

# Food Security Policy Innovation: The Role of the Riau Food and Horticulture Department in Achieving Self-Sufficiency

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**Abstract.** Food security is a strategic aspect of sustainable regional development. The Department of Food and Horticulture of Riau plays a crucial role in achieving food self-sufficiency through various policy innovations. This study aims to analyze the innovative policies implemented in the food security sector in Riau Province and identify the challenges faced in their implementation. The research method used is a qualitative approach with data collection techniques including literature review, interviews, and observations. The results show that several policy innovations have been implemented, including integrated agricultural development, diversification of local food products, farmer empowerment, regulatory strengthening, and the development of food distribution infrastructure. These policies have had a positive impact on increasing agricultural production, food price stability, and farmer welfare. However, several challenges remain in policy implementation, such as limited human resources (HR) among farmers, restricted access to capital, climate change, and uneven food distribution. The conclusion of this study emphasizes that the policy innovations implemented by the Department of Food and Horticulture of Riau have contributed to food self-sufficiency efforts, although there are still obstacles that need to be addressed. Therefore, the recommendations proposed include improving agricultural infrastructure and technology, empowering farmers' human resources, providing broader access to capital, and strengthening food protection policies. Collaboration between the government, the private sector, and the community is also a key factor in supporting the sustainability of food security in Riau Province.

## 1. Introduction

Improving food security remains one of the primary focuses of the Government of the Republic of Indonesia (Rumawas et al., 2021). Given Indonesia's large population currently exceeding 215 million food issues are particularly sensitive. Food shortages and price increases often trigger political unrest. Therefore, food is not only an economic commodity but also a political one with far-reaching social impacts (Pertanian, 2005; Susanta, 2017). Food security has become a national commitment due to its strategic importance in national development (Mansyur, 2022). It holds three strategic roles: ensuring adequate access to food and nutrition as a fundamental human right, supporting the development of quality human resources, and acting as a key pillar of economic and national resilience (Sutrisno, 2022)(Ahsan, 2022).

The agricultural sector remains one of Indonesia's most reliable sectors and is considered capable of driving recovery during times of national crisis (Zebua, 2018)(Ahsan,

2022). It plays a crucial role in supporting national economic recovery through the National Food Security Program, supported by several key considerations (Isnaini, 2019)(Soraya, 2022). First, Indonesia has vast natural resources suitable for agricultural land. Second, a significant portion of the population resides in rural areas and depends on agriculture as their primary livelihood. Third, the adoption of advanced technologies and knowledge is needed to develop sustainable agriculture. Fourth, the sector benefits from a large available labor force. Fifth, reducing dependency on food imports is essential by increasing domestic production, thus minimizing the impact of global food price fluctuations.

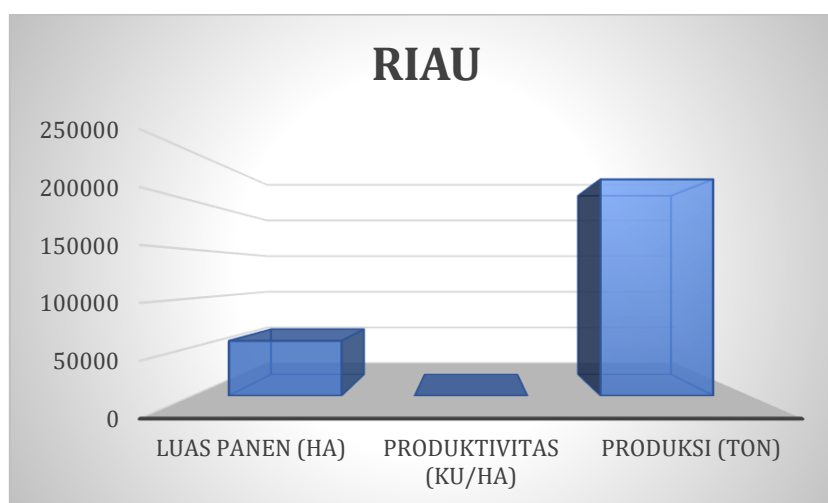
However, in practice, Indonesia still depends heavily on imported food commodities. This dependency arises from the shrinking availability of agricultural land due to rapid population growth and increasing demands, along with a declining number of skilled agricultural workers. These challenges have become major factors undermining national food security. This dependency is projected to rise in line with Indonesia's population growth (Pertahanan, 2015).(Nurman & Meirina, 2024)

Riau Province, with its strategic geographical location and abundant natural resources, holds great potential in the agricultural and fisheries sectors. Nonetheless, it faces considerable challenges in achieving food security. Issues such as climate change, land-use conversion, and limited agricultural infrastructure and technology frequently pose significant barriers. Riau is the second richest province in Indonesia after East Kalimantan and a leading producer of agricultural and plantation commodities. Yet, it is facing major challenges in sustaining food security. Rapid economic transformation and urbanization have significantly impacted its agrarian structure and the sustainability of its food systems. Therefore, ensuring food security in Riau is critical not only for food availability but also for the broader social and economic sustainability of its communities.

Despite the sector's significant potential, agricultural development in Riau has not been fully optimized. Government programs aimed at improving productivity and efficiency in agriculture must continue to be enhanced and adapted to local conditions. Moreover, much of Riau's population, which still heavily relies on agriculture, requires stronger support to build their capacity and resilience in facing change.(Ummah, 2019)

The Riau Provincial Government has attempted to boost local rice production through various programs and policies, including encouraging region-wide movements to expand paddy fields, providing adequate agricultural infrastructure, and distributing high-quality seeds. However, local rice production has only met 17.64% of the province's consumption needs. This shortfall has led to a high dependency on rice supplies from neighboring provinces such as West Sumatra, North Sumatra, and Jambi.(Mariyani et al., 2017)

Food security is a critical issue that encompasses not only the availability of food within a region but also includes access, quality, and stability. In the context of Riau Province, which has diverse geographic characteristics and agricultural potential, the success of food security efforts greatly depends on the effective implementation of policies and innovation across various aspects of agricultural and horticultural management. One of the key institutions in this effort is the Department of Food, Food Crops, and Horticulture of Riau Province. This department plays a central role in formulating policies, overseeing the implementation of food security programs, and promoting innovation in the agriculture sector particularly in food crops and horticulture to achieve regional food self-sufficiency.



**Figure I.** Harvested Area, Production, and Productivity of Rice in Riau Province, 2024

During the 2020–2024 period, the Provincial Government of Riau has shifted its primary focus toward the agricultural sector, aligning with the Governor of Riau’s third mission: "to achieve inclusive, self-reliant, and competitive economic development." In this context, the Department of Food, Food Crops, and Horticulture of Riau Province plays a pivotal role in ensuring food security and enhancing the agricultural sector to support community welfare and competitiveness. In synergy with this vision and mission, the department is responsible for guaranteeing food availability (Mariyani, Prasmatiwi, & Adawiyah, 2018). In line with sustainable regional food security policies, the Riau Provincial Government is striving to meet the target set in the 2019–2024 Regional Medium-Term Development Plan (RPJMD), which requires the province to fulfill at least 50 percent of its food needs by 2024. To achieve this, the government promotes food security programs across 12 districts and cities through various initiatives, such as increasing food supply, improving agricultural productivity, boosting agricultural indices, and supervising food agriculture in collaboration with agricultural corporations. The provincial government also utilizes state-managed land to cultivate crops such as corn, cassava, vegetables, fruits, and other regionally appropriate plants. (Soraya, 2022)

Strategies Implemented by the Department of Food, Food Crops, and Horticulture of Riau Province to Ensure Food Security:

1. **Food Diversification and Food Security Enhancement Program**  
This program aims to broaden and promote the use of local food products as rice alternatives, encouraging the consumption of carbohydrate sources such as corn, sago, cassava, bananas, potatoes, purple yams, and other commodities that align with local characteristics in each region.
2. **Food Insecurity Management Program**  
The goal of this program is to preserve food security by mapping food insecurity across all districts and cities in Riau Province. The mapping helps identify regions that are either still vulnerable or have achieved food resilience.
3. **Riau Rice Cultivation Movement Program (Riau Bertani)**  
This program targets a minimum 50% increase in rice production by 2024 (Kusnadi, Info Riau, 2021).

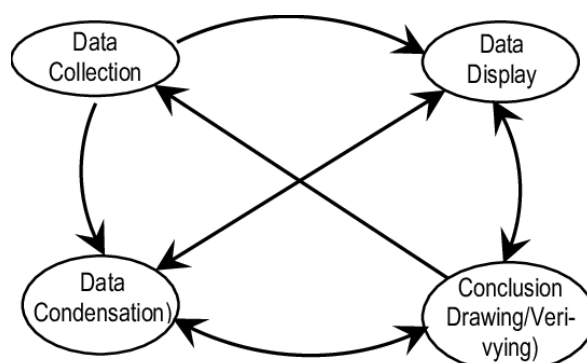
The implementation of this program encompasses several key aspects: productivity enhancement, improvement of the cropping index, adoption of mechanization, and institutional strengthening. The productivity enhancement strategy focuses on increasing yield per hectare by promoting the use of superior seed varieties, which are distributed to farmer groups for cultivation on their respective lands. Currently, each district/city in Riau Province is working

toward establishing its own seed breeding centers to ensure the availability of high-quality seeds. Efforts to improve the cropping index involve converting agricultural land that was previously cultivated only once a year into land that can support two planting cycles annually. This transformation naturally increases both the harvested area and overall rice production each year. The application of mechanization aims to support cropping intensity improvements by introducing agricultural machinery that enables farming tasks to be completed faster than manual methods, thereby reducing the time and labor required. The government provides farming equipment and machinery to support farmers in completing agricultural tasks more efficiently. Institutional strengthening is intended to enhance farmers' self-reliance in managing their agricultural production from upstream to downstream processes. This includes strengthening farmer groups and Village Unit Cooperatives (KUD), which facilitate access to agricultural input suppliers, market access, and capacity-building for farmers' human resources. (Mariyani et al., 2017).

## 2. Research Methods

This research was conducted at the Department of Food, Food Crops, and Horticulture of Riau Province, using a qualitative descriptive approach. The research location was selected based on the consideration that this department is a regional government agency (OPD) directly assigned by the Governor of Riau to carry out food security initiatives. The primary informant in this study was the Head of Program Planning Subdivision, while the supporting informants included the Head of Food Availability and Insecurity Division and the Head of Local Food Development Section.

Data collection methods included interviews, observations, and document studies. Observation was used to obtain more detailed and contextual information about the research subject, while additional data were collected from literature sources, legal regulations, research proposals, mass media, and other materials relevant to the research focus. Data analysis was conducted after the data collection phase, using the interactive analysis model developed by Miles and Huberman, which involves data reduction, data display, and conclusion drawing.



**Figure 2.** Miles and Huberman Interactive Analysis Model.

## 3. Results and Discussion

Food security is a vital aspect for the sustainability of life and the economy of a region. In Riau Province, the Department of Food and Horticulture plays a significant role in achieving food self-sufficiency by implementing various policies and innovations that support sustainable food production. Policy innovations in the food security sector in Riau aim to increase agricultural yields, optimize natural resources, and strengthen food distribution networks to meet the food needs of the population at stable and affordable prices. (CANDRA, 2013)

The innovation efforts in Riau's food security policies are primarily directed toward modernizing agricultural production systems to become more efficient, developing high-value horticultural products, and strengthening institutions to ensure the availability of food. The following are several key programs initiated to achieve food self-sufficiency:

1. **Development of Integrated and Sustainable Agriculture**  
The Department of Food and Horticulture of Riau applies an integrated and sustainable agricultural system by leveraging modern technologies to increase agricultural productivity. This includes the use of efficient irrigation systems, precision farming technologies, and organic fertilizers to improve crop yields without harming the environment.
2. **Diversification of Local Food Products**  
Riau has significant potential in the horticulture sector, with key commodities such as coconut, banana, and various vegetables. The department has launched a food diversification program to explore and promote local food products, aiming to fulfill local food demand while reducing dependence on imported food commodities.
3. **Empowerment of Farmers and Farmer Groups**  
One of the key policy innovations involves increasing the capacity of farmers through training, capital assistance, and extension services on efficient and environmentally friendly farming techniques. The government also strengthens partnership programs between public and private sectors to improve farmers' income and ensure the sustainability of food production.
4. **Development of Food Distribution Infrastructure**  
One of the main challenges in achieving food security is the inefficiency of food distribution systems. The Department of Food and Horticulture collaborates with related agencies to build and improve food distribution infrastructure, such as food markets and logistics networks that can directly connect production areas with consumers.
5. **Strengthening Regulations and Policies**  
The department also prioritizes supportive policies for the agricultural sector, such as providing tax incentives for farmers using eco-friendly technologies and enforcing regulations that prevent food market monopolies to ensure stable food prices.

**Challenges to Achieving Food Self-Sufficiency in Riau Province** Despite the implementation of various innovations, the Department of Food and Horticulture of Riau Province continues to face several challenges in realizing food self-sufficiency, including:

1. **Limited Human Resources (HR):** Farmers' skills and knowledge regarding agricultural technologies remain limited. As a result, the adoption of more efficient technologies requires significant time and intensive training.
2. **Limited Access to Capital:** Many farmers face difficulties in accessing capital to purchase agricultural equipment or high-quality fertilizers, which hinders improvements in their productivity.
3. **Climate Change and Natural Disasters:** Climate variability resulting in extreme weather events—such as droughts and floods—directly impacts food production, increasing uncertainty in agricultural yields.
4. **Distribution and Infrastructure Issues:** Although efforts have been made to improve food distribution systems, several remote areas in Riau still struggle to access quality food at affordable prices.

Programs implemented by the Department of Food and Horticulture such as local food diversification and farmer empowerment have started to yield positive results. Farmers' incomes have increased in line with the improvement in the quality and quantity of agricultural yields and the diversification of marketed products. However, unequal food distribution and fluctuating food prices remain pressing challenges that must be urgently addressed.

According to statistical data from the Central Statistics Agency (Badan Pusat Statistik) of Riau Province, as stated in the Official Statistical Report No.13/03/14/Th. XXV, March 1, 2024, the total harvested rice area from January to December 2023 reached approximately 51.91 thousand hectares, representing an increase of 860 hectares (1.68%) compared to 51.05 thousand hectares in 2022. The most significant increase occurred in Kuantan Singingi Regency, with an additional 1,309 hectares (27.13%). Meanwhile, the largest decline was recorded in Dumai City, with a reduction of 1,440 hectares (49.18%).(Komariah, 2011)

Based on projections from a study conducted by Sutrisno, Rahayu, Sukandar, and Dadang (2017), the population of Riau Province is expected to reach 8,496,500 people by 2029. Rice consumption per capita is projected at 104.40 kilograms, leading to an estimated total rice demand of 887,044 tons. The projected area of irrigated rice fields will be 32,696 hectares, with a harvested area of 52,971 hectares. Rice productivity is expected to reach 34.73 quintals per hectare, resulting in a rice production of approximately 107,627 tons. The rice self-sufficiency ratio is projected at 0.12.

This condition indicates that Riau Province is becoming increasingly dependent on imported food to address a growing food deficit year after year. Achieving self-sufficiency in rice production remains a major challenge (Gevisioner, Febriamansyah, Ifdal, & Tarumun, 2015); (Ansori, 2021); (Sugiyanto, Nurhadi, & Pintakami, 2022).

**Table 1.** Harvested Area and Rice Production in Riau Province by Regency/City (Ha), 2023

Regency / City	Harvested Area (Ha)	Rice Production (Tons)
Kuantan Singingi	6.135	25.698
Indragiri Hulu	902	3.467
Indragiri Hilir	14.307	52.880
Pelalawan	5.007	18.222
Siak	6.388	26.493
Kampar	2.532	10.633
Rokan Hulu	1.461	5.982
Bengkalis	3.813	16.960
Rokan Hilir	7.630	34.252
Kepulauan Meranti	2.250	6.632
Pekanbaru	-	-
Dumai	1.488	4.745
Riau Province Total	51.914	205.973

Source: Department of Food, Food Crops, and Horticulture of Riau Province, 2024.

The reliance on food supplies from outside Riau Province significantly influences the selling price of food commodities among the local population. When food prices remain stable and affordable, the public is more capable of increasing their food consumption, thereby supporting the achievement of food security. However, when food prices rise excessively, purchasing power declines, hindering efforts to ensure household-level food security. This underscores how average price fluctuations across various products (inflation) affect people's ability to access goods and services. Rising food prices tend to reduce consumption, whereas falling prices may encourage increased food intake (Fajar, 2023; Firdauzi, 2021; Hardono, 2014). An analysis of seven primary food commodities in Riau Province reveals a general upward trend in food prices each year. The highest price increase was recorded for rice, with an annual growth rate of 14.82%, followed by salted fish (13.53%), granulated sugar (12.66%), and beef (10.60%).

Food consumption patterns among residents in food-deficit areas of Riau Province are relatively similar to those in food-surplus areas. The volume and quality of household food consumption and nutritional intake are influenced by economic factors, educational levels, and cultural practices (Putranto & Taofik, 2014; Taenasah, Dasipah, & Gantini, 2024). In Riau, food

consumption quality is shaped by the availability of nutritious food, income levels, and the prices of staple foods such as rice and chicken. If high-quality food remains available and incomes are sufficient, then food consumption quality is also expected to improve.

According to the National Food Agency (2023), three regencies in Riau—Rokan Hulu, Kampar, and Indragiri Hulu—remain vulnerable to food insecurity. In these areas, the quality of food consumption is still inadequate. The rising demand for food, driven by rapid population growth, increasing purchasing power, and shifting consumption patterns, contrasts with limited food production, leading to greater dependence on external food supplies. This situation heightens vulnerability and may negatively affect the region's social, political, and economic stability (Heryanto & Nugraha, 2022). Given the current conditions in Riau Province, efforts to improve food consumption quality among residents should be addressed through comprehensive and sustainable strategies, including the following:

1. **Enhancing Community Participation through Capacity Building and Local Food Utilization.** Community participation can be increased through training and facilitation programs aimed at building production capacity, adding value, and promoting the selection, processing, and preparation of various local food types—particularly processed sago and tuber-based products. Currently, 19.7% of Riau's population still suffers from inadequate energy intake and a lack of dietary diversity. By involving communities in these activities, greater awareness can be fostered regarding the importance of local food diversification as a rich and nutritious energy source. This approach also aims to reduce dependence on a single staple food, such as rice, which is highly vulnerable to supply and price fluctuations. Ongoing training and facilitation will enable communities to become more self-reliant in managing and utilizing available food resources. Improving local food processing skills not only enhances product value but also creates new economic opportunities that contribute to community welfare. Consequently, energy intake deficits and limited dietary variety can be effectively addressed, advancing food security in Riau Province.
2. **Empowering Communities through Nutrition and Health Education.** Community empowerment should integrate initiatives to raise awareness about food, nutrition, and health. Nutrition education aims to change food consumption behavior and improve nutritional status. Unfortunately, the implementation of these efforts has been limited and inconsistent. To make nutrition education programs more effective and sustainable, stronger support from various stakeholders including government institutions, educational institutions, and non-governmental organizations is essential. These collaborative efforts should include sufficient resource allocation, continuous training for extension workers, and ongoing public awareness campaigns at the community level. Furthermore, nutrition education materials must be tailored to local contexts and cultural norms to ensure the messages are easily understood and accepted. In doing so, communities will be more motivated to adopt healthier and more diverse dietary patterns, ultimately improving their nutritional status and overall well-being.
3. **Advocating Policy Support for Healthy Food Consumption Patterns.** Policy advocacy is essential, as political support is a key driver for promoting food consumption patterns aligned with national food security goals. Advocacy efforts must be strategic and continuous, engaging multiple stakeholders to emphasize the importance of supportive policies for food and nutrition security. These efforts should present clear, evidence-based data demonstrating the benefits and necessity of adopting healthier food consumption models. Moreover, open dialogue with communities and civil society organizations must be encouraged to ensure that public needs and voices are reflected in policymaking. With strong political backing, various food and nutrition security programs can be more effectively and sustainably implemented, resulting in tangible improvements in public health and welfare.

## 4. Conclusions

### 4.1 Conclusion

1) The policy innovations on food security implemented by the Department of Food and Horticulture of Riau Province have not yet achieved optimal outcomes. This is primarily due to misalignment in the targeting of policy and strategy implementation. As a result, Law No. 18 of 2012, which mandates the provision of food to fulfill basic human needs in a fair, equitable, and sustainable manner, has not been fully realized. 2) This is reflected in the performance of food security system indicators: while two indicators the percentage of food-insecure areas and the percentage of fresh food safety have exceeded the final targets set in the strategic plan (Renstra), others such as the Food Security Index and the Food Availability Score (PPH) remain below the established targets. 3) Furthermore, the production levels of rice and corn remain significantly below the final targets of the 2024 Strategic Plan, with rice production reaching only 52.12% and corn production 24.46% of the targeted amounts. This condition is largely attributed to the fact that a greater proportion of policy or program beneficiaries are located in food-secure regions rather than in vulnerable, food-insecure areas, thus diminishing the overall effectiveness of the intervention in strengthening regional food security.

### 4.2 Suggestion

1) Improving Infrastructure and Technology: The government should place greater emphasis on the development of food distribution infrastructure, particularly in remote areas, and promote the adoption of modern and environmentally friendly agricultural technologies. 2) Empowering Human Resources in the Agricultural Sector: Training and education programs for farmers must be expanded to enable them to adopt new technologies more quickly and efficiently. These initiatives can be carried out in collaboration with educational institutions or agricultural technology companies. 3) Providing Accessible Financial Support: Broader access to financial capital should be made available to farmers so they can purchase modern agricultural equipment and technologies. Incentives should also be offered to farmers who actively participate in food security programs. 4) Enhancing Food Protection Policies: The government needs to strengthen food protection policies, particularly in regulating markets and stabilizing food prices, to ensure that the public has access to affordable and nutritious food. 5) Kolaborasi Antar Sektor. Sinergi antara Cross-Sector Collaboration: Collaboration among government entities, the private sector, and local communities in developing food security initiatives should be enhanced. This synergy will help establish an ecosystem that supports the sustainability of food security programs in Riau Province.

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