Analysis of the Need for Innovation in Agricultural Land Conversion Prevention Policies in Bengkulu City from a Regulatory Perspective

Ria Sari Putri[1], Sinta Ningrum[2], Candradewini Candradewini[3]
[1,2,3]Universitas Padjadjaran, Bandung, Indonesia
Email: ria23004@mail.unpad.ac.id

Abstract

The conversion of agricultural land has become a strategic issue with direct implications for food security, particularly in urban areas experiencing rapid development and population growth. Bengkulu City, as a provincial capital, has also undergone intensive agricultural land conversion. However, to date, no specific local policy has been established to ensure the protection of sustainable food agricultural land. This study examines the role of local regulations in preventing agricultural land conversion while identifying the need for adaptive policy innovations aligned with the local characteristics of Bengkulu City. Data were collected through in-depth interviews with relevant stakeholders, field observations in agricultural areas affected by land conversion, and document analysis of applicable local regulations. Data analysis followed the Miles and Huberman interactive model, reinforced by NVivo-assisted qualitative analysis to identify key themes and regulatory indicators. The findings reveal that the Bengkulu City Government currently relies on Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021-2041) concerning the Regional Spatial Plan as the primary instrument for controlling agricultural land conversion. Although this regulation normatively establishes spatial zoning, it has not effectively restrained agricultural land conversion due to the absence of specific provisions on the protection of sustainable food agricultural land. NVivo analysis identified three major regulatory indicators: regulations that support innovation, regulations that hinder innovation, and bureaucratic hierarchy. The lack of a specific regulation on Sustainable Food Agricultural Land Protection (LP2B), weak law enforcement, and complex cross-sectoral coordination are the main factors inhibiting policy innovation. This study concludes that ineffective control of agricultural land conversion in Bengkulu City is not caused by regulatory rigidity but by overreliance on general spatial planning policies without supporting technical and innovative derivative regulations. Therefore, this research recommends the formulation of a specific Local Regulation on Sustainable Food Agricultural Land Protection (LP2B) as an adaptive and integrated policy innovation.

Keywords: *Agricultural Land Conversion; Regulation; Policy Innovation.*

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A. INTRODUCTION

Agricultural land conversion is a phenomenon that, in practice, is difficult to avoid and continues to occur across many regions (Pratomo et al., 2022). This condition is closely associated with rapid infrastructure development, increasing demand for land for non-agricultural purposes, and structural economic changes that drive shifts in land utilization patterns (Wijayanti & Pratomo, 2019).

Land conversion remains an inevitable process, particularly alongside rising economic demands and continuous population growth (Cahyono et al., 2021). Population expansion directly increases spatial needs, both for settlement development and food production (Frandani & Harini, 2020). This situation

intensifies competition between agricultural and non-agricultural sectors for land use, ultimately triggering the transformation of agricultural land into alternative functions (Hossaimah & Subari, 2017).

The conversion of paddy fields to non-agricultural uses has now evolved into a critical issue in many regions, especially in developing countries characterized by rapid economic growth and urbanization. This phenomenon has significant implications for the sustainability of the agricultural sector, food security, and ecological balance. Over recent decades, this issue has gained increasing attention and has become a central agenda in agricultural and environmental policy formulation (Sudarma et al., 2024).

As a response to agricultural land conversion, the Indonesian government enacted Law No. 41 of 2009 on the Protection of Sustainable Agricultural Land to safeguard the continuity of agricultural areas. This law aims to prevent substantial reductions in agricultural land caused by uncontrolled conversion pressures. Such policy intervention is essential to ensure that agricultural land remains the primary foundation of national food production.

Carl Friedrich defines public policy as a series of activities formulated by individuals, groups, or governments within a specific environmental context, shaped by various constraints and opportunities, and directed toward solving existing problems (Pramono, 2020). Accordingly, governments are required to establish public policies to regulate land use according to designated functions for agriculture, settlement, industry, and environmental conservation. With clear policy frameworks and effective implementation, governments can control agricultural land conversion and minimize its negative impacts on food security.

Bengkulu City, as the administrative center of Bengkulu Province, covers a land area of approximately 151.70 km² and had a population of 391,120 in 2023 (BPS Bengkulu City, 2024). As a coastal city on the western coast of Sumatra, Bengkulu possesses significant potential in the fisheries sector. However, rapid urban development has led to substantial shifts in land use patterns. The conversion of agricultural land poses a serious risk to regional food security.

Empirical evidence confirms the occurrence of agricultural land conversion in Bengkulu City. Yurike et al. (2024) reported that land use transformation in Bengkulu City experienced relatively rapid changes between 2014 and 2024. Although paddy field areas slightly increased, the total agricultural land area declined by 49.80%. This reduction was primarily driven by land conversion into residential areas, which expanded by 29.77%, resulting in a decline in rice production from 6,132 tons in 2021 to 5,234.65 tons in 2023. Similarly, Yurike et al. (2022) found that in Muara Bangkahulu District, land was predominantly utilized for plantations, agricultural zones, and settlements. Between 2010 and 2022, approximately 174.98 hectares of land in this district were converted into residential areas. This condition led to decreased agricultural production and shrinking food crop cultivation areas. Paddy rice production in 2018 reached 6,048.61 tons with a harvested area of 1,201 hectares, but by 2019, production had declined sharply to

1,433.76 tons with only 238.19 hectares harvested in Muara Bangkahulu District.

Although Bengkulu City holds urban status, it still possesses relatively diverse agricultural potential, including plantation, horticulture, biopharmaceutical, livestock, and fisheries subsectors. Nevertheless, in recent years, substantial land use changes have occurred, driven by the expansion of coconut and oil palm plantations as well as residential development, which has gradually converted agricultural land. A study conducted in the Air Hitam irrigation area in Bengkulu revealed a sharp decline in paddy field coverage, from approximately 71.84% in 2000 to 47.65% in 2020. During the same period, oil palm plantation areas increased significantly, reaching 38.74% of the total territory. These shifts in land use structure have negatively affected rice production levels and food security conditions in the region (Barchia et al., 2023).

At the provincial level, regional regulations on Sustainable Food Agricultural Land Protection have been enacted in North Bengkulu Regency through Local Regulation No. 1 of 2023 and in South Bengkulu Regency through Local Regulation No. 1 of 2023, both containing similar regulatory provisions. However, Bengkulu City has not yet established a specific local regulation governing the control of sustainable food agricultural land conversion. The city government has enacted Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021–2041). Although this regulation addresses spatial planning, it does not specifically regulate the protection or conversion control of agricultural land. The absence of such specific regulatory arrangements may accelerate the transformation of agricultural land into non-agricultural uses, thereby posing risks to local food security.

Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021–2041) currently serves as the primary policy instrument governing land conversion in Bengkulu City. However, the policy substance does not incorporate innovative strategies for agricultural land protection. The regulation remains macro-oriented and lacks technical mechanisms to safeguard existing agricultural land, including incentive schemes and community participation frameworks to maintain land sustainability. This condition indicates that conventional regulatory approaches have been ineffective in preventing agricultural land conversion. Therefore, a new policy approach is required in the form of more flexible, integrative, and locally adaptive policy innovation.

Supporting this argument, Pratomo & Wijayanti (2023) emphasized that comprehensive strategies to control agricultural land conversion include the establishment of agricultural land protection policies, stabilization of grain prices and production costs, provision of agricultural infrastructure, enhancement of human resource capacity through extension programs, and implementation of area-based agricultural development initiatives.

Mufariq et al. (2022) reported that food production sustainability is increasingly threatened by the conversion of agricultural land for non-agricultural purposes. They emphasized that innovative local policies for sustainability are essential to promote the adoption of agricultural technologies. Similarly, Wibisono &

Widowaty (2023) found that the rate of agricultural land conversion in the Special Region of Yogyakarta continues to increase annually, primarily driven by economic factors and population growth. The Regional Government of Yogyakarta regulates the protection of food agricultural land through Local Regulation No. 6 of 2021, amending Local Regulation No. 10 of 2011 on the Protection of Food Agricultural Land. Future land conversion control strategies are directed toward suppressing conversion activities by reducing driving factors, regulating conversion processes to mitigate potential impacts, and neutralizing or addressing the consequences of land conversion.

Previous studies provide valuable insights into strategies and the importance of controlling agricultural land conversion. However, these studies have not comprehensively analyzed new policy instruments that can be utilized by local governments to prevent land conversion in a contextual and adaptive manner, such as in Bengkulu City. As a consequence of agricultural land conversion, Bengkulu City faces significant challenges in maintaining food security. Policy innovation in land conversion control is therefore crucial to addressing this issue. Nevertheless, specific studies on agricultural land conversion policy in Bengkulu City remain limited.

Policies for preventing agricultural land conversion cannot be designed uniformly without considering regional characteristics. National one-size-fits-all policies risk weakening effectiveness in regions with different capacities and challenges (Ningrum, 2025). Therefore, adaptive policy innovation is required, particularly in designing local regulatory frameworks.

In this study, the selection of OECD theory (OECD, 2017) is based on the consideration that Bengkulu City has not yet developed specific policy innovations for preventing agricultural land conversion. Existing regulations are limited to the Local Regulation on the Regional Spatial Plan, which remains general in nature and does not incorporate innovative approaches to protecting productive agricultural land. This condition necessitates an analytical framework capable of identifying innovation barriers, organizational capacity, and the motivation of local governments to innovate before formulating new policy innovation models.

OECD framework explains that five key factors determine the emergence of policy innovation: regulation, budget, human resources, innovation-oriented organizations, and risk management. This study focuses specifically on the regulatory aspect to examine the extent to which existing rules provide space, flexibility, and support for the emergence of innovative policies. In the context of Bengkulu City, the existing spatial planning regulation remains general and does not specifically direct agricultural land protection, thereby offering limited stimulation for policy innovation.

By applying OECD (2017) framework, this study comprehensively describes the innovation capacity and motivation of the Bengkulu City Government. This analysis serves as an essential foundation for formulating policy innovation recommendations that are more adaptive, responsive, and aligned with the

challenges of agricultural land protection.

B. METHOD

This study employed a qualitative research approach with a case study design conducted in Bengkulu City. Data were collected through in-depth interviews with relevant stakeholders, field observations in agricultural areas experiencing land conversion, and document analysis of pertinent local regulations. The data presentation and analysis process followed the interactive model proposed by Miles and Huberman, which consists of three main stages: data reduction, data display, and conclusion drawing (Harahap, 2020).

C. RESULTS AND DISCUSSION

This study emphasizes the regulatory dimension and the role of local government through formal rules and procedures in influencing the capacity of governmental institutions to innovate and prevent agricultural land conversion. The Bengkulu City Government utilizes regulations as instruments to control spatial utilization and protect agricultural land in support of food security.

Based on official written data obtained from the Bengkulu City Office of the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency (ATR/BPN) through an official letter numbered NT.01/483-17.71/X/2025 concerning the dissemination of information on paddy field baseline land in Bengkulu City, it is identified that Bengkulu City possesses 606.9029 hectares of baseline paddy fields. This data confirms that Bengkulu City indeed has agricultural land that requires protection. However, from a policy perspective, the city government currently relies solely on Bengkulu City Local Regulation No. 4 of 2021 on the Regional Spatial Plan of Bengkulu City for 2021–2041.

One of the primary regulations serving as a reference for preventing agricultural land conversion in Bengkulu City is Local Regulation No. 4 of 2021 on the Regional Spatial Plan for 2021–2041. This regulation establishes zoning allocations for agricultural activities, settlements, industrial areas, and protected zones. Nevertheless, this regulatory framework has proven ineffective in halting agricultural land conversion, as it does not specifically regulate the protection of sustainable food agricultural land.

Based on an in-depth interview regarding Bengkulu City Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021–2041) with Mr. MA, Chairperson of Commission III of the Bengkulu City Regional House of Representatives (DPRD), the following statement was obtained:

"For now, I think the policy is sufficient because zoning has been established—this area for agriculture, that area for other economic activities—so changing land status is indeed quite difficult. However, in practice, community preferences and profit considerations play a role. Agricultural land is often perceived as less economically promising, and with persuasion from developers, land conversion into housing and property becomes attractive. On the other hand,

conversion policies have been tightened, making the process of changing land status from agricultural to residential quite strict and lengthy, which often becomes an obstacle in itself."

The findings indicate that, to date, the Bengkulu City Government has not developed specific policy innovations for controlling agricultural land conversion. The existing policy remains limited to the implementation of Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021-2041) as the sole control instrument. While the spatial plan functions as a foundational regulation for zoning and land-use allocation, it has not been followed by derivative policies or innovative approaches aimed at ensuring sustainable protection of food agricultural land.

These findings align with theoretical perspectives suggesting that government officials often perceive rules and procedures as barriers to innovation. In many cases, however, the primary constraint lies not in the regulation itself, but in how it is interpreted and implemented. In the context of Bengkulu City, the spatial planning regulation does not directly hinder innovation; rather, it has not been utilized as a basis for formulating more operational and adaptive follow-up policies. Consequently, the local government tends to adopt an administrative and normative stance, without encouraging the emergence of new policy initiatives beyond the existing spatial planning framework.

The interview findings with members of the Bengkulu City Regional House of Representatives further reinforce the study's earlier conclusions, indicating that zoning arrangements within the Regional Spatial Plan (RTRW) are perceived as sufficient control instruments. However, field realities demonstrate that economic pressures, property market expansion, and urban development interests continue to drive agricultural land conversion. This condition suggests that reliance solely on zoning regulations is insufficient, particularly in the absence of more innovative policy instruments such as land protection incentives, strengthened legal status of food agricultural land, or cross-sectoral control mechanisms.

Based on field observations conducted by the researcher in Bengkulu City, the local government is currently planning the construction of a retention basin as a flood control measure. This development plan has two major implications that must be comprehensively assessed, both positive and negative, especially in relation to sustainable food agricultural land protection. On the negative side, the construction of the retention basin is projected to convert approximately two hectares of land that had previously been designated as food agricultural land. This conversion may reduce the area of productive agricultural land within the city and raises concerns regarding the consistency of food land protection policies, particularly since the affected land was originally included in the city's spatial planning scheme.

On the positive side, the retention basin development is expected to provide broader benefits for the agricultural sector. Recurrent flooding in the area has caused continuous crop failures, reducing agricultural productivity and imposing economic losses on farmers. With the construction of the retention basin, agricultural land previously affected by flooding is expected to be protected and restored to optimal

food production functions. Therefore, in overall assessment, the retention basin project is considered more beneficial for the agricultural sector in the long term, despite localized reductions in agricultural land area.

In this context, the retention basin plan reflects a sectoral problem-solving approach, yet it cannot be classified as a policy innovation in agricultural land protection. The decision remains embedded within the existing spatial planning framework and has not been institutionalized through new regulatory instruments. This confirms that local government policies remain reactive and pragmatic, rather than the result of deliberately designed policy innovations intended to balance urban development needs with sustainable food agricultural land protection.

At present, the planning process for the retention basin remains under review by the City Spatial Planning Commission and has not yet been formalized through a local regulation. Decisions regarding project location and implementation remain fully under the authority of the Bengkulu City Government.

According to existing spatial planning documents, agricultural land in Bengkulu City covers approximately 606.9029 hectares. Consequently, decision-making regarding land conversion for public interest purposes requires carefully designed policies to ensure that flood control objectives are achieved without neglecting the fundamental principles of sustainable food agricultural land protection.

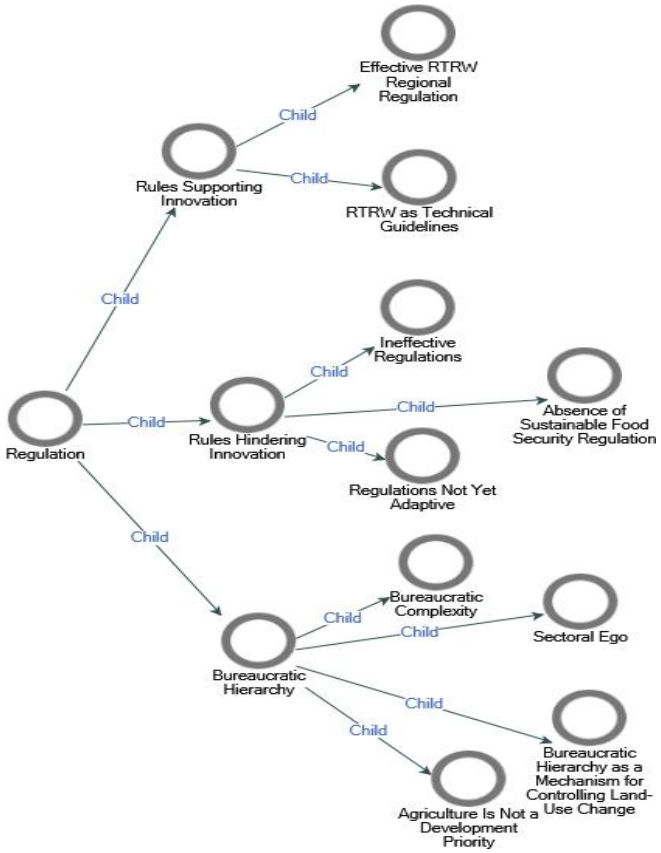

Figure 1. Project Map of the Regulatory Dimension

Source: NVivo 15 Output (Author's Processing, 2026)

Based on qualitative data analysis using NVivo software, this study found

that the regulatory theme was constructed from three main indicators: regulations supporting innovation, regulations hindering innovation, and bureaucratic hierarchy. These three indicators consistently emerged across the interview coding results.

Within the indicator of regulations supporting innovation, NVivo coding results revealed that Bengkulu City Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021-2041) (RTRW) is perceived as an effective policy instrument that remains relevant for controlling agricultural land conversion. The RTRW functions as a formal guideline for spatial planning, particularly in establishing zoning for agricultural areas, settlements, and protected zones. Informants from the Regional House of Representatives (DPRD), the Regional Development Planning Agency (Bappeda), and the Department of Agriculture indicated that zoning arrangements and tiered procedures for changing land-use designation provide an administrative control mechanism capable of limiting agricultural land conversion. Furthermore, the conditional revisability of the RTRW is perceived as offering flexibility for local governments to adjust policies in response to field conditions.

Under the indicator of regulations hindering innovation, NVivo analysis demonstrated high frequencies in the sub-themes of ineffective regulation, regulation not yet adaptive, and the absence of specific sustainable food agricultural land regulation. These findings indicate that although the RTRW serves as the primary regulation, it has not optimally stimulated innovation in controlling agricultural land conversion. The absence of a specific local regulation on sustainable food agricultural land protection has resulted in weak institutionalization of agricultural land protection. In addition, weak law enforcement, limited sanction mechanisms, and low levels of regulatory socialization among farmers cause the RTRW to function more as a normative guideline than as an effective control instrument. This condition encourages continued agricultural land conversion, driven by economic pressures and the pursuit of improved livelihoods.

The third indicator, bureaucratic hierarchy, also emerged as a significant finding in the NVivo coding results. A tiered bureaucratic structure and the distribution of authority across local government agencies (OPD) on one hand function as mechanisms for controlling spatial utilization. On the other hand, the analysis shows that bureaucratic hierarchy acts as a limiting factor for policy innovation. Bureaucratic complexity, sectoral ego among agencies, and the position of the agricultural sector as a non-primary priority in regional development planning hinder coordination and weaken the effectiveness of agricultural land conversion control. The limited technical authority held by the Department of Agriculture further reduces policy control over land conversion, contributing to the decline of productive agricultural land.

NVivo-based findings demonstrate that although regulations supporting innovation exist through the presence of the RTRW and tiered licensing mechanisms, the existence of regulations hindering innovation combined with

complex bureaucratic hierarchies has prevented policy innovation from functioning optimally. These findings confirm that strengthening more technical, adaptive, and cross-sectorally integrated regulations is the primary requirement for controlling agricultural land conversion.

This study further confirms that the absence of policy innovation in controlling agricultural land conversion in Bengkulu City is not caused by overly strict regulations, but rather by dependence on a single general regulation (RTRW) without the development of more specific and technical derivative policies. These findings support theoretical arguments that policy innovation in the public sector is strongly influenced by government officials' understanding of rules, organizational culture, and institutional willingness to translate regulations into more operational and contextualized policies.

D. CONCLUSION

Based on the findings, this study concludes that the control of agricultural land conversion in Bengkulu City has not been supported by comprehensive and institutionalized policy innovation. Current efforts remain heavily dependent on conventional regulatory approaches through Bengkulu City Local Regulation No. 4 of 2021 on the Regional Spatial Plan (2021-2041) (RTRW). From a regulatory perspective, the RTRW normatively provides a legal foundation for controlling spatial utilization. However, it has not been effective in preventing agricultural land conversion, as it does not specifically regulate the protection of sustainable food agricultural land. Regulatory implementation remains largely procedural and administrative, with limited flexibility and discretionary space for government officials. Consequently, existing policies have not been able to respond adaptively to the dynamic realities of land conversion on the ground.

The findings further indicate that policy innovation needs in preventing agricultural land conversion in Bengkulu City should be directed toward strengthening regulatory frameworks and providing space for policy experimentation. Therefore, the formulation of a specific Local Regulation on Sustainable Food Agricultural Land Protection (LP2B) is required as a strategic policy output. The Bengkulu City Government needs to establish a dedicated LP2B regulation separate from the RTRW. This regulation would clarify the designation of protected agricultural land, provide legal certainty for farmers, and regulate operational mechanisms for sanctions and incentives. The existence of an LP2B regulation is expected to strengthen agricultural land protection policies, which have thus far remained normative and administrative in nature.

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