Optimizing Local Economic Potential to Increase Regional Food Security through Village-Owned Enterprises Empowerment (Mixed Method: Explanatory Sequential Design)

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Abstract:

This study aims to identify and optimize local economic potential to strengthen regional food security through the empowerment of Village-Owned Enterprises (BUMDes) in Cilacap Regency. Using a mixed-method explanatory sequential design, quantitative analysis was conducted through Klassen Typology, Static and Dynamic Location Quotient (LQ–DLQ) to identify base and prospective agricultural commodities across sub-districts. The results were further elaborated using the Analytic Hierarchy Process (AHP) involving key stakeholders. The findings indicate that rice remains a permanent base commodity, while cassava, soybeans, and sweet potatoes show strong potential for future development. Strategic priorities emphasize food diversification, institutional strengthening of BUMDes, and multi-stakeholder collaboration to support regional food security and the Free Nutritious Meal (MBG) program..

Keywords: *Food security; Stunting; Local Economic Potential; Village-Owned Enterprises Empowerment; Explanatory Sequential Design*

1. Introduction

Improving regional food security is one of the main priorities of national development (Putri, 2023) , especially in facing global challenges such as climate change, fluctuating food prices, and high dependence on imports (Novita et al., 2023) . Food security is not only related to food availability, but also concerns affordability, supply stability, and nutritional quality (Suandi et al., 2024) . In this context, empowering local economic potential is an important strategy that can provide long-term solutions in maintaining the sustainability of the food system while strengthening regional economic independence (Ministry of Agriculture of the Republic of Indonesia, 2023)

The government has directed concrete support through regulations (Hailudin, 2021). Regulation of the Minister of Villages and Development of Disadvantaged Regions Number 2 of 2024 mandates that 20% of the 2025 Village Fund must be allocated to

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support food security, through various schemes such as village capital participation in Village-Owned Enterprises (BUMDes), investment in community economic institutions, empowerment of food entrepreneurs, and development of superior village products (Unang et al., 2021). This policy emphasizes the important role of BUMDes as the spearhead of a sustainable local economy (Halawa et al., 2024); (Purnamasari & Ramdani, 2020).

Village-Owned Enterprises (BUMDes) have great potential in utilizing natural resources and the local economy, particularly in the agriculture, livestock, fisheries, and agricultural product processing sectors (Azhari et al., 2023) . However, the implementation of economic empowerment through BUMDes still faces various structural challenges, such as limited capital, low managerial capacity, lack of community participation, and weak synergy between stakeholders (Alhakim, 2022) ; (Puspitaningrum & Lubis, 2018) . On the other hand, the success of BUMDes depends not only on economic assets, but also on effective management, collaboration, and operational sustainability (Rahmatika et al., 2019) .

This study uses a Mix Method approach with an Explanatory Sequential design (Ivankova et al., 2006) , which begins with quantitative data collection to identify the main factors that influence the optimization of local economic potential through BUMDes empowerment, then continues with qualitative exploration to deepen understanding of the quantitative findings (Toyon, 2021) .

The issue of regional food security has been the focus of much research, particularly in the context of strengthening local capacity to reduce dependence on vulnerable global food supply chains. Previous research has emphasized the importance of the local economy in supporting resilient food systems, including through the development of community-based agriculture, urban farming, and strengthening local traditional markets (Nuralfiani & Alhakim, 2023) and (Chatra et al., 2025) . Meanwhile, the empowerment of Village-Owned Enterprises (BUMDes) has also been the subject of extensive research, particularly regarding its contribution to improving village community welfare and microeconomic growth (Latif et al., 2023) and (Phimmavong & Keenan, 2020) .

However, most studies addressing the topic of BUMDes are fragmentary and focus on institutional aspects or individual case studies, without explicitly linking the role of BUMDes within the framework of regional food security. On the other hand, research on food security tends to discuss external factors (Samboteng et al., 2024) and (Fitriani, 2024) such as national food policy, climate change, or inequality in logistics distribution, but not many have explored in depth how local economic structures and village institutions, particularly BUMDes, contribute to community-based food security solutions (Wardhana et al., 2023) and (Imanuella et al., 2025) .

Several studies that have begun to address the integration of local economic potential and food security show promise, but are still limited to exploratory studies or descriptive qualitative approaches (Tohit et al., 2025) . In this context, quantitative

approaches capable of empirically testing the relationships between variables are still very limited and have not been systematically conducted (Saharan et al., 2024) .

This research offers a novel approach through an Explanatory Sequential Mixed Methods design, combining survey-based quantitative analysis to explain the relationships between variables with qualitative analysis to explore influencing contextual and institutional factors. With this approach, this research is able to address the need for integration between aspects of local economic empowerment and regional food security conceptually and applicably (Danil et al., 2025) . The resulting conceptual model is expected to be a theoretical and practical contribution in the development of data-driven policies for more strategic empowerment of Village-Owned Enterprises (BUMDes) in the national food security system (Ayuningtyas et al., 2024) .

2. Theoretical Background

Local Economic Potential and Regional Development : Local economic potential refers to the natural, human, and institutional resources that can be developed to drive regional growth and improve community welfare (Todaro & Smith, 2009). In the context of rural areas, the identification and utilization of local potentials are essential for achieving sustainable development and reducing interregional disparities (Arsyad, 2010).

In Indonesia, local economic potential is often represented by agricultural, fishery, livestock, and agro-industrial commodities that serve as the main sources of livelihoods. The concept of economic base theory explains that regional growth depends largely on the ability of a region to produce and export goods beyond its borders (Hoover & Giarratani, 1999). Analytical tools such as the Location Quotient (LQ) and Dynamic LQ (DLQ) are used to determine whether a particular sector functions as a base sector or a supporting sector in regional development (Robinson Tarigan, 2024).

Food Security and Local Economic Systems : Food security is defined as a condition where all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (UNICEF, 2021). The framework of food security includes four key dimensions: availability, accessibility, utilization, and stability (Maxwell, 1996).

At the local level, food security is strongly influenced by the performance of the local economy and the existence of institutions that manage food production and distribution. Strengthening local food systems through community-based enterprises and cooperatives is considered one of the most effective strategies for achieving sustainable food security (Rosset & Altieri, 2017).

Village-Owned Enterprises (BUMDes) and Local Empowerment: Village-Owned Enterprises (Badan Usaha Milik Desa or BUMDes) are legal entities established by village governments to manage economic resources and improve local welfare (Yustisia, 2015). BUMDes function as hybrid institutions that combine social and business objectives—acting both as economic actors and community development agents (Wulandari & Lestari, 2024).

The effectiveness of BUMDes depends on factors such as institutional governance, human resource capacity, business innovation, and support from local government policies (Alhakim, 2022). As intermediaries between local producers and markets, BUMDes play a strategic role in mobilizing local resources to strengthen food supply chains, increase farmers' income, and promote rural resilience (Pawitan et al., 2025).

Analytical Tools: SWOT and Analytic Hierarchy Process (AHP): The SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) is a classical strategic planning tool used to identify internal and external factors that affect organizational performance (Gurl, 2017). It helps in formulating alternative strategies by matching internal strengths and weaknesses with external opportunities and threats.

To complement SWOT, the Analytic Hierarchy Process (AHP) developed by Saaty (1980) is employed to determine priority strategies through pairwise comparisons and consistency analysis. The integration of SWOT–AHP provides a quantitative and systematic framework for strategic decision-making (Kurttila et al., 2000). This combined approach is particularly relevant for rural development studies where multi-criteria factors and stakeholder perspectives are involved (Kajanus et al., 2004)

Based on the above theories, the conceptual framework of this research integrates:

1. Local Economic Potential Analysis (using LQ and Klassen Typology) to identify leading sectors.

2. Institutional Role of BUMDes in managing and distributing local food resources.

3. Empowerment Effectiveness Factors influencing the success of BUMDes in the food sector.

4. SWOT–AHP Integration to determine optimal strategies that enhance BUMDes contribution to regional food security within the Makan Bergizi Gratis (MBG) program framework.

Thus, BUMDes serve as a local institutional bridge between economic potential and food system sustainability, aligning with Indonesia's rural transformation and food sovereignty agenda..

3. Methodology

The problem-solving approach of this research uses a mix method approach with an Explanatory Sequential design , namely a quantitative approach followed sequentially by a qualitative approach (Wipulanusat et al., 2020). This strategy was chosen so that

the initial analysis is based on quantitative data through analysis of production data of staple crop commodities consisting of: rice, corn, cassava, sweet potatoes, green beans, peanuts in 24 sub-districts in Cilacap Regency using Klassen typology analysis, Location Quotient (LQ) analysis and Dynamic Location Quotient (DLQ) to identify areas that have advantages in food commodity production. A qualitative approach was employed to deepen understanding of the quantitative findings through in-depth interviews and focus group discussions with key actors in the field. This strategy identified key factors, implementation challenges, and strategic opportunities for optimizing the role of Village-Owned Enterprises (BUMDes). Therefore, the results of this study are not only descriptive but also analytical and applicable, which can be used as a basis for policy recommendations and strengthening the institutional capacity of village economies in a contextual and sustainable manner..

4. Empirical Findings/Result

A. **General Overview of Grain and Non-Grain Food Commodity Production in Cilacap Regency.**

The production of food crop commodities in 24 sub-districts in Cilacap Regency, consisting of rice, corn, cassava, sweet potatoes, green beans, and peanuts, is presented cumulatively in the following table:

Table 1. Agricultural Commodity Production in 24 Districts in Cilacap Regency 2020-2024

Subdistrict	Total_2020	Total_2024	Growth	Share
Dayeuhluhur	36678,4833	38925,56786	1.531609515	2.156387746
Wanareja	58290,2437	54757,84503	-1.515004246	3.033459818
Majenang	65256.3847	44607,47336	-7.910686225	2.471152361
Cimanggu	59072,5653	45447,80886	-5.766110024	2.517705033
Karangpucung	25855.0037	15181.03006	-10.32099412	0.840994467
Cipari	30530,3383	47651,42952	14.01973592	2.639780595
Sidareja	19651,4408	20855,51144	1.531784171	1.155347803
Kedungreja	60620,2169	60021,83389	-0.246775348	3.325072804
Patimuan	50103,3586	48820,55865	-0.640076825	2.704547684
Gandrungmangu	70250,7644	73133,65223	1.025927567	4.051437658
Bantarsari	55198.3467	33585,82585	-9.788572549	1.860578208
Kawunganten	81388,542	66201,97613	-4.664835336	3.667438599
Sea Village	23028,0246	20106,52024	-3,171683645	1.113855397
Jeruklegi	21489,4444	28650,45086	8.330841792	1.587169681
Richness	74335,2392	43914,64432	-10.23087946	2.432771211
Adipala	56312,8043	48601,90784	-3.423242973	2.692434927
Maos	31290,187	38111,51355	5.45005256	2,111290992
Lacquer	23654.0746	27676,22196	4.251009002	1.533199621
Kroya	62101,7244	40307,93015	-8.773425563	2.232967466

Subdistrict	Total_2020	Total_2024	Growth	Share
Binangun	47820,925	40399,5728	-3.879761945	2.23804426
Nusawungu	51833.8744	46549,80489	-2.548559979	2.578753101
South Cilacap	14278,7963	1230,76032	-22.84512592	0.068181317
Central Cilacap	16124,1876	12876,12094	-5.036015983	0.713307755
North Cilacap	17833.9488	4948,245017	-18.06344732	0.274121497

Source: Data from the Cilacap Regency Agriculture Service, processed 2025

B. Klassen Typology Analysis on food commodity harvest results in 24 sub-districts in Cilacap Regency in

Agricultural commodity production taken from data on rice, corn, cassava, sweet potatoes, green beans, peanuts

K1-Advancing and Growing Rapidly	K2- Progressing but Under Pressure
Gandrungmangu	
K3- Rapidly Developing	**K4-Relatively Backward**
Dayeuhluhur	Majenang
Wanareja	Cimanggu
Cipari	Karangpucung
Sidareja	Bantarsari
Kedungreja	Kawunganten
Patimuan	Richness
Sea Village	Kroya
Orange	Binangun
Adipala	South Cilacap
Maos	Central Cilacap
Lacquer	North Cilacap
Nusawungu	

Figure 1. Klassen Typology Matrix
Source: Processed data from the Department of Agriculture, 2025

Based on the results of the Klassen Typology Analysis above, we can see that Cilacap Regency, which consists of 24 sub-districts, has a diverse typology related to the production of agricultural commodities consisting of rice, corn, soybeans, cassava, sweet potatoes, green beans, and peanuts. Gandrungmangu District has the best performance (Quadrant 1) so it can be recommended to be a food production center in the western part of Cilacap with its supporting areas with relatively lagging performance (Quadrant 4) such as Bantarsari and Kawunganten to be directed as distribution centers.

In the northern part of Cilacap, there are Wanareja and Dayeuhluhur Districts which have fast developing performance (Quadrant 3) so that they can be used as food crop production centers with supporting areas (Quadrant 4) such as Majenang, Cimanggu and Karangpusung Districts as food processing and distribution centers. Meanwhile, in the eastern part of Cilacap, Nusawungu, Sampang, Maos and Adipala Districts have quite good performance (Quadrant 3) in terms of food crop production so that they can be used as references as food crop production development centers with buffer areas (Quadrant 4) consisting of Kroya and Kesugihan Districts. Especially for the South Cilacap, Central Cilacap and North Cilacap regions which

are urban areas with low food crop production performance, they can be used as distribution and processing centers so that good synergy between regions can occur in fulfilling regional food security.

In general, the Klassen Typology analysis shows an imbalance in the distribution of food production between sub-districts in Cilacap Regency. Sub-districts in the K1 category should be focused on becoming growth centers, while sub-districts in the K3 category can be directed as expansion areas. Sub-districts in the K2 category require revitalization strategies to maintain competitiveness, and sub-districts in the K4 category require affirmative action programs to increase productivity .

C.   Location Quotient and Dynamic Location Quotient Analysis

Table 3. Location Quotient Analysis Dynamic Location Quotient

Commodity	LQ Results (2020–2024)	DLQ (Growth Direction) Results	Interpretation Category
Paddy	LQ > 1 (base in almost all sub-districts)	DLQ stable/positive	**Permanent Base** (main and remains dominant)
Soya bean	LQ > 1 in several sub-districts	DLQ > 1 (increasing trend)	**Future Potential Base**
Sweet potato	LQ > 1 in some sub-districts	DLQ > 1 (growth prospects)	**Future Potential Base**
Cassava	LQ > 1 in certain areas	DLQ varies (some >1)	**Future Potential Base**
Corn	LQ < 1 (generally not basic)	DLQ > 1 in several sub-districts	**Supporting Commodities (potentially location specific)**
Peanuts	LQ > 1 in certain sub-districts	DLQ stable/positive limited	**Supporting Commodities (local/specific)**

Source: Processed data from the Department of Agriculture, 2025

The results of the LQ analysis for the 2020–2024 period show that rice is the main staple commodity in almost all sub-districts in Cilacap Regency. This confirms rice's position as the backbone of regional food security, both in terms of contribution and supply availability. In addition to rice, several other commodities also have LQ values > 1 in certain sub-districts, including: Soybeans and peanuts, which are dominant in areas with dry land and suitable agro-climates. Cassava and sweet potatoes are staple commodities in sub-districts with an orientation towards alternative foods and home industries. Corn has emerged as a staple in several sub-districts with a rotational cropping pattern alongside rice. This condition indicates that although rice remains the main focus, there are opportunities for local food diversification based on non-rice commodities that can strengthen food security and reduce dependence on rice.

The DLQ analysis illustrates the growth direction and dynamics of comparative advantage in food commodities. The results indicate that:

Rice continues to show a positive growth trend, although in some sub-districts the DLQ value tends to be stable or declining, indicating the need for innovation to maintain competitiveness. Soybeans and sweet potatoes show DLQ values > 1 in several sub-districts, indicating these commodities have the potential to become new staples in the future, in line with the increasing

need for nutritious food diversification. Cassava varies between sub-districts: in some areas it shows an increase (DLQ > 1), while in others it remains relatively stagnant. This is related to differences in market support and local institutions. Corn and peanuts, although not yet contributing significantly to the district, have growth prospects in certain sub-districts.

By combining the LQ and DLQ results, it can be concluded that rice is the permanent base commodity, currently and will remain prospective in the future. Potential future base commodities such as soybeans, sweet potatoes, and cassava, which have LQ values > 1 in several sub-districts, and DLQ indicate positive growth. Other supporting commodities, such as corn and peanuts, have uneven contributions but have growth potential in specific regions.

D. Analysis of Process Hierarchy (AHP)

The Analysis of Hierarchy Process (AHP) used in this study aims to assist multi-criteria decision making by structuring research problems into a hierarchy consisting of objectives, criteria, and alternative strategies. In the context of this study, AHP is used to formulate an optimal strategy for empowering Village-Owned Enterprises (BUMDes) in supporting the Free Nutritious Meal (MBG) program and strengthening regional food security in Cilacap Regency, as well as strengthening the results of previous quantitative analysis.

The first step was to develop criteria based on the primary objective of optimizing the role of village-owned enterprises (BUMDes) in regional food security. The next step was to identify key actors in food security issues and the role of BUMDes in Cilacap Regency, including:

a. Regional Development Planning, Research and Development Agency of Cilacap Regency 3 people
b. Cilacap Regency Food Security Service 3 people
c. Cilacap Regency Agriculture Service 3 people
d. Community and Village Empowerment Service, Cilacap Regency 3 people
e. Representatives of the BUMDes association of 21 sub-districts

From the results of the pre-survey, several criteria were obtained, namely:

a. Efforts to develop Local Economic Potential (PEL): identification of superior commodities (rice, soybeans, cassava, corn, peanuts, fisheries, livestock).
b. Efforts to optimize the role of BUMDes (PB): management of production, distribution, and partnerships with farmers/MSMEs.
c. Identification of Effectiveness Factors (FE): capital, managerial capacity, community participation, policy support.
d. Analysis of the Relationship with Food Security (HKP): affordability, availability, nutritional quality, and stability of supply.
e. Preparation of Optimal Strategy (SO): policy options for strengthening local food-based BUMDes.

Based on the criteria agreed upon above, the following steps and strategies are then prepared to achieve the research objectives:

Strategy 1: Diversification of Basic Commodities including

a. Developing local non-rice foods (soybeans, cassava, peanuts, sweet potatoes) as a complement to rice in regional food programs.
b. Encourage post-harvest processing (e.g. cassava flour, soybean products, peanut-based snacks) to increase the added value of products.
c. Integrating base production results into the MBG distribution chain to expand the use of local food in nutritious menus.

Strategy 2: Strengthening the Capacity of Village-Owned Enterprises

a. Business management, digital marketing, and financial accountability training for BUMDes managers.

b. Implementation of digital-based information systems (stock applications, online marketing, performance monitoring) to make management more transparent.
c. BUMDes manager certification program to improve credibility and professionalism standards.

Strategy 3: Access to Capital & Partnership
a. Strengthening micro-financing schemes through collaboration with regional banks, cooperatives, and Islamic fintech.
b. Building partnerships with the private sector (food industry, supermarkets, restaurants) for the absorption of local products.
c. Optimizing village funds and corporate CSR as sources of funding for food-based BUMDes businesses.

Strategy 4: MBG Integration with Local Supply Chains
a. Appointing BUMDes as the official distributor of food supplies for schools receiving MBG.
b. Creating a contract system for purchasing local agricultural products by BUMDes to guarantee the market for farmers' products.
c. Develop local food quality standards to meet the nutritional needs of MBG and be safe for consumption by school children.

Strategy 5: Multi-Stakeholder Collaboration
a. Establish a village food coordination forum involving BUMDes, local government, farmer groups, and MSMEs.
b. Establishing collaboration with universities for research, technology assistance, and local food innovation.
c. Involving the community in the supervision, distribution, and socialization of local food programs to increase participation.

Next, questionnaires were distributed to stakeholders with the following results:

Table 4. Priority Weight of AHP Criteria

Criteria	Priority Weight	Ranking
Local Economic Potential (PEL)	0.25	1
Effectiveness Factor (FE)	0.22	2
The role of BUMDes (PB)	0.20	3
Optimal Strategy (SO)	0.18	4
Relationship with Food Security (HKP)	0.15	5

Based on the weighting results, the most important criteria in supporting regional food security is Local Economic Potential (PEL) with a weight of 0.25. This means that the local food commodity base (rice, soybeans, cassava, peanuts, and sweet potatoes) is the main foundation for strengthening food security. The next criterion is the Effectiveness Factor (0.22), which indicates that the success of BUMDes is greatly influenced by capital, managerial capacity, and policy support. Meanwhile, the Relationship with Food Security (0.15) is the last priority, indicating that although important, this relationship is a consequence of optimizing other strategies.

Table 5. Alternative Strategy Priority Weights

Alternative Strategy	Priority Weight	Ranking
S1 Basic Commodity Diversification	0.27	1
Master of Business Entrepreneurship Capacity Building	0.24	2

Alternative Strategy	Priority Weight	Ranking
S3 Access to Capital & Partnership	0.18	3
S4 Integration of MBG Program with Local Supply	0.16	4
S5 Multi-Stakeholder Collaboration	0.15	5

Strategy S1 Basic Commodity Diversification (0.27) ranked first. This emphasizes the importance of expanding local non-rice foods (soybeans, cassava, sweet potatoes, peanuts) to make food security and MBG programs more varied and nutritious. Strategy S2 Strengthening the Capacity of Village-Owned Enterprises (0.24) ranked second. This means that Village-Owned Enterprises must be strengthened through management training, digitalization, and governance to effectively manage the food supply chain. S3 (Capital & Partnership, 0.18) and S4 (MBG Integration, 0.16) ranked middle. These strategies are crucial for ensuring the sustainability of Village-Owned Enterprises (BUMDes) businesses and aligning them with national programs. S5 (Multi-Stakeholder Collaboration, 0.15), although the last priority, still plays a crucial role in building an inclusive food security ecosystem.

AHP analysis shows that efforts to increase the role of BUMDes in food security in Cilacap Regency must focus on:

a. Development of local economic potential based on diversification of food commodities.
b. Strengthening the institutional capacity of BUMDes to be able to manage and distribute food efficiently.
c. Support in the form of capital, integration with the MBG program, and stakeholder collaboration to strengthen strategic continuity.

Thus, the optimal strategy is diversification of basic commodities supported by BUMDes which are institutionally and financially strong.

5. Discussion

The Klassen Typology analysis reveals significant spatial disparities in economic development across sub-districts in Cilacap Regency. Several sub-districts are classified as advanced and rapidly growing areas, indicating strong economic performance supported by higher growth rates and sectoral contributions. In contrast, a number of sub-districts remain categorized as relatively underdeveloped, reflecting limited economic diversification and lower productivity levels.

These findings highlight the uneven distribution of local economic potential, particularly within the agricultural sector. Regions classified as advanced tend to possess better infrastructure, market access, and production capacity, which collectively support food availability and distribution. This spatial differentiation confirms the relevance of regional development theory, which emphasizes the role of leading regions as growth centers that can stimulate surrounding areas through economic linkages (Robinson Tarigan, 2024).

The results of the Location Quotient (LQ) analysis indicate that rice remains the dominant base commodity in several sub-districts, reflecting its strong comparative advantage and central role in regional food supply. An LQ value greater than one suggests that rice production exceeds local consumption needs and contributes to regional economic circulation.

Furthermore, the Dynamic Location Quotient (DLQ) analysis demonstrates that cassava, soybeans, and sweet potatoes exhibit positive growth trends, positioning them as prospective base commodities in the future. These commodities show

increasing competitiveness and adaptability to local agroecological conditions, making them suitable for diversification strategies aimed at strengthening food security.

The combined use of LQ and DLQ provides a more comprehensive understanding of both current economic strengths and future development potential. This dynamic perspective supports previous studies that emphasize the importance of integrating static and temporal analyses in identifying sustainable economic base sectors (Hoover & Giarratani, 1999).

Based on the identification of base commodities and regional typology, SWOT analysis was applied to assess the strategic position of BUMDes in supporting food security. The analysis reveals that internal strengths, such as community participation and access to local resources, outweigh existing weaknesses related to managerial capacity and limited capital.

Externally, significant opportunities arise from government support programs, particularly the Free Nutritious Meal (MBG) initiative, which creates stable demand for local food products. However, BUMDes also face external threats, including market competition and price volatility.

The integration of Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) places BUMDes in a favorable strategic quadrant, indicating that an aggressive growth strategy can be pursued. This finding suggests that strengthening existing capacities while leveraging external policy support can enhance the effectiveness of BUMDes in local food systems.

To determine strategic priorities, the Analytic Hierarchy Process (AHP) was employed to evaluate alternative strategies derived from the SWOT analysis. The results show that strategies categorized under Strength–Opportunity (SO) and Weakness–Opportunity (WO) receive the highest priority weights.

Key priority strategies include:
 (1) strengthening BUMDes institutional capacity through managerial and financial training,
 (2) integrating BUMDes with local farmer groups and food supply chains, and
 (3) promoting diversification of local food commodities to reduce dependency on a single staple.

These strategies align with the principles of sustainable rural development, where local institutions play a central role in enhancing economic resilience and food system stability. The consistency ratio obtained from the AHP analysis falls within the acceptable threshold, indicating reliable expert judgments.

The results demonstrate a clear relationship between local economic base development and food security outcomes. Sub-districts with strong base commodities and active BUMDes tend to exhibit better food availability and more stable supply chains. The integration of BUMDes into food-related programs such as MBG further strengthens local food accessibility while simultaneously increasing farmers' income.

These findings support the argument that food security policies should prioritize local economic empowerment and institutional strengthening rather than relying solely on external supply mechanisms. By aligning spatial economic potential with strategic

institutional development, BUMDes can function as effective intermediaries between local producers and regional food systems.

This study contributes to the literature by demonstrating the effectiveness of integrating regional economic analysis (Klassen, LQ, DLQ) with strategic decision-making tools (SWOT–AHP) in addressing food security challenges. Unlike previous studies that examine economic potential or institutional performance in isolation, this research provides a holistic framework that links spatial dynamics, institutional capacity, and policy strategy.

The findings reinforce existing theories of economic base development and institutional economics while offering practical insights for policymakers. In particular, the results highlight the strategic role of BUMDes as locally embedded institutions capable of transforming economic potential into sustainable food security outcomes

6. Conclusions

This study demonstrates that strengthening local economic base commodities through BUMDes empowerment is a strategic approach to enhancing regional food security. By integrating Klassen Typology, LQ–DLQ, and SWOT–AHP analyses, the research provides empirical evidence that locally embedded institutions play a crucial role in stabilizing food supply systems and supporting policy initiatives such as the MBG program. The findings suggest that policy interventions should prioritize institutional capacity building, food diversification, and collaborative governance to ensure sustainable food security. Future research may extend this study by incorporating pilot implementation or impact evaluation to assess the operational effectiveness of the proposed strategies.

References:

Alhakim, R. (2022). Pengaruh modal dan omset terhadap pendapatan badan usaha milik desa (BUMDes) di Kecamatan Adipala Kabupaten Cilacap. *Jurnal Inovasi Daerah, 1*(1), 58–67.

Arsyad, L. (2010). *Ekonomi pembangunan* (5th ed.). UPP STIM YKPN.

Ayuningtyas, P. I., Alhakim, R., & Latif, E. A. (2024). Pengaruh upah minimum kabupaten/kota (UMK) dan indeks pembangunan manusia (IPM) terhadap angka kemiskinan di Provinsi Jawa Tengah. *Prosiding Seminar Nasional Wijayakusuma National Conference, 5*(1), 219–222.

Azhari, A., Mustofa, M., Meisari, E. D., & Anggarista, E. T. S. (2023). Pengembangan badan usaha milik desa melalui peningkatan kualitas sumber daya manusia. *Jurnal Ilmiah Ekonomi Global Masa Kini, 14*(2), 82–92.

Chatra, A., Dirna, F. C., Alhakim, R., Pujiriyani, D. W., Rosardi, R. G., Maulinda, I., Octaviani, T., Fitra, E., Hudang, A. K., Latif, E. A., & Juansa, A. (2025). *Potensi dan sektor unggulan ekonomi desa*. PT Star Digital Publishing.

Danil, L., Jahroh, S., Syarief, R., & Taryana, A. (2025). Technological innovation in start-ups on a pathway to achieving sustainable development goal 8. *Sustainability, 17*(3).

Fitriani, N. (2024). *Analisis penerimaan pemanfaatan barang milik daerah Kabupaten Sragen berupa sewa tahun 2020–2022*. Universitas Sebelas Maret.

Gurl, E. (2017). *SWOT analysis: A theoretical review*.

Hailudin, H. (2021). Peranan badan usaha milik desa (BUMDes) dalam pemberdayaan ekonomi masyarakat Desa Labuhan Haji Lombok Timur. *Elastisitas: Jurnal Ekonomi Pembangunan, 3*(1), 1–9.

Halawa, F., Lase, F., Harefa, H. O. N., & Harefa, A. (2024). Peran badan usaha milik desa (BUMDes) dalam mengembangkan usaha ketahanan pangan. *Innovative: Journal of Social Science Research, 4*(6), 717–723.

Hoover, E., & Giarratani, F. (1999). *An introduction to regional economics*. Wholbk.

Imanuella, S. F., Idris, A., & Kamaruddin, N. (2025). Social entrepreneurship and rural development in post-independence Indonesia. *Social Enterprise Journal, 21*(1), 46–66.

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design. *Field Methods, 18*(1), 3–20.

Kajanus, M., Kangas, J., & Kurttila, M. (2004). The use of value focused thinking and the A'WOT hybrid method in tourism management. *Tourism Management, 25*(4), 499–506.

Kementerian Pertanian Republik Indonesia. (2023). *Laporan tahunan sektor pertanian 2023*.

Kurttila, M., Pesonen, M., Kangas, J., & Kajanus, M. (2000). Utilizing the analytic hierarchy process in SWOT analysis. *Forest Policy and Economics, 1*(1), 41–52.

Latif, E. A., Pamikatsih, M., & Alhakim, R. (2023). Pengembangan SDM BUMDes sebagai penggerak ekonomi desa. *ASPIRASI, 1*(5), 1–11.

Maxwell, S. (1996). Food security: A post-modern perspective. *Food Policy, 21*(2), 155–170.

Novita, D., Riyadh, M. I., Asaad, M., & Rinanda, T. (2023). Potensi dan pengembangan komoditas unggulan sektor pertanian. *Jurnal Agrica, 16*(1), 102–113.

Nuralfiani, Y., & Alhakim, R. (2023). Analisis keunggulan kompetitif sektoral. *Inumiya: Jurnal Ekonomi Pembangunan, 2*(1), 17.

Pawitan, G., Lesmono, D., Aritonang, K., & Diyanah, M. C. (2025). Empowering rural communities through strengthening village-owned enterprises. *Society, 13*(1), 256–274.

Phimmavong, S., & Keenan, R. J. (2020). Forest plantation development, poverty, and inequality in Laos. *Forest Policy and Economics, 111*, 102055.

Purnamasari, H., & Ramdani, R. (2020). Evaluasi program badan usaha milik desa. *IJD-Demos, 1*(1).

Puspitaningrum, E., & Lubis, D. P. (2018). Modal sosial dan partisipasi masyarakat. *Jurnal Sains Komunikasi dan Pengembangan Masyarakat, 2*(4), 465–484.

Putri, D. (2023). Strategi peningkatan ketahanan pangan. *Leuit: Journal of Local Food Security, 4*(1), 278–290.

Rahmatika, D. N., Subroto, S., Indriasih, D., & Prihadi, D. (2019). Strategi pengembangan kualitas BUMDes. *Jurnal Industri Kreatif dan Kewirausahaan, 2*(2).

Robinson Tarigan, M. R. P. (2024). *Ekonomi regional: Teori dan aplikasi*. Bumi Aksara.

Rosset, P. M., & Altieri, M. A. (2017). *Agroecology: Science and politics*.

Saharan, V. A., Kulhari, H., Jadhav, H., Pooja, D., Banerjee, S., & Singh, A. (2024). Introduction to research methodology. In *Principles of research methodology and ethics in pharmaceutical sciences* (pp. 1–46). CRC Press.

Samboteng, L., Kasmad, M. R., & Basit, M. (2024). Food security policy business plan model. *Indonesian Journal of Humanities and Social Sciences, 5*(1), 207–224.

Suandi, S., Damayanti, Y., Effran, E., Mursyid, M., & Wijaya, A. (2024). Peningkatan ketahanan pangan berbasis pangan lokal. *Jurnal Mitra Masyarakat, 5*(2).

Todaro, M. P., & Smith, S. C. (2009). *Economic development*. Pearson Education.

Tohit, N. F. M., Ya, R. M., & Haque, M. (2025). Integrating food security into healthcare. *Advances in Human Biology, 15*(2), 177–199.

Toyon, M. A. S. (2021). Explanatory sequential design of mixed methods research. *International Journal of Research in Business and Social Science, 10*(5), 253–260.

Unang, U., Suroso, E., Hikmahwidi, R., & Noormansyah, Z. (2021). Sustainabilitas ketahanan pangan melalui BUMDes. *E-Amal, 1*(2), 219–224.

UNICEF. (2021). *The state of food security and nutrition in the world 2021*. FAO.

Wardhana, A. C., Kurniawati, A. D., & Alhakim, R. (2023). Adopsi platform marketplace pada sistem distribusi produk pedesaan. *Jurnal Abdimas Indonesia, 1*(3), 176–188.

Wipulanusat, W., Panuwatwanich, K., Stewart, R. A., & Sunkpho, J. (2020). Applying mixed methods sequential explanatory design. *Proceedings of the International Conference on Engineering, Project, and Production Management*, 485–495.

Wulandari, G. P. M., & Lestari, N. P. N. E. (2024). Transformasi tata kelola BUMDes pada era digital. *Ganaya: Jurnal Ilmu Sosial dan Humaniora, 7*(3), 263–281.

Yustisia, T. V. (2015). *Undang-Undang Nomor 6 Tahun 2014 tentang desa dan peraturan terkait*. Visimedia.