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## The Role Of The MBG Program In Strengthening National Food Security Systems

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### Abstract

Food security remains a strategic issue in Indonesia's national development agenda because it is closely related to nutritional quality, human capital development, and regional economic resilience. The implementation of the Free Nutritious Meal Program (Program Makan Bergizi Gratis/MBG) represents one of the government's policy interventions aimed at improving nutritional intake while strengthening the national food security system. This study aims to analyze the role of the MBG program in strengthening food security through the dimensions of food availability, food access, food utilization, and food stability in East Java Province. The study employed a qualitative descriptive approach using a case study design at three different regional typologies: SPPG Bulak Surabaya (urban area), SPPG Tosari Pasuruan (remote area), and SPPG Magetan (moderate area). Data were collected through semi-structured interviews, field observations, questionnaires, and document analysis involving government officials, farmers, MSMEs, food distributors, and economic experts. Data analysis was conducted using content analysis and thematic analysis supported by triangulation techniques to ensure research trustworthiness. The findings reveal that the MBG program contributes significantly to strengthening food security across all dimensions. In the food availability dimension, MBG is supported by stable regional supply systems, local agricultural production, and active food reserve mechanisms. In terms of food access, the program improves access to nutritious food, reduces household food expenditure, and strengthens local economic activities through increased involvement of farmers and MSMEs. In the food utilization dimension, MBG improves dietary quality, nutritional adequacy, food safety, and student health conditions. Meanwhile, in the food stability dimension, the program demonstrates relatively strong resilience through stable supply chains, price stability, and adaptive local food reserve systems. The study concludes that MBG functions not only as a nutritional assistance program but also as an integrated policy instrument capable of supporting food security and regional economic development simultaneously.

**Keywords:** Free Nutritious Meal Program; food security; regional economy; school feeding policy; local food systems

**JEL Classification:** Q18, D12

## INTRODUCTION

Food security has become one of the most important agendas in contemporary development policy because it directly affects the quality of human resources, economic productivity, and social welfare. The concept of food security is no longer limited to the availability of food supplies but also includes equitable access, proper nutritional utilization, and the stability of food systems in responding to economic and environmental shocks. According to the definition proposed by the Food and Agriculture Organization (FAO), food security exists when all people have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs for an active and healthy life (FAO,2023).

In developing countries, including Indonesia, food security challenges remain significant due to unequal food distribution, fluctuating food prices, poverty, and limited access to nutritious diets among vulnerable populations. These conditions contribute to persistent malnutrition and stunting problems, particularly among children and mothers. The World Bank (2024) emphasized that nutritional deficiencies negatively affect cognitive development, labor productivity, and long-term economic growth. Consequently, food policy interventions are increasingly viewed as part of broader human capital development strategies rather than solely social assistance programs.

As part of national development priorities, the Indonesian government introduced the Free Nutritious Meal Program (Program Makan Bergizi Gratis/MBG) to improve nutritional intake and strengthen food security. The program specifically targets school children and vulnerable groups through the provision of nutritious meals financed and coordinated by the government. Beyond addressing nutrition problems, MBG is also expected to stimulate local food systems by encouraging the use of local agricultural products and strengthening regional food supply chains. This policy aligns with Indonesia's long-term development agenda under the Vision of Indonesia Emas 2045, which emphasizes human resource development as the foundation for national competitiveness and economic transformation (Bappenas, 2023).

Several studies indicate that MBG has strategic implications not only for nutritional improvement but also for educational transformation and regional economic development. Albaburrahim et al. (2023) found that the implementation of MBG contributed positively to students' health conditions and academic performance as part of Indonesia's transformation toward the Golden Generation 2045. Nevertheless, the study also highlighted major challenges related to food distribution, health standards, financing mechanisms, and behavioral adaptation among beneficiaries. Similarly,Agustini and Mulyani (2025) reported that MBG positively affected students' nutritional status, attendance rates, and academic achievement while simultaneously stimulating local economic activities, although program implementation remained constrained by distribution inefficiencies and weak inter-institutional coordination.

The implementation of MBG also has broader implications for regional economic development. Large-scale food procurement creates demand for

agricultural commodities, food processing industries, transportation services, and micro, small, and medium enterprises (MSMEs). In this regard, food programs may function as economic multipliers capable of generating employment opportunities and increasing local income. Basit and Ramadani (2025) demonstrated that MBG generated multiplier effects in agriculture, MSMEs, and household purchasing power, while Suardi and Purmadani (2025) argued that the program contributed to regional economic growth by strengthening local economic participation and improving human capital quality. Furthermore, Hanasi et al. (2026) emphasized that MBG increased demand for local food products and created employment opportunities despite ongoing challenges associated with fragmented governance and institutional authority.

From a food security perspective, MBG also reflects the integration of food subsidy and nutrition intervention policies within broader national development frameworks. Sudirman et al. (2025) argued that food subsidy policies and school feeding programs have significant potential to improve food accessibility, reduce stunting, and encourage economic inclusion among vulnerable communities. In line with this argument, Yusriadi (2025), through a systematic review study, concluded that free nutritious meal programs generally improve food access and nutritional outcomes, although their sustainability often faces fiscal limitations, logistical constraints, and fragmented policy coordination.

The implementation of MBG has also attracted attention from political economy and governance perspectives. Nissa et al. (2025) found that MBG contributed positively to public welfare and educational participation; however, the sustainability of the program depended heavily on fiscal capacity and government budget priorities. Likewise, Kiftiyah et al. (2025) emphasized that the success and sustainability of MBG were strongly influenced by political commitment, long-term budgeting consistency, and the prioritization of disadvantaged and remote regions (3T areas).

In addition, international experiences demonstrate that school meal policies can effectively improve nutrition and social welfare when supported by strong governance and multisectoral collaboration. Rassanjani and Rahmi (2025) highlighted that successful school feeding programs in various countries were characterized by integrated planning, strong institutional coordination, and sustainable food supply systems. However, they also stressed the importance of contextual adaptation in implementing such policies within Indonesia's diverse regional conditions.

East Java Province represents a strategic context for examining the relationship between food policy and food security because it is one of Indonesia's largest food-producing regions. The province contributes significantly to national rice, corn, and horticultural production while also possessing a relatively diversified economic structure consisting of agriculture, manufacturing, and services. Therefore, the implementation of MBG in East Java provides an important case for understanding how national food policies interact with regional economic dynamics and local food systems.

Despite its strategic potential, the implementation of MBG faces several challenges. Suprpto et al. (2025), through a policy implementation review using

SWOT analysis, concluded that MBG possessed strong potential for improving human capital development but had not yet reached optimal implementation due to weak monitoring systems, logistical problems, and insufficient cross-sectoral integration. Concerns have also emerged regarding governance efficiency and budget sustainability in large-scale food assistance programs. Without effective policy management, food intervention programs may encounter leakages, inefficiencies, and unequal distribution of benefits (Agustini & Mulyani, 2025). Therefore, empirical studies are necessary to evaluate the role of MBG within the broader framework of food security and regional economic resilience.

Based on these considerations, this study aims to analyze the role of the Free Nutritious Meal Program in strengthening national food security through a case study of East Java Province. The study focuses on understanding how MBG contributes to food availability, access, utilization, and stability while also examining its implications for regional economic activities and local food systems. This study uses SPPG samples from three regions representing the characteristics of East Java: Surabaya, Magetan, and Pasuruan. Those three regions represent urban areas, moderate areas, and areas characterized by strong religious observance.

Food security literature generally emphasizes four interrelated dimensions: food availability, food access, food utilization, and food stability (FAO, 2023). Food availability refers to the sufficient supply of food from domestic production or imports, while food access concerns the ability of individuals to obtain food economically and physically. Food utilization relates to nutritional quality and dietary intake, whereas food stability emphasizes the sustainability of food access over time. These dimensions have become central frameworks in contemporary food policy studies.

Several studies have highlighted the relationship between nutrition intervention programs and food security outcomes. School feeding programs, for example, have been associated with improved nutritional intake, educational performance, and health outcomes among children (Bundy et al., 2018). In addition, localized food procurement models are believed to strengthen agricultural value chains and generate economic benefits for local communities (World Food Programme, 2022). Such findings suggest that food assistance programs can contribute simultaneously to social welfare and local economic development.

Albaburrahim et al. (2023) emphasized that MBG supports educational transformation and human capital development toward Indonesia Emas 2045 by improving students' health and learning performance. Agustini and Mulyani (2025) further argued that MBG contributes positively to educational quality and local economic activity despite implementation constraints. Meanwhile, Basit and Ramadani (2025) found that the economic impact of MBG extends beyond nutritional improvement through multiplier effects on local agriculture and MSMEs.

From a governance perspective, Suprpto et al. (2025) stressed that policy effectiveness depends heavily on monitoring systems, logistical readiness, and institutional integration. Similarly, Kiftiyah et al. (2025) argued that social justice considerations and fiscal commitment are essential for ensuring equitable program implementation, particularly in remote and disadvantaged regions. Yusriadi (2025) also identified fiscal sustainability and fragmented coordination as major obstacles

to long-term implementation success.

Internationally, Rasanjani and Rahmi (2025) demonstrated that school feeding policies in several countries have succeeded because of strong multisectoral collaboration and integrated planning systems. These findings indicate that food assistance programs require not only financial resources but also institutional capacity and adaptive governance mechanisms.

Although previous studies have examined food security and nutrition policies separately, empirical research specifically investigating the role of the Free Nutritious Meal Program within the framework of national food security remains limited. Moreover, comparative analyses involving different regional characteristics urban, remote, and moderate areas are still relatively underexplored in Indonesian food policy research.

This study contributes to the existing literature in several ways. First, it expands the discussion of food security by positioning the Free Nutritious Meal Program not merely as a nutrition assistance policy but also as a strategic instrument for strengthening local food systems and regional economic resilience. The study integrates food security dimensions with regional economic perspectives to provide a more comprehensive understanding of the policy's implications.

Second, this research contributes empirically by examining the implementation of MBG across different regional contexts in East Java Province, including urban, remote, and moderate areas. This comparative approach provides a broader perspective on how regional characteristics influence policy implementation and food system dynamics.

Third, unlike previous studies that mainly focused on nutritional outcomes or educational impacts, this study emphasizes the interconnected relationship between MBG, food system sustainability, and local economic development. By incorporating perspectives from food security, governance, and regional economic resilience, the study offers a multidimensional framework for understanding MBG implementation in Indonesia.

Finally, the study provides policy-relevant insights regarding the integration of food assistance programs with local agricultural development and MSME participation. By highlighting implementation challenges and opportunities, the research supports evidence-based policymaking aimed at improving the sustainability and effectiveness of national food security strategies.

## **METHODS**

### ***Research Approach***

This study employed a descriptive qualitative approach to obtain an in-depth understanding of the role of the Free Nutritious Meal Program (Program Makan Bergizi Gratis/MBG) in strengthening national and regional food security, particularly in East Java Province. Qualitative descriptive research enables researchers to explore social phenomena contextually through written or spoken information, observed behavior, and relevant documents within natural settings (Moleong, 2017).

The qualitative approach was selected because this study is exploratory and interpretative in nature, focusing on understanding policy implementation

processes, stakeholder interactions, and the socio-economic impacts generated by the MBG program. The study emphasized the collection of primary data through interviews, observations, and field documentation, supported by secondary data derived from government reports, policy documents, statistical publications, and academic literature.

### ***Research Stages***

#### ***Defining the Research Question***

The first stage of the study involved formulating the main research question based on the identified research problem: How does the Free Nutritious Meal Program (MBG) contribute to strengthening national food security in East Java Province? This question served as the primary framework guiding the entire process of data collection, field observation, and analysis.

#### ***Case Selection***

East Java Province was selected as the research case because it represents one of Indonesia's major national food production centers and possesses a diverse economic structure, including metropolitan areas, agricultural regions, and remote mountainous areas. The selection of East Java was intended to provide a representative empirical understanding of MBG implementation and its implications for food security and regional economic resilience across different territorial characteristics.

More specifically, the study focused on three locations representing distinct regional typologies in East Java:

- 1) SPPG Bulak, Surabaya City (Urban Area)

This location represents an urban region characterized by relatively advanced food distribution infrastructure, extensive supplier networks, and complex economic dynamics.

- 2) SPPG Magetan, Magetan Regency (Moderate Area)

This area represents a semi-urban and agrarian region that is neither fully urban nor geographically isolated, with relatively strong local agricultural production.

- 3) SPPG Tosari, Pasuruan Regency (Remote Area)

This location represents a geographically remote area with infrastructure limitations, creating specific challenges related to food access, distribution, and supply stability.

The selection of these three locations enabled comparative analysis regarding how MBG was implemented within different social, economic, and geographical contexts, as well as how regional variations influenced the program's contribution to food availability, access, utilization, and stability.

#### ***Informants and Data Collection Protocol***

Research informants were determined through purposive sampling based on their direct involvement and relevance to MBG implementation. The selected informants included:

- 1) Local Government Officials

Government representatives involved in planning, implementing, and supervising MBG, particularly from agencies responsible for food security, education, health, and regional development planning. These informants provided insights regarding policy mechanisms, financing systems, and inter-sectoral coordination.

- 2) **Local Business Actors and MSMEs**  
Business actors involved in supplying food materials or food processing services for MBG implementation. This group provided information regarding market demand, business sustainability, employment opportunities, and income changes resulting from the program.
- 3) **Farmers**  
Farmers were interviewed to examine how MBG influenced agricultural production patterns, crop absorption, food price stability, and local food supply chains.
- 4) **Food Distributors**  
Food distributors provided information regarding logistics systems, infrastructure challenges, supply chain efficiency, and food distribution stability supporting MBG implementation.
- 5) **Economists and Academic Experts**  
Experts from academic and professional backgrounds contributed analytical perspectives concerning public policy, food security, and regional economic development associated with MBG implementation.

Data collection protocols were designed to ensure consistency and depth of information gathering through four primary techniques:

- 1) Semi-structured interviews with SPPG managers, school representatives, food suppliers, farmers, distributors, and related stakeholders to explore policy implementation and food security implications.
- 2) Field observations to directly examine food procurement processes, infrastructure conditions, distribution mechanisms, and food preparation practices.
- 3) Questionnaires distributed to beneficiaries and related stakeholders to obtain supporting quantitative data concerning perceptions, food access, consumption quality, and economic impacts.
- 4) Document analysis involving government reports, regional food security statistics, policy documents, and relevant academic publications to support normative and empirical analysis.

All data collection processes were conducted ethically, including obtaining informant consent and ensuring confidentiality.

### ***Field Study***

The field study stage involved direct visits to MBG implementation sites to obtain comprehensive empirical evidence regarding operational policy implementation. Observations focused on the entire implementation chain, including food procurement, distribution systems, food preparation, and meal consumption by beneficiaries. Researchers also observed coordination mechanisms

among institutions, local actor participation, and compliance with government standards and operational guidelines.

Field observations specifically examined the participation of local economic actors such as farmers, MSMEs, and food distributors within the MBG supply chain. The observed aspects included food sourcing systems, the proportion of local food utilization, contractual arrangements, changes in food demand, and price stability at the producer level. This approach enabled the study to capture the interaction between MBG implementation and local economic activities.

In addition to observation, the field study involved in-depth and semi-structured interviews with stakeholders directly involved in the program. Interviews focused on four dimensions of food security:

#### ***Food Availability***

- 1) Adequacy of local food production to support MBG
- 2) Availability of regional food stocks and reserves
- 3) Continuity of food supply for program implementation
- 4) Suitability of food commodities with nutritional needs
- 5) Regional capacity to fulfill food demand per capita

#### ***Food Access***

- 1) Changes in community access to nutritious food
- 2) Impacts of MBG on food affordability
- 3) Effects on farmers' and food business actors' income
- 4) Local food price stability
- 5) Contribution of food assistance in reducing food vulnerability

#### ***Food Utilization***

- 1) Nutritional quality of food consumed by beneficiaries
- 2) Fulfillment of nutritional standards in MBG menus
- 3) Changes in nutritional and health conditions of recipients Food safety and quality assurance
- 4) Sanitation conditions in food processing and distribution

#### ***Food Stability***

- 1) Consistency of food supply over time
- 2) Resilience of food systems against distribution disruptions
- 3) Stability of food prices in the short and medium term
- 4) Readiness of food reserves during crises

This interview approach enabled researchers to gather contextual, reflective, and experience-based qualitative data from field actors.

#### ***Data Analysis***

The collected data were analyzed systematically using content analysis and thematic analysis techniques to identify patterns, meanings, and dynamics related to MBG implementation. The analysis process began with data reduction by selecting and organizing relevant interview transcripts, field observations, and documents according to the research objectives.

Qualitative data were then transcribed and organized into analytical matrices to facilitate comparisons among informants, locations, and data sources. Open coding was conducted inductively to identify recurring keywords, statements,

and narratives related to food security, local actor participation, food supply chains, and economic impacts. The resulting codes were further categorized through axial coding to identify relationships among categories, such as the linkage between local agricultural absorption and farmers' income improvement, or between food distribution stability and MSME economic activities.

Thematic analysis was strengthened through source and method triangulation by comparing interview findings with field observations and secondary data such as official government reports, food security statistics, and academic publications. This triangulation process enhanced data consistency and minimized subjective bias. Furthermore, contextual interpretation was conducted by linking empirical findings with food security theories and regional economic development frameworks.

### ***Proposition Development and Literature Comparison***

Based on the analytical findings, the researchers developed propositions describing the relationship between MBG implementation, food security strengthening, and regional economic impacts. These propositions served as analytical foundations for comparing empirical findings with existing theories and previous studies.

The literature comparison stage involved reviewing theoretical and empirical studies related to food security, nutrition intervention policies, and regional economic development. This process allowed the researchers to evaluate the relevance of field findings within broader academic discussions and identify consistencies or gaps between policy frameworks and implementation practices.

### ***Research Trustworthiness***

The trustworthiness of this qualitative study was ensured through four major criteria proposed by Gunawan (2014):

- 1) **Credibility**  
Credibility was achieved through triangulation of data sources, including interviews, observations, questionnaires, and official documents, as well as validation with key informants.
- 2) **Transferability**  
The findings were presented contextually and comprehensively to enable their applicability in similar studies conducted in regions with comparable characteristics.
- 3) **Dependability**  
All research procedures, data collection protocols, and analytical processes were documented systematically to ensure transparency and replicability.
- 4) **Confirmability**  
Data interpretation and analysis were conducted systematically and supported by empirical field evidence to ensure scientific accountability and objectivity.

## RESULTS AND DISCUSSION

### Results

The findings indicate that the implementation of the Free Nutritious Meal Program (MBG) contributed positively to strengthening the food availability dimension across the three research locations, although each area demonstrated different characteristics and capacities in supporting food systems.

In Surabaya, particularly at SPPG Bulak, food availability was strongly supported by an urban distribution system connected to regional hinterland supply networks. Food stocks were maintained through structured coordination with large distributors and government food agencies, ensuring stable continuity of supply with minimal disruption risks. The broad market access in urban areas also enabled the provision of diverse food commodities that consistently met nutritional standards.

In contrast, SPPG Tosari in Pasuruan represented a remote area where local horticultural production contributed significantly to MBG implementation. However, staple commodities such as rice and protein sources still depended on external supply chains. Although food reserves were available at the district level, local storage infrastructure and distribution systems remained limited, making food availability more vulnerable to weather conditions and transportation constraints.

Meanwhile, SPPG Magetan in Magetan demonstrated the strongest level of food self-sufficiency. Local agricultural production, particularly rice and horticultural commodities, was able to support MBG implementation sustainably. Regional food reserve mechanisms and storage facilities functioned effectively, while strong local supplier networks ensured continuity of food distribution and minimized market pressure from increased program demand.

Overall, comparative findings revealed that MBG implementation successfully maintained food availability across all locations despite variations in infrastructure, geographical conditions, and regional food system capacities.

**Table 1 Comparison of Food Availability Dimension**

| Food Availability Sub-Dimension           | SPPG Bulak (Urban – Surabaya)                                            | SPPG Tosari (Remote – Pasuruan)                                                 | SPPG Magetan (Moderate – Magetan)                                              |
|-------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Adequacy of local food production for MBG | Relies on strong regional supply system (hinterland); stable fulfillment | Local horticulture supports supply, but staple foods depend on external regions | Strong local rice and horticulture production; highly self-sufficient          |
| Availability of food stocks and reserves  | Well-managed stock system coordinated with Bulog and distributors        | Available at district level but limited decentralization and storage capacity   | Active and well-prepared local reserve system with adequate storage facilities |
| Continuity of food supply for MBG         | Highly stable with scheduled                                             | Generally available but vulnerable to                                           | Highly stable with scheduled local                                             |

| implementation                                   | distribution and supplier contracts              | weather and transport constraints                  | suppliers and alternative sources                                       |
|--------------------------------------------------|--------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------|
| Suitability of food commodities to program needs | High variety; easily meets nutritional standards | Limited variety depending on seasonal availability | High diversity and freshness; strongly aligned with nutrition standards |
| Regional capacity to meet per capita demand      | Strong distribution capacity; no market pressure | Sufficient but sensitive to demand surges          | Strong and sustainable production capacity; no market pressure          |

### ***Food Access Dimension***

The analysis of the food access dimension revealed that MBG significantly improved access to nutritious food among beneficiaries in all research locations. However, the nature and intensity of the impact varied according to regional socio-economic conditions.

In urban Surabaya, MBG improved equitable access to nutritious meals through well-organized distribution systems, enabling all students to receive meals regularly. The program also reduced household food expenditure and limited unhealthy snack consumption among students. Additionally, urban MSMEs and food distributors benefited economically through increased demand and employment opportunities.

In remote Tosari, the impact was even more substantial because many students previously attended school without breakfast or adequate meals. MBG directly reduced food vulnerability and improved nutritional access for low-income households with fluctuating incomes. Local horticultural farmers also experienced more stable market demand due to the program. Nevertheless, distribution limitations and seasonal conditions continued to influence food accessibility and market stability.

In Magetan, MBG strengthened household food security through stable and consistent meal provision. The program also supported local farmers and MSMEs through integrated local supply chains, generating positive impacts on employment and rural economic resilience. Food prices remained relatively stable due to sufficient local production capacity.

These findings demonstrate that MBG functioned not only as a nutrition intervention policy but also as a social safety net capable of reducing food vulnerability and improving household economic resilience across different territorial contexts.

**Table 2 Comparison of Food Access Dimension**

| Food Availability Sub-Dimension       | SPPG Bulak (Urban Surabaya)                                      | SPPG Tosari (Remote Pasuruan)                                       | SPPG Magetan (Moderate Magetan)                              |
|---------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------|
| Changes in access to nutritious food  | Significant improvement; equitable and regular meal distribution | Very significant improvement; previously many students lacked meals | Stable and consistent access for all students                |
| Food affordability impact             | Reduces household expenditure; healthier consumption patterns    | Strongly reduces food burden, especially during lean seasons        | Improves household savings and consumption stability         |
| Impact on farmers and food businesses | Strong benefits for MSMEs and distributors                       | Direct benefit to local horticultural farmers, but limited scale    | Integrated benefits for farmers and MSMEs with stable demand |
| Local food price stability            | Stable due to large urban market capacity                        | Relatively stable but sensitive to seasonality                      | Highly stable due to strong local production base            |
| Role in reducing food vulnerability   | Social safety net for urban households                           | Critical protection in remote areas                                 | Strengthens household resilience and long-term food security |

**Food Utilization Dimension**

The food utilization dimension showed that MBG contributed significantly to improving dietary quality, nutritional adequacy, food safety, and student health conditions across the three research locations.

At SPPG Bulak Surabaya, food utilization performance was categorized as excellent. Meal variations were diverse, nutritional composition was balanced, and student acceptance levels were very high. Nutritional standards were consistently implemented through menu cycles, regular monitoring, and strict adherence to nutrition guidelines. Positive impacts included improved concentration, increased energy levels, and better body weight stability among students. Food safety and sanitation standards were also highly maintained through operational procedures, volunteer training, and regular inspections.

In Tosari, food utilization improved substantially compared to conditions before MBG implementation. Although menu diversity was influenced by local food availability and seasonal constraints, nutritional standards remained generally adequate. Improvements in student health conditions were particularly visible

among children previously at risk of undernutrition. Food safety conditions were maintained despite limited storage infrastructure and sanitation facilities.

Magetan demonstrated stable and balanced food utilization conditions. Structured menus, local food integration, and periodic monitoring ensured consistent nutritional quality and high student acceptance. Food safety and sanitation standards were adequately maintained, supported by coordination between program managers, volunteers, and local agricultural suppliers.

The findings indicate that MBG successfully strengthened the utilization dimension of food security by ensuring that available food was effectively transformed into improved nutritional and health outcomes for beneficiaries.

**Table 3 Comparison of Food Utilization Dimension**

| Food Availability Sub-Dimension | SPPG Bulak (Urban – Surabaya)                        | SPPG Tosari (Remote – Pasuruan)                  | SPPG Magetan (Moderate – Magetan)          |
|---------------------------------|------------------------------------------------------|--------------------------------------------------|--------------------------------------------|
| Meal quality and consumption    | Very high acceptance; balanced and diverse menus     | Good; improved but limited by local availability | Good and stable; structured balanced menus |
| Nutritional standard compliance | Highly consistent with strict monitoring             | Generally compliant with flexible adaptation     | Consistent with local food integration     |
| Health and nutrition outcomes   | Improved energy, concentration, and weight stability | Significant reduction in malnutrition risk       | Positive preventive health improvements    |
| Food safety and quality         | Very strong SOP implementation; no incidents         | Safe with limited storage facilities             | Controlled with verified suppliers         |
| Sanitation conditions           | Fully compliant with optimal facilities              | Adequate but infrastructure-limited              | Good and operationally compliant           |

### ***Food Stability Dimension***

The analysis of food stability demonstrated that all three research locations possessed relatively resilient operational systems capable of maintaining the continuity of MBG implementation. However, the level of resilience varied depending on infrastructure quality, supply chain diversification, and geographical accessibility.

In Surabaya, food stability was categorized as very high. Multi-supplier systems, scheduled procurement mechanisms, and strong distribution infrastructure ensured consistent food supply and rapid responses to disruptions. Food price fluctuations had minimal impact on program implementation due to contractual procurement systems and strong market capacity. Emergency food reserves and access to major distributors further strengthened program resilience.

In Tosari, food stability was moderate. Although local food supplies remained

relatively stable, external food commodities were more vulnerable to transportation disruptions and weather-related constraints. The region relied heavily on adaptive strategies, including local food substitution and seasonal planning. Food reserves were limited and depended largely on local farmer networks.

Magetan demonstrated balanced and sustainable food stability. Long-term partnerships with local farmers and suppliers ensured stable food distribution and predictable food prices. Community-based food reserve systems, including village granaries and local agricultural networks, strengthened the region's capacity to maintain program continuity during potential disruptions.

Overall, the findings indicate that MBG has established a relatively strong operational foundation for sustaining food stability across different regional typologies, although remote areas require stronger logistical and reserve support systems.

**Table 4 Comparison of Food Stability Dimension**

| Food Availability Sub-Dimension       | SPPG Bulak (Urban Surabaya)                 | SPPG Tosari (Remote Pasuruan)          | SPPG Magetan (Moderate Magetan)                            |
|---------------------------------------|---------------------------------------------|----------------------------------------|------------------------------------------------------------|
| Supply continuity                     | Very stable; multi-supplier system          | Moderately stable; occasional delays   | Stable with local supplier partnerships                    |
| Resilience to distribution disruption | High resilience; multiple logistics options | Moderate; limited access routes        | Good; supported by transport access and local alternatives |
| Food price stability                  | Highly stable due to contracts and planning | Relatively stable but season-sensitive | Stable and predictable due to local production             |
| Food reserve readiness                | Strong emergency stock availability         | Limited reserves; seasonal dependence  | Good reserves supported by village granaries               |

## Discussion

The findings demonstrate that the Free Nutritious Meal Program plays a multidimensional role in strengthening food security through improvements in food availability, access, utilization, and stability. The program not only functions as a nutritional intervention but also as an integrated development instrument capable of supporting local economic resilience and regional food systems.

The differences identified among urban, moderate, and remote regions indicate that the effectiveness of MBG is strongly influenced by local infrastructure capacity, agricultural productivity, distribution networks, and institutional coordination. Urban areas benefit primarily from strong logistics and market systems, while agrarian regions gain advantages from local production capacity and closer integration between agricultural producers and food distribution systems. Remote regions, although facing logistical challenges, demonstrate the adaptive

potential of local food systems in supporting program sustainability.

The study also highlights the importance of localized implementation strategies. The flexibility shown in Tosari and Magetan suggests that MBG can adapt to different socio-economic and geographical conditions without compromising nutritional objectives. This flexibility is essential for ensuring equitable food security interventions across Indonesia's diverse territorial contexts.

The findings are consistent with previous studies emphasizing the positive role of school feeding and nutrition intervention programs in improving food security and human capital development. Albaburrahim et al. (2023) argued that MBG contributes significantly to educational transformation and student well-being, which is also reflected in the present study through improvements in student concentration, nutritional conditions, and school participation.

The findings also support Yusriadi's (2025) systematic review, which concluded that free nutritious meal programs improve food access and nutritional outcomes despite challenges related to logistics and fiscal sustainability. Similar challenges were observed in Tosari, where distribution limitations and geographical barriers affected program stability.

Furthermore, the results reinforce the arguments proposed by Basit and Ramadani (2025) and Suardi and Purmadani (2025), who emphasized the multiplier effects of MBG on local economies, MSMEs, and agricultural sectors. The current study confirms that MBG stimulates local economic activities through increased demand for food commodities, employment generation, and strengthened local supply chains, particularly in Magetan and Surabaya.

The findings also align with Rassanjani and Rahmi (2025), who highlighted the importance of multisectoral coordination and adaptive governance in successful school feeding policies. The stronger performance observed in Surabaya and Magetan demonstrates how institutional coordination and infrastructure readiness contribute significantly to program effectiveness.

This study contributes theoretically by expanding the understanding of food security beyond conventional food availability frameworks. The findings confirm that nutrition intervention programs such as MBG can strengthen all four dimensions of food security simultaneously when integrated with local economic systems and regional governance structures.

The study also supports the concept of integrated food security governance, emphasizing the interdependence between food policy, human capital development, local agricultural systems, and regional economic resilience. Furthermore, the comparative analysis across different territorial typologies enriches the literature concerning contextual food policy implementation in developing countries.

Practically, the findings indicate that MBG should not be viewed solely as a social assistance program but as a strategic policy instrument capable of strengthening regional food systems and local economies. Several policy implications emerge from the study:

- 1) Strengthening local food procurement systems can improve regional economic resilience and reduce dependence on external supply chains.
- 2) Infrastructure and logistics improvements are necessary in remote regions to ensure distribution stability and food quality.

- 3) Coordination among local governments, schools, farmers, distributors, and MSMEs should be institutionalized to strengthen program sustainability.
- 4) Community-based food reserves and localized supply chains should be expanded to improve resilience against future crises and market disruptions.
- 5) Continuous nutritional monitoring and sanitation supervision are essential to maintain the effectiveness and safety of food utilization across all regions.

This study is limited by a relatively small sample size. This is because not all SPPG administrators were willing to provide complete information.

## **CONCLUSION AND RECOMMENDATIONS**

### **Conclusion**

This study concludes that the Free Nutritious Meal Program (MBG) plays a significant role in strengthening national food security through improvements in food availability, food access, food utilization, and food stability across different regional typologies in East Java Province.

The findings demonstrate that MBG not only improves access to nutritious food and student health conditions but also contributes positively to local economic activities, agricultural supply chains, MSME development, and household economic resilience. Urban areas benefit primarily from strong distribution systems and market networks, moderate agrarian regions demonstrate balanced and sustainable food systems, while remote regions reveal the adaptive potential of localized food production despite logistical limitations.

The study also confirms that regional characteristics strongly influence the implementation and effectiveness of food security policies. Therefore, flexible and context-sensitive implementation strategies are necessary to ensure equitable outcomes across diverse geographical conditions. Overall, MBG has proven to be a strategic policy instrument capable of integrating nutritional objectives with broader food security and regional development agendas.

### **Recommendations**

Several recommendations can be proposed based on the study findings:

- 1) The government should strengthen local food procurement systems by prioritizing partnerships with local farmers and MSMEs.
- 2) Infrastructure and transportation systems in remote regions should be improved to enhance food distribution efficiency and stability.
- 3) Regional food reserve systems should be expanded and integrated into MBG implementation to improve resilience against supply disruptions.
- 4) Cross-sectoral coordination among food agencies, education institutions, health sectors, and local governments should be strengthened through formal governance mechanisms.
- 5) Continuous evaluation and monitoring systems are necessary to ensure program sustainability, nutritional quality, and operational efficiency.

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## AUTHOR CONTRIBUTIONS

The author was responsible for all aspects of this study, including conceptualization, research design, field data collection, interviews, observations, data analysis, interpretation of findings, and manuscript writing. The author also conducted the literature review, developed the analytical framework related to food security and regional economic resilience, and formulated policy recommendations regarding the implementation of the Free Nutritious Meal Program (MBG) in East Java Province.

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