***Agree***
3	The provision of financial aid and grants to farm owners in the farm settlements would encourage more people to consider agriculture as a valuable business	148	3	5	4.94	0.31	***Agree***
4	The adoption of the concepts of sustainable development would promote the understanding of economic functions within the society.	148	2	5	4.66	0.53	***Agree***
5	The farm settlements' leadership should exhibit enhanced social commitment e.g., set up cooperative societies, partner with NGOs, and implement social projects.	148	2	4	4.30	0.51	***Agree***
6	For farm settlement schemes to remain sustainable, relevant government agencies must coordinate regular management of the beneficiaries and integrate them into the general management of the project.	148	3	4	4.47	0.51	***Agree***
7	The sustainability of community-based projects is dependent on reliable financial resource.	148	3	5	4.42	0.52	***Agree***

(Benchmark = 3.0; Source: Field Survey, 2022)

9.5. Assessment of the existing governance structure within the farm settlements

The majority of the respondents (94.59%) confirmed that the current leadership style within the three farm settlements, i.e., Ikorodu, Epe, and Badagry is the Community Leadership structure, whereby leaders are

chosen through elections. Only 5. 41% of respondents submitted that the leadership structure is the type that is being coordinated by government agency. This study further assessed the existing governance structure, and the results were presented in Table 14. According to the study, six of the nine assessed statements regarding the existing governance structure across the three farm settlements had mean score that were lower than 3.00 and hence were rejected. This means that respondents agreed with only three statements and disagreed with the remaining six. The rejected statements with their respective mean values include:

- The existing governance structure within the Farm Settlements effectively addresses the concerns of residents with mean score 1.30
- The leadership of the Farm Settlement is responsible and accountable with mean score 2.91
- Operational rules and regulations are regularly communicated to the community with mean score 0.38
- Government agencies, World Bank, and non-governmental organizations (NGOs) regularly partner with farm leadership to promote knowledge about mechanized farming operations with mean score 0.37
- Government extension workers regularly visit the farms to disseminate current information about improved farming activities with mean score 1.01
- The current leadership of the farm settlements has the capacity to influence people and institutions of authority to achieve sustainable development goals with mean score 1.45

However, respondents agreed and accepted that a good governance structure is a criterion to achieve sustainable development goals in any society with mean score 4.78. There are clear rules and regulations governing farming operations in the settlement with mean score 3.70, and there have been government interventions in the past to support development within the farm settlements with mean score 4.84.

Table 14. Assessment of the existing governance structure within the farm settlements

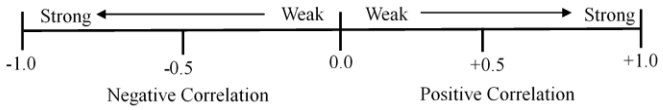
S/N	Assessment of the existing governance structure	N	Minimum	Maximum	Mean ($\bar{x}$)	Standard Deviation	Remarks
1	The existing governance structure within the Farm Settlements effectively addresses the concerns of residents	148	1	5	1.30	0.88	***Disagree***
2	The leadership of the Farm Settlement is responsible and accountable	148	1	5	2.91	1.22	***Disagree***
3	There are clear rules and regulations governing farming operations in the settlement	148	1	5	3.70	1.03	***Agree***
4	Operational rules and regulations are regularly communicated to the community	148	1	5	0.38	1.21	***Disagree***
5	Government agencies, world bank, and non-governmental organizations (NGOs) regularly partner with farm leadership to promote knowledge about mechanized farming operations	148	1	4	0.37	0.98	***Disagree***

6	Government extension workers regularly visit the farm to disseminate current information about improved farming activities	148	1	4	1.01	0.94	***Disagree***
7	There have been government interventions in the past to support development within the farm settlement	148	2	5	4.84	0.46	***Agree***
8	The current leadership of the farm settlements has the capacity to influence people and institutions of authority to achieve sustainable development goals.	148	1	4	1.45	0.59	***Disagree***
9	A good governance structure is a criterion to achieve sustainable development goals	148	3	5	4.78	0.43	***Agree***

(Benchmark = 3.0; Source: Field Survey, 2022)

9.6. Correlation coefficient statistics

Correlation coefficient (r) shows the strength and direction of correlations between two variables in a study. Usually, it is interpreted as follows:



9.6.1. Correlation coefficient of the existing governance structure and the engagement of community members in sustainable management of projects.

Correlations

		Governance Structure	Community engagement
Governance Structure	Pearson Correlation	1	.821**
	Sig. (2-tailed)		.000
	N	148	148
Community engagement	Pearson Correlation	.821**	1
	Sig. (2-tailed)	.000	
	N	148	148

**Correlation is significant at the 0.01 level (2-tailed).

Variables:

- Governance structure: refers to the existing systems, policies and framework guiding decision-making and operations in the farm settlement
- Community engagement: refers to the involvement of community members in the sustainable management of projects within the farm settlement.

Key Statistics:

- Pearson correlation coefficient (r) between governance structure and community dngagement 0.821
- Significance level (p-value): 0.000
- Sample size (N): 148

Discussion:

1. *Strength and direction of the relationship:* The Pearson correlation coefficient of 0.821 indicates a very strong positive relationship between the governance structure and community engagement. This means that as the quality or effectiveness of the governance structure improves, the level of community engagement in sustainable project management also tends to increase and vice-versa.
2. *Statistical significance:* The p-value of 0.000 (Which is less than 0.01) shows that this correlation is statistically significant at the 1% level. This means there is a very low probability that this correlation occurred by chance. Therefore, the relationship is reliable and meaningful.
3. *Practical implication:* Effective governance structures, those that are inclusive, transparent and accountable are likely to encourage greater participation from community members in managing sustainability – related projects. This suggest that policy reforms or capacity building efforts aimed at strengthening governance could directly enhance community involvement and project sustainability.

9.6.2. Correlation coefficient of the existing governance structure and available amenities/social life of residents in the farm settlements

Correlations

		Governance Structure	Amenities & Social life
Governance Structure	Pearson Correlation	1	.337**
	Sig. (2-tailed)		.000
	N	148	148
Amenities & Social life	Pearson Correlation	.337**	1
	Sig. (2-tailed)	.000	
	N	148	148

**Correlation is significant at the 0.01 level (2-tailed).

Variables:

- Governance structure: Refers to the systems and framework guiding leadership and decision making in the farm settlement.
- Amenities and Social Life: Refers to the availability and quality of infostructures, services and social opportunities for residents

Key Statistics:

- Pearson Correlation Coefficient (r): 0.337
- Significance Level (p-value): 0.000
- Sample Size: 148

Discussion:

1. *Strength and direction of the relationship:* The correlation coefficient of 0.337 indicates a moderate positive relationship between governance structure and the availability of amenities and social life. This suggests that better governance is associated with improved amenities and social conditions, but the relationship s not as strong as in the previous case (community engagement).
2. *Statistical significance:* The p-value of 0.000 confirms that the correlation is statistically significant at the 1% level. This means that the observed relationship is unlikely to be due to chance and is reliably present in the data.
3. *Practical implications:* This moderate correlation implies that the governance improvement alone may not be sufficient to drastically enhance amenities and social life without complementary investment in strategies.

9.6.3. Correlation coefficient of the existing governance structure and the environmental conditions within and around the farm settlements

Correlations

		Governance Structure	Environmental Issues
Governance Structure	Pearson Correlation	1	.684**
	Sig. (2-tailed)		.000
	N	148	148
Environmental Issues	Pearson Correlation	.684**	1
	Sig. (2-tailed)	.000	
	N	148	148

**Correlation is significant at the 0.01 level (2-tailed).

Variables:

- Governance Structure: Refers to the systems, policies and leadership frameworks in place within the farm settlement

- Environmental Issues: Refers to the state of environmental conditions within and around the settlements, including waste management, pollution, land use and ecological sustainability.

Key Statistics;

- Pearson Correlation Coefficient (r): 0.684
- Significance Level (p-value): 0.000
- Sample Size (N): 148

Discussion:

1. *Strength and direction of the relationship:* The correlation coefficient of 0.684 indicates a strong positive relationship between governance structure and environmental conditions. This means that better governance is strongly associated with improved environmental management and fewer environmental issues in and around the farm settlement.
2. *Statistical significance:* The p-value of 0.000 confirms that this relationship is statistically significant at the level 1%. This suggests that the observed correlation is highly reliable and not random chance

Practical implication:

Effective governance likely leads to better enforcement of environmental regulations, more sustainable land use practices, and greater accountability in managing environmental resources. Conversely, weak governance may result in neglect of environmental concerns, leading to degradation and unsustainable practices.

9.6.4. Correlation coefficient of the existing governance structure and the overall sustainable development concepts within the farm settlements in Lagos State

Correlations

		Governance Structure	Overall Sustainability
Governance Structure	Pearson Correlation	1	.851**
	Sig. (2-tailed)		.000
	N	148	148
Overall Sustainability	Pearson Correlation	.851**	1
	Sig. (2-tailed)	.000	
	N	148	148

**Correlation is significant at the 0.01 level (2-tailed).

Variables:

- Governance Structure: Refers to the quality, inclusiveness, and effectiveness of leadership and institutional frameworks in the farm settlement
- Overall Sustainability: Represents the integration and performance of sustainable development principles, economic viability, environmental protection and social equity within the settlement.

Key Statistics;

- Pearson Correlation Coefficient (r): 0.851
- Significance Level (p-value): 0.000
- Sample Size (N): 148

Discussion:

1. *Strength and direction of relationship:* The correlation coefficient of 0.851 indicates a very strong positive relationship between governance structure and overall sustainability. This suggests that effective governance is a critical driver of sustainable development in farm settlement.

2. *Statistical significance:* The p-value of 0.000 confirms that this relationship is statically significant at the 1% level, meaning the result is highly reliable and not due to chance.

3. *Practical implication:* Strong governance likely ensures better planning, resource allocation, stakeholder engagement, and accountability, all of which are essential for achieving sustainability.

These findings collectively underscore the central role governance in shaping sustainable outcomes in farm settlements. Strengthening governance structures could lead to more engaged communities, better living conditions, healthier environments, and broader adoption of sustainability practices. The findings reinforce the idea that governance reform is fundamental to sustainable practices.

10. Conclusion

This study offers valuable qualitative contribution to understanding the "Governance & sustainability in community agriculture: insights from Lagos State development projects". It offers insights that are particularly relevant to researchers and policymakers, as it presents a clear picture of the governance dynamics at play and identifies critical gaps that requires more deliberate attention. The findings reveal a significant relationship between the existing governance structures in the farm settlements and the subsisted experiences of farmers. Key issues identified include:

- Limited community participation in the farm estate settlement project management
- Poor infrastructure and social amenities
- Degraded environmental conditions.

These challenges highlight the consequences of weak governance and underscore the importance of inclusive, transparent and accountable structures in achieving sustainable agricultural development projects. Despite some limitations, the study lays a foundation for future research into the role of governance in sustainable development, encouraging the use of diverse approaches and methodologies. It concludes that

effective governance is essential for the long-term success of farm settlement schemes. To ensure sustainability, relevant government agencies must actively coordinate, support and integrate beneficiaries into broader project sustainability framework.

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APPENDIX 1. Research Questionnaire

Governance and Sustainability Challenges in Community-Based Agricultural Development Projects: A Case Study of Lagos State Nigeria

SECTION A: DEMOGRAPHIC DATA:		
1	What is your Gender?	☐ Male ☐ Female
2	What is your age bracket?	☐ 18–29yrs ☐ 30–39yrs ☐ 40–49yrs ☐ 50–59yrs ☐ Over 60yrs
3	What is your religion?	☐ Christianity ☐ Islam ☐ Traditional ☐ Atheist
4	How long have you been living in the farm settlement?	☐ 1 – 10yrs ☐ 11 – 20 ☐ 21 – 30 ☐ 31 – 40 ☐ 40 and above
5	What is your family structure?	☐ Single ☐ Monogamy ☐ Polygamy
6	What is your family size?	☐ 1 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ Over 20

7	What is your highest educational qualification?	☐ Primary ☐ Secondary ☐ Diploma ☐ Graduate ☐ Post-Graduate
8	What is your Farm Ownership Structure?	☐ Pioneer Government Allottee ☐ Sub-Leased Arrangement

SECTION B: ENGAGEMENT OF COMMUNITY MEMBERS IN THE SUSTAINABLE MANAGEMENT OF FARM SETTLEMENT PROJECTS

8) To what extent do the community members get engaged in the management of the farm settlements' projects?

☐ Low Extent ☐ Moderate Extent ☐reat Extent ☐ry Great Extent

9) Kindly indicate your agreement level to the statements below that relate to community engagement.

(N.B: SD=Strongly Disagree; D=Disagree, MA=Moderately Agree, A=Agree, and SA=Strongly Agree)

Statements	**SD (1)**	**D (2)**	**MA (3)**	**A (4)**	**SA (5)**
Community members participate in the planning phase of development projects					
The community members are fully involved in the implementation phase of development projects executed in the farm settlements					
Community members are involved in the process of monitoring and evaluating development projects					
Communities have a robust plan to engage those who are likely to be affected by any resolution and those with vested interests					
Participation in projects ensures communities have a chance to shape the outcome and project sustainability					
Satisfying key community requirements is central to achieving successful project outcomes and sustainability.					
The project beneficiaries are involved in the various stages of the project process					
The community feels a sense of duty and willingness to participate in their own development					
Participation is critical to providing local solutions to local problems					
There is a need for communities to be given a chance for voting and decision-making in project selection.					
The participation capacity-building gives the community a better sense of understanding of their needs					

SECTION C: ASSESSMENT OF THE AVAILABLE AMENITIES AND SOCIAL LIFE OF RESIDENTS IN THE FARM SETTLEMENTS

10) To what extent does the existing governance structure promote good social life for residents of the Farm Settlements?

☐ Low Extent ☐ Moderate Extent ☐ Great Extent ☐ Very Great Extent

11) Kindly indicate your agreement level to the statements below that relate to the presence of amenities and social life of residents in the Farm Settlement.

(N.B: SD=Strongly Disagree; D=Disagree, MA=Moderately Agree, A=Agree, and SA=Strongly Agree)

Statements	**SD (1)**	**D (2)**	**MA (3)**	**A (4)**	**SA (5)**
The road networks within the Farm Settlements are in good condition and regularly maintained.					
There is adequate supply of pipe-borne water for the use of farmers in the farm settlements					
There is the provision of adequate, well-equipped health facilities within the farm settlements					
The housing facilities provided for farmers within the farm settlements are adequate and well maintained.					
Adequate and functional storage facilities are provided for use of farmers within the farm settlements					
Adequate security framework is provided for the protection of lives and properties within the farm settlements					
Appropriate technological innovations are available within the farm settlements to enhance farming activities and agricultural processing.					
Adequate, well-maintained elementary schools are provided for the use of farmers and their family within the farm settlements					
To the best of my knowledge, social sustainability is about people's quality of life, now and in the future.					
The existing governance structure is largely responsible for the under provision of amenities and under promotion of social life within the farm settlements					

SECTION D: ASSESSMENT OF THE ENVIRONMENTAL CONDITIONS WITHIN AND AROUND THE FARM SETTLEMENTS

12) To what extent does the existing governance structure promote good environmental conditions in the Farm Settlements?

☐ Low Extent ☐ Moderate Extent ☐ Great Extent ☐ Very Great Extent

13) Kindly indicate your agreement level to the statements below that relate to the environmental conditions in the Farm Settlement.

N.B: SD=Strongly Disagree; D=Disagree, MA=Moderately Agree, A=Agree, and SA=Strongly Agree

Statements	SD (1)	D (2)	MA (3)	A (4)	SA (5)
The existing waste management system within the farm settlements is adequate and appropriate.					
The actions of most farmers at the farm settlements can harm the natural environment.					
The leadership of the farm settlements regularly creates awareness and educates the farmers on the principles of waste management i.e. Reduce, Re-use and Recycling.					
Customers at the farm settlements are always informed about the environmental aspects and impacts of the farm products					
Goods and services procurement in the farm settlements are evaluated for environmental friendliness.					
There is evidence of erosion and land degradation around the farm settlements					
The leadership of the farm settlements should strictly enforce the rules and regulations that protect the environment					
Government regulatory agencies (e.g. Lagos State Environmental Protection Agency) show a high level of commitment to environmental protection within the farm settlements					
It is important to adopt the "Polluters-Pay-Principle", which states that people who pollute the land, water, or air should pay for the damage(s) they cause to the environment.					

SECTION E: ASSESSMENT OF THE OVERALL SUSTAINABLE DEVELOPMENT CONCEPTS WITHIN THE FARM SETTLEMENTS

14) Kindly indicate your agreement level to the statements below that relate to the overall sustainable development within the Farm Settlements.

(N.B: SD=Strongly Disagree; D=Disagree, MA=Moderately Agree, A=Agree, and SA=Strongly Agree)

Statements	SD (1)	D (2)	MA (3)	A (4)	SA (5)
It is important to understand the concepts of Sustainable Development to promote economic growth among farm owners in Farm Settlements					
The leadership of the farm settlements should regularly create awareness and educate farm owners on how to operate sustainably.					
The provision of financial aid and grants to farm owners in the farm settlements would encourage more people to consider agriculture as a valuable business					

The adoption of the concepts of Sustainable Development would promote the understanding of economic functions within the society.					
The farm settlements' leadership should exhibit enhanced social commitment e.g., set up cooperative societies, partner with NGOs, and implement social projects.					
For farm settlement schemes to remain sustainable, relevant government agencies must coordinate regular management of the beneficiaries and integrate them into the general management of the project.					
The sustainability of community-based projects is dependent on reliable financial resource.					

SECTION F: ASSESSMENT OF THE EXISTING GOVERNANCE STRUCTURE WITHIN THE FARM SETTLEMENTS

15) What type of leadership structure exists in your farm settlement?

☐ Coordination by Government Agency ☐ Community Leadership
☐ Public/Private Partnership

16) If Community Leadership, how are the leaders chosen?

☐ Volunteering ☐ Balloting ☐ Nominations ☐ Monarchy ☐ Others

17) Kindly indicate your agreement level to the statements below that relate to the existing governance/leadership structure.

(N.B: SD=Strongly Disagree; D=Disagree, MA=Moderately Agree, A=Agree, and SA=Strongly Agree)

Statements	**SD (1)**	**D (2)**	**MA (3)**	**A (4)**	**SA (5)**
The existing governance structure within the Farm Settlements effectively addresses the concerns of residents					
The leadership of the Farm Settlement is responsible and accountable					
There are clear rules and regulations governing farming operations in the settlement					
Operational rules and regulations are regularly communicated to the community					
Government Agencies, World Bank, and Non-Governmental Organizations (NGOs) regularly partner with Farm Leadership to promote knowledge about mechanized farming operations					
Government Extension Workers regularly visit the farm to disseminate current information about improved farming activities					

There have been government interventions in the past to support development within the farm settlement					
The current leadership of the farm settlements has the capacity to influence people and institutions of authority to achieve sustainable development goals.					
A good governance structure is a criterion to achieve sustainable development goals					