

The Role and Strategy of Village-Owned Enterprises (BUMDES) in Strengthening Food Security Towards Indonesia's Food Sovereignty 2045



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KEY WORDS	ABSTRACT
Village-Owned Enterprises; BUMDES; Food Security	This study explores the critical role and strategic approaches of Village-Owned Enterprises (BUMDES) in enhancing food security as part of Indonesia's vision for food sovereignty by 2045. Employing a qualitative research methodology through literature review and library research, the study synthesizes existing knowledge on BUMDES' contributions to local food systems, economic empowerment, and sustainable agricultural practices. The findings highlight how BUMDES serve as pivotal actors in mobilizing community resources, fostering innovation, and supporting smallholder farmers to improve food availability and accessibility. Furthermore, the study discusses strategic frameworks adopted by BUMDES to address challenges such as market access, supply chain management, and policy alignment with national food security goals. By analyzing various case studies and policy documents, the research underscores the importance of strengthening institutional capacities and promoting collaborative governance to achieve resilient and inclusive food systems. The study concludes that empowering BUMDES through targeted strategies can significantly contribute to Indonesia's food sovereignty ambitions, ensuring long-term food security and rural development. This research provides valuable insights for policymakers, practitioners, and scholars interested in rural enterprise development and food security policy.

1. INTRODUCTION

Food security is a fundamental pillar for national stability and development, particularly in Indonesia, where agriculture remains the backbone of rural livelihoods and the economy. With a population projected to exceed 300 million by 2045, Indonesia faces mounting challenges in ensuring the availability, accessibility, and sustainability of food for all citizens. The government's vision for "Indonesia Emas 2045" (Golden Indonesia 2045) places food sovereignty at the forefront of its national agenda, emphasizing the need for self-sufficiency, resilience, and independence in food production and distribution.

Village-Owned Enterprises (BUMDES) have emerged as innovative, community-driven institutions designed to harness local economic potential and address rural development challenges. Established under Law No. 6 of 2014 on Villages, BUMDES are mandated to manage village assets, create jobs, and improve the welfare of rural communities. In recent years, BUMDES have increasingly been recognized for their potential to strengthen local food systems, support smallholder farmers, and facilitate inclusive economic growth Bank Negara Indonesia. (2025). Despite this, the specific mechanisms through which BUMDES contribute to food security and their strategic

alignment with Indonesia's food sovereignty goals remain underexplored.

While the literature on food security in Indonesia is extensive, it predominantly focuses on macro-level interventions, such as government policies, infrastructural investments, and technological innovation in agriculture Benu, A. (2025). Studies examining the micro-level, particularly the role of local institutions like BUMDES, are relatively scarce. Furthermore, existing research often treats BUMDES as generic rural enterprises, without delving into their unique institutional capacities, governance structures, and strategic approaches to food security Indah, R. (2025). There is also a lack of comprehensive analysis linking BUMDES activities to the broader vision of food sovereignty, which encompasses not only food availability but also community empowerment, local resource management, and resilience to external shocks.

The urgency of this research is underscored by several converging factors: climate change, which threatens agricultural productivity and food supply chains; persistent rural poverty and inequality; and the volatility of global food markets, which can undermine national food security Hamid, M. L. (2024). In this context, strengthening local institutions like BUMDES is critical to building resilient, self-reliant food systems. Understanding the specific roles and strategies of BUMDES can inform targeted interventions, policy reforms, and capacity-building initiatives that are essential for achieving Indonesia's food sovereignty by 2045 Suharto, B. (2024).

Previous studies have acknowledged the importance of community-based enterprises in promoting rural development and poverty alleviation (Suryana, 2019; Nugroho & Suharto, 2021). Some case studies have demonstrated the positive impact of BUMDES on local economies, particularly in increasing employment opportunities and supporting micro and small enterprises. However, a systematic investigation into how BUMDES contribute to food security—

through activities such as agricultural production, food processing, distribution, and market facilitation—remains limited. Moreover, few studies have explored the strategic frameworks and institutional innovations that enable BUMDES to address food security challenges in a sustainable and scalable manner.

This study offers a novel perspective by integrating a qualitative analysis of literature, policy documents, and case studies to systematically examine the role and strategies of BUMDES in strengthening food security Suryana, T. (2024). Unlike previous research, this study situates BUMDES within the broader context of Indonesia's food sovereignty agenda, highlighting their potential as key agents of change at the village level Wibowo, H. (2024). The research identifies innovative practices, governance models, and strategic partnerships that distinguish successful BUMDES initiatives, providing new insights into how local enterprises can drive systemic transformation in food systems.

The primary objective of this research is to analyze the role and strategic approaches of BUMDES in enhancing food security as part of Indonesia's vision for food sovereignty by 2045. Specifically, the study aims to:

- Identify the institutional roles and functions of BUMDES in local food systems;
- Examine the strategies employed by BUMDES to address food security challenges;
- Assess the alignment of BUMDES initiatives with national food sovereignty goals;
- Provide actionable recommendations for policymakers, practitioners, and village leaders to strengthen BUMDES' capacity and impact.

The benefits of this research are multifaceted. For policymakers, it offers evidence-based recommendations to support the development of effective, locally driven food security policies.

For practitioners and village leaders, it provides practical guidance on leveraging BUMDES as catalysts for rural transformation and food system resilience. For scholars, the study contributes to the academic discourse on rural enterprise development, institutional innovation, and food sovereignty in emerging economies.

2. METHOD

This study adopts a qualitative research design, specifically employing a literature review and library research approach to investigate the role and strategic functions of Village-Owned Enterprises (BUMDES) in strengthening food security within the framework of Indonesia's Food Sovereignty 2045 vision. Qualitative research is particularly suited for this study as it facilitates an in-depth exploration of complex social and institutional phenomena, enabling a comprehensive understanding of the multifaceted roles BUMDES play in local food systems and rural development.

Type of Research

The research is descriptive and exploratory in nature, relying entirely on secondary data sources. It seeks to synthesize existing knowledge and insights from a broad range of academic and policy-related literature to construct a detailed narrative about BUMDES' contributions to food security and their strategic alignment with national food sovereignty goals. This approach allows for the identification of key themes, institutional mechanisms, and strategic practices without the constraints of primary data collection.

Data Sources

The study draws on a diverse array of secondary data sources to ensure a robust and comprehensive analysis. These include peer-reviewed journal articles, government policy documents, official reports from relevant ministries and agencies (such as the Ministry of

Villages, Development of Disadvantaged Regions, and Transmigration, as well as the Ministry of Agriculture), academic theses and dissertations, books, and working papers. The literature spans topics such as rural enterprise development, community-based economic initiatives, food security frameworks, and Indonesia's national development plans related to food sovereignty. Data were sourced from reputable academic databases including Scopus, Web of Science, Google Scholar, and institutional repositories, ensuring the inclusion of both national and international perspectives.

Data Collection Techniques

The data collection process involved a systematic and iterative search strategy. Initially, relevant keywords such as "BUMDES," "Village-Owned Enterprises," "food security," "food sovereignty," "rural development," and "Indonesia" were used to identify pertinent literature. The search was refined through inclusion and exclusion criteria focusing on relevance, publication date (with emphasis on recent studies to capture current developments), and credibility of sources. Selected documents were then reviewed in detail to extract information related to the institutional roles of BUMDES, their strategic approaches to enhancing food security, challenges faced, and policy implications. The process also involved cross-referencing citations within key documents to identify additional relevant sources, ensuring a thorough coverage of the topic.

Data Analysis Methods

The analysis employed qualitative content analysis and thematic synthesis techniques. Extracted data were organized and coded according to emerging themes such as institutional capacity, community engagement, financial and administrative strategies, market integration, and policy alignment. This coding process facilitated the identification of patterns and relationships across different studies, enabling a nuanced understanding of how



BUMDES operate within the broader food system. Thematic synthesis was used to integrate findings from diverse sources, constructing a conceptual framework that illustrates the strategic roles BUMDES play in supporting food availability, accessibility, utilization, and stability—key dimensions of food security. Additionally, the analysis assessed how these roles correspond with Indonesia's national objectives for food sovereignty by 2045, highlighting gaps and opportunities for strengthening BUMDES' impact.

By employing this rigorous qualitative methodology, the study ensures a comprehensive and critical examination of existing knowledge, providing valuable insights for policymakers, practitioners, and researchers interested in rural enterprise development and sustainable food systems in Indonesia.

3. RESULT AND DISCUSSION

The analysis of the role and strategy of Village-Owned Enterprises (BUMDES) in strengthening food security towards Indonesia's Food Sovereignty 2045 reveals a complex and dynamic interplay between local institutional capacities, community empowerment, and national policy frameworks. BUMDES have emerged as critical actors in rural development, serving not only as economic entities but also as social institutions that mobilize village resources, facilitate inclusive growth, and enhance the resilience of local food systems. The findings from a comprehensive review of literature, policy documents, and case studies illustrate that BUMDES contribute significantly to multiple dimensions of food security—availability, accessibility, utilization, and stability—while simultaneously advancing the broader goal of food sovereignty.

At the core of BUMDES' contribution is their ability to harness local social capital and indigenous knowledge, which enables them to

tailor food security strategies to the specific socio-economic and environmental contexts of their villages. This localized approach fosters community ownership and participation, which are essential for sustainable development. For example, in several villages across Indonesia, BUMDES have successfully implemented livestock and aquaculture programs that provide income-generating opportunities for marginalized groups, including women and youth. These programs not only increase the supply of protein-rich foods but also improve household nutrition and economic empowerment. The cattle farming initiatives in East Kalimantan and fish farming cooperatives in Central Java exemplify how BUMDES can integrate traditional practices with modern management to enhance food production sustainably.

Moreover, BUMDES act as crucial intermediaries in agricultural value chains by providing essential services such as input supply, credit facilitation, post-harvest processing, and market linkages. In many rural areas, farmers face significant barriers in accessing quality seeds, fertilizers, and affordable financing, which limit productivity and income. BUMDES fill this gap by offering subsidized inputs and microcredit schemes tailored to the needs of smallholder farmers. For instance, in villages within West Java and Yogyakarta, BUMDES have developed revolving loan funds that enable farmers to invest in improved seeds and technologies, thereby increasing crop yields and food availability. Additionally, by managing collection and distribution centers, BUMDES help reduce post-harvest losses and improve farmers' bargaining power in local and regional markets. This role not only enhances food accessibility but also contributes to price stabilization, which is critical for food security.



The strategic orientation of BUMDES is closely aligned with Indonesia's national objectives for food sovereignty, which emphasize self-sufficiency, sustainability, and equitable access to food. BUMDES contribute to increasing village original income (PAD Desa), thereby strengthening local economies and reducing dependence on external actors. Their governance structures, often characterized by participatory decision-making and transparency, empower communities to manage their resources effectively and respond adaptively to emerging challenges such as climate change, market fluctuations, and pandemics. For example, during the COVID-19 pandemic, several BUMDES adapted their operations to support food distribution and maintain supply chains, demonstrating institutional resilience and social responsibility.

However, despite these promising developments, the analysis identifies several challenges that constrain the full potential of BUMDES in advancing food security. Institutional capacity remains a significant issue, with many BUMDES lacking professional management, adequate human resources, and technical expertise. These limitations often result in suboptimal business performance and reduced community trust. Furthermore, regulatory and bureaucratic hurdles, such as complex licensing procedures and limited access to government funding, impede the scaling up of successful BUMDES models. The narrow scope of business activities in some BUMDES also restricts their ability to diversify income sources and mitigate risks associated with agricultural production.

Another critical challenge is the uneven distribution of BUMDES' effectiveness across regions, often reflecting disparities in

infrastructure, education, and socio-political contexts. Villages with better connectivity and stronger institutional support tend to have more successful BUMDES, while remote or disadvantaged areas struggle to replicate these successes. This geographic disparity highlights the need for targeted interventions that address local constraints and leverage unique opportunities.

The analysis also emphasizes the importance of integrating BUMDES more systematically into national and regional food security policies. While government programs have increasingly recognized the role of BUMDES, coordination between ministries, local governments, and development partners remains fragmented. Enhancing policy coherence and providing comprehensive capacity-building programs are essential to empower BUMDES to fulfill their potential. Public-private partnerships and collaboration with civil society organizations can further strengthen BUMDES by introducing innovation, technology transfer, and market access.

In conclusion, BUMDES represent a vital institutional mechanism for achieving Indonesia's food sovereignty by 2045. Their grassroots presence, combined with strategic roles in resource mobilization, value chain facilitation, and community empowerment, positions them as key drivers of sustainable rural development and food system transformation. To maximize their impact, it is imperative to invest in strengthening institutional capacities, simplifying regulatory frameworks, and fostering multi-stakeholder collaboration. Such efforts will enable BUMDES to overcome current challenges, scale successful initiatives, and contribute meaningfully to a resilient, inclusive, and sovereign food system that supports the well-being of Indonesia's

diverse rural populations. This comprehensive understanding underscores the necessity for continued research, policy innovation, and practical support tailored to the evolving dynamics of BUMDES and Indonesia’s food security landscape.

The Institutional Role of BUMDES in Strengthening Food Security

Village-Owned Enterprises (BUMDES) have increasingly become pivotal institutions in Indonesia’s rural development landscape, particularly in enhancing food security at the village level. The analysis reveals that BUMDES serve as local economic engines that mobilize village resources, facilitate agricultural

production, and support food distribution systems. Unlike traditional government programs, BUMDES operate with a degree of autonomy that allows them to adapt their strategies to the unique potential and needs of their communities. This localized approach is critical in addressing food security challenges that are often context-specific, such as limited access to markets, seasonal production fluctuations, and socio-economic disparities within villages.

Table that illustrates the pivotal role of Village-Owned Enterprises (BUMDES) in Indonesia’s rural development and food security, based on the described functions and characteristics:

Role of BUMDES	Description	Examples of Activities	Impact on Food Security
Local Economic Engines	Mobilize and manage village resources to stimulate economic growth	Managing village funds, investing in local agriculture	Increases village income, enabling investment in food production and infrastructure
Facilitation of Agricultural Production	Support farmers with inputs, training, and technology	Providing seeds, fertilizers, training programs	Enhances crop yields and diversifies food production, improving availability
Support for Food Distribution Systems	Organize and manage the collection, storage, and distribution of food products	Operating village food barns, coordinating local markets	Stabilizes food supply and prices, ensuring accessibility during seasonal fluctuations
Autonomy and Adaptability	Operate independently from central government programs, tailoring strategies to local needs	Customizing business models based on local socio-economic context	Addresses specific challenges such as market access limitations and socio-economic disparities within villages
Addressing Context-Specific Challenges	Respond to unique local issues like seasonal production and market	Seasonal storage solutions, local marketing initiatives	Reduces food loss, improves market access, and mitigates risks related to production

Role of BUMDES	Description	Examples of Activities	Impact on Food Security
	access		seasonality and poverty

BUMDES function as intermediaries between smallholder farmers and broader markets by providing essential services such as input supply, credit access, and post-harvest processing. For example, in regions like Central Kalimantan and West Java, BUMDES have established input kiosks and revolving loan funds, enabling farmers to obtain quality seeds and fertilizers at affordable prices. These initiatives reduce dependency on informal lenders and improve productivity, directly contributing to food availability and economic resilience. Moreover, BUMDES often manage village food barns (lumbung pangan) that store surplus harvests, helping stabilize supply and prices during lean periods. This institutional role aligns with the government’s food sovereignty agenda by empowering villages to manage their food resources sustainably.

However, the effectiveness of BUMDES varies significantly across regions due to differences in institutional capacity, governance quality, and access to external support. Many BUMDES face challenges related to limited managerial skills, inadequate financial resources, and bureaucratic hurdles that constrain their operational efficiency. The analysis highlights that successful BUMDES are those that combine strong community participation with transparent governance and strategic partnerships with government agencies, private sector actors, and non-governmental organizations. These collaborations provide technical assistance, market access, and funding opportunities, enhancing BUMDES’ ability to contribute meaningfully to food security.

Strategic Approaches Adopted by BUMDES to Enhance Food Security

The strategic orientation of BUMDES reflects a multifaceted approach aimed at increasing food production, improving market integration, and fostering community empowerment. One prominent strategy is diversification of business activities to reduce risks and create multiple income streams. Many BUMDES have expanded beyond traditional agricultural production to include food processing, agro-tourism, and eco-friendly farming practices. For instance, BUMDES in Delima Village have integrated organic fertilizer production with eco-education tourism, attracting visitors while promoting sustainable agriculture. This diversification not only strengthens food security but also enhances economic resilience by generating additional revenue sources.

Another key strategy involves the adoption of circular agriculture models that emphasize resource efficiency and environmental sustainability. BUMDES engaged in food estate programs in Central Kalimantan and North Sumatra have implemented crop diversification and integrated farming systems to optimize land use and reduce monoculture risks. These practices improve soil health, increase biodiversity, and enhance long-term food production stability. Furthermore, BUMDES actively promote local food consumption and diversification through campaigns that encourage the use of indigenous crops and alternative staples, contributing to nutritional security and cultural preservation.

Capacity building and knowledge transfer are also central to BUMDES' strategic efforts. Many enterprises invest in training programs for farmers and staff to improve technical skills, business management, and marketing capabilities. Partnerships with agricultural extension services and universities facilitate access to innovations and best practices, enabling BUMDES to respond effectively to emerging challenges such as climate change and market volatility. However, the analysis indicates that capacity constraints remain a significant barrier for many BUMDES, necessitating sustained support from government and development partners.

BUMDES' Contribution to Economic Empowerment and Rural Development

BUMDES play a crucial role in fostering economic empowerment and inclusive rural development, which are essential components of food security. By generating village original income (Pendapatan Asli Desa or PAD), BUMDES provide financial resources that can be reinvested in community infrastructure, social services, and further economic activities. This self-generated income reduces villages' reliance on external funding and enhances their autonomy in managing development priorities. The case of BUMDES Delima, which increased its PAD significantly through diversified business ventures, exemplifies this positive impact.

Moreover, BUMDES promote social inclusion by creating employment opportunities and supporting marginalized groups, including women and youth. Livestock profit-sharing programs and agro-processing initiatives enable community members to participate actively in the local economy, increasing household incomes and reducing poverty. These programs also foster social cohesion by encouraging

collective action and shared responsibility for resource management. The empowerment dimension of BUMDES thus complements their economic functions, contributing to more resilient and equitable food systems.

Despite these benefits, the analysis identifies persistent challenges related to human resource limitations and governance issues. Many BUMDES struggle with inadequate professional management and limited strategic planning, which can undermine their sustainability. Strengthening leadership capacities and institutional frameworks is therefore critical to maximizing BUMDES' developmental impact. Additionally, transparent financial management and community participation are necessary to build trust and ensure equitable benefit distribution.

Challenges and Constraints Faced by BUMDES in Food Security Initiatives

While BUMDES have demonstrated considerable potential, their operational effectiveness is often hindered by several interrelated challenges. Institutional capacity remains a foremost concern, with many BUMDES lacking skilled personnel in business management, accounting, and technical agricultural knowledge. This deficit limits their ability to design and implement effective food security programs and to respond adaptively to changing conditions.

Financial constraints also pose significant barriers. Although village funds and government grants provide initial capital, many BUMDES face difficulties in accessing sustainable financing for expansion and innovation. Complex bureaucratic procedures and limited collateral further restrict access to credit from formal financial institutions. Consequently, some BUMDES rely heavily on

short-term or informal funding sources, which may not support long-term development goals.

Regulatory and policy environments, while increasingly supportive, sometimes lack coherence and coordination. Overlapping responsibilities among government agencies and unclear guidelines can create confusion and inefficiencies. The analysis suggests that clearer policy frameworks and streamlined administrative processes are needed to facilitate BUMDES' growth and integration into broader food security strategies.

Geographical disparities also affect BUMDES' performance. Remote and less developed villages often have limited infrastructure, market access, and human capital, which constrain BUMDES' operational scope. Tailored interventions that address these local constraints are essential to ensure equitable development and food security outcomes across Indonesia's diverse rural regions.

Policy Implications and Recommendations for Strengthening BUMDES

The findings underscore the critical need for comprehensive policy support to enhance BUMDES' capacity and sustainability in contributing to Indonesia's food sovereignty goals. First, capacity-building programs should be prioritized to improve managerial skills, technical expertise, and governance practices within BUMDES. This includes training in financial management, marketing, and sustainable agricultural techniques, delivered in collaboration with agricultural extension services, universities, and development agencies.

Second, improving access to finance is essential. Innovative financing mechanisms such as

blended finance, microcredit tailored to rural enterprises, and public-private partnerships can provide the necessary capital for BUMDES to expand and innovate. Simplifying administrative procedures and providing guarantees or subsidies may also facilitate access to formal financial institutions.

Third, policy coherence and multi-stakeholder coordination must be strengthened. Integrating BUMDES into national and regional food security frameworks will ensure alignment of objectives and resources. Establishing platforms for dialogue among government agencies, private sector actors, and civil society can foster collaboration and knowledge sharing, enhancing program effectiveness.

Fourth, infrastructure development and market access improvements are vital, especially for geographically disadvantaged villages. Investments in transportation, communication, and digital technologies can enable BUMDES to connect with broader markets and access information, thereby increasing their competitiveness.

Finally, promoting innovation and diversification within BUMDES will enhance their resilience and contribution to food security. Encouraging circular agriculture, agro-tourism, and value-added processing can create new income streams and reduce vulnerability to external shocks.

In summary, BUMDES hold significant promise as grassroots institutions driving food security and rural development in Indonesia. With targeted policy interventions and sustained support, they can play a transformative role in achieving the country's Food Sovereignty 2045 vision, ensuring sustainable, inclusive, and resilient food systems for future generations.

4. CONCLUSION

Village-Owned Enterprises (BUMDES) play a crucial and strategic role in strengthening food security as Indonesia aims to achieve its Food Sovereignty 2045 vision. By leveraging local resources and community participation, BUMDES act as key drivers in enhancing agricultural productivity, improving food distribution, and supporting rural economies, particularly through programs funded by village funds and government policies that allocate at least 20% of Dana Desa for food security initiatives. Their multifaceted strategies—ranging from managing village food barns, facilitating access to agricultural inputs and credit, to promoting diversification and sustainable farming practices—enable villages to increase food availability, accessibility, and resilience against external shocks. Furthermore, BUMDES contribute significantly to economic empowerment by generating village income and creating employment opportunities, which in turn strengthen local food systems and reduce dependency on external markets. Despite facing challenges such as limited managerial capacity, regulatory complexities, and uneven regional development, ongoing government support, capacity building, and multi-stakeholder collaboration are vital to maximizing BUMDES' impact. Overall, BUMDES represent a foundational institutional mechanism that not only supports immediate food security needs but also fosters long-term sustainable rural development, positioning Indonesia's villages to become self-reliant and resilient contributors to national food sovereignty goals by 2045.

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