International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Strategy of the Nutrition Fulfillment Service Unit in Improving Food Quality and Safety in the Free Nutritious Meal Program: A Case Study at SPPG Cipinang Muara 1

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Abstract

The Free Nutritious Meal Program (Makan Bergizi Gratis) requires each Nutrition Fulfillment Service Unit (Satuan Pelayanan Pemenuhan Gizi, SPPG) to manage food quality and safety consistently from procurement to distribution. This study analyzes food quality and safety conditions, identifies the factors that influence them, examines the implementation of hygiene, sanitation, and food-management standards, and formulates improvement strategies at SPPG Cipinang Muara 1, East Jakarta. A descriptive qualitative case-study design was employed. Data were obtained through direct observation, semi-structured interviews with ten purposively selected informants representing SPPG management, nutrition, food processing, distribution, and beneficiaries, and supporting documentation. Data were analyzed through reduction, data display, conclusion drawing, and source triangulation. The findings show that food management is generally structured through menu and raw-material planning, cooking time and temperature control, FIFO/FEFO storage practices, written standard operating procedures, and the application of Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Point (HACCP) principles. However, operational consistency remains affected by fluctuations in supplier raw-material quality, production pressure associated with large meal volumes, uneven understanding of cross-contamination prevention, and distribution constraints. Beneficiaries generally perceive the meals as good and safe, although several comments concerned texture, freshness, and menu variety. The recommended strategy integrates supplier evaluation, competency-based staff development, stronger SOP compliance and monitoring, improved distribution

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coordination, and final quality control supported by beneficiary feedback. The study emphasizes that food quality and safety should be managed as an integrated operational chain rather than as isolated kitchen activities.

Keywords: food quality, food safety, SPPG, Free Nutritious Meal Program, GMP, HACCP, quality management.

INTRODUCTION

The Free Nutritious Meal Program is intended to strengthen nutrition support for school-age groups and other beneficiaries. In large-scale meal services, however, nutritional adequacy alone does not determine program quality. Meals must also remain safe, acceptable, and suitable for consumption throughout preparation and delivery. Previous studies on school feeding and food-service settings indicate that nutritional programs can support beneficiaries while still requiring strong quality supervision to ensure that the intended benefits are not reduced by weaknesses in handling or service delivery (Hidayat, 2020; Saputra, 2023).

Food quality is shaped by a chain of operational activities that begins with raw-material selection and continues through processing, storage, packaging, and distribution. The quality of ingredients and the way food is processed have direct implications for the final product, while storage conditions and delivery time can affect freshness, texture, and acceptability before the meal reaches the beneficiary (Badan Pangan Nasional, 2023; Putra & Dewi, 2020; Kurniawan, 2021; Nugroho, 2022). These relationships are especially important for a service unit that produces thousands of portions each day under strict scheduling constraints.

Food safety adds another management requirement. Hygiene refers to the personal cleanliness and safe working practices of food handlers, while sanitation concerns the cleanliness of the production environment, equipment, storage areas, and related facilities. Standard operating procedures (SOP), Good Manufacturing Practices (GMP), and Hazard Analysis Critical Control Point (HACCP) provide practical controls for reducing contamination risks and for identifying critical stages that require closer supervision. Research in food-service settings consistently shows that sanitation, worker hygiene, and consistent SOP implementation are central to safe food production (Ananda, 2021; Lestari, 2022; Fauziah, 2021; Sari et al., 2021).

From a management perspective, food service is an interconnected operating system. Planning determines menu and material requirements; organizing allocates responsibilities; implementation converts inputs into meals; and control verifies whether quality and safety standards have been achieved. This logic is consistent with the planning, organizing, actuating, and controlling functions described by Terry (2020) and

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with operations management, which views procurement, production, storage, and distribution as mutually dependent stages (Heizer & Render, 2022). An integrated food-management approach is therefore more appropriate than controlling each activity separately (Wijaya, 2021).

Existing studies have addressed sanitation, storage, food safety, and school meal programs, but the thesis on which this article is based identifies a more specific operational gap: limited research that integrates food quality, food safety, hygiene and sanitation standards, supplier performance, workforce capability, distribution, and beneficiary feedback within the daily operation of an SPPG. Studies of supplementary school food and mass-food production provide useful partial insights, yet an operational strategy for the Free Nutritious Meal Program at SPPG level requires these elements to be examined together (Maulana et al., 2023; Fauziah, 2021).

SPPG Cipinang Muara 1 in East Jakarta provides a relevant case because it manages the full meal-service cycle and serves 3,392 beneficiaries each operating day. The unit began operating on 10 March 2025 and distributes meals to several educational institutions and community beneficiaries in the Jatinegara area. At this scale, small variations in incoming materials, worker practices, production timing, or delivery conditions can affect a large number of meals. The case therefore provides an applied setting for examining how management systems translate food quality and safety principles into routine operations.

Research Objective

This study aims to formulate an operational strategy for improving food quality and safety at SPPG Cipinang Muara 1 by answering four questions: (1) how food quality and safety are currently managed; (2) what factors influence quality and safety during implementation; (3) how hygiene, sanitation, and food-management standards are applied; and (4) what improvement strategies are most relevant to the operational conditions of the Free Nutritious Meal Program. The practical contribution is an integrated management framework linking suppliers, production, people, distribution, and beneficiary quality assurance.

RESEARCH METHOD

The study used a descriptive qualitative case-study design at SPPG Cipinang Muara 1, East Jakarta. The object of the study was the management of food quality and safety in the Free Nutritious Meal Program, with attention to raw materials, food processing, storage, hygiene and sanitation, supervision, and distribution. A qualitative approach was selected because the research sought to understand actual operational

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practices, constraints, and stakeholder experiences rather than statistically test relationships among variables.

Informants were selected purposively according to their direct knowledge of the operating process. Ten informants were involved: one SPPG manager or person in charge, one nutritionist, one food-processing worker, one distribution officer, and five beneficiaries from different receiving locations. This structure allowed the research to compare managerial, technical, operational, distribution, and end-user perspectives. The manager provided information on planning and procurement; the nutritionist on menu, nutrition, and safety control; processing staff on daily production and hygiene; the distribution officer on delivery conditions; and beneficiaries on the quality and acceptability of meals received.

Data were collected through three complementary techniques. Direct observation examined the kitchen, sanitation conditions, production activities, storage, equipment use, and distribution practices. Semi-structured interviews used questions developed from food-quality and food-safety indicators while allowing informants to explain operational issues in greater depth. Documentation included photographs, activity records, SOP documents, and other materials related to food management. The combination of these techniques was used to compare reported practices with observable conditions and available records.

Data analysis followed the qualitative interactive logic of reduction, data display, and conclusion drawing (Miles, Huberman, & Saldaña, 2020). Relevant evidence was grouped into four themes corresponding to the research questions: current quality and safety conditions, influencing factors, implementation of hygiene and food-safety standards, and improvement strategies. Source triangulation compared information from managers, operational staff, beneficiaries, observation, and documentation. Credibility, transferability, dependability, and confirmability were considered through repeated checking of evidence and systematic documentation of the analytical process. This approach is consistent with the qualitative procedures described by Sugiyono (2022).

Table 1. Informant Groups and Analytical Focus

Informant group	Primary analytical focus
SPPG manager/person in charge	Planning, procurement, supervision, operational policy, and corrective actions.

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E-ISSN : 2964-0865
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Informant group	Primary analytical focus
Nutritionist	Menu planning, nutrition standards, incoming-material checks, GMP/HACCP controls, and safety monitoring.
Food-processing worker	Preparation, cooking, separation of raw/cooked food, hygiene, equipment use, and storage practices.
Distribution officer	Loading, travel time, delivery conditions, coordination with receiving locations, and distribution constraints.
Beneficiaries (five informants)	Perceived quality, safety, freshness, texture, menu variety, and acceptability of meals received.

RESULTS AND DISCUSSION

Food Quality and Safety Conditions

Triangulated evidence indicates that food quality and safety at SPPG Cipinang Muara 1 are generally managed through a structured operating sequence. Planning begins with menu cycles and estimates of beneficiary needs, followed by procurement from suppliers and incoming-material inspection. The manager and nutritionist described standards for freshness, cleanliness, physical condition, and suitability of raw materials, while materials that did not meet requirements could be rejected or followed up with the supplier. This structure reflects the importance of controlling input quality before production begins (Badan Pangan Nasional, 2023; Putra & Dewi, 2020).

Production controls continue during preparation, cooking, and storage. Raw and cooked food are separated during processing to reduce cross-contamination, while cooking is managed through time and temperature controls; the field account cited cooking temperatures above 100°C for relevant processes. Materials are stored according to their characteristics and organized using FIFO (first in, first out) and FEFO (first expired, first out) principles. These practices demonstrate that quality is treated as a process variable rather than inspected only at the final stage. In operations-management terms, each step contributes to the reliability of the final meal (Heizer & Render, 2022; Kurniawan, 2021).

Distribution is designed to maintain meal condition after production. The distribution officer reported typical travel times of approximately 10 to 30 minutes

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depending on distance and traffic, with a target that the overall delivery period should not exceed one hour. Beneficiaries generally described the meals as good, nutritious, and safe to consume when received. This positive end-user perception suggests that the operating chain usually maintains food condition through to the receiving point, and it is consistent with prior findings that delivery time and handling are important determinants of meal quality (Nugroho, 2022).

Nevertheless, the beneficiary perspective also reveals the remaining quality gap. Some informants reported rice that was occasionally too hard, while another described an instance in which food had an unpleasant smell and was considered less fresh. These comments do not negate the generally positive assessment, but they show that process controls have not yet produced completely uniform outcomes across all menus and delivery occasions. For the SPPG, therefore, final quality control before dispatch and structured beneficiary feedback are important complements to upstream production controls.

Factors Affecting Food Quality and Safety

The most consistently reported factor was fluctuation in raw-material quality from suppliers. The manager, nutritionist, and food-processing worker independently described nonconforming materials, including vegetables with pests, spoiled fruit, and rice of unsatisfactory quality. Because the same issue appeared across different informant groups, source triangulation indicates that supplier variation is a recurring operational risk rather than an isolated incident. This finding supports the need for tighter incoming inspection, supplier evaluation, and clear rejection or corrective-action procedures.

A second factor is human-resource capacity under high production pressure. The SPPG prepares thousands of portions within a limited operating window, which requires fast and coordinated work. Informants indicated that time pressure and uneven understanding of correct food handling can increase the possibility of deviations, especially in preventing cross-contamination. The issue is therefore not simply the availability of written rules, but the ability of staff to apply them consistently under workload conditions. Research on food-service workers similarly links hygiene knowledge and protective practices with safer food handling (Imaduddin, Hutasoit, & Husnina, 2025; Nuryani, Hadi, & Astuti, 2022).

A third factor arises in distribution. Traffic congestion, damaged roads, the readiness of receiving locations, and sudden changes in the required number of portions can disrupt delivery schedules. The distribution officer also raised the need to align vehicle capacity and operating conditions with the service area. These factors show that meal quality can deteriorate even when kitchen processes are adequate, because the

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final stage depends on transportation, coordination, and time. Distribution should therefore be treated as part of the food-safety and quality system rather than as a separate logistical task.

Taken together, the influencing factors are multidimensional and occur from upstream to downstream. Supplier quality affects the suitability of inputs, human-resource conditions affect process discipline, and distribution conditions affect the meal immediately before consumption. This pattern is consistent with integrated food management, in which procurement, production, storage, and delivery form one interdependent service chain (Wijaya, 2021). Corrective strategies will therefore be more effective when they address the full chain rather than focusing only on the kitchen.

Hygiene, Sanitation, and Food-Management Standards

SPPG Cipinang Muara 1 has written SOPs covering key stages from receiving raw materials to handling deviations from established standards. Basic personal-hygiene practices were also consistently reported across managerial and operational informants. Staff are required to wash their hands before work and to use personal protective equipment such as masks, head covers, gloves, and aprons as appropriate to their tasks. The consistency of these statements across informants suggests that hygiene requirements have been institutionalized in routine operations rather than existing only as formal documentation.

HACCP principles are reflected in control of critical stages described by the nutritionist, including washing and preparation of ingredients, control of cooking temperature, and cooling before packaging. GMP principles are also visible in storage and workspace arrangements, including attention to room conditions, shelf placement, cleanliness, and separation practices. The presence of SOP, GMP, and HACCP elements provides a relatively complete conceptual safety framework for mass meal production and is consistent with the role of preventive controls in reducing food-safety risk (Fauziah, 2021; Sari et al., 2021).

The principal weakness is consistency of compliance. Informants noted that not all workers have the same level of understanding regarding procedures for avoiding cross-contamination, and that continuous supervision is still needed. This gap is important because compliance with protective equipment and safe handling practices is closely related to contamination risk in food-service operations (Imaduddin, Hutasoit, & Husnina, 2025). Training, daily briefings, and direct observation of work practices are therefore needed to convert formal standards into reliable behavior.

Accordingly, the implementation of standards should be evaluated not merely by the existence of an SOP document but by observable compliance at each process stage. A strong system links written procedures with clear responsibilities, practical training,

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monitoring records, corrective action, and routine feedback. Continuous sanitation control and consistent worker behavior are particularly important because the scale of production magnifies the operational consequences of a small deviation (Ananda, 2021; Lestari, 2022).

Integrated Strategic Priorities

The field findings point to four strategic priorities. First, supplier control should be strengthened through routine evaluation, firm rejection of nonconforming materials, corrective communication, and replacement of suppliers that repeatedly fail to meet standards. Second, workforce competence should be strengthened through briefings and recurring training in hygiene, sanitation, processing, and food safety. Third, distribution should be improved through vehicle suitability, schedule coordination, and clearer delivery procedures. Fourth, final meal quality should be reinforced through freshness checks, menu evaluation, and beneficiary feedback. These priorities reflect continuous quality improvement across organizational functions rather than one-time corrective actions (Susanto, Julia, & Salsabila, 2024).

Table 2. Strategic Priorities Derived from the Triangulated Findings

Priority area	Strategic direction
Supplier quality	Evaluate suppliers routinely; inspect incoming materials; reject or replace nonconforming raw materials; document corrective follow-up.
Processing and food safety	Reinforce SOP, GMP, and HACCP controls; maintain hygiene and sanitation; strengthen critical-point and final-quality checks.
Human resources	Conduct daily briefings and recurring training on hygiene, sanitation, processing, PPE, and cross-contamination prevention.
Distribution and beneficiary quality	Improve vehicle suitability and schedule coordination; maintain delivery-time control; check freshness before

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Priority area	Strategic direction
	dispatch; use menu and beneficiary feedback for improvement.

The triangulation matrix in the thesis reinforces this prioritization. Planning and procurement, processing under SOP/GMP/HACCP, FIFO/FEFO storage, personal hygiene and PPE, and general delivery performance were predominantly assessed as good. Improvement needs were concentrated in the consistency of supplier raw materials, suitability of distribution arrangements, and menu variation, while beneficiary assessments were positive with specific notes. The strategic implication is to preserve the functioning controls while directing managerial attention toward the few recurring weak points that cut across several informant groups.

Integrated Food Quality and Safety Improvement Framework

To translate the findings into an operational journal framework, the study can be organized into five linked management pillars: Supplier Control, Safe Production, People and Supervision, Distribution Reliability, and Beneficiary Feedback and Continuous Improvement. The pillars do not introduce new empirical findings; they reorganize the thesis evidence into an end-to-end management structure. Their purpose is to make the recommended strategy easier to implement, monitor, and review at SPPG level while maintaining the relationships identified in the field data.

Table 3. Integrated Food Quality and Safety Improvement Framework

Pillar	Core actions	Evidence / monitoring indicator
1. Supplier Control	Raw-material standards, incoming inspection, supplier evaluation, rejection and corrective follow-up.	Nonconforming materials identified; supplier corrective actions and repeated deviations recorded.
2. Safe Production	SOP/GMP/HACCP compliance, separation of raw and cooked food, FIFO/FEFO storage, time-temperature control.	Critical-point checks, storage practice, hygiene observations, and final food-condition checks.

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Pillar	Core actions	Evidence / monitoring indicator
3. People & Supervision	Daily briefings, recurring competency development, PPE discipline, and direct supervisory feedback.	Training participation, observed SOP compliance, and cross-contamination-related findings.
4. Distribution Reliability	Suitable vehicle capacity, route and schedule coordination, delivery-time control, communication with receiving points.	Travel time, delays, receiving readiness, and food condition on arrival.
5. Beneficiary Feedback & Continuous Improvement	Final freshness checks, menu review, feedback collection, and follow-up of complaints or recurring quality notes.	Texture/freshness feedback, menu acceptance, complaints, and documented improvement actions.

Recommended Action Matrix

Table 4. Recommended Action Matrix

Priority	Main focus	Recommended actions
Immediate operational controls	Prevent nonconformity before production and delivery.	Tighten incoming-material inspection; reinforce hand hygiene and PPE; refresh SOP reminders; apply a final freshness/condition check before dispatch.
Operational strengthening	Improve consistency of people, process, and distribution.	Provide recurring hygiene/sanitation and food-safety training; document monitoring; improve route, vehicle, and schedule

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Priority	Main focus	Recommended actions
		coordination with receiving locations.
Continuous improvement	Sustain quality, safety, and service acceptance.	Use periodic supplier review, menu evaluation, beneficiary feedback, and review of distribution facilities and worker operating conditions to guide corrective actions.

Managerial Implications and Limitations

The primary managerial implication is that SPPG performance should not be assessed only from whether meals are successfully produced on time. Quality and safety depend on the whole chain: supplier performance, receiving inspection, processing discipline, storage, staff competence, distribution, and the condition of meals at the beneficiary point. Management should therefore combine preventive controls with continuous improvement. Beneficiary feedback is particularly valuable because it reveals variations in texture, freshness, and menu acceptance that may not be visible in internal process records.

This study is limited to a single qualitative case at SPPG Cipinang Muara 1 and uses purposively selected informants, observation, interviews, and documentation. The findings therefore provide an in-depth operational picture rather than statistical generalization to all SPPGs. The research also did not use laboratory microbiological testing or a quantitative performance design, so the assessment of safety implementation is based on observed practices, stakeholder accounts, and available documents. Future studies can test HACCP effectiveness quantitatively across SPPGs with different operational characteristics.

CONCLUSION

SPPG Cipinang Muara 1 has established a generally structured system for food quality and safety through menu and raw-material planning, time-temperature controls, FIFO/FEFO storage, written SOPs, and the application of GMP and HACCP principles. The most important recurring risks are variability in supplier raw materials, production pressure and uneven worker understanding of cross-contamination prevention, and distribution constraints. Beneficiaries generally regard the meals as good and safe, but

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comments on texture, freshness, and menu variety show the need for stronger final quality assurance. The most relevant strategy is therefore integrated: strengthen supplier evaluation, develop staff competence, reinforce SOP compliance and monitoring, improve distribution coordination, and use beneficiary feedback and final quality checks as part of continuous improvement. Managing these elements as one operational chain provides a more sustainable basis for improving the quality and safety of the Free Nutritious Meal Program.

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