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Adaptive Governance in Achieving Food Self-Sufficiency and Family Resilience in Baubau City

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Keyword:
Food Security;
Food Self-Sufficiency;
Adaptive Governance;
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Abstract: The urgency of this research stems from the high prevalence of undernourishment (PoU), or the prevalence of food insufficiency at 10.84% in 2023, and the Food Security Index (IKP), which only reached 80.49 in 2024, indicating limited access to sufficient, nutritious, and sustainable food in Baubau City. This condition can impact the overall welfare of families, so effective strategies are needed to improve food security in the area. This study aims to explore the role of adaptive governance in increasing the effectiveness of food self-sufficiency policies and strengthening family resilience in Baubau City. This research method employed a qualitative approach, utilizing data collection methods that included interviews, observation, documentation, and Focus Group Discussions (FGDs). Key informants included the Baubau City Agriculture and Food Security Office (Dipertan), the Baubau City Health Office, local farmer groups, and community self-help communities. Data were analyzed using NVivo 12 Plus. The findings of this study confirm that food security in Baubau City remains vulnerable due to a combination of structural, social, and economic factors. However, the implementation of adaptive governance offers a strategic opportunity to strengthen the local food system. With policy flexibility, cross-sector collaboration, digital technology integration, and a focus on strengthening nutritional literacy and family empowerment, Baubau can reduce its dependence on external supplies while building household food resilience. This demonstrates that family resilience and food self-sufficiency in Baubau can only be achieved through an adaptive approach that integrates the roles of government, communities, and the private sector in building a more inclusive, resilient, and sustainable food system.

INTRODUCTION

The background of this research stems from the serious challenges faced by Baubau City in food security and family welfare. The Central Statistics Agency (BPS) reports that the prevalence of food insufficiency, also known as Prevalence of Undernourishment (PoU), in Baubau City reached 10.84% in 2023 (Badan Pusat Statistik, 2023). This also affects the fulfillment of good nutrition and has the potential to cause other health problems (Gazalin et al., 2023). On the other hand, the National Food Agency's Food Security Index (IKP) in Baubau in 2024 was recorded at 80.49 (Badan Pangan Nasional, 2024). This figure reflects the continued limited access to sufficient, nutritious, and sustainable food for the community, which can impact overall family welfare. In facing this challenge, adaptive governance can be adopted as a necessary approach to increase policy effectiveness by considering social, economic, and environmental dynamics (Pereira & Ruysenaar, 2012). Therefore, this study aims to analyze the potential of adaptive governance in realizing food self-sufficiency and increasing family resilience in Baubau City.

Several countries have implemented food self-sufficiency policies with varying approaches tailored to their specific conditions and challenges (Tleuberdinov et al., 2025). Japan adopted the Basic Plan for Food, Agriculture, and Rural Areas policy, which emphasizes the diversification of food sources, incentives for young farmers, and the restoration of agricultural land using modern technology (Shoyama et al., 2021). Meanwhile, the Philippines developed the National Disaster Risk Reduction and Management Plan, which incorporates agricultural policy reforms through

disaster-resistant crop diversification and financial assistance programs for affected communities (Wen et al., 2023). In the United States, the federal government, through the Farm Service Agency (FSA), provides subsidies and encourages strengthening infrastructure and food storage systems (Atkinson et al., 2024). Bangladesh has adopted Climate-Smart Agriculture (CSA), which integrates adaptive agricultural technologies and insurance for farmers to mitigate the risk of crop failure due to natural disasters (Akter et al., 2022).

Food self-sufficiency and family resilience are closely linked in ensuring sustainable community well-being. Food self-sufficiency refers to a region or country's ability to meet its food needs independently, without relying on imports (Traore et al., 2021), which directly contributes to economic and social stability (Brink et al., 2023). Family resilience depends on the availability and accessibility of sufficient (Kertati, 2021), nutritious (Joshi et al., 2025), and sustainable food to ensure the health and well-being of family members (Alwi et al., 2024). Without strong food self-sufficiency, family resilience can be compromised by fluctuating food prices (Marrero et al., 2022), supply instability (4), and low levels of balanced nutritional consumption (Inzana et al., 2024). Therefore, strengthening adaptive governance-based policies that support local food production (Teneva et al., 2023), efficient distribution (Davila et al., 2021), and food accessibility for all levels of society are strategic steps in achieving sustainable resilience (Olubukunmi & Aderemi, 2024).

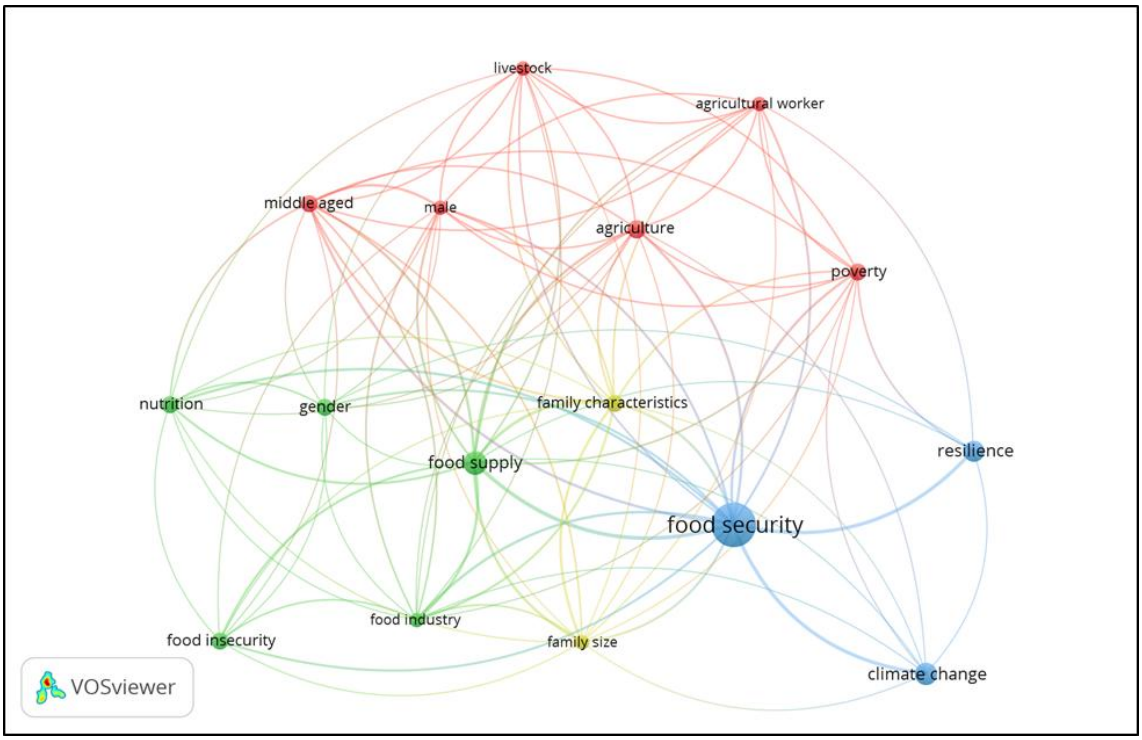
Japan’s flexible farming cooperatives show Baubau the value of local farmer control but need strong infrastructure. Kenya’s participatory water management can help Baubau handle droughts but requires building local trust. Brazil’s social programs link cash aid with farming support, offering a model for family resilience, though Baubau must adapt funding and monitoring. Adaptive governance has been shown to improve food self-sufficiency and family resilience through flexible, inclusive decision-making in various international contexts. Examples include Japan’s cooperative farming, Kenya’s water management, and Brazil’s social support linked to agriculture.

Adaptive governance has proven effective in enhancing food security and family resilience through flexible and inclusive decision-making in various international contexts. Examples include agricultural cooperatives in Japan, water management in Kenya, and social programs linked to agriculture in Brazil. However, existing studies rarely explore how these adaptive governance principles are applied specifically to the unique social and environmental conditions of Baubau City, resulting in a lack of localized strategies for food security and family resilience.

“How is adaptive governance implemented to support food security in Baubau City”

“What are the main challenges families face in building resilience through adaptive governance”

As of March 2025, the Scopus database contained 52 documents discussing policies related to food self-sufficiency and family resilience. However, most studies still focused on the technical aspects of food production, sectoral policy-based food security, and strategies for increasing food availability through economic interventions.



Picture. 1
Research gap
Source: Processed by the author with Vosviewer from the Scopus database, 2025

However, studies specifically linking adaptive governance as an approach to strengthening food self-sufficiency and family resilience are still limited, especially in the context of regions with geographic and socio-economic challenges such as Baubau City. The novelty of this research lies in the analysis of how adaptive governance can be a more flexible and participatory policy strategy in addressing limited food access and increasing family resilience through strengthening the role of local actors, multi-stakeholder collaboration, and responsiveness to the dynamics of social change. Thus, this study fills this gap in the literature by offering an adaptive governance approach that can support food self-sufficiency policies in a more inclusive and sustainable manner.

The research problem formulation stems from the main challenges in achieving food self-sufficiency and family resilience in Baubau City, which are characterized by the still high rate of food insufficiency and limited access to sustainable food sources. Therefore, this research seeks to answer two main questions: (a) What factors are obstacles to the implementation of food self-sufficiency policies in Baubau City? (b) How can adaptive governance improve the effectiveness of food self-sufficiency policies in promoting family resilience in Baubau City? The urgency of this research lies in the need to formulate policies that not only guarantee food security but also strengthen family resilience, as the smallest social unit that determines the welfare of society as a whole. By adopting an adaptive governance approach, this research aims to provide evidence-based recommendations for local governments in building a more resilient and sustainable food system.

The problem-solving approach in this study is based on the concept of adaptive governance, which emphasizes policy flexibility, multi-stakeholder collaboration, and the ability to adapt to changing social, economic, and environmental conditions (Kekulandala et al., 2023). Adaptive governance enables coordination between the government, communities, and the private sector in addressing societal challenges (Correia et al., 2025). The problem-solving strategy formulated in this study encompasses several key aspects, namely: (a) strengthening institutional capacity in managing a food system that is responsive to change; (b) optimizing social capital-based policies, which encourage active community participation in local food

production and distribution; (c) utilizing agricultural technology and food innovation to increase the productivity and efficiency of the food system; and (d) developing adaptive policy mechanisms, through regular evaluation of the effectiveness of food self-sufficiency programs to ensure long-term family resilience. This strategy is expected to create a more inclusive and resilient food governance system capable of addressing the dynamic challenges of food self-sufficiency in Baubau City.

The purpose of this research is to explore and analyze the role of adaptive governance in increasing the effectiveness of food self-sufficiency policies while strengthening family resilience in Baubau City, with an emphasis on the flexibility, multi-stakeholder collaboration, and adaptability of local governments, communities, and local farmer groups in responding to the dynamics of food security challenges, including limited access to nutritious food, changing socio-economic conditions, and vulnerability to global and local food crises. Through this approach, the research is expected to identify coordination patterns, inclusive decision-making mechanisms, and innovative practices that can bridge the gap between formal policies and the community's real needs. Thus, the primary objective of this research is not only to develop a theoretical understanding of adaptive governance in the context of food, but also to provide evidence-based policy recommendations that can be applied by local governments to achieve sustainable food self-sufficiency and enhance family resilience as the smallest socio-economic unit in Baubau City.

RESEARCH METHODS

This study employed a qualitative approach, collecting data through interviews, observation, documentation, and focus group discussions (FGDs). Key informants included the Baubau City Agriculture and Food Security Agency (Dipertan), the Baubau City Health Agency, local farmer groups, and community-based organizations. Interviews were conducted to gain an in-depth understanding of the implementation of food self-sufficiency and family resilience policies from the perspective of stakeholders, while observations provided direct insight into policy implementation on the ground. Documentation was used to collect relevant secondary data, including the annual report of the Baubau City Agriculture and Food Security Agency, Food Security Index (IKP) data, and Prevalence of Undernourishment (PoU) statistics from the Central Statistics Agency (BPS). Additionally, policy documents, regional regulations, and previous research on adaptive governance and food security were used to enrich the analysis. FGDs provided a platform for discussing key issues and exploring the perspectives of various stakeholders.

The data analysis process using NVivo 12 Plus begins with data import, where interview transcripts, documentation, observation notes, and FGD results are entered into the software for systematic management. Next, data coding is performed, a process of grouping information based on predetermined themes or categories, enabling the identification of patterns and relationships between concepts emerging from the data. The final stage is data visualization, where the analysis results are displayed in the form of diagrams, word clouds, or network models to facilitate interpretation and a more structured presentation of research findings. The analysis process involves data triangulation, which involves comparing and verifying data from various sources to ensure the validity and reliability of the research results. This approach ensures that the resulting findings are reliable and paint a comprehensive picture. The processed research results are then analyzed to answer the research problem formulation. The obtained research results are then compiled and reported to inform the progress of the research.

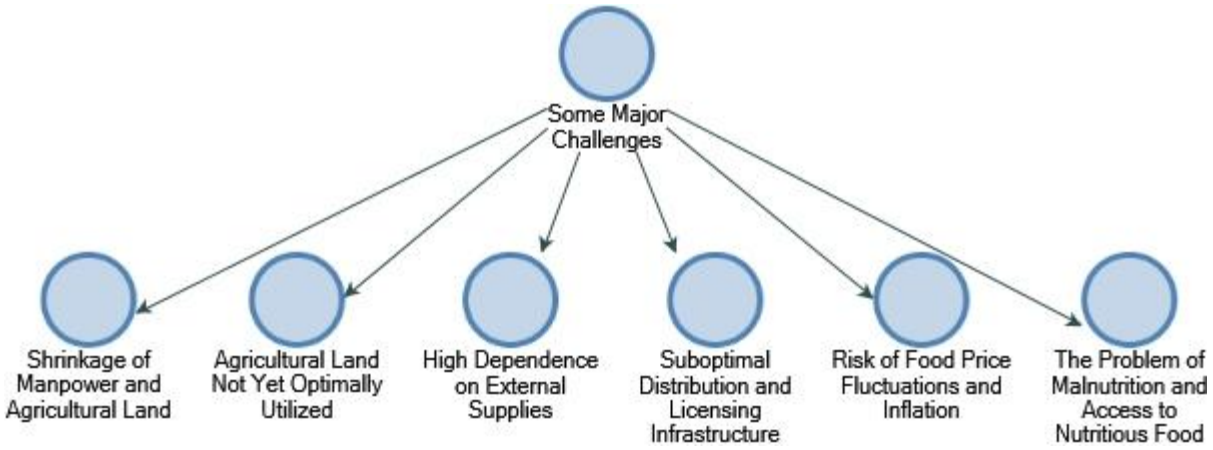
RESULTS AND DISCUSSION

Food and family security are the main foundations for improving community welfare in Baubau City. However, high rates of food insecurity and limited access to sustainable food sources pose serious challenges to achieving food self-sufficiency. Therefore, this study uses an adaptive governance perspective to formulate more responsive and sustainable policy strategies.

Baubau City's food self-sufficiency and family resilience struggle due to fragmented governance, poor cross-sector coordination, and low community knowledge. Adaptive governance, emphasizing flexible collaboration, can help overcome these barriers. For example, how can better coordination among agriculture, health, education, and business reduce reliance on outside food? And how can improving nutrition literacy at the community level lower stunting rates? Adaptive governance enables tailored, responsive programs that adapt to local needs, offering a promising path to stronger food security and resilience in Baubau.

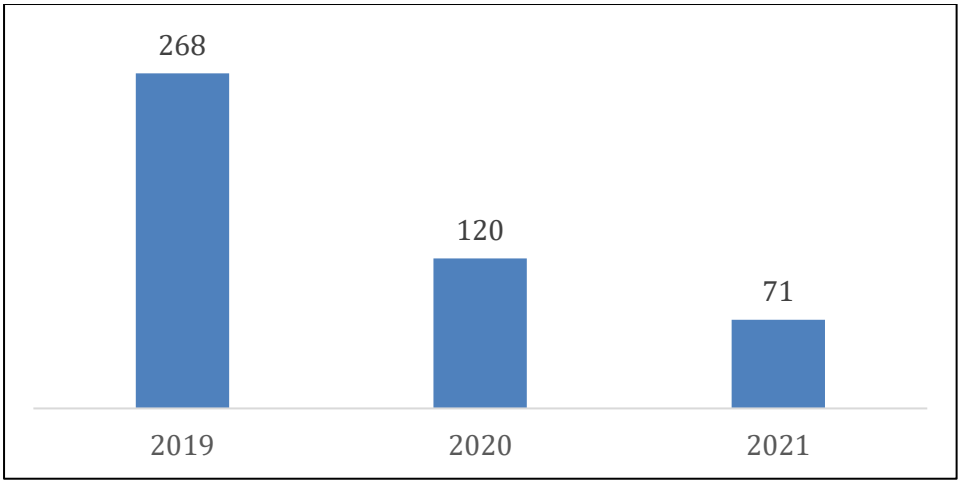
Challenges in Achieving Food Self-Sufficiency in Baubau City

Food security in Baubau City faces serious challenges due to the declining number of farmers, limited productive land, and high dependence on food supplies from outside the region. This situation is exacerbated by suboptimal distribution infrastructure, fluctuating commodity prices, and persistently high rates of malnutrition. This situation underscores the importance of adaptive policy strategies to achieve food self-sufficiency while strengthening family resilience.



Picture. 2
Challenges in Achieving Food Self-Sufficiency in Baubau City
Source: Processed by the author with Nvivo 12, 2025

The shrinking workforce and agricultural land are among the main challenges to achieving food self-sufficiency in Baubau City. Modernization and urbanization have driven land conversion, resulting in a decline in productive agricultural land. This has resulted in a decline in public interest in working in the agricultural sector, due to limited economic opportunities that are considered less promising than those in other urban sectors. Furthermore, the number of agricultural workers has decreased drastically, from 268 in 2019 to just 120 in 2020, or approximately 0.7% of the city's total population (Salman, 2022). Consequently, rice production has declined significantly, dropping by more than 1,500 tons in just one year. This phenomenon highlights the vulnerability of the local food system, where production capacity is unable to meet community needs, increasing dependence on supplies from outside the region.



Picture. 3
Baubau Agricultural Freelance Workers in Baubau City for the 2019-2021 Period
Source: Baubau City Central Statistics Agency, 2021

Data from the Baubau City Statistics Agency (BPS) (2021) shows a significant downward trend in the number of casual workers in the agricultural sector, from 268 in 2019 to 120 in 2020, and to just 71 in 2021 (Salman, 2022). This decline reflects the decline in the informal workforce, which typically plays a crucial role in supporting small-scale agricultural activities, both as seasonal farm laborers and as supplementary labor during the harvest season. This situation poses a serious challenge to local food security, as the reduction in casual workers has the potential to reduce agricultural productivity, increase dependence on out-of-town labor, and hinder food self-sufficiency efforts in Baubau City.

The implications of shrinking agricultural labor and land in Baubau City are crucial for food security and family well-being. The reduced number of farmers and the drastic decline in rice production have resulted in local food production capacity being unable to meet community needs, increasing dependence on supplies from outside the region. This situation makes Baubau City vulnerable to food price fluctuations, distribution disruptions, and inflation, which can directly impact household economies, particularly those of low-income families. Furthermore, limited access to sufficient and nutritious food has the potential to worsen the community's nutritional situation, including increasing the risk of stunting and malnutrition in children. In the long term, the loss of a generation of farmers and the conversion of productive land will threaten the sustainability of food self-sufficiency, reduce regional independence, and weaken community resilience in the face of food crises and natural disasters. Therefore, this issue demands adaptive and collaborative policy interventions to ensure the sustainability of local food production and strengthen family resilience in Baubau City.

Baubau City has significant agricultural land potential, approximately 1,300–1,365 hectares. However, much of this land has not been optimally utilized and has even been left abandoned (Heeryl, 2022). This situation indicates an imbalance between the potential of available natural resources and their effective utilization in supporting local food production. Factors such as labor shortages in the agricultural sector, inadequate investment in agricultural technology, and ineffective policies for protecting productive land are the primary causes of stagnant land use. Optimizing existing land can be a crucial strategy for strengthening regional food security and reducing dependence on external supplies.

Due to the underutilization of land, Baubau must rely on food supplies from outside the region to meet the needs of its residents, despite the city's significant agricultural potential. This dependence not only makes food prices in Baubau vulnerable to fluctuations in distribution and inflation, but also poses a risk to the long-term sustainability of the local food system. This situation demonstrates that Baubau City's food security lacks a solid foundation, necessitating immediate improvement in agricultural land management and utilization strategies. Without

concrete steps to optimize available land, achieving food self-sufficiency will be challenging, and family resilience, as the smallest social unit, will continue to face threats from unstable food access.

High dependence on food supplies from outside the region is a crucial issue for Baubau City, where approximately 70% of the community's food needs must be met through external distribution due to the weakening local agricultural sector (Elantara, 2025; Heeryl, 2025). This situation makes Baubau highly vulnerable to price volatility, especially during certain times such as religious celebrations or the lean season, when demand increases while supply is limited. Furthermore, this dependence also exposes the region to various external factors, such as distribution disruptions due to extreme weather, food inflation, and regional supplier policies, which can directly impact food availability in Baubau. This condition not only burdens the household economy through rising prices of staple foods but also poses a threat to regional food security because supply stability is entirely dependent on factors beyond the control of the government and local communities.

Food distribution infrastructure in Baubau City still faces various limitations that hinder the efficiency of the local food security system. Food distribution is not running optimally due to challenges in transportation management, a poorly integrated distribution system, and a frequently complicated licensing process. This condition leads to supply delays, high logistics costs, and uneven food distribution throughout the city. Furthermore, supporting infrastructure, such as ports, traditional markets, and warehousing systems, still needs to be strengthened to ensure a stable and affordable food supply for the community. Without fundamental improvements in infrastructure and distribution governance, food security in Baubau City will remain vulnerable to disruptions, both from internal and external factors.

On the other hand, the risk of price fluctuations and food inflation is a real problem directly felt by the people of Baubau. Price spikes have occurred for several essential commodities, including premium rice, which has increased from IDR 70,000 per sack to IDR 85,000–90,000, as well as for chilies, onions, tomatoes, fish, and eggs. These price increases often exceed the Highest Retail Price (HET), burdening households, especially low-income groups whose expenditures are largely allocated to food. This situation has prompted authorities to intervene through market operations and the distribution of stabilized rice (SPHP) to suppress price fluctuations (Sultrademo.co; Kendaripos). However, these measures are only short-term, while the root causes of distribution, dependence on external supplies, and minimal local production remain major challenges. Therefore, sustainable food security in Baubau City requires policies that focus not only on temporary price stabilization but also on building a more independent and resilient food system.

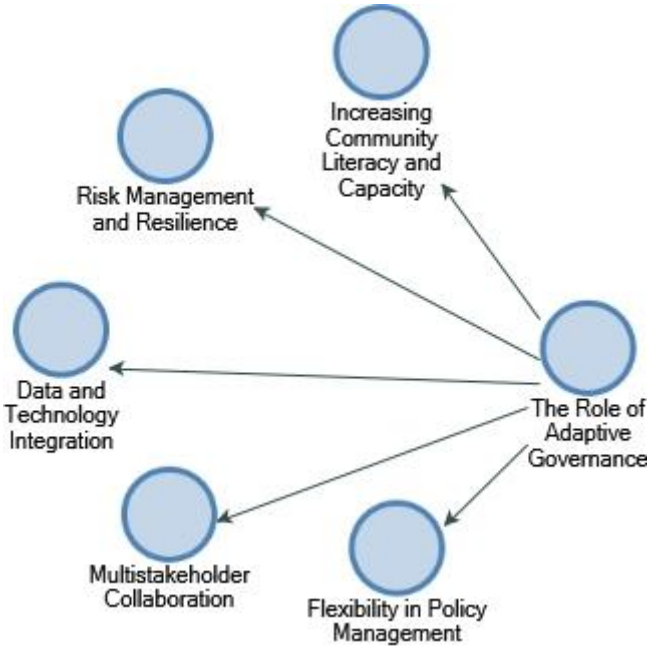
The problem of malnutrition and limited access to nutritious food remains a serious challenge in Baubau City, especially among low-income communities. The high rate of malnutrition in some communities is attributed not only to limited purchasing power but also to a lack of public awareness about the importance of a balanced, nutritious diet. Although the local government has implemented various programs, such as integrated health service posts (Posyandu), nutrition counseling, and interventions through supplementary feeding for children and pregnant women, malnutrition cases still account for 12.5% of the population, according to data from the Health Office. This situation indicates that response efforts have not been fully effective, so a more comprehensive strategy is needed that strengthens access to nutritious food, increases nutritional literacy, and encourages cross-sector involvement to support improvements in community nutritional status.

A series of problems, ranging from shrinking agricultural labor and land to suboptimal land use, high dependence on external supplies, weak distribution infrastructure, fluctuating food prices, and malnutrition, indicates that Baubau City's food security remains vulnerable and far from self-sufficient. The urgency of achieving food self-sufficiency and strengthening family resilience in this city lies in the need to build a resilient, sustainable, and independent food system, so that people not only have access to sufficient and affordable food, but also balanced nutrition to support their quality of life. Without strategic steps based on adaptive governance—

which emphasizes collaboration, innovation, and policy flexibility—family resilience, the foundation of social welfare, will continue to be threatened by economic, social, and environmental dynamics. Thus, food self-sufficiency is not only an agricultural sectoral agenda, but also a key to creating family welfare and sustainable regional development in Baubau City.

The Role of Adaptive Governance in Food Security Policy

Adaptive governance is a crucial approach to formulating food security policies, as it can effectively respond to the dynamics of environmental, social, and economic change. This approach emphasizes flexibility, collaboration, and the use of data and technology to ensure food systems remain resilient in the face of challenges. The experiences of several countries demonstrate that the success of achieving food security is greatly influenced by the ability of governments and communities to adapt sustainably.



Picture. 4
The Role of Adaptive Governance in Food Security Policy
Source: Processed by the author with Nvivo 12, 2025

One of the key principles of adaptive governance is policy flexibility, which allows it to adapt to environmental, economic, and social dynamics. In the context of food security, this flexibility is crucial, as climate change, land degradation, and global market fluctuations can significantly impact food production and distribution. The Netherlands is a concrete example of the successful application of this principle, as evidenced by the development of precision farming and high-tech agricultural systems. With limited agricultural land and significant climate change pressures, the Netherlands has not sought to maintain old patterns; instead, it has adapted its policies to meet new challenges. As a result, despite its small land area, the Netherlands has become one of the world's largest food exporters, boasting very high agricultural efficiency and productivity (Donati & Tukker, 2022).

Adaptive governance also emphasizes the importance of cross-actor collaboration in the formulation and implementation of food policies. This includes collaboration between the government, the private sector, academia, and civil society to ensure a more inclusive and sustainable food system. Brazil provides a successful example through its Zero Hunger (Fome Zero) program, which integrates various stakeholders in efforts to reduce hunger. The government takes a leading role in policy formulation and budget allocation, while civil society is involved in oversight and implementation, and the private sector supports food distribution (Herrera-Calderon et al., 2021). This synergy enables significant results to be achieved in a

relatively short time, demonstrating that a collaborative, adaptive approach is far more effective than a purely top-down approach.

In the digital era, adaptive governance also emphasizes the use of big data, agricultural information systems, and Internet of Things (IoT) technology to support food security. Utilizing data enables governments and farmers to respond more quickly and accurately to market and weather changes. India is a prime example through the implementation of the National Agriculture Market (e-NAM), a digital platform that connects agricultural markets across the country. With e-NAM, farmers can access transparent price information, sell their products to a wider market, and obtain fairer returns. This innovation not only improves market access for smallholder farmers but also increases the efficiency of the national food supply chain, ultimately strengthening the country's food security (Kumar et al., 2024).

Food security is determined not only by the availability of production but also by the food system's ability to withstand and recover from crises. Adaptive governance provides a framework that enables more responsive risk management in the face of natural disasters, distribution disruptions, and global crises. Japan is a successful example of an adaptive food stockpiling system, a strategic food reserve dynamically managed according to needs and disaster conditions. When an earthquake, tsunami, or other disaster strikes, these food reserves can be immediately distributed to affected communities, minimizing household food crises. This system demonstrates that adaptive policies focus not only on production but also on resilience and the rapid and effective distribution of resources.

Adaptive governance operates not solely at the macro policy level but also considers empowering communities and families as the smallest units in the food system. Improving nutritional literacy and local agricultural capacity is a crucial part of adaptive strategies to reduce household vulnerability to food crises. Thailand can serve as a reference through its Sufficiency Economy Philosophy (SEP) program, which emphasizes self-sufficiency and sustainability at the community level. This program encourages farmers to utilize small plots of land productively through crop diversification, while raising family awareness of the importance of a nutritious diet. With this approach, food security depends not only on state policy but also on the resilience of families and local communities, which are capable of adapting to various conditions.

The implications of implementing adaptive governance for Baubau City are highly relevant in addressing food security challenges currently characterized by shrinking agricultural land, a reduced agricultural workforce, and high dependence on external supplies. Adaptive policy flexibility can encourage local governments to tailor agricultural strategies to local conditions, for example, by optimizing the use of existing land with simple and modern technological approaches that align with local capacity. Multistakeholder collaboration is also key, where the government can partner with academics, the private sector, and farming communities to develop productive local agricultural innovations, thereby reducing dependence on external supplies while strengthening the foundation of regional food security.

Furthermore, technology and data integration, such as a digital-based agricultural information system, can be implemented in Baubau to increase market transparency, improve access to distribution, and provide price certainty for farmers and consumers. Furthermore, food risk management through local food reserves and strengthening distribution infrastructure can increase the city's resilience in the face of crises, whether caused by distribution disruptions or natural disasters. Equally important, nutritional literacy programs and family empowerment through urban farming or local food diversification can strengthen household food security, which serves as the basis for regional resilience. With this comprehensive, adaptive approach, Baubau has the opportunity to build a more independent, inclusive, and resilient food system in response to external dynamics.

Implications for Family Resilience in Baubau City

Family resilience in Baubau City is closely linked to regional food security. Stable food availability, affordable prices, and access to balanced nutrition are essential foundations for family well-being. The application of adaptive governance in food policy not only increases local

production and distribution efficiency but also strengthens the capacity of families, as the smallest social unit, to address food crises, inflation, and nutritional issues..

Table 1. Implications of Adaptive Governance on Family Resilience in Baubau City

Aspect	Implications for Family Resilience
Food Availability	Families have more stable access to local food, reducing dependency on external supplies.
Price Affordability	Adaptive policies can suppress food price fluctuations, easing the economic burden on low-income families.
Access to Balanced Nutrition	Nutrition literacy and local food diversification improve healthy eating patterns, reducing risks of stunting and malnutrition.
Resilience to Crises	Local food reserves and adaptive distribution strengthen family resilience during disasters or supply disruptions.
Family Economic Empowerment	Urban farming programs and the use of home gardens provide additional income opportunities and enhance family food self-sufficiency.

First, in terms of food availability, the implementation of adaptive governance can help families in Baubau City achieve more stable and sustainable access to food. With flexible policies tailored to local conditions, the government can encourage the optimal use of agricultural land that has not been utilized efficiently. This effort not only reduces dependence on external supplies but also ensures that families do not face food supply gaps when distribution is disrupted. More equitable local food availability will also reduce the risk of food insecurity in low-income communities, which are most vulnerable to distribution crises and price inflation.

Second, affordability is a major challenge for families in Baubau, given the high price fluctuations of staple foods, which often exceed the Highest Retail Price (HET). Adaptive governance allows for more responsive market intervention policies, for example, by strengthening local food reserves or establishing distribution partnerships with local farmers. This step will reduce price volatility, preventing undue burdens on low-income families. Better food price stability will increase household purchasing power, maintain balanced family spending, and support consistent fulfillment of basic needs.

Third, adaptive governance also has implications for access to balanced nutrition, which is crucial for improving families' quality of life. By promoting nutritional literacy and local food diversification, families can become more aware of the importance of a healthy and nutritious diet. Nutrition education integrated with food policies, for example, through integrated community health posts (Posyandu) or community-based counseling, can reduce the high incidence of malnutrition in Baubau. Furthermore, food diversification based on local products, such as tubers, vegetables, and fish, can strengthen families' independence in meeting their nutritional needs, while reducing dependence on rice as a primary commodity.

Fourth, in terms of crisis resilience, adaptive governance provides a framework for strengthening family resilience in the face of emergencies such as natural disasters, distribution disruptions, or global crises. Through an adaptively managed local food reserve system, families can secure access to food even if supplies from outside the region are disrupted. An efficient distribution infrastructure also plays a crucial role in ensuring that food aid reaches affected families promptly. Thus, families in Baubau are not merely recipients of impacts but also part of a resilient system that can withstand the dynamics of food uncertainty.

Fifth, adaptive governance also encourages family economic empowerment through local innovations such as urban farming, yard utilization, and the development of food-based small businesses. This strategy provides opportunities for additional income for families while increasing household food self-sufficiency. For example, families who use their yards to grow

vegetables or raise fish can reduce consumption expenses while selling their surplus produce to local markets. This empowerment demonstrates that family resilience is determined not only by government policy but also by the family's capacity to adapt by utilizing existing resources. With this approach, family resilience in Baubau can be built in layers—from the household, community, to the regional level.

CONCLUSSION

Food security in Baubau City remains vulnerable due to shrinking farmland and labor, poor land use, dependence on external food, weak distribution, volatile prices, and high malnutrition. Short-term fixes won't suffice; adaptive governance is needed to promote cross-sector collaboration, innovation, and sustainable resource management. Flexible policies can help optimize land use with modern technologies, while collaboration among government, academia, private sector, and farmers drives productivity and market efficiency. Strengthening local food reserves, infrastructure, nutrition literacy, and family empowerment through urban farming will boost resilience.

Adaptive governance not only improves food availability and affordability but also empowers families to adapt and sustain themselves, fostering a more inclusive and resilient food system in Baubau

This study is limited by its focus on Baubau City, which may affect the generalizability of findings to other regions with different social and environmental contexts. Additionally, data constraints restricted in-depth analysis of certain adaptive governance mechanisms in practice. Future research should explore longitudinal impacts of adaptive governance policies, incorporate comparative studies across similar cities, and examine the role of emerging technologies in enhancing food security and family resilience.

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