

An agricultural development model to achieve food security in the government of Lamandau Regency, Central Kalimantan Province

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Abstract: This study aims to formulate a decentralization-based agricultural development model to effectively achieve food security in Lamandau Regency, Central Kalimantan. A qualitative approach employing a case study method was used to explore the dynamics of policies, strategies, and agricultural development management practices at the local level. The findings reveal that while the agricultural sector plays a dominant role in the local economic structure, its implementation continues to face significant challenges, including land-use conversion, lack of integrated planning, low community participation, limited data availability, and weak intersectoral coordination. Although regional autonomy presents opportunities for local policy innovation, the study found that limited institutional capacity and suboptimal budget allocation hinder the effectiveness of agricultural development programs. This research proposes an integrated agricultural development model that emphasizes intersectoral synergy, institutional strengthening, optimization of local resources, and enhanced community participation in the planning and implementation of food security programs. The proposed model is designed to be adaptive to local challenges and climate change, while aligning with principles of sustainability. Theoretically, this study contributes to the discourse on development administration, particularly in the context of decentralization and food governance. Practically, the proposed model serves as a reference for formulating more responsive, inclusive, and evidence-based local policies aimed at achieving sustainable food security.

Keywords: *Agricultural development, Community participation, Decentralization, Food security, Lamandau Regency, Local institutions, Development administration, Strategic planning.*

1. Introduction

Indonesia, as a tropical agrarian country, possesses vast potential in the agricultural sector—not only in meeting domestic food demands but also in contributing to exports and employment. However, this positive contribution does not preclude the sector from facing persistent challenges. According to Statistics Indonesia [1] low productivity and limited land ownership have kept farmers' incomes low, making agriculture an unattractive profession for younger generations. The fact that more than 61% of farmers are over the age of 45 reflects a serious crisis in farmer regeneration.

Population growth and land degradation further compound the complexities of achieving food security, which is legally defined by Law No. 18 of 2012 as the availability of sufficient, safe, nutritious, and affordable food. In addition to domestic pressures, global climate change and shifting consumer preferences have intensified the stress on national agricultural systems [2].

In the context of post-2000 regional autonomy, agricultural development has become a critical responsibility of local governments. The decentralization model necessitates a paradigm shift from top-down to bottom-up planning. As explained by Kartasasmita [3] local governments are expected to play

a central role as facilitators of development based on local needs. This underscores the urgency of establishing an integrated agricultural development management system.

Lamandau Regency in Central Kalimantan Province serves as a concrete example, where the agricultural sector contributes approximately 30% to the Gross Regional Domestic Product (GRDP). However, agricultural development in the region faces seven major challenges: weak integrated planning, suboptimal mobilization of resources, low community participation, unfocused policy implementation, inadequate budget allocation, poor inter-agency coordination, and limited availability of data and development information systems.

Theoretically, the framework of development administration is employed as a key analytical lens, encompassing policy formulation, resource management, and systematic program implementation [4]. This framework is integrated with theories of decentralization and participation [5, 6] which emphasize the importance of sectoral integration and community engagement as critical success factors.

Furthermore, the empirical gap analysis reveals the need for in-depth research on strategic issues such as land-use conversion, water resource management, climate adaptation, and local food diversification. This study seeks to formulate an agricultural development model that not only reflects macro-level planning but also emphasizes institutional integration and stakeholder synergy at the local level.

Overall, this research contributes to the advancement of development administration theory through a case study of Lamandau Regency, offering an integrated approach to achieving sustainable and equitable food security. Its implications extend beyond the local context and may serve as a reference for agricultural development policy in other regions with similar characteristics.

2. Literature Review

Agricultural development plays a strategic role in achieving food security, particularly in regions with agrarian characteristics such as Lamandau Regency, Central Kalimantan. Within the theoretical framework outlined in this literature review, agricultural development is conceptualized as a complex, multidimensional process that involves a wide array of actors and resources. It is not solely directed at increasing production but also addresses environmental sustainability, equitable access, and institutional integration within the local governance system.

The fundamental concept of agricultural development in this dissertation draws upon the perspectives of Larson and Ribot [6] who assert that agricultural development goes beyond enhancing crop yields; it also entails social and institutional transformation that elevates the quality of life in rural communities. They argue that the agricultural sector should be positioned as a driver of both local and national economic growth, capable of alleviating poverty and generating sustainable employment. Consistently, Ellison, et al. [7] emphasizes that effective agricultural development must incorporate spatial planning, equitable resource distribution, and improved farmer access to technology, markets, and capital.

Food security—viewed as the central goal of agricultural development—is also approached through a multidimensional lens as articulated by the Fischer [8]. Food security encompasses four interrelated dimensions: availability, access, utilization, and stability. These dimensions must be analyzed concurrently to ensure that policies effectively address the challenges observed in practice. In a local context such as Lamandau, food security is influenced not only by production capacity but also by distribution systems, logistics management, and the institutional infrastructure necessary to support sustained production and consumption.

This dissertation adopts the development administration approach as a critical framework for understanding the policy processes and management of agricultural development. Jorgenson [9] describes development administration as a system encompassing the stages of planning, implementation, evaluation, and supervision. Within this framework, the effectiveness of agricultural policy is closely tied to the capacity of local governments to manage human, financial, and informational resources efficiently. Jütting, et al. [10] further notes that development administration in developing

countries such as Indonesia often grapples with the dualism between modern and traditional systems, resulting in overlapping authority, bureaucratic rigidity, and limited public participation.

Decentralization emerges as a pivotal point in the theoretical discourse on local development administration. Since the implementation of regional autonomy, district governments have been granted broad authority to design and execute development policies, including those in the agricultural sector. Agrawal and Ribot [5] highlight the importance of substantive decentralization—beyond administrative delegation to include political and fiscal dimensions—enabling local governments to allocate resources based on the actual needs of their communities. However, Dorre [11] caution that decentralization without corresponding institutional strengthening may lead to fragmentation and weakened intersectoral coordination.

In practice, agricultural development at the local level frequently encounters obstacles arising from weak institutional integration and suboptimal stakeholder coordination. This makes an institutional approach highly relevant for analysis. Norton [12] defines institutions as a set of formal and informal rules that shape the behavior of individuals and organizations within a society. In the context of agricultural development, institutions encompass not only formal government agencies such as the Department of Agriculture or the Food Security Agency but also farmer groups, microfinance institutions, and customary organizations involved in collective decision-making.

This literature review also explores the significance of participatory planning as an approach that bridges local needs with long-term development goals. Cheema and Roundinelli [13] introduces the concept of Participatory Rural Appraisal (PRA), which emphasizes active community involvement in identifying problems, planning solutions, and monitoring and evaluating programs. This approach enhances policy legitimacy, while also increasing accountability and the effectiveness of implementation on the ground.

Furthermore, strategic planning in local governance is examined as a crucial tool in development management. Bardhan [14] outlines strategic planning as a process that includes internal and external environmental analysis (e.g., using SWOT), formulation of vision and mission, development of strategic goals, and establishment of measurable performance indicators. In regional governance, strategic planning should underpin the formulation of the Regional Medium-Term Development Plan (RPJMD) and sectoral plans, including those related to agriculture.

Evidence-based policymaking is an integral part of this strategic approach. In agricultural development, decisions must be grounded in accurate, relevant, and up-to-date data—including information on production, consumption, prices, climate, and market preferences. This demands the strengthening of agricultural information systems, enhancement of human resource capacity, and promotion of cross-sectoral and intergovernmental collaboration.

Overall, this literature review builds the argument that effective and sustainable agricultural development cannot be separated from institutional, administrative, and socio-political dimensions. An integrative approach—drawing upon development administration, decentralization, institutional theory, participation, and strategic planning—forms the foundation for constructing an agricultural development model for Lamandau Regency. Accordingly, the success of food security should be assessed not only through production outputs but also through the extent to which local governments can foster stakeholder synergy, empower communities, and respond to local dynamics in a structured and adaptive manner.

3. Research Methodology

To address the complex problem formulation concerning agricultural development and food security in Lamandau Regency, this study adopts a qualitative methodological approach grounded in a constructivist paradigm. This approach was chosen as it allows for an in-depth exploration of social realities and public policy from the perspectives of local actors and stakeholders. The constructivist paradigm provides an ontological foundation that views reality as multiple, socially constructed, and

shaped by interaction and the meaning-making processes of individuals involved in development dynamics.

The qualitative methodology aims to capture the meanings, structures, and social processes underlying regionally based agricultural development. Rather than relying solely on quantitative measurement, the study seeks a comprehensive understanding of actor relations, institutional structures, and policy contexts that influence the success or failure of agricultural development at the local level. As Dirjen PSP Kementerian Pertanian [15] argue, qualitative research seeks to uncover deep meanings and understanding of complex phenomena through flexible and participatory data collection techniques.

The study was conducted in Lamandau Regency, Central Kalimantan Province, which was purposively selected due to its distinctive characteristics as an agrarian region currently facing significant challenges in achieving food security. Lamandau represents a suitable case for examining decentralized agricultural development in Indonesia, given its policy dynamics, institutional roles, and the complex involvement of local communities. Purposeful site selection is a common strategy in qualitative research to ensure that the context studied offers rich, relevant insights aligned with the study's focus.

Data collection involved multiple techniques: in-depth interviews, participatory observation, document analysis, and focus group discussions (FGDs). In-depth interviews were conducted with key informants, including local government officials, farmers, agricultural extension workers, community leaders, and academics with expertise in agricultural development and food security. Informants were selected using purposive and snowball sampling, in which participants were referred by previous informants based on their relevance and strategic knowledge.

Participatory observation was employed to obtain firsthand insight into social dynamics, agricultural practices, interactions between farmers and government institutions, and local resource management behaviors. This technique enriched empirical understanding beyond what interviews alone could capture. Document analysis involved a review of policy documents, statistical data, reports from the agriculture department, regional development plans (RPJMD), strategic plans (Renstra), and local regulations related to agriculture and food security.

FGDs were conducted to bring together multiple stakeholders in a constructive discussion forum, allowing the researcher to identify key issues, perform data triangulation, and validate preliminary findings from interviews and field observations. This aligns with Kartasasmita [3] triangulation principle, which enhances research validity and reliability by converging data from multiple sources.

Data analysis followed the interactive model developed by Miles, et al. [16] consisting of three primary stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting, focusing, and simplifying information from various sources to enable systematic analysis. Data display included thematic narratives, tabulations, and visual mapping to illustrate relationships among actors and key factors influencing agricultural development. The final stage, conclusion drawing, involved interpreting emerging patterns, themes, and meanings, and linking them to relevant theoretical frameworks.

In analyzing the data, the study employed grounded theory to build a theoretical understanding from the ground up, based on empirical evidence gathered in the field. As developed by Mohammed [17] grounded theory seeks to generate substantive theory rooted in contextual realities rather than relying solely on pre-existing theoretical models. Accordingly, the findings of this study aim to produce a context-sensitive, locally responsive model of agricultural development in Lamandau Regency.

Data validity and trustworthiness were ensured through source triangulation, method triangulation, and theoretical triangulation. These strategies enabled the researcher to verify the consistency of information across different perspectives, content, and theoretical relevance. Credibility was further reinforced through member checking, wherein interpretations of the data were confirmed with the original informants to ensure alignment with their intended meanings.

To maintain objectivity and research integrity, the researcher applied the principle of reflexivity—critical self-awareness of the researcher's role and position during social interactions throughout the

data collection process. Reflexivity helps prevent interpretive bias and sharpens analytical insight into the complex social dynamics under study. Ethical considerations were strictly upheld through informed consent, confidentiality protections, and transparent communication of the study's objectives and potential impacts to all participants.

Overall, the methodological approach in this study is grounded in constructivist philosophy, qualitative strategy, and scientifically tested analytical techniques. This approach was chosen to ensure analytical depth, contextual accuracy, and high policy relevance. The agricultural development model resulting from this study is thus expected to provide concrete contributions to public policymaking, institutional strengthening, and the achievement of sustainable food security in agrarian regions of Indonesia.

4. Research Findings

The findings of this study reveal a number of critical insights into the implementation of agricultural development within the framework of food security in Lamandau Regency. Broadly, agricultural development in the region continues to face significant structural and institutional constraints, despite ongoing efforts through local policies and national programs. The study identifies seven primary issues hindering the realization of a sustainable and food-secure agricultural system: weak development planning, limited resource mobilization, low community participation, unfocused policy implementation, suboptimal budget allocation, ineffective inter-agency coordination, and insufficient data infrastructure and information systems.

Agricultural development planning in Lamandau is not fully grounded in reliable data or the actual needs of the farming community. This has led to misalignments between plans and program implementation on the ground. Within the theoretical framework of development administration proposed by Moleong [18] uncoordinated and minimally participatory planning processes risk producing ineffective policies. This weakness is exacerbated by the underutilization of local potential, which should ideally serve as the foundation for agrarian regional development.

Resource mobilization—human, technological, and financial—remains inadequate. While support from the central government exists through national agricultural programs, the limited institutional capacity at the regional level has hampered the effectiveness of these initiatives. As North (1990) explains in institutional theory, institutions play a vital role in shaping actors' behavior. In this context, weak local institutions are unable to consistently support policy implementation.

Community participation in the planning and implementation of agricultural development is also relatively low. Most programs are formulated through top-down processes with minimal dialogue involving farmers—the principal stakeholders. This condition reflects the dysfunction of participatory mechanisms, as outlined in Cheema and Roundinelli [13] Participatory Rural Appraisal (PRA) approach, in which communities should serve as active agents in development processes. The lack of farmer involvement undermines their sense of ownership over programs, ultimately affecting program sustainability.

The implementation of agricultural development policies in Lamandau shows signs of fragmentation. Many programs operate in sectoral silos without institutional linkage, thus missing opportunities for synergy. This observation aligns with Nawawi and Fitranita [19] critique of bureaucratic dysfunction in development administration in developing countries, where poor inter-agency coordination inhibits policy effectiveness.

One critical issue identified is the budgeting process. The local government has yet to prioritize the agricultural sector in its budget allocations. Funds allocated to agriculture remain relatively limited compared to other sectors, rendering them insufficient to support technological innovation, infrastructure development, and the strengthening of farmer institutions. From the standpoint of strategic planning theory as presented by Ngusmento [20] budget allocations should be aligned with strategic priorities outlined in regional development plans.

Coordination among local agencies remains weak. Relevant departments often operate in isolation without effective communication platforms. This impedes cross-sectoral integration, which is essential for agricultural development encompassing production, distribution, consumption, and environmental protection. Hadiz [21] multi-stakeholder planning approach becomes particularly relevant here, emphasizing the need for cross-sectoral collaboration and multi-actor participation in development decision-making.

Another significant finding is the absence of an accurate and integrated agricultural development database. The lack of a robust information system hinders proper program planning and evaluation. This situation runs counter to the principles of evidence-based policymaking, which stress the necessity of data-driven decision-making. The unavailability of valid data undermines both the accountability and effectiveness of local policy initiatives.

Nonetheless, the study also highlights substantial potential that can be leveraged to strengthen the agricultural system in Lamandau Regency. The availability of arable land, the diversity of local commodities, and the community's aspirations to improve their welfare represent vital social and ecological assets. When combined with an adaptive, participatory, and data-driven development model, these potentials can be transformed into strategic advantages for building regional food security.

In conclusion, the study presents a comprehensive overview of the empirical realities of agricultural development in Lamandau Regency. The findings suggest an urgent need to reformulate local policies toward greater integration, strengthen institutional capacities, and develop digital agricultural information systems. Furthermore, participatory and collaborative approaches must be prioritized to ensure that policies possess social legitimacy and long-term sustainability.

5. Discussion

This section elaborates on the research findings by critically engaging with relevant theories of development, institutional analysis, and public administration. The study demonstrates that agricultural development in Lamandau Regency continues to face multidimensional challenges that cannot be resolved through purely technical approaches. Accordingly, this dissertation advocates for an agricultural development model grounded in institutional integration and multi-actor participation as a more contextual and sustainable solution.

One of the core arguments presented is the need to reposition the role of local government in agricultural development. Within the framework of development administration, as articulated by Noor [22] local governments should not be perceived merely as technical implementers of central government policy, but rather as initiators and facilitators of development who possess an in-depth understanding of local contexts. However, in practice, weaknesses persist in cross-sectoral coordination, participatory planning, and the alignment between planning and budgeting at the regional level.

The discussion also highlights low community participation as a consequence of the predominance of top-down development approaches. In line with participatory theory as advanced by Cheema and Roundinelli [13] development should be rooted in the mobilization of local knowledge and the active engagement of communities at every stage of policy formulation. In Lamandau, the limited dialogue between farmers and local authorities has led to policy ineffectiveness and a weak sense of ownership over implemented programs.

Institutional aspects emerge as another critical focus. Norton [12] institutional theory, institutions are defined as the formal and informal rules that structure incentives and constraints for actors in the development process. In this regard, agricultural development institutions in Lamandau remain fragmented, poorly coordinated, and unable to establish incentive systems that enhance farmer capacity. This institutional inertia contributes to policy stagnation, whereby well-intentioned policies fail to generate meaningful change on the ground.

The discussion further connects research findings to strategic planning theory as proposed by Ojha and Roy [23] who underscores the importance of articulating a shared vision, mapping stakeholders, and aligning strategy with implementation. In Lamandau, the absence of a holistic strategic planning

document for the agricultural sector has led to resource inefficiencies and overlapping mandates among local agencies.

Overall, this discussion affirms that the challenges of agricultural development at the regional level stem not only from technical deficiencies but also from structural and institutional factors. Therefore, this dissertation proposes a model of agricultural development based on institutional integration, the strengthening of local government capacity, and the active involvement of communities. Such a model is deemed most relevant within the framework of regional autonomy and is expected to address food security issues in a more comprehensive and sustainable manner, in alignment with the principles of inclusive and locally grounded development emphasized in global literature.

6. Conclusion

This study concludes that agricultural development in Lamandau Regency faces a range of fundamental challenges that are systemic and structural in nature, necessitating a strategic and integrative approach to achieving sustainable food security. The findings reveal that, overall, agricultural development policies in the region have yet to be fully planned and implemented in a comprehensive manner. The lack of data-driven planning, weak inter-institutional coordination, and limited community participation are identified as key factors undermining the effectiveness of existing agricultural programs.

The central conclusion of this research underscores the persistent gap between formal policies formulated by local governments and the realities of field-level implementation. This misalignment is rooted in the weakness of local institutions, which should serve as the cornerstone of decentralized governance. Local governments have yet to function optimally as drivers of development due to sectoral bureaucracies that are neither adaptive nor responsive to the dynamic needs of local communities. Within this context, the study highlights the importance of strengthening local institutional capacities to enable more effective coordination across sectors and stakeholders.

The study further concludes that community participation—particularly that of farmers as key actors in the local food system—has not been adequately empowered. Top-down approaches still dominate planning and decision-making processes, resulting in a low sense of ownership over development programs. In the long term, this undermines both the sustainability and effectiveness of policy interventions. Consequently, empowering communities through participatory approaches emerges as a strategic imperative highlighted by this research.

This dissertation has successfully developed a model of agricultural development grounded in institutional integration and community participation. The model is informed by empirical analysis and anchored in theoretical frameworks from development administration, institutional theory, and participatory approaches. It positions stakeholder synergy as a critical precondition for the effective design, implementation, and evaluation of agricultural policies. Additionally, the development of data- and technology-driven agricultural information systems is identified as a key element to support accurate and transparent decision-making.

Overall, this dissertation makes both theoretical and practical contributions to the fields of public administration and agricultural development. Theoretically, it enriches scholarly discourse on the intersection between local institutions, community participation, and the success of food security policies. Practically, the proposed model may be adopted by other local governments that share similar characteristics with Lamandau Regency. Thus, while grounded in a local context, the study holds potential for national-level adaptation as part of a broader strategy for inclusive and sustainable agricultural and food security development.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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