



ANALYSIS OF FOOD SECURITY AND SELF-SUFFICIENCY IN FOOD IN SOUTH SULAWESI

ANALISIS KETAHANAN PANGAN DAN SWASEMBADA PANGAN DI SULAWESI SELATAN

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Abstract

This study examines food security, food self-sufficiency, and self-sufficiency in South Sulawesi in 2024, focusing on the province's main food commodities, distribution issues, and the impact of government policies. The research analyzes the gap between food production and demand, identifying key commodities such as rice, corn, and soybeans. By evaluating the availability, accessibility, and affordability of these staple foods, the study investigates how local agricultural practices, infrastructure, and external factors like climate change and market volatility affect food security in the region. The findings reveal significant challenges in meeting the demand for rice and soybeans, despite the province's ability to achieve a surplus in corn production. The methodology employed in this study involves both qualitative and quantitative approaches. Primary data was gathered through field surveys, interviews with local farmers, agricultural experts, and policymakers, as well as secondary data from government reports, agricultural statistics, and market analyses. A comparative analysis was conducted to examine trends in food production, consumption patterns, and price fluctuations over the past five years. The study also incorporated geographic information system (GIS) mapping to assess the distribution of agricultural resources and the effectiveness of existing infrastructure in connecting farmers to markets. The findings suggest that despite the province's agricultural potential, South Sulawesi continues to face challenges in achieving full food self-sufficiency. The study recommends a multifaceted approach to addressing food insecurity and achieving food self-sufficiency, including improving rural infrastructure, adopting modern agricultural technologies, and diversifying food crops.



Keywords: Food security, self-sufficiency, agriculture, infrastructure, South Sulawesi.

Abstrak

Penelitian ini mengkaji ketahanan pangan, swasembada pangan, dan kemandirian pangan di Sulawesi Selatan pada tahun 2024, dengan fokus pada komoditas pangan utama, permasalahan distribusi, dan dampak kebijakan pemerintah. Penelitian ini menganalisis kesenjangan antara produksi dan permintaan pangan, dengan mengidentifikasi komoditas utama seperti beras, jagung, dan kedelai. Dengan mengevaluasi ketersediaan, aksesibilitas, dan keterjangkauan pangan-pangan pokok tersebut, penelitian ini menyelidiki bagaimana praktik pertanian lokal, infrastruktur, serta faktor eksternal seperti perubahan iklim dan volatilitas pasar mempengaruhi ketahanan pangan di wilayah ini. Hasil penelitian mengungkapkan tantangan signifikan dalam memenuhi permintaan beras dan kedelai, meskipun provinsi ini mampu mencapai surplus produksi jagung. Metodologi yang digunakan dalam penelitian ini mencakup pendekatan kualitatif dan kuantitatif. Data primer dikumpulkan melalui survei lapangan, wawancara dengan petani lokal, ahli pertanian, dan pembuat kebijakan, serta data sekunder dari laporan pemerintah, statistik pertanian, dan analisis pasar. Analisis komparatif dilakukan untuk mempelajari tren produksi pangan, pola konsumsi, dan fluktuasi harga selama lima tahun terakhir. Penelitian ini juga melibatkan pemetaan dengan sistem informasi geografis (SIG) untuk menilai distribusi sumber daya pertanian dan efektivitas infrastruktur yang ada dalam menghubungkan petani dengan pasar. Temuan penelitian menunjukkan bahwa meskipun Sulawesi Selatan memiliki potensi pertanian yang besar, provinsi ini masih menghadapi tantangan dalam mencapai swasembada pangan secara penuh. Penelitian ini merekomendasikan pendekatan multifaset untuk mengatasi ketahanan pangan dan mencapai swasembada pangan, termasuk perbaikan infrastruktur pedesaan, adopsi teknologi pertanian modern, dan diversifikasi komoditas pangan.

Kata kunci: Ketahanan pangan, swasembada pangan, pertanian, infrastruktur, Sulawesi Selatan.

1. INTRODUCTION

Food security is a critical issue in Indonesia, including in South Sulawesi. According to the FAO (FAO, 2022), food security is not only about the availability of food but also its access, utilization, and the long-term stability of food supply. As a province endowed with abundant natural resources and a strong agricultural sector, South Sulawesi should be able to manage and utilize its natural resources effectively to create better food security. However, various challenges such as uneven infrastructure, dependence on food imports, and the imbalance between food production and consumption continue to be major issues that need to be addressed (BPS, 2023).

Food security in South Sulawesi is not only constrained by external factors such as global economic shifts but also by internal limitations such as insufficient infrastructure, limited technological access in rural areas, and uneven agricultural output. These barriers limit the province's ability to maintain consistent and adequate food supplies for its growing population. Addressing these challenges is essential for ensuring food security in the region, particularly in the face of increasing urbanization and climate change impacts.

The objective of this research is to analyze the food security situation in South Sulawesi, with a focus on the challenges faced in achieving food self-sufficiency. The study also aims to explore the factors hindering food security and highlight potential solutions that could be implemented to improve food security, using current data and information from various sources, including the Statistics Bureau (BPS), the South Sulawesi Agricultural Department, and relevant literature. Furthermore, this research will evaluate the success of several districts that have managed to achieve food self-sufficiency and discuss steps that can be applied to other districts (Dinas Pertanian Sulawesi Selatan, 2024).



The research intends to provide an in-depth understanding of the agricultural capacity of South Sulawesi and to explore ways in which the province can better utilize its resources for achieving sustainable food production. Key factors such as government policies, infrastructure challenges, and technological gaps will also be examined in relation to their impact on food security.

The importance of this research lies in the need to gain a deeper understanding of the food security situation in South Sulawesi, a province with vast agricultural potential but still facing significant challenges in food distribution and availability. According to BPS (2023), although food production in South Sulawesi has increased, uneven distribution continues to cause some regions to experience food shortages. This research contributes to the formulation of more effective policies aimed at improving food security, both at the provincial and district levels (Purnama, 2024).

Addressing food security is crucial not only for the well-being of the local population but also for the economic stability of the region. By improving food production systems and ensuring equitable access to food, South Sulawesi can reduce its reliance on food imports and increase the resilience of its agricultural sector. This study will play an essential role in providing recommendations for sustainable agricultural practices and policy interventions.

Although South Sulawesi has abundant agricultural potential, several factors such as climate change, natural disasters, and dependence on food imports remain significant barriers to achieving food security. The dependency on imported food, especially for commodities like soybeans, corn, and sugar, increases its vulnerability to fluctuations in global food prices and international political situations. In 2023, more than 30% of South Sulawesi's food needs were met through imports, particularly for commodities that cannot be locally produced in sufficient quantities (BPS, 2023).

The region also faces challenges related to uneven food distribution, leading to a gap between areas with surplus food and those with food deficits. Districts located far from economic centers or with limited infrastructure often struggle to distribute their agricultural produce to major markets. This leads to unstable food prices and difficulties for people in certain regions to access affordable food (Setiawan, 2023). Despite these challenges, opportunities exist for improving food security in the province. A stronger focus on agricultural innovation and infrastructure development could help reduce dependence on imports and ensure more equitable food distribution.

South Sulawesi has several advantages that can be harnessed to improve food security, including its rich natural resources, fertile land, and strong agricultural sector. Rice, corn, soybeans, and cocoa are key commodities that can be further developed. With proper management, South Sulawesi can reduce its dependence on food imports and strengthen food security at the local and regional levels. One strategy that needs to be developed is improving access to agricultural technologies and building infrastructure to support more efficient food distribution (Sulastri & Setiawan, 2024).

There is also considerable potential for expanding agricultural practices that are environmentally sustainable and resilient to climate change. Introducing climate-smart farming techniques and enhancing soil conservation methods could increase productivity while mitigating negative environmental impacts. Leveraging these potentials will be crucial in ensuring a sustainable and self-reliant food system for South Sulawesi.

2. RESEARCH METHOD

Research Approach

This study employs both qualitative and quantitative approaches to provide a comprehensive understanding of food security and food self-sufficiency in South Sulawesi. The qualitative approach aims to explore the social, economic, and policy factors affecting food security, while the quantitative approach



is used to objectively measure data on food production, food consumption, food distribution, and the level of dependence on food imports (Creswell, 2023).

This approach allows for the analysis of the complex relationships between factors, such as the interplay between agricultural policies, infrastructure, and the success of regions in achieving food self-sufficiency (Yin, 2022). With the combination of both approaches, this research aims to provide a deeper understanding of the food security situation in South Sulawesi, along with recommendations that could be applied to enhance food security in the region.

Type of Research

This study is a descriptive research, which aims to describe the state of food security in South Sulawesi in 2024. Descriptive research focuses on analyzing existing data to explain the current situation without making any changes to the variables being studied (Sugiyono, 2022). Data collected from various sources will be processed to provide a clear depiction of the challenges and opportunities in achieving food security in the province.

Research Location

This study was conducted in South Sulawesi, focusing on several districts with different characteristics related to food security, including Wajo, Sinjai, Gowa, and Makassar City. The selection of these districts is based on the diversity of food security conditions in South Sulawesi, where some regions have achieved food self-sufficiency while others still face significant challenges (BPS, 2023).

The selected sub-districts represent both rural and urban areas, which allow for comparisons between the challenges faced in rural and urban regions. The selection also takes into account the availability of comprehensive statistical data and accessibility for data collection in the field.

Population and Sample

The population in this study consists of all households and farmers involved in food production in the Wajo, Sinjai, Gowa, and Makassar City districts. The researcher used purposive sampling, consisting of 100 respondents selected based on specific criteria, such as involvement in food production and geographical location that is representative of the area. By using purposive sampling, the researcher was able to gather more relevant and in-depth information about food security conditions in the region (Moleong, 2023).

The respondents include farmers, food traders, and the general public who are directly involved in food consumption. Additionally, interviews with local government officials, such as the Head of the Agricultural Office and agricultural experts, were conducted to obtain broader perspectives on policies and the food security situation.

Data Collection Techniques

Data were collected using several techniques, including:

- **Quantitative Survey:** A survey was conducted using a questionnaire distributed to 100 respondents in the four selected districts. The questionnaire included questions related to food production, food consumption, household economic conditions, and access to food (Purnama & Sulastris, 2024).
- **In-depth Interviews:** Interviews were conducted with farmers, food traders, and local government officials to explore deeper insights into the policies implemented, challenges faced, and solutions applied to improve food security (Yin, 2022).
- **Field Observations:** The researcher conducted direct observations at several agricultural locations to understand the farming practices used by farmers and to verify the data obtained from surveys and interviews.



Research Instruments

The instruments used in this study include questionnaires, interview guides, and observation sheets. The questionnaire is designed to collect quantitative data related to food production, food consumption, and dependence on imports.

The interview guide is used to obtain qualitative information regarding agricultural policies, distribution challenges, and factors affecting food security in the region. The observation sheet is used to record the conditions observed directly in the field related to agricultural practices and food distribution (Creswell, 2023).

Data Analysis Techniques

The collected data will be analyzed using descriptive statistical methods for quantitative data and thematic analysis for qualitative data. Quantitative data, such as food production and consumption figures, will be calculated and presented in tables and graphs to illustrate the food security situation in South Sulawesi. Meanwhile, qualitative data obtained from interviews and field observations will be analyzed using thematic analysis, where the researcher will identify patterns and key themes related to agricultural policies, food distribution challenges, and other factors influencing food security (Sugiyono, 2022).

The results of the analysis will be presented in the form of narratives and tables to provide a clearer picture of the challenges and opportunities in achieving food self-sufficiency in South Sulawesi.

3. RESULTS AND DISCUSSION

Food Production in South Sulawesi

Based on the survey conducted in 2024, the data shows that food production in South Sulawesi has experienced significant fluctuations. The majority of the produced commodities are rice, corn, soybeans, and vegetables. Data from BPS (2023) indicates that rice production in South Sulawesi reached 2.6 million tons in 2024, although it is still below the consumption needs of 3 million tons per year. This condition reflects the province's dependence on rice supplies from outside the region, highlighting the major challenge in achieving food self-sufficiency, particularly for rice commodities.

Furthermore, the corn sector in South Sulawesi has experienced a significant increase in production in 2024, with a total output of 1.2 million tons, which meets most of the domestic demand. However, commodities such as soybeans and cooking oil still rely on imports from abroad. This indicates that while there are some commodities that can be sufficiently produced, dependence on food imports remains a major issue for food security in the province (Sulastri & Setiawan, 2024).

Challenges in Food Distribution

The survey results also indicate that food distribution in South Sulawesi still faces significant obstacles. Based on field findings, 40% of farmers involved in the study reported difficulties accessing larger markets, especially in rural areas. This is largely due to poor road infrastructure and limited storage facilities for agricultural products (Purnama, 2024). In areas like Sinjai and Gowa regencies, agricultural products are often damaged or wasted due to the lack of efficient distribution systems.

For instance, in Sinjai Regency, although rice and corn production reached good results, distribution to main markets was hindered by inadequate infrastructure. This led to unstable food prices in the region, often higher than market prices in more developed areas (BPS, 2023).

Government Policies to Improve Food Security

The local government of South Sulawesi has made efforts to improve food security through various policies, especially in the agricultural sector. One of the main policies implemented is the



development of better irrigation systems in key agricultural areas. For example, Wajo Regency succeeded in applying modern irrigation technology that allows farmers to improve their agricultural yields, particularly rice. This helps increase local food production and reduce dependence on imports (Setiawan, 2023).

However, not all regencies have successfully implemented this policy. In Sinjai Regency, for example, although there are subsidy programs for fertilizers and quality seeds, the lack of understanding of modern farming techniques among farmers has been a major barrier to increasing agricultural yields. Additionally, the suboptimal distribution system also hampers the smooth supply of food from producing areas to major consumption regions (Sulastri & Setiawan, 2024).

Impact of Climate Change on Food Security

Climate change is also a significant factor affecting food security in South Sulawesi. Interviews with farmers indicate that changes in rainfall patterns in recent years have caused planting seasons to become unpredictable. Farmers in Gowa and Sinjai regencies reported that planting season uncertainties resulted in a drastic decline in their agricultural yields, particularly for corn and rice. This impact is more strongly felt in areas that depend on seasonal planting patterns, where unpredictable weather hampers farmers' ability to plan and plant on time (Lichtfouse, 2023).

Meteorological data from the Meteorological, Climatological, and Geophysical Agency (BMKG) show changes in rainfall patterns in South Sulawesi, with shorter rainy seasons and longer dry seasons. This reduces agricultural productivity in many regions, which in turn affects local food availability and increases dependence on imports (BPS, 2023).

Achievements in Food Self-Sufficiency in South Sulawesi

Despite facing various challenges, several areas in South Sulawesi have managed to achieve food self-sufficiency in key commodities. Wajo Regency is one example that successfully achieved rice self-sufficiency through improved agricultural technology and effective irrigation management. This is evidenced by the stability of local rice prices in the market over the last two years, indicating that rice production in the area has been able to meet domestic needs without relying on supplies from outside the region (Setiawan & Sulastri, 2023).

However, to achieve overall food self-sufficiency, further efforts are needed to increase the production capacity of other commodities, such as soybeans and corn, which still heavily rely on imports. Therefore, greater investment is needed in agricultural technology and infrastructure to ensure sustainable food security across the province of South Sulawesi (Purnama, 2024).

Table 1: Main Food Production in South Sulawesi in 2024 (In Tons)

Commodity	Production (Tons)	Need (Tons)	Surplus (Deficit)	Percentage of Need (%)
Rice	2,600,000	3,000,000	-400,000	86.67%
Corn	1,200,000	1,000,000	+200,000	120%
Soybeans	60,000	80,000	-20,000	75%
Vegetables	450,000	500,000	-50,000	90%

Data source: Primary data after processing, 2024.

Explanation of Table 1:

This table shows data on the main food production in South Sulawesi in 2024, compared to local food needs. Based on data from field surveys and BPS (2023), rice commodities are still experiencing a



deficit of around 400,000 tons, with only 86.67% of the domestic need being met. This indicates that South Sulawesi is not yet self-sufficient in rice and still relies on external supplies. In contrast, for corn, production reached 1.2 million tons, exceeding the domestic need of 1 million tons, with a surplus of 200,000 tons and a percentage of need met at 120%. This shows that South Sulawesi achieved corn self-sufficiency in 2024.

However, for soybeans, production of only 60,000 tons is less than half of the domestic need of 80,000 tons, showing a deficit of 20,000 tons. The percentage of soybean need met is only 75%, indicating high reliance on soybean imports. For vegetables, production reached 450,000 tons but still did not meet local needs of 500,000 tons, with a deficit of 50,000 tons and only 90% of the need met.

**Table 2: Main Obstacles in Food Distribution in South Sulawesi
(Percentage of Respondents)**

Distribution Issues	Percentage of Respondents (%)
Poor Road Infrastructure	40%
Limited Storage Facilities	35%
Price Instability	25%

Data source: Primary data after processing, 2024.

Explanation of Table 2:

This table illustrates survey results regarding obstacles faced in food distribution in South Sulawesi. Based on interviews with farmers and food traders, 40% of respondents reported that poor road infrastructure is the main issue in distributing agricultural products to larger markets. Many rural areas in Sinjai and Gowa regencies have limited road access, increasing distribution costs and causing losses when agricultural products cannot be sold on time.

Additionally, 35% of respondents mentioned that limited food storage facilities are also a major issue. Without adequate storage, agricultural products such as rice and corn often spoil or decay before they can be sold on the market, worsening food security in the area. Meanwhile, 25% of respondents indicated that price instability also affects distribution. Fluctuating food prices create uncertainty for farmers and traders, making them reluctant to supply food to the market due to greater risks of loss.

**Table 3: Impact of Climate Change on Agriculture
in South Sulawesi (Percentage of Respondents Affected)**

Impact of Climate Change	Percentage of Respondents (%)
Decline in Agricultural Yields	50%
Delay in Planting Seasons	30%
Crop Damage Due to Extreme Weather	20%

Data source: Primary data after processing, 2024.

Explanation of Table 3:

This table shows the survey results regarding the impact of climate change on agriculture in South Sulawesi. Fifty percent of respondents reported a decline in agricultural yields as the primary impact of climate change. This is related to the unpredictable rainfall patterns, which make planting seasons uncertain and decrease harvest yields. This impact is particularly felt in areas highly dependent on seasonal patterns, such as Wajo and Gowa regencies.

Furthermore, 30% of respondents stated that delayed planting seasons have become a serious issue, especially for rice and corn, which heavily rely on timely planting. This delay leads to decreased productivity and quality of crops. Twenty percent of respondents reported that crop damage due to extreme



weather conditions such as droughts or floods has also become more frequent. This worsens food security as it can lead to crop failures, further increasing dependence on food imports.

**Table 4: Government Policies Implemented to Improve Food Security
(Percentage of Respondents)**

Government Policy	Percentage of Respondents (%)
Development of Irrigation Infrastructure	45%
Fertilizer and Seed Subsidies	35%
Agricultural Counseling and Training	20%

Data source: Primary data after processing, 2024.

Explanation of Table 4:

This table illustrates government policies aimed at improving food security in South Sulawesi. Based on interviews with farmers and local officials, the policy that had the most impact was the development of irrigation infrastructure, reported by 45% of respondents. This policy has been particularly beneficial in Wajo Regency, where the use of modern irrigation has significantly improved rice yields. Fertilizer and seed subsidies were felt by 35% of respondents as important assistance in reducing production costs and improving agricultural yields.

However, only 20% of respondents reported positive impacts from agricultural counseling and training, indicating that there are still obstacles in disseminating information and applying modern agricultural techniques in the field.

4. CONCLUSION

This study provides a comprehensive overview of the food security situation in South Sulawesi in 2024. Based on the results obtained from data on food production, distribution, and government policies, it can be concluded that South Sulawesi still faces significant challenges in achieving complete food self-sufficiency. Several commodities, such as rice and soybeans, show a production deficit, while corn has the potential to achieve a surplus, indicating the potential for success in this sector. It is important to note that despite South Sulawesi having abundant natural resources, food distribution remains a major issue hindering food security. Poor infrastructure, limited storage facilities, and price instability significantly contribute to supply and price uncertainty in the market. One external factor exacerbating this situation is climate change, which causes uncertainty in rainfall patterns and reduces agricultural productivity.

The government policies that have been implemented, such as the development of irrigation infrastructure and fertilizer subsidies, have had a positive impact in some areas. However, these policies have not been sufficient to address food security challenges comprehensively. Overall, South Sulawesi remains heavily dependent on food imports, especially for commodities like rice and soybeans, which underscores the need for further steps to achieve sustainable food self-sufficiency.

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