

## ARTICLE

# The Role of Government in National Food Security

## A Systematic Literature Review and Bibliometric Analysis

Nurhayati <sup>1</sup>, Winda Roselina Effendi <sup>1</sup>, Ramon Zamora <sup>2</sup>, Utami Yerikania <sup>3</sup>

<sup>1</sup> Government Science Study Program, Faculty of Social and Political Sciences, Universitas Riau Kepulauan, Batam, Indonesia

<sup>2</sup> Management Study Program, Faculty of Economics and Business, Universitas Riau Kepulauan, Batam, Indonesia

<sup>3</sup> National University of Singapore, Singapore

✉ [nurhayati.zamora05@gmail.com](mailto:nurhayati.zamora05@gmail.com)

**Abstract:** This study examines the role of government in strengthening national food security through a hybrid approach combining a systematic literature review (SLR) and bibliometric analysis. Literature data were collected from the Scopus database using the query "government role AND food security," yielding 22 articles for qualitative synthesis. The findings identify four key governance dimensions: local government initiatives, national government support, agricultural policy, and intersectoral collaboration. Effective food security governance requires coordinated action across levels of government, supported by clear legislation, adequate funding, and partnerships with civil society and the private sector. Agricultural policies promoting smallholder farmer groups, technology access, and sustainable practices further strengthen food availability and household-level resilience. Bibliometric analysis reveals dominant research clusters around policymaking, climate change, food insecurity, and governance, reflecting the multidimensional nature of food security challenges. However, several implementation barriers persist, including weak intergovernmental coordination, limited rural infrastructure, low technology adoption among smallholder farmers, and insufficient adaptive capacity in the face of climate change. This study highlights the need for integrated, adaptive, and evidence-based governance frameworks to achieve sustainable and inclusive food security outcomes.

**Keywords:** food security; government role; agricultural policy; intersectoral collaboration, systematic literature review..

**OPEN ACCESS**

Citation: Nurhayati, Effendi, W. R., Zamora, R., & Yerikania, U. (2026). The Role of Government in National Food Security: A Systematic Literature Review and Bibliometric Analysis. *Jurnal Bina Praja*, 18(1), 175–189. <https://doi.org/10.21787/jbp.18.2026.2931>

Submitted: 31 January 2026

Accepted: 15 April 2026

Published: 9 June 2026

© The Author(s)



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

## 1. Introduction

Food security remains a key strategic priority in Indonesia's national development agenda, as reflected in various government policies and institutional frameworks. Law No. 18 of 2012 on Food establishes the legal foundation by guaranteeing citizens' rights to adequate, safe, and nutritious food, while also mandating the government to ensure food availability, distribution, and price stability. This commitment is further reinforced through the National Medium-Term Development Plan, which prioritizes self-sufficiency in staple commodities such as rice, corn, and soybeans to reduce dependency on imports. In addition, large-scale initiatives such as the Food Estate program have been introduced to expand agricultural production capacity through the development of new farming areas in regions including Central Kalimantan and Papua (Marwanto & Pangestu, 2021). Government support is also extended through input subsidies and institutional coordination led by the National Food Agency.

Despite these efforts, Indonesia continues to face persistent and complex food security challenges. One of the most critical issues is the country's reliance on imported food commodities, particularly rice and soybeans, which exposes domestic markets to global price volatility and external shocks (Basundoro & Sulaeman, 2020; Fianda et al., 2022). International disruptions, including global food crises and protectionist trade policies, further exacerbate supply instability (Ayu, 2022; Basundoro & Sulaeman, 2020). At the same time, disparities in food access remain evident across regions, especially in remote and underdeveloped areas where limited infrastructure and high logistics costs hinder food distribution (Ariani, 2004; Sihombing, 2021).

From the production perspective, structural constraints continue to limit agricultural productivity. Many smallholder farmers still rely on traditional farming practices due to limited access to technology, capital, and extension services. Climate change further intensifies these challenges by increasing the frequency of extreme weather events, such as floods and droughts, which disrupt planting cycles and reduce yields (Chaireni et al., 2020; Muttaqin et al., 2023). In addition, inadequate post-harvest infrastructure contributes to significant food losses, while inefficiencies in distribution systems create imbalances where some regions experience surplus and others face shortages. These conditions highlight gaps in governance, coordination, and policy implementation that weaken the overall effectiveness of national food security strategies.

In addressing these multidimensional challenges, global experience suggests that food security policies should not only focus on production and distribution but also on ensuring access to nutritious food at the household level. One widely implemented policy instrument is the provision of nutritious meals through school feeding programs. Globally, such programs have developed into one of the largest social protection mechanisms, reaching approximately 466 million children and serving as a strategic intervention to reduce hunger, improve nutrition, and strengthen human capital (Turner et al., 2023).

Comparative evidence from countries such as Brazil, India, and Finland demonstrates that school feeding programs can be implemented effectively when supported by strong institutional design and cross-sectoral coordination. These programs typically integrate nutrition education, local food procurement, and agricultural support, thereby creating linkages between social protection and local economic development. As a result, they not only address immediate food insecurity

but also contribute to the sustainability of food systems (Putra et al., 2022; Turner et al., 2023).

Empirical studies further indicate that school feeding programs generate significant multidimensional impacts. In terms of urgency, they directly address child malnutrition and food insecurity, which remain critical barriers to physical and cognitive development (Fakhira & Cahyono, 2022; Salsabila et al., 2022). In terms of outcomes, these programs have been shown to improve school attendance, enrollment rates, and academic performance, while also promoting healthier dietary patterns (Davies et al., 2022). Economically, they are considered highly cost-effective, with long-term returns ranging from 7 to 35 times the initial investment due to their contributions to education, health, and productivity (Turner et al., 2023). Moreover, the home-grown school feeding approach—linking food procurement with local farmers—has proven effective in stimulating rural economies and strengthening domestic supply chains (Midamba et al., 2023; Turner et al., 2023).

In the Indonesian context, the relevance and urgency of implementing similar initiatives are increasingly evident. Nutritional challenges among school-aged children persist and continue to affect health outcomes, educational participation, and learning performance (Maksum et al., 2023). Although programs such as the School Children Nutrition Program (Program Gizi Anak Sekolah [ProGAS]) have been introduced, their scope remains limited and faces challenges related to funding, coordination, and sustainability (Hidayat & Agusliani, 2020). Furthermore, the reliance on informal food sources in schools raises concerns about food quality and safety.

Expanding school feeding programs in Indonesia therefore represents a strategic policy opportunity that complements existing food security initiatives. Beyond addressing short-term nutritional needs, such programs can enhance human capital development, improve educational outcomes, and contribute to long-term economic productivity (Huff et al., 2015). Additionally, integrating these programs with local agricultural systems can strengthen domestic food resilience and reduce import reliance.

Given these considerations, there is a need for a more comprehensive understanding of how multi-stakeholder governance and policy interventions can effectively advance food security in Indonesia. Therefore, this study employs a systematic literature review (SLR) to examine the roles of key stakeholders in strengthening food security through meal programs. By synthesizing findings from existing studies, this research aims to identify effective governance approaches, highlight implementation barriers, and provide evidence-based recommendations for developing more sustainable, inclusive, and adaptive food security strategies.

## 2. Methods

This study adopts a hybrid methodological approach combining an SLR and bibliometric analysis to provide both qualitative and quantitative insights into the role of government in improving national food security. The integration of these two approaches was intended to enhance the rigor of the review by complementing in-depth thematic synthesis with large-scale publication mapping. The SLR approach follows the guidelines proposed by Marzi et al. (2025), who emphasizes a transparent and reproducible process of identifying, screening, and synthesizing relevant literature. Bibliometric analysis was employed as a complementary method to explore publication trends, keyword co-occurrence, and intellectual structure

within the research field, an approach increasingly recognized as part of text mining and big data methodologies in literature studies (Jones et al., 2021).

Literature data were collected from the Scopus database on November 5, 2024, using the query "government role AND food security" within the Title, Abstract, and Keyword fields, without a publication date restriction; the initial search results spanned a 10-year period (2014–2024), yielding 595 documents. The first screening stage applied inclusion criteria limited to English-language, open-access journal articles, reducing the dataset to 323 articles. Further screening restricted subject areas to social sciences and public policy, yielding 119 articles. These were then subjected to a relevance assessment based on alignment with the research objective, resulting in 19 core articles for qualitative synthesis. To strengthen comprehensiveness, backward citation searching was conducted, identifying an additional three relevant articles, for a total of 22 articles included in the final qualitative analysis.

In parallel, bibliometric analysis was performed on the broader initial dataset to identify research patterns and thematic structures. This included keyword co-occurrence analysis and co-citation analysis, which provide insights into the conceptual and intellectual development of the field. The bibliometric results, presented in the Findings section (see Figures 2 and 3), complement the SLR findings by illustrating dominant themes, research clusters, and scholarly networks. Additionally, a focused search using the keywords "government policy," "food security," and "Indonesia" was conducted to enrich contextual understanding of national-level policy dynamics. The overall research procedure followed the PRISMA guidelines, ensuring systematic identification, screening, eligibility assessment, and inclusion of articles (see Figure 1).

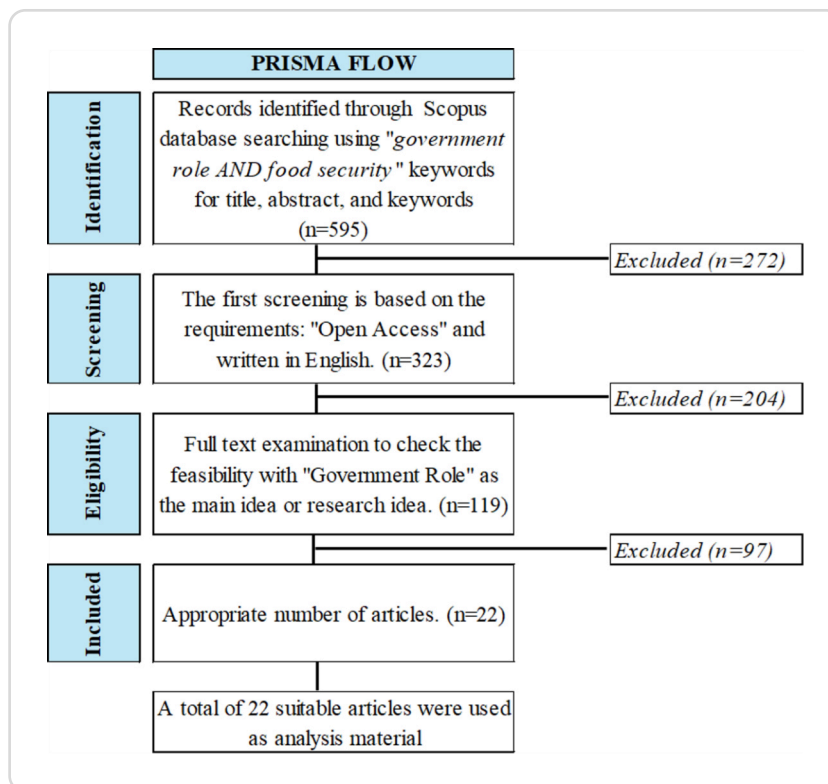


Figure 1. PRISMA Flow Diagram

Source: Developed by the authors

### 3. Results and Discussion

#### 3.1. Findings

The 595 articles identified in the initial search spanned a 10-year period (2014–2024), with the earliest article on the role of government in food security dating to 2014. [Table 1](#) summarizes the 22 articles included in the final analysis.

**Table 1.** Articles on the Role of Government and Food Security Included in the Final Analysis

Author(s)	Year	Methodology	Key Findings/Contributions	Relevance to Government Role
Sonnino	2016	Qualitative (case study)	Urban food strategies enhance local food governance	Highlights importance of local government in food systems
Harris	2020	Empirical (survey)	COVID-19 disrupted food systems and livelihoods	Shows need for government intervention during crises
Smit	2016	Qualitative	Urban governance is key to food system resilience	Emphasizes governance structures in food security
Zereyesus et al.	2017	Quantitative (econometric)	Non-farm income reduces food insecurity	Indicates role of policy in livelihood diversification
Ferdous et al.	2016	Experimental	Home gardening improves household food security	Supports government-led community programs
Arouna et al.	2020	Policy analysis	Policy responses stabilize rice value chains	Demonstrates role of policy in crisis mitigation
Happer & Wellesley	2019	Qualitative (focus group)	Consumer behavior affects food sustainability	Suggests policy role in awareness and regulation
Galanakis	2023	Conceptual	Food systems affected by climate and global crises	Calls for adaptive government policies
Hendriks	2014	Policy review	Strong policy needed for national food security	Directly links policy with food security outcomes
Amede	2015	Case study	Institutional constraints limit irrigation success	Highlights governance and institutional barriers
Nath et al.	2015	Quantitative	Land-use change threatens food supply	Indicates need for land-use regulation
El Baroudy	2020	GIS/Modeling	Land suitability affects crop productivity	Supports policy for land optimization
Hendricks & Er	2018	Quantitative	Policy influences land-use decisions	Shows impact of agricultural policy
Rahman	2016	Empirical	Food assistance programs improve nutrition intake	Evidence of successful government intervention
Sinha	2021	Qualitative	COVID-19 increases food vulnerability	Emphasizes emergency policy responses
Rajendran et al.	2019	Review	Food security linked to environment and business	Requires multi-sector government coordination
Gupta et al.	2021	Mixed-method	Local governance affects rural resilience	Highlights decentralization importance
Wood et al.	2020	Case study	Vertical farming supports urban food security	Shows innovation policy relevance
Cleasby et al.	2014	Case study	Aquaculture improves food security	Supports infrastructure policy
Khumalo & Sibanda	2019	Quantitative	Urban agriculture improves food access	Role of local government programs
Järnberg et al.	2018	Qualitative	Innovation actors drive agricultural change	Policy support needed for transformation
Giambartolomei et al.	2021	Qualitative	Policy entrepreneurs shape food policy	Highlights role of actors in policymaking

Several studies highlight the importance of food security strategies and the role of government at both the local and national levels. [Sonnino \(2016\)](#) emphasized the need for urban food strategies to improve food security in urban areas, while [Hendriks \(2014\)](#) argued that government policies in South Africa are critical to addressing food security challenges in developing countries. [Rahman \(2016\)](#) demonstrated that a universal food assistance program in Odisha, India, improved nutritional intake in vulnerable communities.

Other studies examined food security in the context of crises and pandemics. Harris et al (2020) found that the COVID-19 pandemic had a significant impact on smallholder vegetable producers in India, underscoring the need for government support. Arouna et al. (2020) analyzed policies for maintaining the rice supply chain in West Africa during the pandemic, and Sinha (2021) highlighted the importance of policy interventions to ensure food access during times of crisis.

The role of food and infrastructure policies was also examined. Giambartolomei et al. (2021) analyzed the role of "policy entrepreneurs" in shaping food policy development, while Cleasby et al. (2014) demonstrated how aquaculture infrastructure investments can improve food security. In the context of urban and peri-urban agriculture, Khumalo and Sibanda (2019) evaluated the contribution of urban farming practices to meeting household food needs in South Africa. Wood et al. (2020) examined the adoption of vertical farming in Singapore as an innovative solution to food security in space-constrained urban environments. On the environmental dimension, Galanakis (2023) examined the effects of climate change and global conflict on food systems, while Nath et al. (2015) assessed threats to food security from land-use change in India and China. Finally, Ferdous et al. (2016) developed a home gardening model to improve household food security in Bangladesh, emphasizing the importance of government support in its implementation. Overall, these studies suggest that food security is strongly influenced by government policies, agricultural innovation, and responsiveness to crises and external challenges.

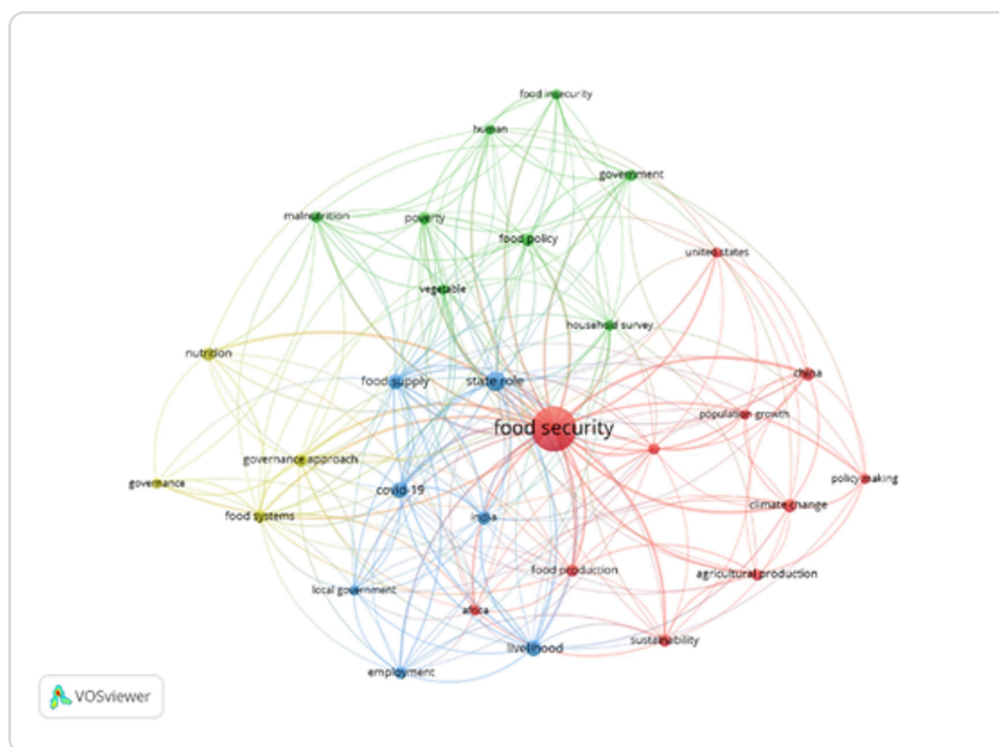


Figure 2. Co-occurrence Network of Keywords in Food Security Research

Source: Developed by the authors

The co-occurrence network of keywords in food security research illustrates the complexity of thematic relationships within this field. The keyword food security is positioned at the center with strong connectivity to several clusters, reflecting its multidimensional character.

- The red cluster highlights connections among food security, policymaking, climate change, population growth, and large-population countries such as China, indicating that food security is closely linked to policy responses to demographic and environmental pressures.
- The green cluster—including food insecurity, food policy, government, and poverty—underscores the critical role of government policies in creating conditions that support equitable food access.
- The blue cluster emphasizes regional and economic dimensions through keywords such as food supply, state role, COVID-19, local government, and regions such as India and Africa, highlighting the importance of regional government responses to supply chain disruptions.
- The yellow cluster, featuring nutrition, malnutrition, and governance, reflects the relationship between nutritional outcomes, food security, and the quality of governance frameworks.
- The interconnectedness of these clusters underscores that food security is a complex, multidimensional issue requiring a holistic approach that integrates social, economic, and environmental considerations.

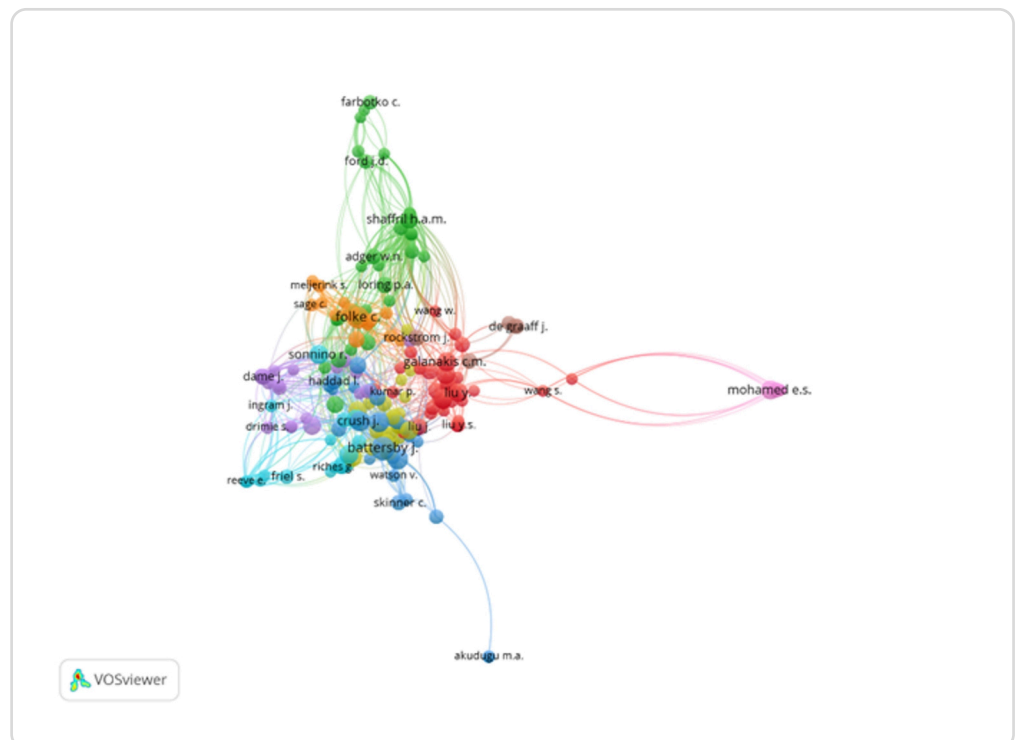


Figure 3. Co-citation Network of Authors in Food Security Research

Source: Developed by the authors

The co-citation network shows that research on food security, sustainability, and adaptive policy is shaped by cross-disciplinary collaborations. Tightly grouped clusters indicate strong mutual citation and intellectual influence across sub-themes, while more dispersed clusters reflect narrower, specialized foci.

## 3.2. Discussion

### 3.2.1. Local Government Initiatives

Local governments play a critical role in identifying and implementing context-specific solutions to support food security. Their initiatives extend beyond direct food provision to include efforts to improve community health and well-being more broadly. Local governments are responsible for facilitating community participation in programs that address barriers to adequate and nutritious food access. One key approach is building partnerships with diverse stakeholders, including local communities, non-governmental organizations, and the private sector (Basundoro & Sulaeman, 2020; Fianda et al., 2022; Marwanto & Pangestu, 2021). Through such collaboration, local governments can more effectively identify community-specific challenges—including limited access to agricultural land, food distribution difficulties, and economic constraints on purchasing power—and respond accordingly. Local governments can also develop training and education initiatives to strengthen community awareness of food security and the practices that support it, such as sustainable agriculture, food processing, and resource management (Wirapranatha et al., 2022), thereby fostering greater community self-sufficiency.

Local governments further contribute by designing and implementing policies that support local agriculture and domestically produced food products. Such policies may include incentives for smallholder farmers, support for farmers' markets, and promotion of local products to increase local food consumption. By prioritizing local food sources, local governments can simultaneously strengthen food security, support local economies, and generate employment.

In sum, effective local government initiatives to address food security must be comprehensive, integrating social, economic, and environmental approaches toward the broader goal of improving community well-being and national food security. The success of these initiatives depends on sustained and effective collaboration among government, communities, and other stakeholders.

### 3.2.2. Central Government Support

Effective food security policies require strong support from the national government. Collaboration across levels of government is essential to achieving national food security goals, encompassing supportive legislation, adequate funding allocations, and intergovernmental coordination that reinforces local government initiatives.

First, clear and comprehensive legislation is essential for establishing the legal framework within which food security policies are implemented. This aligns with Hendriks (2014), who emphasized the importance of government policy in addressing food security challenges in developing countries, including regulations governing access to food resources. A strong legal foundation enables local governments to implement relevant and sustainable programs, as demonstrated by Rahman (2016) in the context of a universal food assistance program in Odisha, India.

Second, adequate funding is equally essential. Arouna et al. (2020) showed that government financial support can help maintain food supply chain stability during crises such as the COVID-19 pandemic. Without sufficient resources, local initiatives are frequently constrained. National governments must therefore commit to providing adequate budgets—through both grants and technical assistance—to enable local governments to design and implement effective food security programs.

Third, intergovernmental collaboration is crucial to policy coherence and effectiveness. Giambartolomei et al. (2021) highlighted the importance of coordination between national and local governments in developing food policies responsive to community needs. Establishing networks among levels of government to share information, resources, and best practices can foster a more coordinated and comprehensive approach to food security challenges. Sinha (2021) similarly found that policy interventions across government levels are essential to ensuring sustained food access during times of crisis.

Finally, external factors—including climate change and global disruptions—must be integrated into national food security policy. Galanakis (2023) argued that food security must be understood in the context of climate change impacts and international conflict, both of which require adaptive government responses. Nath et al. (2015) further highlighted how land-use change can threaten food security, reinforcing the urgency of policies that protect agricultural land. National government support for food security must therefore create an enabling environment that strengthens local initiatives while addressing systemic external vulnerabilities. Achieving sustainable and inclusive food security requires a shared commitment across all levels of government and meaningful collaboration among all relevant stakeholders.

### 3.2.3. Agricultural Policy

Government agricultural policies play a critical role in supporting food security by strengthening food production and improving farmer welfare. One key approach is the formation of farmer groups, which serve as organized channels for distributing assistance and improving agricultural practices. Through these groups, farmers can share knowledge, resources, and training opportunities needed to manage their farms more effectively. Giambartolomei et al. (2021) highlighted the important role of policy entrepreneurs in developing policies that facilitate the formation of such groups and in building connections between communities and new policy ideas. Khumalo and Sibanda (2019) further showed that collaboratively managed urban farming practices can help meet household food needs, reduce dependence on external food supplies, and strengthen overall food security.

Governments also support food security by expanding smallholder farmers' access to modern technology and sustainable agricultural practices. Through policies that promote agricultural innovation—such as subsidies for improved seed varieties and farming equipment—governments can help farmers improve productivity. This aligns with Hendriks (2014), who underlined the importance of policies responsive to food security challenges in developing countries, where limited access to resources and technology remains a major constraint. Rahman (2016) similarly demonstrated that well-designed food assistance programs involving farmer empowerment through cooperative structures can improve food security in vulnerable communities. Such support must encompass not only access to capital and technology but also capacity building to help farmers adapt to climate change and other emerging challenges.

Effective agricultural policies thus contribute to food security across multiple dimensions: through the formation of farmer groups, skills development, and the promotion of sustainable practices, governments can increase food production while simultaneously strengthening local economies and improving community welfare—reinforcing national food security as a whole.

### 3.2.4. Intersectoral Collaboration

Effective food security strategies require collaboration across multiple sectors, including public health, civil society, and the private sector. By engaging diverse stakeholders, governments can generate synergies that integrate knowledge, resources, and expertise from multiple disciplines, resulting in more comprehensive and responsive food security programs. [Arouna et al. \(2020\)](#) highlighted the importance of government–private sector collaboration in addressing the impacts of supply chain disruptions, such as those experienced during the COVID-19 pandemic; in such contexts, the private sector can contribute through technological innovation while the public sector ensures supportive policies and facilitates access to resources.

Collaboration with civil society is equally important for understanding local needs and responding to community-specific challenges. [Hendriks \(2014\)](#) emphasized that community involvement in the planning and implementation of food security policies increases both the relevance and sustainability of those programs. Civil society organizations serve as a bridge between government and communities, ensuring that community needs are represented in policy decisions. [Wood et al. \(2020\)](#) illustrated this dynamic in the case of urban farming initiatives in Singapore, where collaborative support among government, local communities, and the private sector contributed to both improved local food security and broader economic development through job creation and skills development.

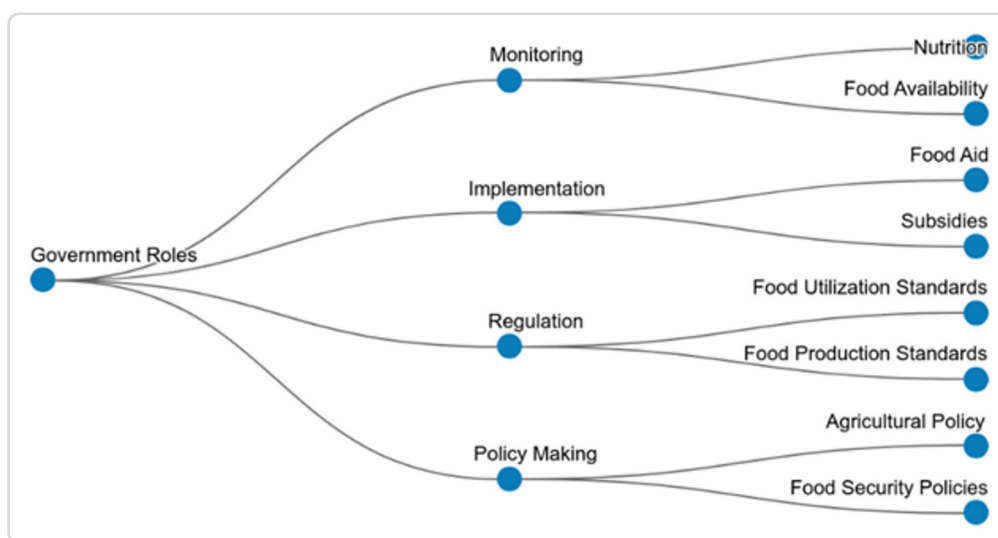


Figure 4. Concept Map of the Role of Government in Food Security

Source: Developed by the authors

Achieving effective intersectoral collaboration requires strong commitment and coordination among all parties involved, including clear communication mechanisms and frameworks that structure cross-sector engagement. As global challenges to food systems—such as climate change and health crises—intensify, national governments have a critical role to play in leading collaborative initiatives that integrate diverse sectoral capacities toward improved food security. Intersectoral collaboration is therefore not merely a strategic option but a necessary condition for developing food security policies that are both comprehensive and adaptive to community needs.

### 3.2.5. Policies and Programs with High Potential Impact

The findings reveal several types of government interventions that consistently demonstrate strong contributions to food security. Nutrition-oriented food assistance programs—including school feeding programs and targeted food subsidies—emerge as highly effective in addressing immediate food access issues. The literature suggests that such interventions not only reduce short-term hunger but also generate long-term benefits, particularly in improving educational participation and human capital development (M. M. A. Rahman et al., 2025; Salsabila et al., 2022).

Agricultural support policies also play a crucial role in enhancing food availability. Programs focusing on irrigation systems, input subsidies, and community-based farming—such as home gardening—have been shown to increase productivity and strengthen household-level food security (Amede, 2015; Ferdous et al., 2016). These interventions tend to be more effective when accompanied by training, market access, and institutional support. Crisis-responsive policies represent another important category, particularly those implemented during disruptions such as the COVID-19 pandemic. Timely government actions—such as stabilizing supply chains and supporting agricultural producers—are critical in minimizing the negative impacts of external shocks (Arouna et al., 2020; Harris et al., 2020), underscoring the importance of policy flexibility and responsiveness.

Integrated policy approaches that combine multiple sectors have also shown promising long-term outcomes. Strategies connecting food security with education, agriculture, and local economic development—such as urban food policies and the home-grown school feeding model—are particularly effective because they address food security in a holistic manner (Sonnino, 2016).

### 3.2.6. Implementation Challenges and Barriers

The literature also identifies several persistent challenges to effective food security governance. Weak coordination across institutions is among the most significant: food security policies typically involve multiple sectors, yet the absence of strong coordination mechanisms leads to fragmented implementation and reduced efficiency (Nazaruddin et al., 2023). Limited infrastructure and resource constraints—particularly in rural and remote areas—compound this problem, as inadequate transportation, storage, and distribution systems hinder equitable food delivery and widen regional disparities (Sihombing, 2021).

Low adoption of agricultural innovation among smallholder farmers remains a persistent barrier. Constraints related to capital, knowledge, and extension services limit farmers' ability to utilize modern technologies, thereby constraining productivity improvements (Amede, 2015; Järnberg et al., 2018). External pressures—including climate change and global market fluctuations—further disrupt food production and distribution systems, making stable policy outcomes difficult to sustain (Galanakis, 2023; Nath et al., 2015). Finally, governance-related deficiencies, including weak monitoring, limited accountability, and insufficient stakeholder involvement, reduce overall policy effectiveness. The literature emphasizes that strong leadership and active engagement of policy actors are essential to successful implementation (Giambartolomei et al., 2021).

## 4. Conclusion

Food security is a multidimensional issue requiring an integrated approach that encompasses local government initiatives, national government support, agricultural

---

policies, and intersectoral collaboration. Local governments play a critical role in identifying context-specific solutions and engaging communities to address food access challenges and improve community welfare. A collaborative approach with diverse stakeholders enables local governments to respond more effectively to specific challenges such as limited land access and food distribution constraints. The national government, in turn, provides essential support through legislation, funding, and intergovernmental coordination that strengthens food security efforts. Agricultural policies that promote local food production, farmer groups, and modern technologies are key components of this strategy. Intersectoral collaboration involving the private sector and civil society further strengthens food security initiatives, ensuring a holistic and adaptive response to global challenges such as climate change and health crises.

Several research gaps warrant attention:

- While many studies highlight the importance of local government initiatives, research assessing the long-term effectiveness of specific locally implemented programs remains limited. Further research could examine the sustained impacts of such programs on food security outcomes and community well-being.
- Although the importance of coordination between national and local governments is widely recognized, research on how national policies shape local policies and initiatives is limited. This gap includes studies on the most effective intergovernmental coordination mechanisms.
- Modern agricultural policies frequently emphasize technology adoption, yet research on how effectively such technologies reach communities most vulnerable to food insecurity remains scarce. More empirical work is needed to evaluate how technology can be adapted and made accessible to smallholder farmers.
- While intersectoral collaboration is widely cited as an important solution, evaluative research assessing its real-world outcomes, drivers, and barriers is lacking. Existing studies tend to be descriptive rather than analytical, and more rigorous assessment of the tangible results of cross-sector collaboration is needed.
- Several studies have noted the importance of adaptive policies to address climate change, yet research that links climate change impacts directly to food security policy implementation remains limited. Closing this gap is important for identifying the most effective policy responses across different climate contexts.

Addressing these gaps will contribute to a comprehensive food security framework applicable across local and national levels. Further research on the effectiveness of specific programs, interactions between national and local policies, technology application, intersectoral collaboration outcomes, and climate-adaptive policy responses can meaningfully inform better policy formulation and more effective implementation.

#### References

- Amede, T. (2015). Technical and institutional attributes constraining the performance of small-scale irrigation in Ethiopia. *Water Resources and Rural Development*, 6, 78–91. <https://doi.org/10.1016/j.wrr.2014.10.005>
- Ariani, M. (2004). Penguatan Ketahanan Pangan Daerah untuk Mendukung Ketahanan Pangan Nasional. *Pusat Analisis Sosial Ekonomi Dan Kebijakan Pertanian*, 1999(70).

- Arouna, A., Soullier, G., Mendez del Villar, P., & Demont, M. (2020). Policy options for mitigating impacts of COVID-19 on domestic rice value chains and food security in West Africa. *Global Food Security*, 26. <https://doi.org/10.1016/j.gfs.2020.100405>
- Ayu, K. P. (2022). Kebijakan Perubahan Lahan Dalam Pembangunan Food Estate Di Kalimantan Tengah. *Journal Ilmu Sosial, Politik Dan Pemerintahan*, 11(1).
- Basundoro, A. F., & Sulaeman, F. H. (2020). Meninjau Pengembangan Food Estate sebagai Strategi Ketahanan Nasional pada Era Pandemi Covid-19. *Jurnal Lembaga Ketahanan Nasional Republik Indonesia*, 8(2).
- Chaireni, R., Agustanto, D., Wahyu, R. A., & Nainggolan, P. (2020). Ketahanan Pangan Berkelanjutan. *Jurnal Kependudukan Dan Pembangunan Lingkungan*, 1(2).
- Cleasby, N., Schwarz, A.-M., Phillips, M., Paul, C., Pant, J., Oeta, J., Pickering, T., Meloty, A., Laumani, M., & Kori, M. (2014). The socio-economic context for improving food security through land based aquaculture in Solomon Islands: A peri-urban case study. *Marine Policy*, 45, 89–97. <https://doi.org/10.1016/j.marpol.2013.11.015>
- Davies, J., Blekking, J., Hannah, C., Zimmer, A., Joshi, N., Anderson, P., Chilenga, A., & Evans, T. (2022). Governance of traditional markets and rural-urban food systems in sub-Saharan Africa. *Habitat International*, 127. <https://doi.org/10.1016/j.habitatint.2022.102620>
- El Baroudy, A. A., Ali, A. M., Mohamed, E. S., Moghanm, F. S., Shokr, M. S., Savin, I., Poddubsky, A., Ding, Z., Kheir, A. M. S., Aldosari, A. A., Elfadaly, A., Dokukin, P., & Lasaponara, R. (2020). Modeling land suitability for rice crop using remote sensing and soil quality indicators: The case study of the Nile delta. *Sustainability (Switzerland)*, 12(22), 1–25. <https://doi.org/10.3390/su12229653>
- Fakhira, R., & Cahyono, A. (2022). Future prediction of the expansion of built-up areas in Batam free trade zone (ftz) using land change modeler. In A. R. A & H. Rhinane (Eds.), *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives* (Vol. 46, Numbers 4/W3-2021, pp. 109–113). International Society for Photogrammetry and Remote Sensing. <https://doi.org/10.5194/isprs-archives-XLVI-4-W3-2021-109-2022>
- Ferdous, Z., Datta, A., Anal, A. K., Anwar, M., & Khan, A. S. M. M. R. (2016). Development of home garden model for year round production and consumption for improving resource-poor household food security in Bangladesh. *NJAS - Wageningen Journal of Life Sciences*, 78, 103–110. <https://doi.org/10.1016/j.njas.2016.05.006>
- Fianda, A. Y., Marpaung, K. Y., Wildanwan, M. S., Pamilih, A. T., & Iskandar, M. T. (2022). Proyeksi Dampak Sosial, Ekonomi, dan Lingkungan Program Food Estate di Kalimantan Barat Berbasis Kajian Literature Review. *Researchgate.Net*, (July 2022).
- Galanakis, C. M. (2023). The “Vertigo” of the Food Sector within the Triangle of Climate Change, the Post-Pandemic World, and the Russian-Ukrainian War. *Foods*, 12(4). <https://doi.org/10.3390/foods12040721>
- Giambartolomei, G., Forno, F., & Sage, C. (2021). How food policies emerge: The pivotal role of policy entrepreneurs as brokers and bridges of people and ideas. *Food Policy*, 103. <https://doi.org/10.1016/j.foodpol.2021.102038>
- Gupta, D., Fischer, H., Shrestha, S., Shoaib Ali, S., Chhatre, A., Devkota, K., Fleischman, F., Khatri, D. B., & Rana, P. (2021). Dark and bright spots in the shadow of the pandemic: Rural livelihoods, social vulnerability, and local governance in India and Nepal. *World Development*, 141. <https://doi.org/10.1016/j.worlddev.2020.105370>
- Happer, C., & Wellesley, L. (2019). Meat consumption, behaviour and the media environment: a focus group analysis across four countries. *Food Security*, 11(1), 123–139. <https://doi.org/10.1007/s12571-018-0877-1>
- Harris, J., Depenbusch, L., Pal, A. A., Nair, R. M., & Ramasamy, S. (2020). Food system disruption: initial livelihood and dietary effects of COVID-19 on vegetable producers in India. *Food Security*, 12(4), 841–851. <https://doi.org/10.1007/s12571-020-01064-5>
- Hendricks, N. P., & Er, E. (2018). Changes in cropland area in the United States and the role of CRP. *Food Policy*, 75, 15–23. <https://doi.org/10.1016/j.foodpol.2018.02.001>
- Hendriks, S. (2014). Food security in South Africa: Status quo and policy imperatives. *Agrekon*, 53(2), 1–24. <https://doi.org/10.1080/03031853.2014.915468>
- Hidayat, A. S., & Agusliani, E. (2020). Beach tourism, whether benefit or disaster for coastal fishermen of Tanah Laut regency, South Kalimantan Province. *AACL Bioflux*, 13(3), 1383–1393. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090684745&partnerID=40&md5=04867080f82276e461aa7a8d2f5daae0>

- Huff, A. G., Hodges, J. S., Kennedy, S. P., & Kircher, A. (2015). Evaluation of the Food and Agriculture Sector Criticality Assessment Tool (FASCAT) and the Collected Data. *Risk Analysis*, 35(8), 1448–1467. <https://doi.org/10.1111/risa.12377>
- Järnberg, L., Enfors Kautsky, E., Dagerskog, L., & Olsson, P. (2018). Green niche actors navigating an opaque opportunity context: Prospects for a sustainable transformation of Ethiopian agriculture. *Land Use Policy*, 71, 409–421. <https://doi.org/10.1016/j.landusepol.2017.11.053>
- Jones, O., Meckel, P. P., & Taylor, D. (2021). Research Methods. In *International Studies in Entrepreneurship* (Vol. 46). [https://doi.org/10.1007/978-3-030-62962-5\\_4](https://doi.org/10.1007/978-3-030-62962-5_4)
- Khumalo, N. Z., & Sibanda, M. (2019). Does urban and peri-urban agriculture contribute to household food security? An assessment of the food security status of households in Tongaat, eThekweni Municipality. *Sustainability (Switzerland)*, 11(4). <https://doi.org/10.3390/su11041082>
- Maksum, A., Zarina Alimuddin, S., Sahide, A., Muhammad, A., & Ma'Arif, H. M. A. (2023). Agriculture and International Organization in Indonesia: The Twitter Analysis of FAO Indonesia. In W. null, T. null, S. null, N. Rahmawati, Z. Rozaki, R. Wulandari, M. Senge, M. F. Kamarudin, M. M. Tjale, Y. Witono, & J. H. Mulyo (Eds.), *E3S Web of Conferences* (Vol. 444). EDP Sciences. <https://doi.org/10.1051/e3sconf/202344401001>
- Marwanto, S., & Pangestu, F. (2021). Food Estate Program in Central Kalimantan Province as An Integrated and Sustainable Solution for Food Security in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 794(1), 012068. <https://doi.org/10.1088/1755-1315/794/1/012068>
- Marzi, G., Balzano, M., Caputo, A., & Pellegrini, M. M. (2025). Guidelines for bibliometric-systematic literature reviews: 10 steps to combine analysis, synthesis and theory development. *International Journal of Management Reviews*, 27(1), 81–103.
- Midamba, D. C., Kwesiga, M., & Ouko, K. O. (2023). Determinants of adoption of sustainable agricultural practices among maize producers in Northern Uganda. *Cogent Social Sciences*, 10(1). <https://doi.org/10.1080/23311886.2023.2286034>
- Muttaqin, R., Usman, F., & Subagiyo, A. (2023). Faktor – Faktor Yang Mempengaruhi Ketahanan Pangan Di Kecamatan Bungah Kabupaten Gresik. *Planning for Urban Region and Environment Journal (PURE)*, 11(2).
- Nath, R., Luan, Y., Yang, W., Yang, C., Chen, W., Li, Q., & Cui, X. (2015). Changes in arable land demand for food in India and China: A potential threat to food security. *Sustainability (Switzerland)*, 7(5), 5371–5397. <https://doi.org/10.3390/su7055371>
- Nazaruddin, L. O., Gyenge, B., Fekete-Farkas, M., & Lakner, Z. (2023). The Future Direction of Halal Food Additive and Ingredient Research in Economics and Business: A Bibliometric Analysis. *Sustainability (Switzerland)*, 15(7). <https://doi.org/10.3390/su15075680>
- Putra, A. U., Salsabila, L., & Sianturi, S. (2022). Strategi Pemerintah Daerah Dalam Sosialisasi Kebijakan Pandemi Covid-19 Di Tangerang Selatan. *Dialektika Publik*, 6(1), 23–27.
- Rahman, A. (2016). Universal food security program and nutritional intake: Evidence from the hunger prone KBK districts in Odisha. *Food Policy*, 63, 73–86. <https://doi.org/10.1016/j.foodpol.2016.07.003>
- Rahman, M. M. A., Khan, A. U. I., & Vergil, H. (2025). Reducing Food Insecurity in Sub-Saharan Africa: The Role of Institutions and Financial Stability. *Journal of Agriculture and Environment for International Development*, 119(1), 413–438. <https://doi.org/10.36253/jaeid-16841>
- Rajendran, K., O'Gallachoir, B., & Murphy, J. D. (2019). The combined role of policy and incentives in promoting cost efficient decarbonisation of energy: A case study for biomethane. *Journal of Cleaner Production*, 219, 278–290. <https://doi.org/10.1016/j.jclepro.2019.01.298>
- Salsabila, L., Sianturi, S., & Sadayi, D. P. (2022). Collaborative governance dalam pengentasan kemiskinan di Kabupaten Kulon Progo. *Dialektika Publik*, 6(1), 28–34.
- Sihombing, Y. (2021). Diversifikasi Pangan Lokal untuk Mendukung Ketahanan Pangan pada Masa Pandemi Covid-19. *Balai Pengkajian Teknologi Pertanian Bali Badan Penelitian Dan Pengembangan Pertanian Kementerian Pertanian*, 19(1).
- Sinha, D. (2021). Hunger and food security in the times of Covid-19. *Journal of Social and Economic Development*, 23, 320–331. <https://doi.org/10.1007/s40847-020-00124-y>
- Smit, W. (2016). Urban governance and urban food systems in Africa: Examining the linkages. *Cities*, 58, 80–86. <https://doi.org/10.1016/j.cities.2016.05.001>
- Sonnino, R. (2016). The new geography of food security: Exploring the potential of urban food strategies. *Geographical Journal*, 182(2), 190–200. <https://doi.org/10.1111/geoj.12129>

- Turner, J. A., Percy, H., Hall, A., & Klerkx, L. (2023). Re-orientating agricultural research to address complex challenges: Legitimacy dynamics of a hybrid research organisation. *Journal of Rural Studies*, 103. <https://doi.org/10.1016/j.jrurstud.2023.103137>
- Wirapranatha, A., Sutrasna, Y., & Simbolon, L. (2022). Strategi Pengembangan Food Estate Dalam Pemulihan Ekonomi. *Jurnal Ekonomi Pertahanan*, 8(1).
- Wood, J., Wong, C., & Paturi, S. (2020). Vertical Farming: An Assessment of Singapore City. *ETropic*, 19(2), 228–248. <https://doi.org/10.25120/ETROPIC.19.2.2020.3745>
- Zereyesus, Y. A., Embaye, W. T., Tsiboe, F., & Amanor-Boadu, V. (2017). Implications of Non-Farm Work to Vulnerability to Food Poverty-Recent Evidence From Northern Ghana. *World Development*, 91, 113–124. <https://doi.org/10.1016/j.worlddev.2016.10.015>