

## Food Security Governance: Conceptual Framework, Principles, and Directions for Policy Development

Rahmat Abd Fatah  
Universitas Muhammadiyah Maluku Utara

\*Correspondence: rahmatabdfatah@gmail.com



Citation:

Received: 31-03-2026  
Accepted: 09-04-2026  
Published: 10-04-2026

**Publisher's Note:** GovFood stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2024 by the author. License holder Surya Buana Consulting, Malang, Indonesia. This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

**Abstract:** Food security governance has become a critical issue in public policy studies due to the increasing difficulty of ensuring food security worldwide, as reflected in challenges such as climate change, institutional fragmentation, and unequal access to food. This article aims to examine food security governance as a system that regulates interactions among actors, rules, and resources, while also developing a conceptual framework, identifying key principles, and outlining future directions for sustainable food security policy development. This study employs a qualitative descriptive-interpretative methodology using a multiple case study design. Data were collected through in-depth interviews, focus group discussions, and policy document analysis, and were analyzed thematically through the lens of institutional theory. The findings indicate that food security governance functions as a public policy arena shaped by institutional design, cross-sectoral coordination mechanisms, and the political dynamics of budget allocation. The results demonstrate that the effectiveness of food security policies depends heavily on the simultaneous application of good governance, adaptive governance, and collaborative governance principles. However, policy implementation continues to face serious challenges, particularly institutional fragmentation, overlapping authorities, and weak integration among food, environmental, and infrastructure policies. In addition, projections of climate change impacts on agricultural productivity underscore the importance of adaptive and evidence-based food governance. The contribution of this study lies in strengthening the institutional perspective in food security research by integrating governance principles and policy outcome indicators into a comprehensive analytical approach. The main limitation of this research is its qualitative design, which constrains the generalizability of the findings. Therefore, future research is encouraged to undertake comparative studies and apply mixed-methods approaches to enhance understanding of food security governance across diverse contexts.

**Keywords:** Food security governance, Public policy, Institutional theory, Food security, Institutional governance

## Introduction

Food security governance is a central concept in public policy studies that integrates policy instruments, institutional arrangements, and decision-making processes to ensure the availability, accessibility, and utilization of food in an equitable and sustainable manner. Within the context of public governance, governance refers not only to formal governmental structures, but also to the relationships among governmental and non-governmental actors, including businesses, civil society, and local communities that collectively shape food policy outcomes. This governance-based approach highlights that food security is not merely a technical agricultural issue, but a complex, cross-sectoral challenge that requires coordination, transparency, participation, responsiveness, and strong policy integration. Recent research emphasizes the importance of food system governance as a more comprehensive framework than food security alone, conceptualizing food systems as interconnected networks involving multiple actors, socio-ecological interactions, and global challenges such as climate change and inequalities in access to energy and natural resources (Hasan et al., 2025).

From a public policy perspective, food security governance encompasses decision-making processes, resource allocation, formal and informal rules, and collaborative arrangements that enable food systems to adapt to internal and external pressures. This framework is closely linked to the pursuit of the Sustainable Development Goals (SDGs), particularly the goal of ending hunger (SDG 2), which requires policy actors to recognize potential conflicts, negotiate trade-offs among social, environmental, and economic objectives, and design policies that are equitable and effective across multiple levels of governance (Jiayi, 2022).

Recent literature consolidates diverse approaches to food security governance, revealing a paradigm shift from sector-specific interventions toward more comprehensive, multilevel, and multistakeholder approaches. Bibliometric analyses indicate that global research trends increasingly focus on sustainability, resilience, and integrated food governance, with growing attention to cross-sectoral collaboration and the role of technology in strengthening linkages among policy processes, communities, and environmental as well as socioeconomic agendas. Contemporary literature also highlights the significance of governance principles such as inclusiveness, transparency, inter-actor connectivity, and responsiveness to environmental and social change. In sustainable food system governance, these principles are embedded in the capacity of policies to coordinate diverse food systems and related policy domains, respect both formal and informal institutional rules, and provide mechanisms for continuous and equitable adaptation (Donner, 2024).

Empirical studies further demonstrate that adaptive governance characterized by the ability to address institutional misalignment and enhance community participation contributes to the effectiveness of food security

policies, even in the presence of persistent challenges such as financial constraints and coordination failures. Evidence from local-level policy evaluations in Indonesia illustrates that flexible governance arrangements can improve policy outcomes despite ongoing institutional and resource limitations (Seftiyana et al., 2024).

Despite the growing body of theoretical and empirical research on food systems and food security governance, several critical gaps remain. First, much of the existing literature continues to focus on macro- or national-level policy processes, while subnational implementation dynamics at the city and district levels where distinct socio-ecological conditions prevail remain insufficiently explored. Second, relatively few studies explicitly integrate governance principles into policy performance assessments based on outcome indicators such as social equity, sustainability, and adaptability to climate change and economic disruptions. Third, although cross-sectoral collaboration is widely recognized as essential, there is still limited empirical understanding of effective coordination mechanisms among government agencies, non-governmental organizations, local communities, and the private sector in the development of sustainable food security policies. These gaps highlight the need for a conceptual framework capable of bridging theoretical insights and practical policy demands in the pursuit of adaptive and future-oriented food security governance (Syaputra, 2025).

The novelty of this study lies in the development of a conceptual framework that integrates governance principles with outcome-based policy evaluation criteria, including sustainability, community participation, and sensitivity to climate change impacts. Unlike previous studies that remain largely descriptive or focus on bibliometric trend analysis, this research proposes an empirically grounded model that can be used to assess systematically the quality and effectiveness of food security governance from policy formulation and implementation to outcome evaluation across local, regional, and national levels. The framework also incorporates elements of responsiveness, data integration, and cross-sectoral collaboration, offering a more comprehensive tool for policy design and monitoring (Hebinck et al., 2021).

This study seeks to examine how a measurable and analytically robust food security governance framework can be developed and applied as a foundation for policy development within multilevel governance systems. The primary objectives are: (1) to develop a conceptual framework that integrates governance principles with policy performance evaluation; (2) to identify key governance principles that can guide policymakers in designing adaptive and inclusive food security policies; and (3) to propose future policy directions that are responsive to global environmental and socioeconomic challenges. The research addresses the following questions: (1) Which governance principles are most relevant and effective in contemporary food security governance? (2) How can this framework be applied to evaluate food security policy effectiveness from the subnational to the national level? and (3) What are the policy

implications of implementing this framework for advancing sustainable and equitable food security for all populations? (Kholif, 2025).

The study employs a qualitative analytical approach and a multiple case study design, combining policy document analysis, in-depth interviews with key stakeholders from government, communities, and the private sector, and systematic literature review to test and validate the proposed conceptual framework. This approach enables an in-depth exploration of policy dynamics and supports the formulation of evidence-based and context-sensitive policy recommendations (Juma et al., 2016).

## Literature Review

### Conceptualizing Food Security Governance

Food security governance refers to a mode of governance that integrates multiple dimensions, including government policies, institutional arrangements, coordination mechanisms, and actor networks, to ensure that food is available, affordable, of adequate quality, and stable for all populations in an equitable and sustainable manner. This concept is grounded in the understanding that food security is not merely a matter of production volume, but rather the outcome of complex interactions among diverse factors, institutions, and socio-economic dynamics involving both public and private actors. Consequently, food security governance emphasizes the institutional and relational processes through which food systems are managed and regulated (Alshuniaber, 2020).

From a public policy perspective, food security governance examines how formal and informal institutions function in the formulation, implementation, and evaluation of food policies, and how power relations, regulatory frameworks, and organizational capacities shape policy effectiveness. This approach extends analysis beyond the technical dimensions of food systems toward the institutional and policy structures that define the respective roles of the state and non-state actors in achieving food security. It also highlights the importance of rules, norms, and inter-organizational relationships in managing competing interests, governing resource allocation, and developing policies capable of adapting to challenges such as climate change and global crises (Patay et al., 2025).

Global research on food security governance demonstrates a significant increase in academic attention over the past decade, reflecting the growing complexity of food-related challenges across different regions. Recent analyses of international publications indicate that between 2020 and 2025, topics related to food security, agricultural policy, and sustainable governance have gained substantial prominence. Countries such as China, Italy, and the United States have made major contributions to this body of

literature by linking food policy to sustainable development agendas. These studies consistently emphasize the need for institutional integration in food system governance, including digital reforms to enhance transparency in food distribution, the promotion of agroecological practices to support smallholder farmers, and investment in technologies that strengthen food systems in the face of global challenges such as climate change (Widayanti et al., 2025).

International studies also underline the importance of organizational systems capable of adapting to systemic shocks, including crises such as the COVID-19 pandemic. In this context, weak inter-agency coordination, resource constraints, and limited investment in agricultural innovation have emerged as major barriers to effective food security governance. Recent research advocates for governance models that prioritize multistakeholder collaboration as a core strategy to enhance food availability and stability. Such models emphasize sound budgetary governance, stronger public private partnerships, and the development of monitoring systems that are sensitive to external disruptions, underscoring the central role of organizational governance in understanding contemporary food security dynamics (Akbar et al., 2025).

Institutional theory based international research further demonstrates that both formal and informal institutional structures play a critical role in determining the effectiveness of food security policies. For example, studies conducted in European Union countries reveal that institutional factors such as regulatory frameworks, societal norms, and inter-institutional relationships significantly influence the achievement of national food security objectives. These findings suggest that strengthening formal institutions while actively engaging non-governmental actors can enhance states' capacity to provide sufficient and affordable food for their populations (Zawojaska & Siudek, 2025).

At the subnational level, empirical studies highlight the dynamics of food policy implementation in rural areas, where community participation and the use of local knowledge are essential for effective policy delivery. However, inadequate coordination among local government agencies often leads to inefficiencies in resource distribution and program execution, ultimately increasing food insecurity in rural communities. These findings reflect the growing body of Indonesian literature that integrates governance perspectives into national food security studies (Nugroho et al., 2025).

More governance-focused research in Indonesia reveals serious institutional barriers, particularly institutional fragmentation across different levels of government. Studies on urban food security indicate that overlapping mandates among government agencies, weak coordination mechanisms, and limited involvement of the private sector

and civil society hinder the implementation of coherent and effective food policies in major cities. These conditions demonstrate that without clear institutional structures and functions, food security policies remain vulnerable to fragmentation and delayed responses to changing societal needs (Dalimunthe et al., 2024).

A substantial body of literature identifies institutional fragmentation and policy silos as major obstacles to cross-sectoral collaboration in food governance. Such fragmentation often results in duplicated efforts, conflicting institutional responsibilities, and limited public participation in decision-making processes. Globally, research emphasizes the urgent need to develop more integrated institutional systems supported by strong coordination mechanisms in order to enable timely and efficient responses to both local and global changes affecting food systems (Patay et al., 2025).

In Indonesia, emerging studies increasingly examine food security policy from a governance perspective, although much of the existing research remains focused on technical aspects such as production, distribution, and national food strategies. Recent findings suggest that key challenges in Indonesian food security governance include weaknesses in logistics systems, the impacts of climate change, and the need to integrate policies that account for the country's unique geographical and socio-cultural characteristics as an archipelagic state. Comparative insights from countries such as India, Brazil, China, and Ethiopia particularly regarding the use of digital technologies in food distribution and community-based empowerment programs highlight potential pathways for policy learning. These dynamics reveal a persistent gap between national policy formulation and subnational implementation, creating governance challenges that undermine the overall effectiveness of food security policies in Indonesia and underscore the importance of institutional reform (Rina Herawati et al., 2023).

Despite the extensive literature on food security governance, significant gaps remain in understanding how institutional arrangements influence policy performance in a comprehensive manner. First, relatively few studies explicitly apply institutional theory to examine the interaction between formal and informal rules in food governance across developing countries, including Indonesia. Second, many studies remain descriptive or case-specific, limiting the development of testable and transferable conceptual models. Third, research that integrates institutional analysis with outcome-based indicators such as price stability, food access for marginalized groups, and policy responsiveness to external shocks (e.g., pandemics and climate change) remains scarce. These gaps point to the need for research that not only diagnoses governance problems but also designs institutional models capable of systematically assessing the quality and performance of food security governance (Larasati, 2024).

This study contributes novel insights by employing institutional theory as the primary analytical foundation for developing a comprehensive institutional model. The proposed model aims to assess the relationships among institutional structures, coordination mechanisms, and food security policy outcomes in Indonesia, while also offering broader applicability to other national contexts. The model explicates how formal rules such as regulations, institutional mandates, and resource allocation and informal rules such as behavioral norms and collaboration networks interact within food policy processes, and how these interactions shape policy implementation and effectiveness. By integrating analyses of institutional structures and processes with policy outcome measures, this approach advances dialogue between theory and practice in food security governance and enhances methodological rigor through the use of multi-level institutional analysis supported by both primary and secondary data (Vel et al., 2016).

Based on existing research findings, the analytical framework developed in this study focuses on four key dimensions: (1) institutional structures, both formal and informal; (2) cross-sectoral and multilevel coordination mechanisms; (3) stakeholder relationships involving governmental and non-governmental actors; and (4) food security policy outcomes. Grounded in institutional theory, the framework explains how institutional elements influence policy formulation, implementation, and tangible outcomes, and how challenges such as institutional fragmentation and weak collaboration can be addressed through adaptive institutional design. The framework also incorporates feedback mechanisms that capture policy learning and strategic adjustment based on performance evaluation, alongside external variables such as climate change and global pressures that shape governance dynamics. The model will be empirically tested using a mixed-methods approach that combines policy document analysis, key informant interviews, and empirical data to examine the relationships between institutional characteristics and policy outcomes.

## Method

This study employs a qualitative research approach, as its primary objective is to understand how food security governance operates from an institutional perspective within public policy, rather than to measure phenomena solely through quantitative indicators. A qualitative approach enables the researcher to explore in depth the experiences, perspectives, social meanings, and interactions among governmental actors and non-state stakeholders involved in the formulation and implementation of food security policies. This method is particularly appropriate for addressing "how" and "why" research questions that cannot be adequately explained through numerical data, especially when examining the complex relationships between institutions and policy

processes that shape public decision-making and governance practices related to food security across multiple levels of government. Qualitative research emphasizes understanding phenomena in their natural settings without manipulating variables, thereby providing rich and interpretative insights into the complex dynamics of real-world policy processes (Coulas, 2021).

The study adopts a descriptive-interpretative qualitative approach, in which data are derived from narratives and documentary sources to develop a contextualized and in-depth understanding of governance processes. This approach allows the researcher to capture organizational structures, coordination mechanisms, and actor interactions that are not readily observable through statistical analysis. As emphasized in contemporary methodological literature, in-depth interviews, focus group discussions (FGDs), contextual observations, and document analysis constitute core techniques in qualitative research that reveal social meanings and policy processes in a holistic and context-sensitive manner. Through this approach, the study identifies key themes, patterns, and concepts emerging from narrative data, contributing to theoretically grounded insights informed by institutional theory in the analysis of food security governance (Turnbull, 2016).

The research was conducted through several systematic stages. The first stage involved the formulation of research problems and questions by identifying gaps in existing literature, particularly those related to institutional theory and food security governance. A qualitative descriptive interpretative approach was then selected to examine how institutions function within policy processes. The study employs a multiple case study design to capture variations in policy contexts at both national and subnational levels. Research sites were purposively selected to ensure strong relevance to the analytical focus, such as regions with distinctive or innovative food security programs. Data collection was carried out through in-depth interviews, FGDs, and systematic review of policy documents. Triangulation techniques were applied to enhance the credibility of the findings by comparing information across different data sources. Data were analyzed thematically through coding, categorization, and interpretation to identify institutional patterns and relationships among actors and policy structures. Data validity was further strengthened through source and methodological triangulation, as well as member checking with key informants to ensure that the researcher's interpretations accurately reflected participants' perspectives (Oduro et al., 2025).

The data sources in this study comprise two main categories: primary and secondary data. Primary data were obtained directly from key actors and stakeholders involved in food security governance through in-depth interviews and FGDs. The research participants included government officials engaged in the formulation and implementation of food policies (e.g., representatives from ministries, food agencies, and local governments), community leaders and local stakeholders affected by or participating in food security initiatives, and public policy observers or academics with

expertise in food governance and institutional analysis. Participants were selected through purposive sampling to ensure that the data collected were relevant and information-rich, with particular attention given to individuals possessing direct experience and contextual knowledge of food security policy processes (Jiren et al., 2021).

Secondary data consisted of policy documents, government reports, legal and regulatory frameworks, strategic planning documents related to food security policy, academic publications, and other relevant materials. The analysis of these documents enabled the researcher to examine formal institutional structures and regulatory contexts that may not be fully captured through interviews alone, while also providing a theoretical and empirical foundation to support and triangulate the primary data findings.

Data collection techniques included in-depth interviews, FGDs, and document analysis. In-depth interviews were conducted using a semi-structured format with open-ended questions to elicit participants' views, experiences, and interpretations of food security governance. This technique allowed for a deeper exploration of individual meanings, decision-making contexts, and the institutional roles influencing policy implementation. Interviews were audio-recorded, transcribed verbatim, and analyzed thematically to identify key themes relevant to institutional theory in public policy research (Dalimunthe et al., 2024).

FGDs involved groups of participants with shared backgrounds, such as community representatives or policy practitioners, and were used to explore collective perspectives, group interactions, and areas of consensus or divergence regarding food security governance issues. FGDs were particularly useful for uncovering shared norms, social interactions, and collective understandings within the public policy context. Finally, policy document analysis was conducted to examine formal regulations, institutional mandates, and legal frameworks that shape governance arrangements and actor interactions. Through document analysis, the study captured historical and regulatory contexts influencing current governance practices, thereby enriching the interpretation of empirical findings (Margulis, 2013).

## Results

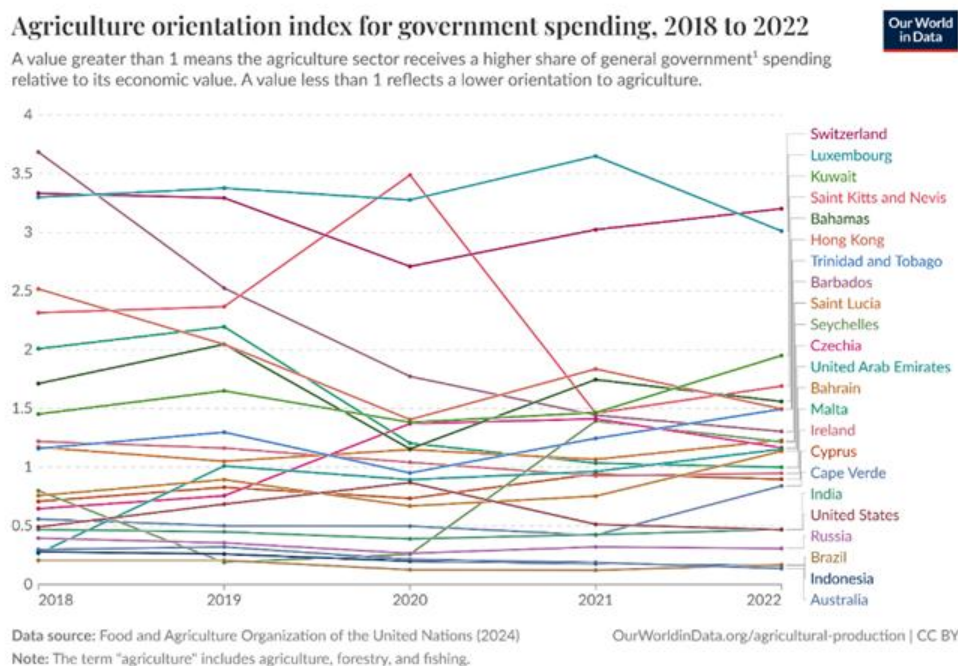
### Conceptualizing Food Security Governance in Public Policy Studies

In public policy studies, food security governance is understood as an organizational system that regulates how actors, rules, and resources interact to ensure sustainable food security. This understanding goes beyond a purely technical perspective that traditionally frames food security in terms of production and distribution alone. Instead, the focus shifts toward decision-making processes, inter-institutional coordination, and the mechanisms through which policy implementation and accountability are ensured.

Within the public policy context, food security governance constitutes a policy arena in which diverse

interests, institutional mandates, and both formal and informal rules intersect and shape food policy outcomes. This perspective highlights that food security outcomes are not solely determined by technical capacity, but are deeply influenced by institutional arrangements, governance

processes, and the quality of coordination among policy actors.



1. General government The general government refers to all levels of government: central (or federal), state (or regional), and local, as well as social security funds. It represents the broadest government level used in international comparisons of public finances.

**Figure 1.** Agriculture Orientation Index for Government Expenditure, 2002–2022

Presents the Agriculture Orientation Index (AOI) for government expenditure between 2018 and 2022 across a range of countries. This index illustrates the extent to which government spending is directed toward the agricultural sector relative to the sector's contribution to national economic output. An index value above 1 indicates that agriculture receives a proportion of government expenditure greater than its economic contribution, whereas a value below 1 suggests relatively low public spending on agriculture. The data reveal substantial variation across countries, including both developed and developing economies, as well as shifts in policy orientation over time.

Empirically, countries such as Switzerland, Luxembourg, and several small island states exhibit relatively high and stable levels of agricultural orientation. This pattern indicates a strong fiscal commitment to supporting the food sector, despite agriculture's relatively modest contribution to overall economic output. In contrast, large economies with a strong reliance on non-agricultural sectors such as the United States, Brazil, Australia, and Indonesia tend to display low AOI values, often well below 1. These findings suggest that government expenditure on agriculture has not fully reflected the strategic importance of the sector in ensuring national food security and social stability.

From a food security governance perspective, the patterns of government expenditure captured by the AOI

cannot be interpreted merely as technical decisions driven by economic efficiency. Rather, the allocation of public budgets reflects complex interactions among policy actors, institutional rules, and political priorities within the public policy process. Cross-country differences in spending patterns illustrate how institutional structures, distributions of authority, and prevailing policy norms shape fiscal decisions that directly affect food systems.

Agricultural expenditure thus emerges as a key institutional instrument within food security governance. The AOI reflects how governments make budgetary decisions, coordinate across institutions, and operationalize public accountability in practice. Countries with stronger governance arrangements are generally better positioned to prioritize the food sector as a strategic policy domain rather than treating it solely as a conventional economic sector. As a result, public expenditure is more likely to be directed toward ensuring the long-term sustainability of food systems.

The observed variation in AOI values further underscores that food security governance constitutes a policy arena in which diverse interests and institutional mandates are continuously negotiated. Fiscal constraints, political pressures, development agendas, and global policy norms such as sustainable development and food security interact to shape both the level and direction of agricultural spending. Consequently, government expenditure on

agriculture reflects not only a country's economic capacity but also the quality of its institutional governance and its policy commitment to food security.

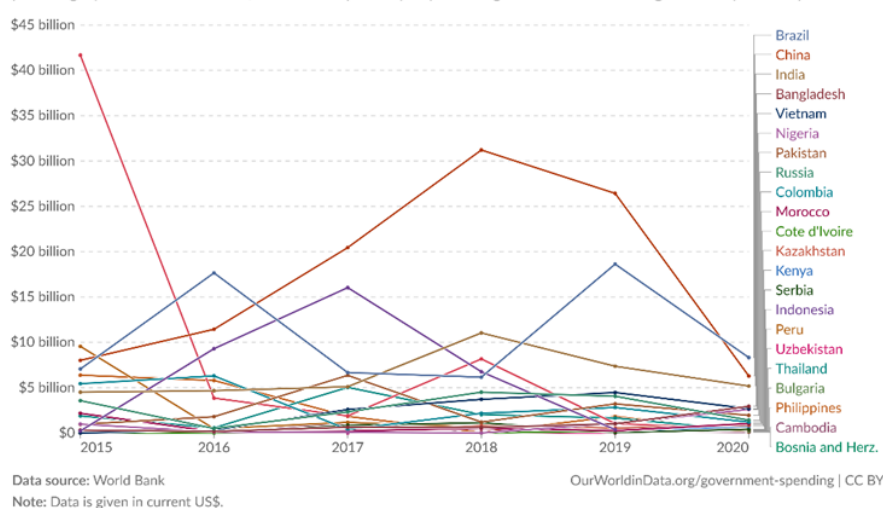
By linking the empirical data presented in Figure 1 with a public policy framework, it becomes evident that food security governance extends far beyond issues of food production and distribution. A comprehensive understanding of food policy outcomes requires attention to budgetary decision-making, institutional design, and cross-sectoral coordination mechanisms. In this sense, the Agriculture Orientation Index can be interpreted as an indirect indicator of food governance quality, reflecting the extent to which a country integrates economic, political, and institutional considerations in pursuing sustainable food security.

## Principles of Good, Adaptive, and Collaborative Governance

The effectiveness of food security governance is strongly influenced by the simultaneous application of the principles of good governance, adaptive governance, and collaborative governance. Good governance is reflected in policy transparency, clearly defined institutional roles, and accountability mechanisms in the implementation of food security programs. However, empirical findings indicate that these principles are often insufficiently institutionalized, particularly at the subnational level, where policy implementation frequently encounters administrative capacity constraints, coordination challenges, and limited accountability.

### Money committed to public-private partnerships for infrastructure, 2015 to 2020

Public-private partnerships are any contractual arrangement between a public entity or authority and a private entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility.



**Figure 2.** Funds Allocated to Public-Private Partnerships for Infrastructure, 2015–2020

Figure 2 illustrates trends in public-private partnership (PPP) financing for infrastructure development across a range of developing countries between 2015 and 2020. The figure highlights the growing importance of collaboration between governments and private sector actors in financing and delivering public services and assets, including infrastructure that is critical to food security, such as irrigation systems, freight transportation networks, and agricultural storage facilities.

From a food security governance perspective, changes in PPP funding levels depicted in the figure reflect the extent to which governance principles are effectively applied. Clear project planning, well-defined institutional roles, and accountability in fund management are essential to sustaining successful public-private partnerships. However, the variation in investment levels across countries and over time suggests that these governance principles have not been applied consistently, particularly during policy implementation at the local level.

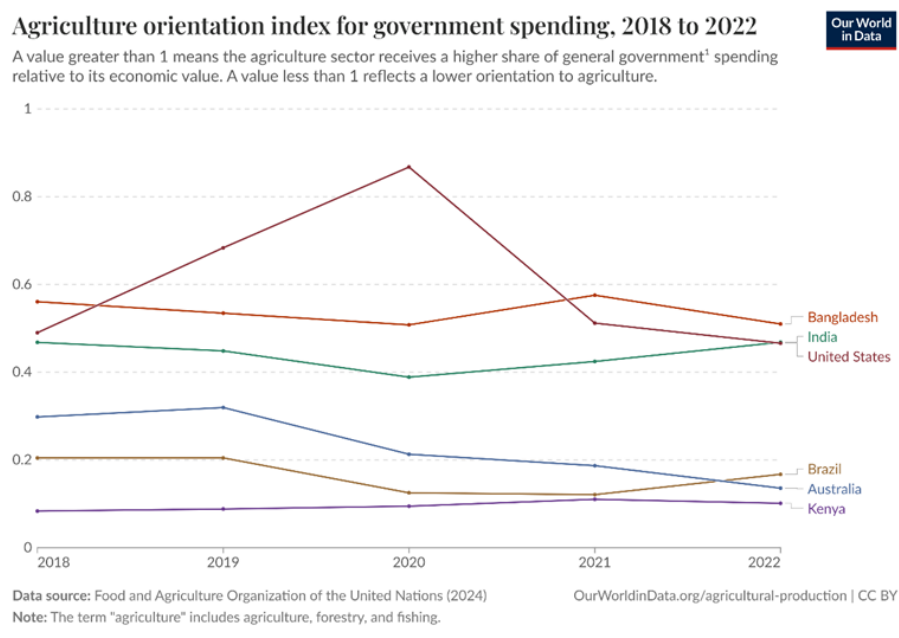
The principle of adaptive governance is evident in governments' capacity to adjust policy decisions and partnership arrangements in response to changing economic conditions and development priorities. Sharp increases or declines in PPP funding in specific years indicate differentiated responses to both domestic and external shocks. In the context of food security governance, such adaptive capacity is crucial to ensuring that infrastructure policies remain resilient to risks associated with climate change, market volatility, and disruptions in food supply chains.

At the same time, the principle of collaborative governance is reflected in the active involvement of non-governmental actors particularly private sector entities in the provision of public infrastructure. The figure demonstrates that achieving development outcomes, including those that support food security, cannot rely solely on government action, but requires balanced, well-structured, and trust-based collaboration. Nevertheless, the effectiveness of such collaboration ultimately depends on the ability of public

institutions to manage partnerships in an inclusive and sustainable manner. These findings further reinforce the conclusion that effective food security governance depends on the simultaneous application of good governance, adaptive governance, and collaborative governance principles. In the absence of transparency, institutional flexibility, and robust collaboration, PPP schemes risk becoming ineffective instruments for supporting food security, especially during policy implementation at the subnational level.

### Institutional Challenges in Implementing Food Security Policies

This index presents the intensity of agri-environmental policies across countries in 2022, measured by the number of policies in place, the stringency of regulatory frameworks, the effectiveness of enforcement mechanisms, and the extent to which corruption affects policy implementation. Higher index scores indicate stronger, more consistent, and more effectively enforced agri-environmental policies. Western European countries such as the Netherlands, Austria, Portugal, and Germany rank at the top of the index, reflecting relatively well-integrated and coordinated agricultural and environmental policy frameworks.



1. General government The general government refers to all levels of government: central (or federal), state (or regional), and local, as well as social security funds. It represents the broadest government level used in international comparisons of public finances.

**Figure 3.** Intensity-Weighted Agricultural and Environmental Policies

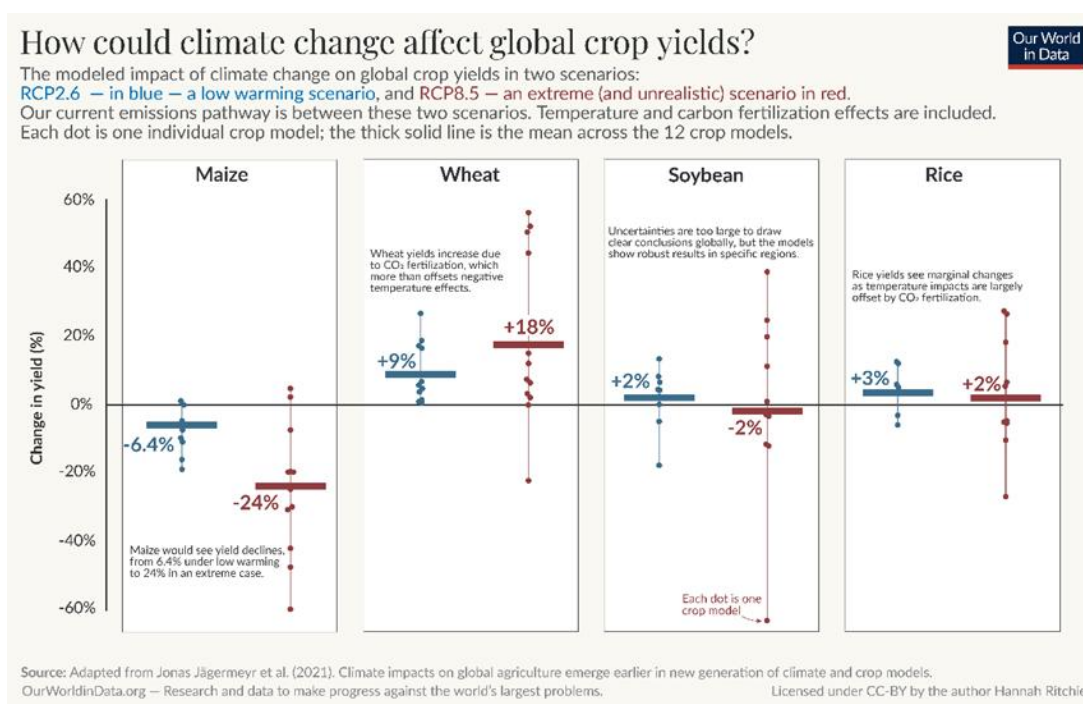
Countries with lower index scores, including several developing economies, exhibit weak agri-environmental policy intensity. This condition is closely associated with major institutional challenges in the implementation of food security policies, particularly institutional fragmentation. Such fragmentation is characterized by overlapping mandates among agencies responsible for agriculture, environmental protection, food systems, and development planning, as well as limited coordination across sectors and levels of government.

As a result of institutional fragmentation, food and environmental policies often operate in a disjointed and poorly integrated manner. Programs aimed at increasing food production, for example, are frequently misaligned with environmental protection policies or natural resource sustainability objectives. This misalignment is reflected in the low agri-environmental policy intensity observed in several countries, indicating that although formal policy instruments may exist, their implementation remains ineffective due to insufficient institutional synergy.

These findings underscore that the success of food security policies is not determined solely by the presence of regulatory frameworks, but also by the institutional capacity to coordinate multiple actors and sectors in an integrated manner. Without strengthened coordination mechanisms and clearly defined divisions of authority among institutions, food security policies will struggle to achieve their objectives in a comprehensive and sustainable way.

### Future Research and Policy Agenda

Presents projections of climate change impacts on crop yields for four major global food commodities maize, wheat, soybeans, and rice under two climate scenarios: a low-warming scenario and an extreme-warming scenario. The modeling results indicate that climate change is likely to generate differentiated impacts across commodities, ranging from substantial yield declines for maize to relatively moderate changes for rice and soybeans. This variation underscores the high level of complexity and uncertainty surrounding future global food security.



**Figure 4.** Global Crop Yields under Climate Change Impacts

Within future research and policy agendas, these findings demonstrate that food security challenges cannot be separated from institutional capacity to respond to climate-related risks. The heterogeneous impacts across commodities and climate scenarios require food policies that are adaptive, coordinated, and evidence-based. Accordingly, future research agendas should be directed toward systematically strengthening institutional dimensions, particularly in designing governance structures and mechanisms capable of anticipating and managing climate-related impacts.

From a research perspective, further rigorous and comparative studies are needed to examine the relationship between institutional design, cross-sectoral coordination mechanisms, and food security policy outcomes under climate pressure. The modeling results illustrated in the figure also reveal variations across regions and models, suggesting that future research should expand its focus to subnational and community levels. Such an approach is essential for understanding how food security governance practices operate within diverse social, ecological, and institutional contexts.

This illustration reinforces the urgency of development agendas that move beyond a sole focus on increasing food production toward strengthening institutional capacity and adaptive governance. Without robust empirical research and institutionally coordinated policies, efforts to safeguard food security under climate change risk falling short of achieving optimal and sustainable outcomes.

## Discussion

This discussion elaborates the study's findings on food security governance from a public policy perspective and compares them with previous research at both global and

national levels. Overall, the findings emphasize that food security should not be understood merely as a technical issue of production and distribution, but rather as the outcome of complex institutional governance, in which actors, rules, and resources interact within the arena of public policymaking. This conclusion aligns with the global paradigm shift in food policy studies that increasingly positions governance and institutions as central determinants of food security policy effectiveness (van Bers et al., 2019)

The findings indicate that food security governance operates as a policy arena shaped by institutional structures, organizational mandates, and formal and informal norms. This reinforces arguments in the international literature that the effectiveness of food policies depends more on institutional design and public sector capacity than on purely technical agricultural interventions. Studies by (Donner et al., 2024) similarly emphasize that food policies that neglect institutional dimensions tend to result in policy fragmentation and unsustainable responses.

Earlier studies have often framed food security within sectoral policy approaches, focusing heavily on productivity enhancement and market efficiency, such as commodity-based strategies. While economically relevant, such approaches frequently overlook institutional dynamics and cross-sectoral decision-making processes. The findings of this study demonstrate that without strong institutional coordination, increases in production do not automatically ensure food access and stability, particularly for vulnerable populations. This reinforces critiques of narrowly technocratic approaches to food security policy (Alpha & Fouilleux, 2018).

The results further highlight that principles of good governance transparency, accountability, and clearly defined mandates constitute fundamental prerequisites for effective

food security governance. This finding is consistent with research by (Ansell & Gash, 2008) and (Sørensen & Torfing, 2021), who argue that governance quality is essential for policy legitimacy and effectiveness. In the context of food security, clarity of authority and accountability mechanisms has been shown to influence the consistency of policy implementation.

However, the study also finds that good governance alone is insufficient to address contemporary global challenges. The emphasis on adaptive governance aligns with literature stressing the need for institutional responsiveness to climate change, global food crises, and supply chain disruptions. These studies suggest that rigid, procedure-oriented food policies are ill-equipped to respond to rapidly changing environmental and socio-economic conditions (Pereira & Ruysenaar, 2012).

Some literature cautions that excessive flexibility may undermine legal certainty and policy consistency. Several studies argue that adaptive policies lacking clear regulatory frameworks may create uncertainty for food system actors. This study adopts a moderate position: adaptation is essential, but it must be formally institutionalized to avoid reliance on discretionary decision-making or ad hoc practices.

Collaborative governance also emerges as a key finding. Consistent with Ansell and Gash (2020), this study finds that the involvement of non-state actors can enhance food policy effectiveness. However, the findings indicate that collaboration that is not clearly institutionalized tends to remain symbolic and unsustainable. This challenges overly optimistic normative views of collaboration, suggesting that collaboration without robust institutional design may exacerbate power imbalances among actors.

One of the most significant findings of this study is the strong influence of institutional fragmentation on weak food security policy implementation. This result is consistent with findings by Dalimunthe et al. (2024) and Akbar et al. (2025), which identify overlapping authority and weak cross-sectoral coordination as major barriers to food governance in developing countries. From an institutional theory perspective, such fragmentation reflects misalignments between formal rules and institutional practices. This finding supports historical institutionalism, which emphasizes path dependency, whereby past institutional designs constrain current policy reform options. Unlike studies that frame fragmentation solely as administrative failure, this study demonstrates that fragmentation is also shaped by competing interests and budgetary politics within the public policy arena (Church & Crawford, 2018).

At the same time, existing literature suggests that institutional plurality can foster policy innovation through competition among ideas and approaches. The findings of this study indicate that institutional plurality is productive only when supported by effective coordination mechanisms. Without such mechanisms, plurality results in partial policies and fragmented responses, particularly during food crises (Philipp, 2021). The discussion of these findings carries important implications for future research and policy agendas, this study underscores the need for cross-sectoral

and multi-level approaches to food security governance research and practice. However, it goes further by emphasizing that policy integration must begin with institutional reform, rather than merely programmatic harmonization. From a research perspective, these findings contrast with the dominance of quantitative studies based on production and consumption indicators, highlighting the added value of qualitative approaches in uncovering institutional dynamics and policy processes. This study supports calls in recent literature for strengthening qualitative and comparative research in food security studies, particularly in developing country contexts (Li et al., 2013).

From a policy perspective, the findings emphasize that future food security agendas must integrate principles of good, adaptive, and collaborative governance within clear and measurable institutional frameworks. Institutional reform, bureaucratic capacity building, and the formalization of cross-actor collaboration are prerequisites for achieving inclusive and sustainable food policies. In this way, the study enriches public policy discourse by offering a more comprehensive institutional perspective for understanding and designing food security governance (Montoya et al., 2015).

## Conclusion

This study concludes that food security governance, within the field of public policy, constitutes a complex system of institutional governance. Food security outcomes are not determined solely by production capacity or distribution efficiency, but are strongly shaped by institutional design, coordination mechanisms, and interactions among actors within the public policy arena. The findings demonstrate that effective food security policies require integration between formal and informal institutional structures, transparent decision-making processes, and institutional capacity for adaptation and cross-sectoral collaboration across levels of government.

Analyses of agricultural expenditure orientation, public private partnerships, agri-environmental policy intensity, and projected climate change impacts collectively reveal that food security is fundamentally a governance issue embedded in political, economic, and institutional dynamics. Accordingly, this study addresses the research question by affirming that the quality of food security governance is critical to achieving sustainable and equitable food security policies.

The primary contribution of this study lies in strengthening the institutional perspective in food security research through the application of institutional theory as a core analytical framework. The study advances the literature by demonstrating that institutional fragmentation, overlapping authority, and weak coordination mechanisms are key factors constraining food policy effectiveness, particularly in developing countries such as Indonesia. Furthermore, the study offers a conceptual contribution by integrating principles of good, adaptive, and collaborative governance into a comprehensive and operational analytical framework.

Practically, the study provides a conceptual foundation for the formulation and evaluation of food security policies that move beyond programmatic outputs toward governance quality and long-term policy outcomes, including sustainability and climate resilience. This study has several limitations. First, the qualitative approach limits statistical generalizability, although it provides strong institutional insights. Second, the focus on institutional and policy dimensions limits exploration of micro-level factors such as household behavior and local food market dynamics. Third, limited availability of primary data in certain subnational contexts may affect the completeness of policy implementation analysis.

Future research is therefore recommended to adopt comparative designs across regions and countries, employ mixed-method approaches, and extend analysis to community-level and local actors. Further studies should explicitly examine the relationship between institutional design, policy adaptive capacity, and food security resilience in the face of climate change and global crises, ensuring that food security governance agendas continue to evolve both theoretically and in policy relevance.

## Reference

- Akbar, A., Darma, R., Irawan, A., Fudjaja, L., & Amandaria, R. (2025). An Institutional Framework for Enhanced Food Security Amidst the COVID-19 Pandemic: Strategic Implementation and Outcomes. *Journal of Agriculture and Food Research*. <https://doi.org/https://doi.org/10.1016/j.jafr.2025.101833>
- Alpha, A., & Fouilleux, E. (2018). How to diagnose institutional conditions conducive to inter-sectoral food security policies? The example of Burkina Faso. *NJAS - Wageningen Journal of Life Sciences*, *84*, 114–122. <https://doi.org/10.1016/j.njas.2017.07.005>
- Alshuniaber, M. A. (2020). Food Security Management and Assessment. *EPH - International Journal of Agriculture and Environmental Research*, *6*(1), 15–23. <https://doi.org/10.53555/eijaer.v5i1.52>
- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, *18*(4), 543–571. <https://doi.org/10.1093/jopart/mum032>
- Church, C., & Crawford, A. (2018). *Green Conflict Minerals*. madi.africa.
- Coulas, M. (2021). Discursive Institutionalism and Food Policy Research: The Case Study of Canada's National Food Policy. *Frontiers in Communication*, *6*(November), 1–16. <https://doi.org/10.3389/fcomm.2021.749027>
- Dalimunthe, A. R., Nurdin, N., Labolo, M., & Simanjuntak, T. H. (2024). Institutional Gridlock in Food Security Policy: A Neo-Institutionalist Analysis of Urban Food Governance in Indonesia. *Journal of Law, Politic and Humanities*, *4*(6), 2236–2242. <https://doi.org/10.38035/jlph.v4i6.749>
- Donner, M. (2024). Towards Sustainable Food Systems: A Review of Governance Models and an Innovative Conceptual Framework. *Discover Sustainability*. <https://doi.org/https://doi.org/10.1007/s43621-024-00648-x>
- Donner, M., Mamès, M., & de Vries, H. (2024). Towards sustainable food systems: a review of governance models and an innovative conceptual framework. *Discover Sustainability*, *5*(1). <https://doi.org/10.1007/s43621-024-00648-x>
- Hasan, Z., Daryanto, H., & Suwarno. (2025). A Bibliometric Analysis of Global Research Trends on Food Security Policy: Insights for Sustainable Governance. *Jurnal Ilmiah Manajemen Kesatuan*.
- Hebinck, A., Zurek, M., Achterbosch, T., Forkman, B., Kuijsten, A., Kuiper, M., Nørrung, B., Veer, P. van 't, & Leip, A. (2021). A Sustainability Compass for policy navigation to sustainable food systems. *Global Food Security*, *29*(May). <https://doi.org/10.1016/j.gfs.2021.100546>
- Jiayi, Z. (2022). *Geopolitics of Food Security: Barriers To the Sustainable Development Goal of Zero Hunger*. 36.
- Jiren, T. S., Leventon, J., Jager, N. W., Dorresteyn, I., Schultner, J., Senbeta, F., Bergsten, A., & Fischer, J. (2021). Governance Challenges at the Interface of Food Security and Biodiversity Conservation: A Multi-Level Case Study from Ethiopia. *Environmental Management*, *67*(4), 717–730. <https://doi.org/10.1007/s00267-021-01432-7>
- Juma, P. A., Mohamed, S. F., Wisdom, J., Kyobutungi, C., & Oti, S. (2016). Analysis of Non-communicable disease prevention policies in five Sub-Saharan African countries: Study protocol. *Archives of Public Health*, *74*(1), 1–7. <https://doi.org/10.1186/s13690-016-0137-9>
- Kholif. (2025). *Tata Kelola Cerdas Iklim dan Ketahanan Pangan: Menjelajahi Efek Mediasi dari Praktik Rantai Pasokan Berkelanjutan*. *17*(4), 6. [https://doi.org/https://doi.org/10.22610/imbr.v17i4\(i\).4770](https://doi.org/https://doi.org/10.22610/imbr.v17i4(i).4770)
- Larasati, Y. W. (2024). Food security policy in indonesia during the COVID-19 pandemic: A sustainability governance perspective. *Critical Issue of Sustainable Future*, *1*(2), 97–104. <https://doi.org/10.61511/crsusf.v1i2.1882>
- Li, L., Wang, C., Seggara, E., & Nan, Z. (2013). China agricultural economic review. *China Agricultural Economic Review*, *5*(1), 1–31.
- Margulis, M. E. (2013). *Regime Complex Food Security*.

- <https://doi.org/https://doi.org/10.5555/1075-2846-19.1.53>
- Montoya, L. A., Montoya, I., & Sánchez González, O. D. (2015). Lessons from collaborative governance and sociobiology theories for reinforcing sustained cooperation: A government food security case study. *Public Health*, 129(7), 916–931. <https://doi.org/10.1016/j.puhe.2015.01.030>
- Nugroho, A. A., Sudrajat, A., Azmi, I. F., Ardiansyah, F., & Prasetyanti, R. (2025). Collaborative Governance in Indonesia's Nutritious Food Policy: A Multi-Stakeholder Implementation Model. *Jurnal Borneo Administrator*, 21(2 SE-Articles), 203–218. <https://doi.org/10.24258/jba.v21i2.1698>
- Oduro, C., Renwick, A., & Akotey, J. O. (2025). Several Initiatives but Little Results: A Novel Approach to Offer an Institutional Explanation for Food Insecurity in Ghana. *World Food Policy*, 11(2). <https://doi.org/10.1002/wfp2.70011>
- Patay, D., Rippin, H., Ares, G., Reeve, E., Hargous, C. V., Farrell, P., Reeve, B., Vivero-Pol, J. L., & Thow, A. M. (2025). From Ministries of Food to National Food System Committees: A Global Mapping and Typology of Multisectoral Food System Governance Institutions. *Sustainable Development*, 1–21. <https://doi.org/10.1002/sd.70320>
- Pereira, L. M., & Ruysenaar, S. (2012). Moving from traditional government to new adaptive governance: The changing face of food security responses in South Africa. *Food Security*, 4(1), 41–58. <https://doi.org/10.1007/s12571-012-0164-5>
- Philipp. (2021). *Countering Fragmentation, Taking Back the State, or Partisan Agenda-Setting? Explaining Policy Integration and Administrative Coordination Reforms*. 32(3), 167–186. <https://doi.org/https://doi.org/10.1111/gove.12550>
- Rina Herawati, A., Yuniningsih, T., & Hayu Dwimawanti, I. (2023). Assessing the Impact of Digital Technologies on Governance Policies for Food Security: A Case Study of Indonesia. *KnE Social Sciences*, 2023, 166–184. <https://doi.org/10.18502/kss.v8i17.14112>
- Seftiyana, Y., Susanti, G., & Alwi. (2024). Strategies for Strengthening Network Capacity in the Implementation of Food Security Policies at the Local Level in Indonesia. *South Eastern European Journal of Public Health*, XXV, 943–949. <https://doi.org/10.70135/seejph.vi.2221>
- Sørensen, E., & Torfing, J. (2021). Accountable government through collaborative governance? *Administrative Sciences*, 11(4). <https://doi.org/10.3390/admsci11040127>
- Syaputra, M. F. (2025). *Governance Network in Food Security Policy: a Study of the Lorong Wisata Program in Makassar City Jaringan Tata Kelola dalam Implementasi Kebijakan Ketahanan Pangan: Studi Program Lorong Wisata di Kota Makassar*. 10, 297–324. <https://doi.org/https://doi.org/10.25077/jakp.10.2.297-324.2025>
- Turnbull, N. (2016). 31 . *Narrative and interpretive theory*. 380–391. <https://doi.org/https://doi.org/10.4337/9781782548508.00042>
- van Bers, C., Delaney, A., Eakin, H., Cramer, L., Purdon, M., Oberlack, C., Evans, T., Pahl-Wostl, C., Eriksen, S., Jones, L., Korhonen-Kurki, K., & Vasileiou, I. (2019). Advancing the research agenda on food systems governance and transformation. *Current Opinion in Environmental Sustainability*, 39, 94–102. <https://doi.org/10.1016/j.cosust.2019.08.003>
- Vel, J. A. C., McCarthy, J. F., & Zen, Z. (2016). The Conflicted Nature of Food Security Policy: Balancing Rice, Sugar and Palm Oil in Indonesia. *Anthropological Forum*, 26(3), 233–247. <https://doi.org/10.1080/00664677.2016.1190919>
- Widayanti, A. V., Muchammad, R. S. C., Hariputra, A., & Rachmadhan, A. A. (2025). Technologies in Agribusiness Supply Chains: A review on Their Role in Enhancing Food Security. *Agriekstensia*, 24(1), 19–32. <https://doi.org/10.34145/agriekstensia.v24i1.3738>
- Zawojaska, A., & Siudek, T. (2025). The Role of Domestic Formal and Informal Institutions in Food Security: Research on the European Union Countries. *Sustainability (Switzerland)*, 17(5), 1–26. <https://doi.org/10.3390/su17052132>