Vol. 2 No. 4 Edisi Oktober 2025 E. ISSN. 3032-2472
Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

FOOD SECURITY CHALLENGES AND POLICY RESPONSES IN SOUTH SULAWESI : TOWARD SUSTAINABLE SELF-SUFFICIENCY

TANTANGAN KETAHANAN PANGAN DAN RESPONS KEBIJAKAN DI SULAWESI SELATAN: MENUJU SWASEMBADA BERKELANJUTAN

Zulkifli[1], Besse Dahliana[2], Suhartina R[3]
[1]Fakultas Pertanian, Universitas Muhammadiyah Makassar, Indonesia,
email: zulkiflisjamsir@unismuh.ac.id
[2]Fakultas Pertanian, Sekolah Tinggi Ilmu Pertanian YAPPI Bone, Indonesia,
email: stipyapibone@gmail.com
[3]Sekolah Tinggi Ilmu Ekonomi LPI Makassar, Indonesia,
email: suhartina70@stie-lpi.ac.id

Email Koresponden: zulkiflisjamsir@unismuh.ac.id

DOI: https://doi.org/10.62567/micjo.v2i4.1249

Article info:

Submitted: 30/08/25 Accepted: 14/10/25 Published: 30/10/25

Abstract

This study analyzes the challenges of food security and the policy responses of the government in achieving food self-sufficiency in South Sulawesi in 2025. The research aims to identify production-consumption gaps, distribution bottlenecks, and the impacts of climate variability and agricultural policies on food availability, accessibility, and affordability. A mixed-methods approach was employed, combining qualitative and quantitative techniques through household surveys, in-depth interviews with farmers and policymakers, field observations, and secondary data from the Central Statistics Agency and the South Sulawesi Agricultural Department.

The results reveal persistent production deficits for rice and soybeans, while corn has reached a surplus, illustrating structural imbalances among staple commodities. Approximately 62% of respondents reported difficulties in transportation and storage due to inadequate infrastructure, contributing to post-harvest losses and unstable food prices. Government programs such as irrigation development, input subsidies, and farmer training have provided partial benefits, yet 57% of farmers indicated irregular access to such support. Moreover, climate shocks such as El Niño continue to depress yields and increase vulnerability among smallholder farmers. Conversely, social capital, manifested in farmer groups and cooperative networks, has played a significant role in sustaining household food availability and resilience.

The findings suggest that food security in South Sulawesi cannot be addressed solely through production increases. A multifaceted strategy is required, emphasizing rural infrastructure development, climate-smart agricultural innovation, institutional and irrigation reform, and community-based mechanisms that strengthen social capital. This integrative approach

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

provides empirical evidence for policy design and contributes to the broader discourse on sustainable food self-sufficiency in Indonesia.

Keywords: Food security, agricultural policy, self-sufficiency, South Sulawesi, sustainability.

Abstrak

Penelitian ini menganalisis tantangan ketahanan pangan serta respons kebijakan pemerintah dalam mewujudkan swasembada pangan di Sulawesi Selatan tahun 2025. Tujuan penelitian adalah mengidentifikasi kesenjangan produksi–konsumsi, hambatan distribusi, serta dampak variabilitas iklim dan kebijakan pertanian terhadap ketersediaan, aksesibilitas, dan keterjangkauan pangan. Metode yang digunakan adalah pendekatan *mixed-methods* dengan mengombinasikan teknik kualitatif dan kuantitatif melalui survei rumah tangga, wawancara mendalam dengan petani dan pembuat kebijakan, observasi lapangan, serta analisis data sekunder dari Badan Pusat Statistik dan Dinas Pertanian Sulawesi Selatan.

Hasil penelitian menunjukkan adanya defisit produksi pada komoditas beras dan kedelai, sementara jagung mengalami surplus, yang mencerminkan ketidakseimbangan struktural antar komoditas pangan pokok. Sekitar 62% responden melaporkan kesulitan transportasi dan penyimpanan akibat keterbatasan infrastruktur, sehingga menimbulkan kehilangan pascapanen dan ketidakstabilan harga pangan. Program pemerintah seperti pembangunan irigasi, subsidi input, dan pelatihan petani memberikan manfaat parsial, namun 57% petani menyatakan tidak memperoleh dukungan secara rutin. Selain itu, guncangan iklim seperti El Niño terus menurunkan produktivitas dan meningkatkan kerentanan petani kecil. Sebaliknya, modal sosial yang tercermin dalam kelompok tani dan jaringan koperasi berperan signifikan dalam menjaga ketersediaan pangan rumah tangga dan meningkatkan resiliensi komunitas.

Temuan ini menegaskan bahwa ketahanan pangan di Sulawesi Selatan tidak dapat diselesaikan hanya dengan peningkatan produksi. Strategi multifaset diperlukan, mencakup pembangunan infrastruktur pedesaan, inovasi pertanian cerdas iklim, reformasi kelembagaan dan tata kelola irigasi, serta penguatan mekanisme berbasis komunitas yang memperkokoh modal sosial. Pendekatan integratif ini memberikan bukti empiris bagi perumusan kebijakan dan memperkaya wacana mengenai swasembada pangan berkelanjutan di Indonesia.

Kata kunci: Ketahanan pangan, kebijakan pertanian, swasembada, Sulawesi Selatan, keberlanjutan.

1. INTRODUCTION

Food security is a highly crucial national strategic issue, including in South Sulawesi Province. According to FAO (2022), food security does not only concern the availability of food, but also includes access, utilization, and the long-term stability of supply. As a province endowed with abundant agricultural resources, South Sulawesi has significant opportunities to manage and utilize its potential to achieve sustainable food security and self-sufficiency.

In reality, however, several obstacles remain, ranging from uneven distribution infrastructure, dependence on food imports, to the impacts of climate change that reduce agricultural productivity (BPS, 2023). These conditions cause an imbalance between production and consumption, particularly for rice and soybeans, while corn has relatively reached a surplus. Unequal food distribution also leads to surplus areas and deficit areas, where

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

the latter face difficulties in accessing food at affordable prices (South Sulawesi Agricultural Department, 2024).

Indonesia's regional vulnerability to food insecurity remains uneven; exposure, sensitivity, and adaptive capacity vary markedly across provinces, including South Sulawesi (Juliannisa, Rahma, Mulatsih, & Fauzi, 2025). Climatic shocks such as El Niño continue to depress rice yields and heighten risk (Ansari et al., 2021). Distribution frictions in seed and input systems amplify these risks (Qadir et al., 2024).

Recent work operationalizes composite vulnerability indices at provincial scale (Juliannisa et al., 2025) and examines social capital as a lever for household food security in South Sulawesi agroforestry systems (Yusriadi, 2025). Institutional analyses of irrigation and risk-sharing deepen the governance lens (Darma, O'Connor, Akzar, Tenriawaru, & Amandaria, 2025).

By integrating infrastructure/market-access factors with climate exposure and local institutions in South Sulawesi, this study complements prior indices (Juliannisa et al., 2025) and social-capital analyses (Yusriadi, 2025) with a concrete distributional and irrigation-governance focus (Darma et al., 2025; Putri, Irianto, & Antriyandarti, 2023).

To quantify how infrastructure and distribution shape availability and access under climate stress, and to identify scalable institutional arrangements and community mechanisms that strengthen resilience (Darma et al., 2025; Yusriadi, 2025).

(i) an empirically grounded provincial case (South Sulawesi) with multi-source indicators; (ii) a policy-ready framing that links infrastructure and market instruments to household outcomes; and (iii) a synthesis of irrigation governance and community social capital for actionable design (Darma et al., 2025; Yusriadi, 2025; Putri et al., 2023).

This study is expected to provide both theoretical and practical contributions. Theoretically, it enriches the literature on food security by incorporating the perspective of South Sulawesi as one of Indonesia's key food-producing regions. Practically, the findings can serve as inputs for local governments in designing more targeted policies in infrastructure development, agricultural technology innovation, and food diversification. Moreover, the results may be used as references for national policymakers to strengthen a sustainable food security system.

Through this integrative analysis, the study not only identifies the main challenges facing South Sulawesi but also delivers evidence-based recommendations for achieving sustainable food self-sufficiency at both provincial and national levels. This finding is also consistent with recent studies highlighting similar gaps in production and distribution (Zulkifli, Dahliana, & Suhartina, 2025).

2. RESEARCH METHOD

2.1 Research Approach

This study employs a **mixed-methods approach** that integrates both qualitative and quantitative strategies to obtain a comprehensive understanding of food security and self-sufficiency in South Sulawesi. The qualitative dimension explores the **social, economic, and policy contexts**, while the quantitative dimension measures **production capacity, consumption levels, distribution efficiency, and import dependency**. Such a design is widely recognized as effective for policy-relevant agricultural research (Creswell & Creswell, 2023; Sugiyono, 2022).

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

2.2 Type of Research

The research adopts a **descriptive-analytical design**, aiming to systematically portray the dynamics of food security without manipulating observed variables. This approach allows for the identification of existing trends, gaps, and challenges in achieving food self-sufficiency (Moleong, 2023).

2.3 Research Location

The study was conducted in **four selected districts** representing both rural and urban contexts in South Sulawesi: Wajo, Sinjai, Gowa, and Makassar City. These areas were chosen purposively because of their varied conditions regarding food surplus and deficit, distribution infrastructure, and exposure to climate-related risks. Such a comparative selection improves external validity and ensures representativeness (Novitasari, Khusaini, Riniwati, & Suwarno, 2025).

2.4 Population and Sample

The research population consists of **households and farmers engaged in staple food production**. A purposive sampling technique was used to select 100 respondents, considering their active involvement in food production and their geographical distribution across surplus and deficit regions. In addition, key informants—government officials, local traders, and agricultural experts—were interviewed to capture diverse perspectives. This design enhances triangulation and strengthens the credibility of findings (Yusriadi, 2025).

2.5 Data Collection Techniques

Data collection involved several complementary techniques:

1. **Structured Survey:** Questionnaires were administered to 100 households/farmers to collect data on production volumes, household food consumption, and access to markets.
2. **In-depth Interviews:** Conducted with local government officials, farmer leaders, and traders to gain insights into the effectiveness of food security policies and distribution mechanisms (Darma, O'Connor, Akzar, Tenriawaru, & Amandaria, 2025).
3. **Field Observations:** Direct visits to agricultural areas were made to observe farming practices, infrastructure conditions, and storage facilities.
4. **Secondary Data Review:** Statistical data were obtained from BPS (2023) and policy reports from the South Sulawesi Agricultural Department to complement and validate primary data.

2.6 Research Instruments

The instruments included **questionnaires, interview guides, and observation checklists**. The questionnaire was designed to capture quantitative data on production and consumption, while the interview guide collected qualitative insights on institutional and policy dimensions. The observation checklist provided a structured tool for validating field conditions (Putri, Irianto, & Antriyandarti, 2023).

2.7 Data Analysis Techniques

Quantitative data were analyzed using **descriptive statistics** (percentages, averages, cross-tabulation) and presented in tables and figures. Qualitative data were analyzed through **thematic content analysis**, enabling the identification of patterns and relationships among variables such as infrastructure, distribution, and policy effectiveness. The integration of both

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

methods ensured robust findings and strengthened validity through methodological triangulation (Ansari, Prawoto, Sukmono, & Jamhari, 2021; Juliannisa, Rahma, Mulatsih, & Fauzi, 2025; Zulkifli, Dahliana, & Suhartina, 2025).

3. RESULTS AND DISCUSSION

3.1 Production and Consumption Gap

Survey data show that rice production in South Sulawesi reached **5.2 tons/ha** on average, but household demand still exceeded local supply by **12%**. For soybeans, the gap was even larger, with only **1.4 tons/ha** compared to rising consumption. Conversely, corn showed a **15% surplus**, indicating a structural imbalance among staple commodities. Climatic anomalies, particularly El Niño, were identified by farmers as a major cause of yield decline (Ansari et al., 2021).

Table 1. Production and Consumption of Staple Commodities in South Sulawesi (Survey 2024)

Commodity	Average Production (tons/ha)	Consumption Needs (tons/ha equivalent)	Surplus/Deficit (%)
Rice	5.2	5.8	-12% (deficit)
Soybeans	1.4	1.9	-26% (deficit)
Corn	6.5	5.6	+15% (surplus)

Source: Field Survey, 2025

3.2 Distribution and Infrastructure Constraints

Survey results highlight that **62% of respondents** reported difficulties in transporting harvests to local markets due to poor road conditions. Furthermore, **48%** stated limited access to storage facilities, causing post-harvest losses of up to **8%**. These findings align with institutional studies in Wajo District that emphasize the role of effective irrigation and distribution governance to enhance resilience (Darma et al., 2025).

Table 2. Farmers' Perceptions of Distribution Challenges

Indicator	Percentage of Respondents
Poor road and transport	62%
Limited storage facilities	48%
High transport cost	41%
Market price fluctuations	55%

Source: Field Survey, 2025

3.3 Institutional and Policy Responses

The provincial government has implemented programs such as subsidized fertilizer, improved irrigation, and food barns. However, **57% of farmers** reported that support did not

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

reach them regularly. The vulnerability index confirms that South Sulawesi remains at medium risk, with wide intra-provincial disparities (Juliannisa et al., 2025).

Table 3. Farmers' Responses to Government Support Programs

Program Type	Regularly Accessed (%)	Not Regularly Accessed (%)
Fertilizer subsidy	43%	57%
Irrigation improvement	38%	62%
Farmer training/extension	46%	54%
Food barn/community storage	35%	65%

Source: Field Survey, 2025

3.4 Social Capital and Community Adaptation

Survey responses indicated that **69% of farmer households** participate in farmer groups, while **44%** rely on informal credit from community-based cooperatives. These practices reflect strong social capital that stabilizes food availability at the household level. This supports prior findings that community cooperation significantly enhances resilience in North Luwu and similar agroforestry areas (Yusriadi, 2025).

Table 4. Role of Social Capital in Supporting Food Security

Community Mechanism	Respondent Participation (%)
Farmer groups	69%
Informal credit/cooperatives	44%
Shared labor exchange (gotong royong)	53%
Collective grain storage	31%

Source: Field Survey, 2025

3.5 Integrated Perspective and Contribution

By applying a **mixed-methods design** (Creswell & Creswell, 2023), this study demonstrates that quantitative findings (production-consumption gaps, distribution bottlenecks) and qualitative insights (institutional constraints, social capital) converge. The results confirm that sustainable food self-sufficiency in South Sulawesi requires integrated strategies: climate adaptation (Ansari et al., 2021), institutional and irrigation reform (Darma et al., 2025), vulnerability monitoring (Juliannisa et al., 2025), and social capital empowerment (Yusriadi, 2025). These conclusions also align with the comprehensive analysis provided by Zulkifli, Dahliana, & Suhartina (2025).

3.6. Discussion

The survey results demonstrate that food security in South Sulawesi remains imbalanced, with persistent deficits in rice and soybean production despite a surplus in corn. This structural imbalance reflects the province's vulnerability to both climatic and systemic challenges. These findings are consistent with Ansari et al. (2021), who emphasized that climatic anomalies such as El Niño significantly reduce rice yields in Indonesia.

Infrastructure and distribution bottlenecks also emerged as critical determinants of food insecurity. Approximately 62% of respondents reported constraints in transportation and

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

storage, which contribute to post-harvest losses and unstable food prices. These results reinforce the institutional perspective of Darma et al. (2025), who highlighted the importance of effective irrigation and distribution governance in enhancing resilience in Wajo District.

Moreover, uneven access to government programs—such as fertilizer subsidies, training, and community food barns—has widened disparities among regions, consistent with the vulnerability indices presented by Juliannisa et al. (2025).

Beyond formal policies, **social capital** plays a crucial role in sustaining household food availability. The high participation of farmers in cooperatives and farmer groups demonstrates the importance of community-based mechanisms in stabilizing access to food. This resonates with Yusriadi (2025), who found that social networks in North Luwu significantly contributed to household food security in agroforestry systems.

Overall, these findings affirm that food security cannot be achieved solely by increasing production. An integrative approach is required, encompassing rural infrastructure improvement, climate-smart agricultural innovation, institutional and irrigation reform, and empowerment of local communities. This perspective aligns with the analysis of Zulkifli, Dahliana, and Suhartina (2025), who argue that sustainable self-sufficiency in South Sulawesi depends on the synergy between technical, institutional, and social dimensions.

4. CONCLUSION

This study concludes that South Sulawesi continues to face serious challenges in achieving food self-sufficiency. Survey data revealed persistent deficits in rice and soybean production, while corn showed a surplus, highlighting structural imbalances among staple commodities. Distribution and infrastructure constraints, such as poor road access and limited storage, further exacerbate food insecurity by increasing post-harvest losses and causing price instability.

Government programs, including fertilizer subsidies, irrigation development, and farmer training, have provided partial benefits but have not reached farmers evenly across the province. Climatic variability, particularly the impact of El Niño, has further depressed yields and heightened smallholder vulnerability. On the other hand, social capital through farmer groups, cooperatives, and community initiatives has played a vital role in stabilizing household food availability and strengthening resilience.

Overall, sustainable food security in South Sulawesi requires an integrated strategy that combines rural infrastructure improvement, climate-smart agricultural innovation, institutional and irrigation reform, and empowerment of community-based mechanisms. By addressing these multidimensional challenges, South Sulawesi can move closer to achieving long-term, sustainable food self-sufficiency.

5. REFERENCES

Ansari, A., Prawoto, A., Sukmono, A., & Jamhari, J. (2021). Evaluating and adapting climate change impacts on rice production in Indonesia. *Environments, 8*(11), 117. https://doi.org/10.3390/environments8110117

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage Publications.

Darma, R., O'Connor, P., Akzar, R., Tenriawaru, A. N., & Amandaria, R. (2025). Enhancing sustainability in rice farming: Institutional responses to floods and droughts in pump-

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

based irrigation systems in Wajo District, Indonesia. *Sustainability, 17*(8), 3501. https://doi.org/10.3390/su17083501

Juliannisa, I. A., Rahma, H., Mulatsih, S., & Fauzi, A. (2025). Regional vulnerability to food insecurity: The case of Indonesia. *Sustainability, 17*(11), 4800. https://doi.org/10.3390/su17114800

Qadir, A., Zamzami, I., Widajati, E., Ramadhani, F., & Awan, T. H. (2024). Commercial rice seed production and distribution in Indonesia. *Heliyon, 10*(3), e25110. https://doi.org/10.1016/j.heliyon.2024.e25110

Putri, H. A., Irianto, H., & Antriyandarti, E. (2023). The role of Toko Tani Indonesia (TTI) to supply chain and the establishment of rice prices in Sragen District. *Agro Ekonomi, 34*(1). https://doi.org/10.22146/ae.88799

Yusriadi, Y. (2025). Sustaining food security through social capital in agroforestry: A qualitative study from North Luwu, Indonesia. *Frontiers in Sustainable Food Systems, 9*, 1580017. https://doi.org/10.3389/fsufs.2025.1580017

Novitasari, Y., Khusaini, M., Riniwati, H., & Suwarno, P. (2025). Pemberdayaan petani sebagai kunci keberhasilan model ketahanan wilayah berbasis budidaya pisang Cavendish. *Jurnal Ketahanan Nasional, 31*(1), 43–59. https://doi.org/10.22146/jkn.102600

Zulkifli, Dahliana, B., & Suhartina, R. (2025). Analysis of food security and self-sufficiency in food in South Sulawesi. *Multidisciplinary Indonesian Center Journal (MICJO), 2*(2), 1676–1683. https://doi.org/10.62567/micjo.v2i2.626