

STRENGTHENING FOOD SAFETY AND VOLUNTEER EMPOWERMENT THROUGH THE SIGAP PROGRAM IN LENGKONG MBG KITCHEN

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ABSTRACT

Community kitchens play an essential role in ensuring the provision of nutritious and safe meals, particularly in large-scale government-supported initiatives such as the Free Nutritious Meals (MBG) program in Tangerang Selatan. The Lengkong MBG kitchen, which produces thousands of portions daily, faces persistent challenges in food safety, staff training, and operational management. The SIGAP (Siap Jaga Gizi dan Pangan Aman) program was introduced to address these issues through HACCP-based training, development of visual SOPs, manual stock recording systems, and structured volunteer engagement. This paper qualitatively documents the implementation process involving 47 local volunteers, one nutritionist, and two administrative staff. Results indicate improvement in food safety awareness, operational documentation, and volunteer empowerment, with ongoing challenges particularly regarding non-compliance with personal protective equipment (PPE). The program framed volunteers as “kitchen heroes” preparing meals for the nation’s golden generation, reinforcing intrinsic motivation to uphold food safety practices. HACCP simulations with simple case studies emphasized the importance of vigilance. At the end of the program, 50 aprons were donated as mandatory PPE. The findings underline the critical role of participatory action in building sustainable food safety systems in community kitchens across Indonesia.

Keywords: Food Safety, HACCP, Community Kitchen, MBG Program, Community Empowerment

1. INTRODUCTION

Makanan Bergizi Gratis (MBG)’s Program, launched in Tangerang Selatan in January 2025, aims to provide balanced and safe meals to thousands of school-aged children daily. The Lengkong MBG community kitchen serves as the central hub of this program. Despite its crucial role, the kitchen faces challenges including inadequate training of volunteers, limited implementation of Hazard Analysis and Critical Control Points (HACCP) protocols, and low compliance with personal protective equipment (PPE). Such limitations increase risks of foodborne illnesses, especially given the large volume of daily production.

Previous research emphasizes the impact of HACCP-based training and hygiene awareness on food safety improvements in canteens and street food vendors. Budiningsari et al. (2023) reported significant knowledge gains through participatory HACCP training, while Aprilia et al. (2025) highlighted the effectiveness of contextual training for street vendors in Jakarta. Community-based food safety programs similarly underscore the importance of practical, culturally relevant approaches to behavior change (Prabakusuma & Utami, 2022).

The MBG kitchen in Lengkong involves a workforce of 47 local volunteers from surrounding neighborhoods, supported by one nutritionist and two administrative staff members. These volunteers, while dedicated, often have limited formal education and no prior exposure to formalized food safety protocols. Their daily practices, shaped largely by household cooking habits, were insufficient to meet the standards required for mass catering operations. However, their involvement also presents an opportunity: as community members preparing meals not only for others but for their own children, they can be motivated to uphold food safety when they understand the direct implications.

The SIGAP program was therefore designed not only to address technical aspects of food safety but also to strengthen the role of local volunteers in sustaining improvements. Through simplified HACCP training, visual SOP development, participatory monitoring, and motivational framing, the program sought to build a sense of ownership and pride in maintaining safe food practices. This paper presents a qualitative narrative of the SIGAP program implementation, focusing on its methods, outcomes, challenges, and implications for scaling similar interventions in other Indonesian community kitchens.

2. METHOD

The SIGAP program was implemented over eight months, combining participatory action and structured training to improve food safety practices. The process consisted of six key stages: preliminary assessment, socialization, training and simulation, SOP development, reinforcement of PPE, and monitoring with reflective evaluation.

The preliminary assessment stage involved direct observation of kitchen routines, informal interviews with volunteers, and documentation of food preparation practices. Several recurring issues emerged: thawing frozen meat

at room temperature instead of under controlled conditions, reluctance to wear PPE during food handling, and reliance on oral communication for stock management. Volunteers acknowledged the importance of hygiene but expressed discomfort and inconvenience with PPE, particularly in the hot kitchen environment. Many perceived aprons, masks, and gloves as unnecessary burdens rather than protective equipment. This assessment also explored socio-demographic characteristics, noting that most volunteers were women in their 30s to 50s with educational backgrounds at primary or junior high school levels. This shaped the pedagogical approach, prioritizing visual aids, demonstrations, and repetitive practice over written materials or technical lectures.

The socialization stage served to build motivation and establish the role of volunteers as key actors. Instead of framing the program as an external intervention, facilitators emphasized shared responsibility and pride. Volunteers were called “pahlawan dapur” (kitchen heroes), a label designed to inspire intrinsic motivation by linking their daily labor to the well-being of Indonesia’s future generation. The message was clear: safe meals for children, including their own, depended on their commitment to hygiene. The socialization sessions used storytelling, analogies to family care, and motivational talks that highlighted the direct relationship between food safety and child health. Volunteers reflected on scenarios where unsafe practices at home could harm children, then connected these lessons to the kitchen’s operations. This stage was crucial in transforming attitudes from compliance driven by obligation to motivation grounded in parental responsibility and national pride.



Figure 1. Poster of SIGAP and simulation media

The training and simulation stage was the core of SIGAP. HACCP principles were simplified into relatable scenarios, supported by props such as thermometers, colored cards, soap, aprons, and gloves. For example, volunteers role-played scenarios of cross-contamination: one cutting raw chicken while another cut vegetables on the same board, followed by a demonstration of contamination spread using food coloring as a metaphor for invisible germs. Another simulation involved packaging meals with small foreign objects such as staples, emphasizing how seemingly trivial hazards could endanger children if ingested. Safe thawing practices were also simulated by comparing meat thawed in ambient conditions versus meat thawed under refrigeration, with discussions on bacterial risks. Washing utensils correctly was another focus, where volunteers practiced proper sequences of rinsing, scrubbing with soap, rinsing again, drying, and storing in a hygienic location. The simulations ensured that abstract HACCP concepts became tangible and memorable. Volunteers were encouraged to repeat demonstrations to peers, promoting peer-to-peer teaching and reinforcing their understanding.

SOP development and visual tool creation reinforced the training. Volunteers co-created posters depicting key hygiene practices such as handwashing steps, separation of raw and cooked ingredients, and safe temperature ranges for cooking and storage. The posters relied heavily on illustrations and minimal text to ensure accessibility. By involving volunteers in drafting and validating these SOPs, the program ensured practicality and fostered ownership. Posters were placed at strategic kitchen points, near washing areas, storage rooms, and cooking stations, to serve as constant reminders.

Reinforcement of PPE use was perhaps the most challenging and symbolic aspect of the program. Daily observations revealed continued reluctance among volunteers to wear aprons, masks, and gloves. Complaints included discomfort in the heat, perceived redundancy, and inconvenience during fast-paced cooking. Facilitators addressed this by reframing PPE as the protective “armor” of kitchen heroes. Analogies likened aprons to shields and gloves to protective weapons, turning compliance into an act of pride rather than obligation. To eliminate practical barriers, the

program concluded with the donation of 50 aprons, declared as mandatory PPE for all kitchen staff. This symbolic donation reinforced the seriousness of compliance, combining motivation with provision of resources.

The final stage was monitoring and reflective evaluation. Rather than formal tests, evaluation relied on weekly observations, reflective group discussions, and facilitator field notes. Observers documented hygiene practices, adherence to SOPs, and volunteer behavior during daily operations. Reflection sessions invited volunteers to share challenges, such as discomfort with masks, and propose collective solutions. Facilitators emphasized a non-punitive approach, framing mistakes as learning opportunities. Volunteers who struggled with PPE were supported by peers, fostering solidarity. This iterative process promoted a culture of reflection and collective problem-solving, ensuring that improvements were not externally imposed but internally sustained.

3. RESULTS AND DISCUSSION

One of the most significant outcomes of the SIGAP program was the enhancement of knowledge and confidence among kitchen staff and volunteers. Prior to the intervention, only the head of the SPPG unit had received formal HACCP training. The majority of volunteers relied on domestic cooking experience, which, while useful in small household settings, did not adequately prepare them for managing large-scale food production.

Through simulation-based training, volunteers began to internalize concepts that were previously abstract. For instance, the idea of cross-contamination was difficult to grasp at first. However, by demonstrating how raw chicken juices could contaminate vegetables if the same cutting board was used, participants quickly understood tangible risks. Concepts such as “critical control point” moved from being abstract to being understood in everyday terms. Volunteers could explain these concepts to each other and to facilitators, using examples from their daily routines. Their confidence grew as they led peer demonstrations, with some volunteers even assuming the role of informal trainers during reflection sessions. This aligns with Budiningsari et al. (2023), who found that participatory HACCP training enabled knowledge to be sustained beyond initial workshops through peer-to-peer reinforcement.



Figure 2. The simulation-based training

Confidence among volunteers grew as they were given opportunities to lead demonstrations. This peer-to-peer learning dynamic sustained behavior change, as internal champions reinforced good practices long after facilitators left. Similar dynamics have been highlighted in community-based nutrition interventions where peer educators were pivotal in sustaining knowledge (Aprilia et al., 2025). Furthermore, the operational improvements were also evident. The introduction of logbooks provided structure to kitchen operations. Though basic, these records reduced miscommunication, ensured accountability, and gave volunteers a sense of professionalism. Volunteers proudly displayed their logbooks during facilitator visits, signaling ownership of the new system. These findings resonate with Baba & Esfandiari (2023), who emphasized that even low-cost interventions can transform efficiency when embraced collectively.

PPE compliance remained a persistent challenge. Despite understanding the risks, many volunteers resisted daily use of masks or gloves, citing heat and discomfort. The donation of aprons partially improved adherence, as it symbolized recognition and support. Volunteers began associating aprons with their identity as kitchen heroes, though consistent compliance with full PPE still required reinforcement. This illustrates the complexity of behavior change, where knowledge does not automatically translate into action. As Prabakusuma and Utami (2022) note, sustained behavior change depends on intrinsic motivation and reinforcement through community norms.

Volunteer empowerment emerged as one of the most transformative outcomes. Volunteers, once seen as helpers, became recognized as protectors of community health. Their linguistic adoption of technical terms, proactive monitoring of SOPs, and willingness to mentor new recruits demonstrated growing agency. Empowerment also strengthened social capital: volunteers supported each other in daily tasks, shared personal stories during reflection sessions, and extended care beyond the kitchen. These outcomes echo Aprilia et al. (2025), who showed that community-based training enhances not only technical capacity but also collective identity and resilience.

Challenges persisted such as physical infrastructure, particularly ventilation and heat, hindered consistent PPE use. Volunteer turnover created continuity gaps, as new members needed orientation. However, peer mentoring mitigated this issue, with experienced volunteers guiding newcomers. Sustainability will require ongoing

reinforcement, potential integration of digital stock management, and continued partnerships with academic institutions for technical guidance.

Broader implications of SIGAP are clear. The program demonstrates that even resource-limited kitchens can achieve meaningful improvements through participatory, low-cost strategies. By combining simplified HACCP training with empowerment narratives, SIGAP created a model that is replicable in other Indonesian kitchens. The dual focus on technical safety and community ownership ensures that improvements extend beyond the kitchen into households, reinforcing food safety culture at multiple levels.

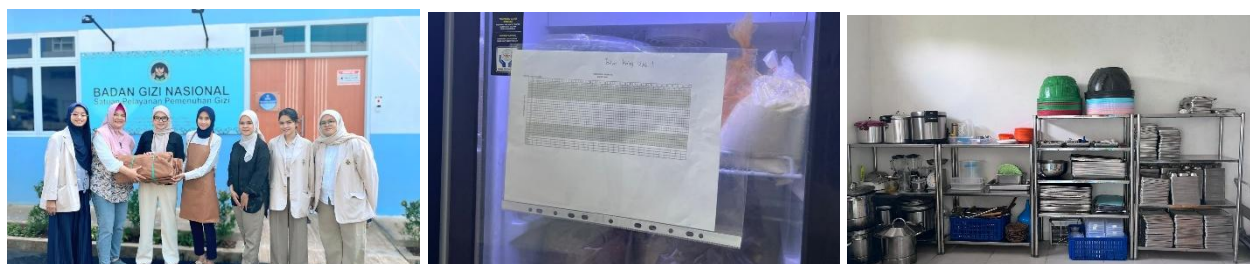


Figure 3. The donation delivery and monitoring evaluation

SIGAP demonstrated that low-cost, context-sensitive tools, such as illustrated SOPs, simulation training, and manual logbooks that can drive meaningful improvements. These are scalable interventions that could be replicated in other kitchens. Equally important is recognizing volunteers as agents of change. Their empowerment ensures that practices extend into households and communities, amplifying impact. This dual approach, technical strengthening and empowerment creates resilient systems that persist even when external facilitators withdraw. Looking forward, integrating simple digital tools could enhance efficiency and accountability, while partnerships with universities could provide ongoing technical support. Embedding food safety education within school curricula may also reinforce behaviors among children, creating generational change.

4. CONCLUSION

The SIGAP program enhanced food safety practices and volunteer empowerment in the Lengkong MBG kitchen. Despite ongoing challenges with PPE compliance and infrastructure, the program successfully combined simplified HACCP training, participatory SOP development, and motivational narratives. Donating 50 aprons reinforced PPE use as a cultural norm. The program's participatory approach provides a replicable model for community kitchens in Indonesia, demonstrating the importance of community ownership in sustaining food safety initiatives.

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