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Blue Foods for Indonesia: A Human & Planetary Health Action Lab

Towards a Sustainable School Food Program (SFP) in Indonesia:

Lessons Learned from Global Examples of School Food Programs

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Executive Summary

Approximately 21% of children in Indonesia face severe malnutrition, which leads to stunting and wasting. Stunting is associated with weakened immune systems, increased susceptibility to diseases such as diabetes and cancer, and a greater risk for premature mortality. Drawing on case study research and analysis, this policy report focuses on the development of a national School Food Program (SFP) in Indonesia as a key intervention for addressing malnutrition. In particular, blue foods – which are derived from aquatic animals, plants, or algae – have the potential to meet the nutritional needs of children in a cost-effective and sustainable way. We begin by identifying four key aspects of effective SFP implementation: addressing childhood malnutrition; budgeting and implementation; engaging key stakeholders; and embracing food culture. We then examine these aspects in the context of five country case studies (i.e., the Philippines, Japan, Cambodia, Guatemala, and Zambia) that have successfully developed resilient and self-sufficient SFPs to address childhood malnutrition while integrating blue foods. We conclude with a discussion of policy opportunities at the national and international level, synthesizing key case study takeaways to provide a framework for developing and implementing a successful SFP in Indonesian schools.

1. Introduction

1a. Indonesia's Nutrition Context

Indonesia boasts the largest economy in Southeast Asia, yet severe health deficiencies remain a key challenge throughout the nation. The most recent Indonesian Nutrition Status Survey found a nationwide stunting rate of 21.6% (World Bank Group, 2023), with an estimated 38% of children aged 6–59 months suffering from anemia (Ayuningtyas et al., 2023). Further data from the Indonesia Basic Health Survey indicated that 7.2% and 19.7% of children under five were wasted and stunted, respectively (Ayuningtyas et al., 2023). Nutritional status has also been correlated with socioeconomic status, with studies finding high rates of stunting and wasting among low-income households with lower education levels and in rural areas (Ayuningtyas et al., 2023).

To address disparities in childhood malnutrition and socioeconomic status, Indonesia originally developed a national School Food Program (SFP) in the 1990s as part of its national poverty alleviation strategy within the Sixth Five-Year Development Plan (Sekiyama et al., 2018). Despite certain benefits associated with this initiative, effective SFP implementation was hindered by several factors, including: the severe economic crisis in 1998, a shortage of funds, a lack of central communication, limited program monitoring and reporting, regional differences, and minimal training for technical implementation. As a result, the impact of the 1990s SFP was limited (Sekiyama et al., 2018). Recent SFP pilots – such as the Program Gizi Anak Sekolah (PROGAS) – have been developed but have not yet expanded to the national level.

1b. School Food Programs & Blue Foods

SFPs offer the potential to powerfully address nutritional deficiencies among school-aged children, teaching healthy habits for adulthood and increasing school enrollment rates by as much as nine percent (*School Meals Coalition*). Research in Indonesia found that school-aged children are deficient in iron (between 26 and 38%), zinc (between 60 and 64%), and vitamin A (between 16 and 57%) (Ernawati et al, 2023; Jati, 2012). These nutritional needs can be met by blue foods, which are rich in zinc, iron, vitamin A, vitamin B12, and omega 3s – as well as a critical source of protein and healthy fats (Golden et al., 2021).

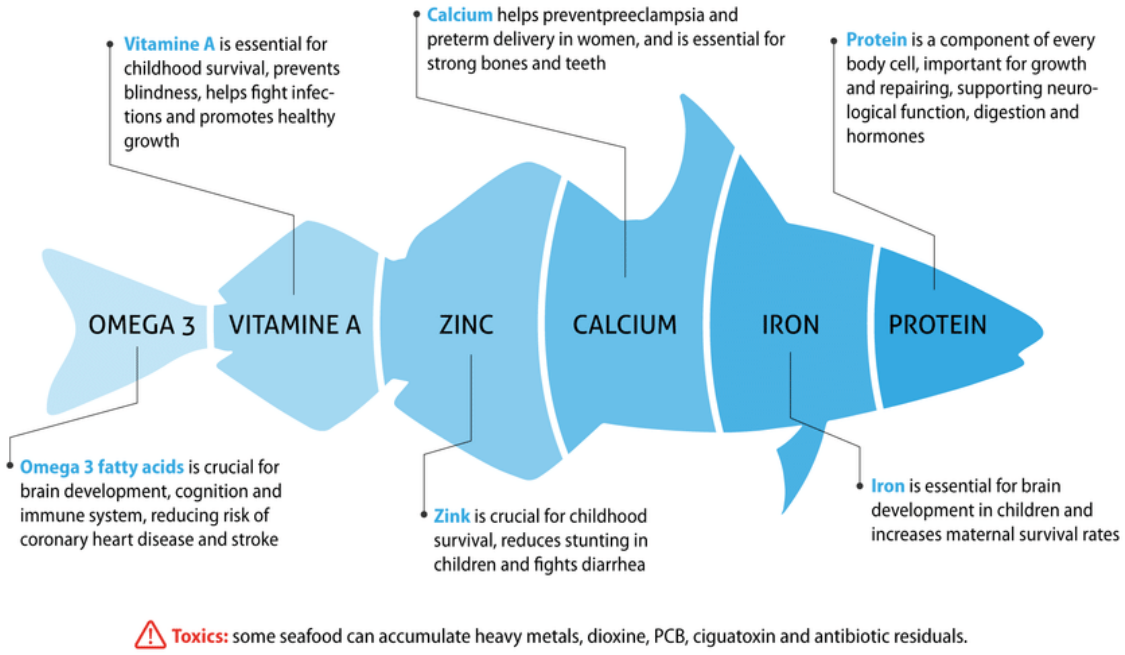

Figure 1: The Health Benefits of Fish (Troell et al., 2019).

The environmental impact of blue foods is generally lower than that of terrestrial animal-sourced foods. For example, farmed salmon and tilapia have a similar environmental footprint as chicken, which produces the lowest emissions among most farmed terrestrial animals. Wild-caught fish boast an even lower footprint than farmed species, yet the most environmentally friendly option is farmed seaweed and bivalves, followed by small pelagic capture fisheries (Gephart et al., 2021). Transitioning the national diet away from terrestrial meat and towards blue foods will be beneficial to the environment, reducing the historically high emissions associated with the global food sector.

Blue foods not only benefit the planet but boost the economy, sustaining up to 800 million people and generating $424 billion globally (*Center for Ocean Solutions*, 2022). In Indonesia, The Meloy Fund invests in sustainable fisheries and has helped companies purchase $13.3 million of local blue foods, boosting average annual revenue by over $22 million (*USAID*, 2022). However, there are notable inequities within this prosperous industry. Countries relying on blue foods for welfare purposes often miss out on the financial benefits enjoyed by other countries more focused on blue foods profit. Economic inequities also appear in gendered contexts, with certain policies barring women from receiving a fair share of income for their role in blue foods production (Hicks et al., 2022).

As an archipelagic nation, Indonesia is well-positioned to incorporate blue foods as a primary source of nutrients. There is a particular value associated with small pelagic fish, which can be served dry, frozen, or fresh. Harvesting these species could potentially "fulfill the needs of not only the entire North Sulawesi Province but also the surrounding areas" (*Conservation Strategy Fund,* 2022), boosting Indonesia's economy through exports to neighboring regions. Despite their abundance, small pelagic species have a low utilization rate, and catch has been steadily declining since 2016. Many other fisheries throughout Indonesia are similarly under-utilized, presenting further opportunities for the nutritional needs of local communities to be better met.

1c. Report Purpose & Overview

As Indonesia reassesses its budgetary priorities in the wake of the upcoming presidential election, there is an opportunity to invest in and develop a national School Food Program. An SFP carries the potential to address public health issues – specifically nutritional status among school-aged children – while leveraging the country's blue foods sector, which is the second largest globally (Ocean Treasure, 2023). In the following report, we synthesize key takeaways from SFP implementation in five countries that have effectively addressed health deficiencies, connected schools to local food producers, and created job opportunities for local communities. We aim to highlight the benefits of integrating blue foods into national nutrition and food security strategies, emphasizing sustainable production and consumption practices that can influence important trends in economic and social development.

2. Framework & Methodology

The following section details the framework and methodology guiding our case study findings and selection of interviewees. The methodology is split into two main sections: (1) data collection gathered from interviews with experts in the field of nutrition, blue foods, and policy implementation and (2) policy and literature review of countries that have implemented SFPs.

2a. Interviews

We conducted eight interviews to identify key challenges facing the implementation of a national SFP and to delve into the specific contexts of our case studies. We met with a diverse range of experts from academic universities, international and local non-governmental organizations (NGOs), and government institutions. Many interviewees worked in the blue foods field and had experience advancing food programs in developing countries, such as Zambia, Malaysia, and Africa. They represented organizations such as WorldFish, UNICEF, IFAD, and School Meals Coalitions. The interview process afforded key insights into the implementation and management of successful SFPs, as summarized by the following list:

Key Takeaways

- A **grassroots approach** is key to ensuring community issues are addressed
- Partnerships with community, government, and international stakeholders can create a sustainable and long-term SFP
- It is important to outline specific goals for the SFP on both the national and local level

2b. Identifying Case Studies

In selecting case studies, we identified countries that had developed SFPs with the objective of targeting their nutritional health deficiencies. We examined the availability of program resources, budgetary considerations, and the successes and challenges associated with SFP implementation. To measure success, we analyzed stakeholder involvement, methods of communication, program impact, and the extent of blue foods integration.

3. Key Findings & Case Studies

The following section synthesizes our findings from country case studies, focusing specifically on four key aspects of SFP implementation with relevance to the Indonesian context. These aspects include: addressing childhood nutritional deficiencies, budgeting and implementing SFPs, engaging key stakeholders, and embracing food culture. The countries of interest include: the Philippines, Japan, Guatemala, Zambia, and Cambodia. Additional information on the case studies can be found in the Appendix.

3a. Addressing Childhood Nutritional Deficiencies

Key Takeaways

- **Collaboration** between governmental departments, regional authorities, and the private sector (e.g., the Department of Education with the Department of Science and Technology – Food and Nutrition Research Institute) facilitates the **sourcing and production of fortified foods** that reduce stunting and malnutrition
- Implementing nutrition education in school curricula **promotes healthy behaviors and health literacy**

The Philippines

The Philippines offers a strong example of a country that has developed its SFP with the primary goal of reducing stunting, which can provide a framework for Indonesian health targets.

Background. The Philippines is an archipelago in the western Pacific Ocean that includes over 7,000 islands. The country's governance authority follows a pyramidal structure, with eighteen regions comprising a metropolitan area, 81 provinces, and small government entities called municipalities and *barangays*. The high incidence of poverty in the Philippines drives malnutrition: in 2021, the national rate of stunting and underweight children was approximately 26.7% (World Bank, 2021).

Philippines' SBFP. With the primary goal of alleviating stunting and wasting, the Philippines' Department of Education (DepEd) implemented a School-Based Feeding Program (SBFP) in 1997. The initial intention of the program was to provide breakfast to address short-term hunger

among public schoolchildren. Today, the SBFP provides hot meals, nutritious food products (NFPs), and milk to undernourished K-6th grade public schoolchildren with the principal aim of improving child nutritional status by 70%. Secondary aims include encouraging enrollment, improving classroom attendance by 85% to 100%, promoting healthy growth and development among children, boosting immune systems, and encouraging health values (USDA Report, 2023; DepEd Operational Guidelines for 2017-2022).

Program Scope. The DepEd is the main overseer of the SBFP. Primary beneficiaries of the SBFP are public schoolchildren enrolled in K-6th programs who are wasted or severely wasted, representing about 14% of all enrolled students. (DepEd Operational Guidelines, 2021; (USDA, 2023). In the School Years (SY) 2016–19, SBPF served an average of 1.8 million students, and, in SY 2022–23, it served an average of 3.5 million students.

Nutritional Content. There are two components of the SBFP – the regular component and the milk component. The regular component offers hot meals and NFPs for at least 60 days, while the milk component is offered for at least 33 days. The nutritional content must meet one-third of the beneficiary's nutritional requirements (energy, protein, Vitamin A, and iron). There is no nutritional standard set by the SBFP; however, there are national guidelines regarding the recommended nutrient intake for children, titled the Philippine Dietary Reference Intakes (PDRI) (Yamaguchi, 2018). The menus vary by school location and oversight committee; a sample menu is provided in Table 1 (Yamaguchi, 2018). Recommended foods include hot meals, fortified foods/NFPs (e.g., E-Nutribun), local fruits, and iron-fortified rice.

Sourcing Food. To provide food for the SBFP, the DepEd partnered with the Department of Science and Technology – Food and Nutrition Research Institute (DOST – FNRI), technology adaptors, farmer groups, and cooperatives supported by the Department of Agriculture, Department of Agrarian Reform, National Irrigation Administration, and Department of Social Welfare and Development, along with other enterprises and local corporations. Through this collaboration, the DepEd produced several NFPs to address nutritional deficiencies among its beneficiaries. These include the Enhanced Nutribun, or E-Nutribun, which is a bread made with squash, carrot, and sweet potato and fortified with nutrients according to the PDRI. Other products include rice-mongo, iron-fortified rice, and iodine-rich drinking water (USDA, 2023). The World Food Program (WFP) assisted the Ministry of Basic, Higher, and Technical

Education in providing school meals (particularly iron-fortified rice) in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) in 2019, and WFP has continued to provide technical assistance as of 2020–2021 (Global Survey of School Meal Programs, 2021).

	Monday	Tuesday	Wednesday	Thursday	Friday
1th Week	Rice Vegetable Guisado (Fried vegetables)	Rice Ginisang Mongo (Simmered beans)	Rice Meat Balls w/Malunggay	Rice Dills w/Malunggay (Dried fish with malunggay)	Rice Shrimp Fillet
2th Week	Rice Misua w/Kangkong (Noodle soup with Green leafy vegetables)	Rice Pancit Guisado (Fried noodle)	Rice Chicken Fillet	Rice Humba (Pork stew)	Rice Guinatang Kalabasa (Squash with coconuts soup)
3th Week	Rice Fried Beans	Rice Pinakbet (Stir-fried vegetables with salted shrimp)	Rice Law-oy (Vegetable soup)	Rice Menudo (Meat and vegetable stew)	Rice Chicken Soup
4th Week	Rice Fish Fillet	Rice Chicken Tinola (Chicken soup)	Rice Pork Steak	Rice Shrimp Soup	Rice Chicken Calderita (Chicken and vegetable stew)
5th Week	Rice Guisadong Sitaw (Stir-fried green beans)	Rice Vegetable Guisado (Fried vegetables)	Rice Mongo w/Dried fish (Beans with dried fish)	Rice Meatballs w/Malunggay	Rice Humba (Pork stew)

Table 1. Sample School Menu in the Philippines (Yamaguchi, 2018).

Program Evaluation. The SBFP operated in 34,778 public schools in 2020–2021, reaching over 3.5 million children with meals and 3.1 million children with milk (Global Survey of School Meal Programs, 2021). The Philippines Institute of Developmental Studies (PIDS) reported that 73% of undernourished students who were engaged with the SBFP reached normal nutrition status at the end of the 120 feeding days (PIDS, 2016). School attendance also increased to 98%. Positive health habits such as washing hands and brushing teeth were also observed in children. The overall conclusion was that the SBFP is a "well-managed program." A separate analysis conducted by Tabunda et al (2016) found that 62% of the stunted and wasted beneficiary children attained normal nutritional status at the end of the feeding program, though many still experienced symptoms of severe wasting and stunting, and others saw no change in health status.

Assessment of Blue Foods. While the Philippines SBFP does include some seafood options, it does not intentionally focus on the incorporation of blue foods. Existing menu options include dried fish and fish filet; however, these options are outnumbered by other meat dishes, such as pork, chicken, and shrimp (a product that is not sustainably produced at scale).

3b. School Food Program Budgeting and Implementation

Key Takeaways

- SFP progress can be well-monitored through the **submission of regular (monthly and annual) program reports**
- **International donors** can fund the initial stages of the SFP
- **Local and family taxes** reduce dependencies on foreign aid
- **Private sector partnerships** (e.g., dairy) can boost economic productivity

The Philippines and Japan offer robust models of SFP budgeting and implementation, with a clear distribution of financial responsibilities across different governmental levels and the submission of regular reports to monitor the program.

The Philippines

Budget. The total budget allocated per beneficiary per day is 18.0 PHP (Philippine Peso), with a breakdown of 16.0 PHP (or 4434.03 IDR) for feeding, and 2.0 PHP (or 554.25 IDR) for operational costs (Yamaguchi, 2018). The food is provided for 120 days during the school year. However, there have been some challenges in budget allocation due to program funding shifts in local government units (LGUs) with the General Appropriation Act (GAA). The allocated budget in 2022 was 3.3 billion PHP, or 912 billion IDR, which was significantly lower than the previous year at 6 billion PHP, or 1.66 trillion IDR. The proposed budget for 2023 was 5.7 billion PHP to cover 1.6 million students (USDA, 2023). The SBFP places a strong emphasis on the domestic supply of foods in order to support local food producers – in particular dairy farmers – by providing income-generating opportunities.

Budget Oversight. The DepEd Commission proposes the budget allocation based on the national target beneficiaries per region prior to the year of implementation. The School Division Offices are responsible for determining the budget allocation and identifying the beneficiaries per school based on the results of the baseline school nutritional status report for the current school year (DepEd, 2017).

Nutritional. There are no nutritionists or dietitians available at the schools; instead, an individual responsible for implementing the SBFP is assigned to each school, along with a nurse

positioned in each area. They form a Core Group with other members to decide when and which meals are provided. The Core Group members assist with cooking and meal preparation, with teachers providing support in the event of insufficient staffing.

Health and Nutrition Education. Health and nutrition education is offered through the Music, Arts, Physical Education, and Health (MAPEH) program. The goal is to promote positive health values and behaviors among children. A manual is available and utilized by teachers, which not only includes nutrition education but also hygiene content, such as toothbrushing and handwashing. The SBFP also encourages community gardening. For instance, *malunggay*, a vegetable common in Filipino dishes, is planted in school yards and harvested for school meals.

Program Monitoring. The DepEd divides the metrics of accountability by authority (DepEd Operational Guidelines, 2021). Each entity is required to submit an SBFP report to ensure proper program monitoring and implementation (see Appendix 1).

i. School – The school Head and Core Group are responsible for daily monitoring of the program and gathering feedback from parents related to food distribution and consumption. The teachers report student completion rates at the end of the school year in the LIS database and identify the SBFP beneficiaries.

ii. School Division Office (SDO) –The SDO monitors the program monthly to ensure compliance with guidelines and food distribution.

iii. Regional – Regional authorities will monitor the SDO activities monthly. These activities include engagement with partners, requests for funds, submission of documents, release of funds to the School Heads, the start of feeding, and implementation progress.

iv. National – The national government monitors the regional authorities monthly, including providing technical assistance to SDOs, leading orientation sessions, and ensuring the program is implemented correctly.

Japan

Budget. The average per-child cost of a school meal in 2022 was around ¥49,000 (5.01 million IDR) per year for primary school students and over ¥56,000 (5.7 million IDR) per year for

secondary school students (Japan Times, 2023). The operating expenses for school lunches include labor costs, ingredient costs, facility equipment, and other costs (e.g., utilities). Table 2 shows the breakdown of the operating costs for school lunches in 2018 (Maruyama, 2018).

Labor	Municipal tax (public expenses) for office workers, etc. Prefectural tax (public expenses) for diet and nutrition school teachers, school dietitians
Ingredients	Parents
Facility Equipment	National government and municipality (public expense)
Other	Municipal tax (public expense)

Table 2. Breakdown of operating expenses for school lunches in Japan (based on Maruyama, 2018).

Budget Oversight. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) is responsible for overseeing the management and distribution of the budget. They receive data from the annual "School Lunch Implementation Survey" to monitor the costs borne by families, the local government, and the national government.

Nutritional. The Board of Education of the prefecture or designated city and the Board of Education of the municipality provide combined oversight to ensure the complete dissemination of school lunches and the safety management of food products. Each municipality is responsible for implementing the program, which employs school personnel to fill the roles of food preparation, education, and distribution to students (Maruyama, 2018). The Ministry of the Environment (MOE) also works to reduce school food waste by promoting the "three R's" in schools: reduce, reuse, and recycle. They develop school content related to food loss and associated environmental issues, collaborating with businesses and municipalities to match class topics and create a circular and cohesive food recycling economy.

Health and Nutrition Education. A nutrition teaching system was piloted in 2005 to increase children's healthy dietary habits. The role of the nutrition teacher pertains to both education and food service management: they teach classes in the school curriculum; conduct nutrition counseling for high-risk children with obesity, food allergies, and similar conditions; and educate the children's families and community. Nutrition teachers also oversee nutrition management,

hygiene, and food safety in an established position at the majority of schools. During lunch periods, students are assigned to lunch duty, which requires them to serve school lunches to their peers. The clothing and sanitary guidelines are decided by the school, and the students on lunch duty are placed in each class by the municipality's school lunch operation rules. MEXT creates guidelines on proper food placement for students, as shown in Figure 2.

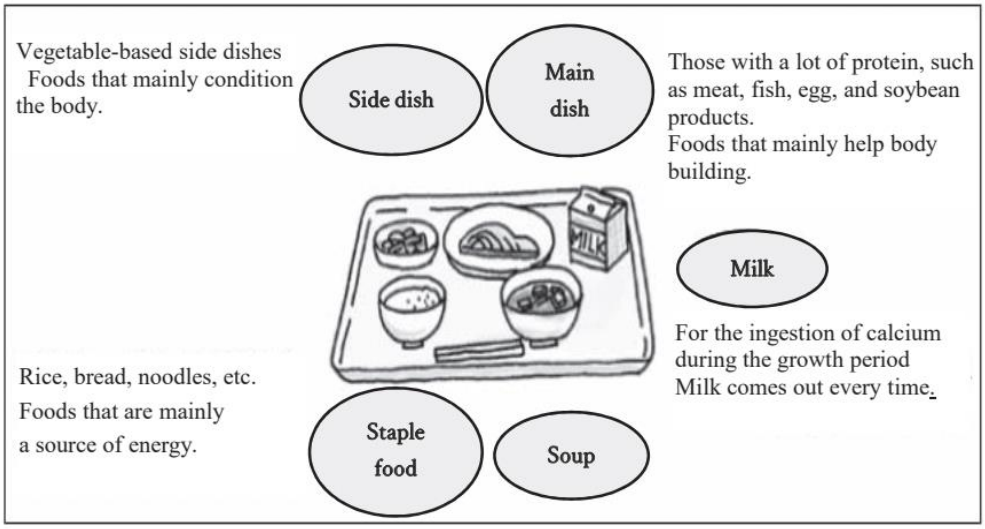

Figure 2. Japanese meal guidelines.

Program Monitoring. The monitoring of Japan's SFP is divided into two categories – the healthy development of children and the operation of the school lunch program itself. MEXT distributes annual surveys to evaluate the healthy development of children, and each prefecture is expected to deliver surveys to schools and submit the corresponding data. MEXT also collects data on the growth and nutritional status of students each year. To monitor the operation of the school lunch program, MEXT distributes the "Nutrition Report of School Lunches" and the "School Lunch Implementation Survey" to the board of education in each prefecture, then releases survey findings in an annual nutrition report.

3c. Engaging Key Stakeholders

Key Takeaways

- **Requirements for home-grown meals** boost the local economy and support gender inclusion
- **Alignment of goals** throughout the system can ensure balanced meal progression and support continuous monitoring of impact
- **Collective stakeholder collaboration** on a national, provincial, district, and local level ensures community cooperation and national support
- **Streamlined communication** promotes collaboration between districts and local farmers or food producers
- **Outlined budget allocations** provide clear guidelines and transparency on the amount of capital that district and local food producers will receive

The following three case studies (Guatemala, Cambodia, and Zambia) provide insight into the successes and challenges regarding stakeholder engagement. Specifically, each case study displays the importance of local partnerships with community stakeholders and food producers for the successful implementation of home-grown school food programs. Streamlined communication and economic opportunities were also emphasized to ensure long-term program success in addressing socioeconomic injustices.

Guatemala

Background. In Guatemala, ensuring access to nutritious food for schoolchildren is a priority enshrined in national law. Through stakeholder partnerships on a national, provincial, and local level, the Guatemalan government implemented a mandate requiring that at least half of the food supplied to schools comes from local smallholder farmers. While the mandate aims to support small-scale agriculture and provide fresh, locally sourced food, it presents a challenge for some farmers who may struggle to connect with school feeding programs.

Guatemala's SFMA. To remedy this challenge, the Guatemalan government designed the World Food Programme's (WFP) School Feeding Management App (SFMA), a digital solution designed to link local farmers directly with school feeding programs across Guatemala (WPP Innovation, 2023). In its current pilot phase, SFMA is making great strides in bolstering the

Home Grown School Feeding program by facilitating the supply of nutritious, locally produced food. SFMA is implemented in 210 schools, catering to over 64,000 students, and involving 130 local producers across 59 municipalities in six departments (WPP Innovation, 2023). By streamlining communication and transactions between farmers and schools, SFMA is not only enhancing food accessibility but also fostering economic opportunities for local agricultural communities.

Challenges. Despite its promising potential, SFMA is not without its challenges. One notable drawback is its reliance on mobile technology. Not every farmer or school official may have access to smartphones or reliable internet connectivity, posing barriers to widespread adoption and utilization of the app. Nevertheless, the SFMA initiative represents a significant step forward in addressing the complex issue of food access and supporting local farmers in Guatemala (WPP Innovation, 2023). As the pilot phase continues and limitations are addressed, SFMA has the potential to serve as a model for other regions – including Indonesia – interested in utilizing technology and streamlining communication channels between stakeholders to advance food security and promote sustainable agriculture.

Cambodia

Background. Cambodia shares similarities with Indonesia in grappling with childhood malnutrition and stunting. Due to their geographic proximity and shared access to blue foods from the South China Sea, both countries face comparable resource constraints and public health issues. Cambodia's successful school meal program can therefore offer relevant insights for Indonesia as they both strive to improve child nutrition.

Cambodia's SFP. Women are often undervalued and underpaid for their critical role in Indonesia's blue foods sector (see Justice and Inclusion Student Report, April 2024). For example, they are not given the option to self-identify as 'fisherfolk' on official identification cards, which hinders their ability to access financial benefits related to their occupation. Creating SFPs that acknowledge and incorporate the valuable contributions of women is a crucial step towards advancing gender equity and realizing the full potential of the blue foods sector. Cambodia's own SFP embodies these principles, setting itself apart from other SFPs through its emphasis on women's inclusion.

Gender Equity. By mandating that 70% of all food be locally sourced, Cambodia's SFP supports small-scale farmers, most of whom are women (Beltrami, 2023). This home-grown approach boosts household income and provides opportunities for women to achieve financial security and independence. By creating a stable market for local produce, the program also reduces the need for farmers to travel seasonally for work – allowing many women to spend more time with their children. About one-third of all children in Cambodia experience stunting and undernutrition, yet this rate is decreasing with the implementation of a nationwide SFP. Cambodia's government partnered with the World Food Programme to prepare and serve meals to 300,000 children. The SFP is moving towards full government funding, with around 40% currently self-sustained by the nation (Beltrami, 2023).

Collaboration. The Cambodian SFP encourages collaboration within communities and households. For example, in the Bos Thom village, Thom Keer and her daughter weigh and sort through the nutritious, chemical-free vegetables that they grow in their backyard. Then, Mech Sinat, who acts as the link between farmers and schools, transports the food grown to an outhouse kitchen where another woman, Leach Panh, and her daughter prepare meals in preparation for the school day. The head teacher, Van Samun, ensures that all children are fed to boost their learning experience and overall wellness. In this women-powered food system, individuals are not only paid for their role but allowed to work alongside family members and peers throughout the supply chain (Beltrami, 2023).

Zambia

Zambia's HGSM. In 2020, Zambia piloted a Home Grown School Meals (HGSM) Program with the goal of reaching 4 million children throughout the country (Chilambwe, 2023). In the four years since its implementation (from 2020–2024), the program has been enacted in 39 districts spanning all ten provinces with a new goal of targeting 1,000,00 learners in approximately 2,800 schools (Ministry of General Education, 2020). HGSM is one of the Zambian government's key social protection programs designed to enhance the well-being and prosperity of its citizens. It focuses on supplying locally sourced meals to pre-primary and primary school students, addressing health issues such as malnutrition while combating poverty through crop diversification and improved market access (Ministry of General Education, 2020).

Implementation. Much of the success of the HGSM program can be attributed to the clear goals and objectives outlined in the National Strategy of HGSM. Specifically, an early emphasis was placed on understanding the potential benefits of the program across multiple stakeholder groups, including: children; households and communities; farmers, processors, and traders; and the Zambian government (Figure 3). To support communities facing disproportionate socioeconomic challenges, the Zambian government also focused on HGSM implementation in districts with high dropout rates, low net enrollment rates, low attendance rates, high rates of underweight, and extreme poverty (National Strategy of HGSM, 2020).

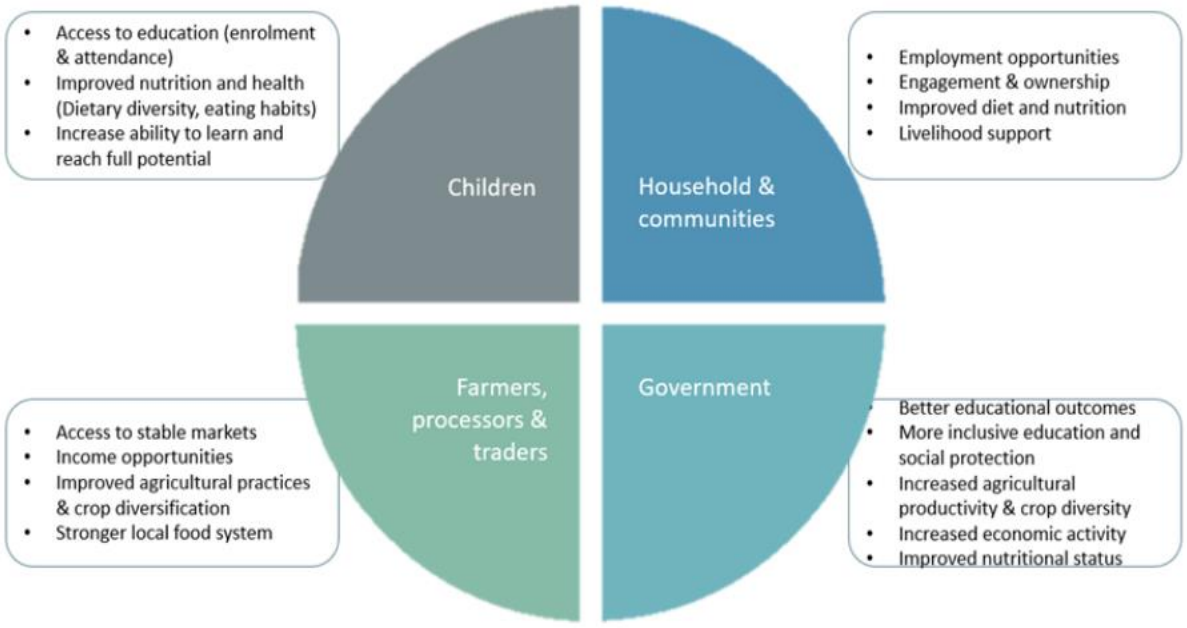

Figure 3. Benefits of the Home-Grown School Meals program in Zambia *(National Strategy of HGSM, 2020–2024).*

Stakeholder Engagement. The HGSM program involves a large number of stakeholders to facilitate proper, informed, and sustainable implementation. The three main stakeholder groups are: the School Health and Nutrition Department in the Ministry of Education (national level), the Provincial Education Office (provincial level), and the District Board Office (district level) (Global Child Nutrition Forum, 2021). Prior to the 2020 HGSM pilot, the Education Policy of 1996 mandated SFP implementation by the government and local provinces (Global Child Nutrition Forum, 2021). As of 2021, the HGSM has served 1,912,452 primary and secondary

school students, reaching about 41% of Cambodia's total 4,655,270 school-aged children (Global Child Nutrition Forum, 2021).

Challenges. Zambia faced multiple challenges while implementing its HGSM program. The absence of a unified HGSM strategy with cross-sector objectives led to unclear roles and responsibilities among various actors. Further complications arose from diverse regional food preferences and dietary needs, insufficient food safety training for cooks and food handlers, and elevated transportation costs. Together, these factors collectively hindered the smooth implementation of the HGSM (Global Child Nutrition Forum, 2021).

Food Content & Education. The selection of foods for the HGSM program was largely based on the availability of crops and proteins, as well as the community's specific nutritional needs. The 'food basket' outlined in the HGSM strategy aims to achieve "dietary diversity," including cereals, legumes, cooking oil, fresh vegetables, fruits, animal-sourced foods, and, if possible, biofortified crops (National Strategy of HGSM, 2020). Beyond meal provision, the program emphasizes educating children about the value of nutritionally balanced, homegrown meals through nutrition lessons and demonstration gardens featuring vegetables, orchards, poultry, livestock, and fish ponds. The goal of the education component is to promote homegrown meals within families and communities while simultaneously connecting their learning to broader climate justice issues (National Strategy of HGSM, 2020).

3d. Embracing Food Culture & Education

Key Takeaways

- **Foster collaborations** between chefs, fisheries, and schoolchildren to preserve local culture and increase awareness of food production
- **Involve children in serving meals** so that they have greater engagement with and adoption of the SFP
- **Establish guidelines for the basic components of each meal** – grain, fish/meat, and vegetable/side dish – to ensure cohesion and the incorporation of blue foods
- Appoint a **nutrition or health educator** in the schools

Japan offers a robust example of a mature SFP within the Asian context that has been highly successful at reducing rates of malnutrition. The SFP not only serves food to children but also incorporates traditional Japanese cuisine to promote cultural pride.

Japan

Background. Japan is an archipelago consisting of approximately 6,852 islands, with a total population of 125 million. The four main islands – Honshu, Hokkaido, Kyushu, and Shikoku – comprise 97% of the country's total area. Although Japan boasts the world's third-largest economy, its economic performance has recently been hampered by weak domestic demand and a labor market that discourages risk-taking and entrepreneurship.

Japan's SFP. School lunches in Japan began in 1889 with the goal of providing free meals to impoverished children. In 1947, following World War II, meals were extended to all students to address malnutrition caused by food shortages. The School Lunch Act, established in 1954, created a unified school meal policy with clear implementation guidelines, and it continues to organize SFPs today. The program's scope broadened with the introduction of the diet and nutrition teacher system and the 2005 Shokuiku Basic Act, both of which emphasized nutrition education by integrating school lunches into the classroom curriculum. Together, these efforts have contributed to Japan's low stunting rates of approximately 7.1% compared to the Asian average of 21.8% (Global Nutrition Report, 2022). Despite its success in combating malnutrition, Japan now faces growing challenges with excess weight among schoolchildren.

Food Culture Philosophy. Japan's philosophical approach to food, known as *shokuiku*, emphasizes community collaboration and food variety, informing the SFP and nutrition education in Japanese schools. *Shokuiku* encompasses comprehensive and systematic measures aimed at promoting the maintenance of a healthy body and mind and cultivating a rich humanity. Its components include fostering a greater appreciation for and understanding of diet; involving parents, educators, and daycare providers in actively promoting *shokuiku* among children; and reinforcing dietary considerations in all aspects of a child's environment (e.g., home, schools, community) through food-related experiences and activities. *Shokuiku* also involves an awareness and appreciation of traditional Japanese food culture by fostering connections between food producers and consumers and ensuring food safety to help individuals maintain proper diets (Promotion of Shokuiku, 2019). The *shokuiku* philosophy is implemented through five key policy priorities: focusing on young children, adapting to diverse lifestyles, extending healthy life expectancy, raising awareness of food cycles and environmental impacts, and preserving food culture heritage.

Preserving *Washoku*. Traditional Japanese diet culture, or *washoku*, forms the foundation of the standard meals offered in SFP programs. These meals typically include cooked rice, miso soup, a main dish (usually fish or seafood), and side dishes. Seasonal and local ingredients are incorporated into each dish to enhance dietary variety. At its core, *washoku* is rooted in the belief that respect for nature contributes to a healthy lifestyle and strengthens community bonds.

Program Scope. There are three main entities overseeing Japan's SFP, which offers lunch to about 98.5% of primary school students and 86.6% of secondary school students (Morimoto, 2018; JLGC Seminar 2022).

i. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) oversees the school lunch program itself, based on the School Lunch Act.

ii. The Ministry of Agriculture, Forestry, and Fisheries (MAFF) oversees school food and nutrition education (*shokuiku*) based on the 2005 Basic Act of *Shokuiku*.

iii. The Ministry of Health, Labor and Welfare (MHLW) oversees the health promotion policy, "Healthy Japan 21," based on the Health Promotion Act.

Nutritional Content. SFP menus are developed based on Nutritional Standards, featuring a full meal that includes a grain dish (*shushoku*), a vegetable dish (*fukusai*), a fish or meat dish (*shusai*), and milk. These lunches are designed to meet values higher than one-third of the daily energy requirement and one-third or more of daily nutrient intake. The dietary recommendations are based on the Japanese Food Guide Spinning Top, developed by the MHLW and MAFF (Appendix 2). A sample school meal is illustrated in Figure 4.

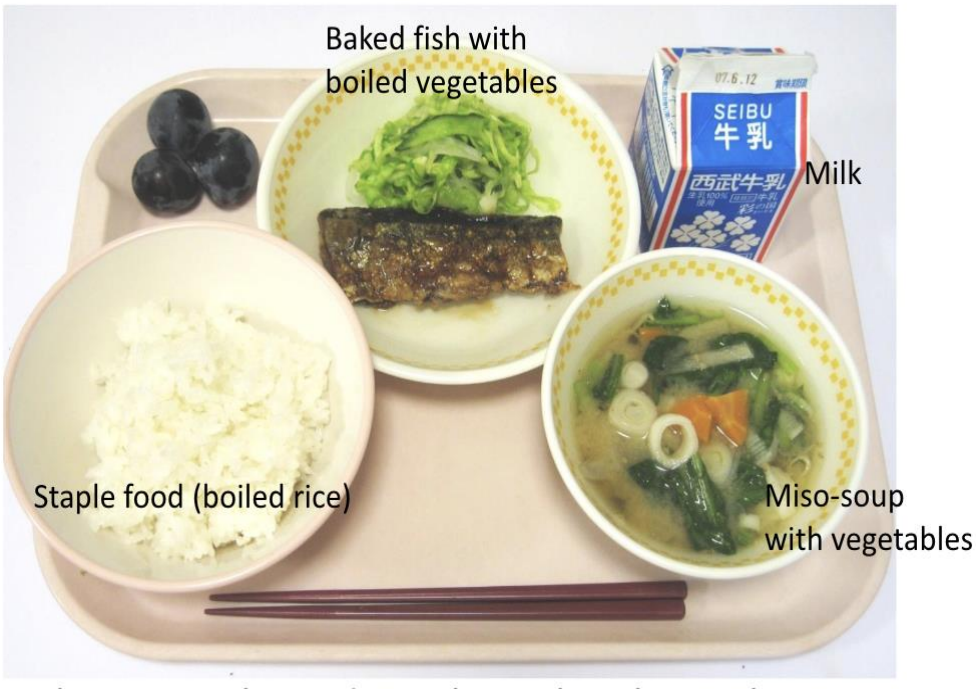

Figure 4. Sample school meal in Japan.

Sourcing Food. In order to preserve *shokuiku* and *washoku* food culture, Japan's SFP emphasizes the use of local food products. In 2014, 26.9% of school lunches relied on locally produced foods, and an additional 77.3% relied on domestic ingredients (Promotion of Shokuiku, 2019).

Assessment of Blue Foods. Japan exemplifies the effective integration of blue foods into SFP programs. The simple yet effective meal structure – typically comprising white rice, miso soup, a vegetable side, and fish – facilitates the seamless incorporation of seafood. These fish dishes are both nutritious and culturally significant, representing a staple for most school lunches. The SFP's emphasis on seasonal variety and diverse fish products boosts its resilience and adaptability, promoting lasting success in addressing nutritional needs while preserving cultural dietary traditions.

4. SFP Policy Opportunities for Indonesia

4a. Support Existing Indonesian SFP Efforts: PROGAS

Current efforts guiding the implementation of an Indonesian SFP include the Program Gizi Anak Sekolah (PROGAS). Initially piloted in 2015 in four districts (three in east Nusa Tenggara Province and one in Banten Province), PROGAS reached approximately 0.14% of elementary school students. Evaluations of the program revealed meaningful improvements in children's nutritional status, including increased energy and protein intake as well as weight gain (Sekiyama, 2018). Since 2015, the program has expanded to include 64 districts across 20 provinces (Ministry of Education and Culture, 2018).

Several of the case study recommendations proposed in this report have already been adopted by PROGAS. For example, the program features local partnerships with food producers, budget planning and progress metrics, and government oversight by the Ministry of Education and Culture. However, there remains a valuable opportunity to incorporate blue foods as a nutritious food source into school meals. The following recommendations aim to facilitate this integration:

1. **Increasing PROGAS coverage.** Coordination between government agencies – particularly the Directorate of Elementary Schools with the Ministry of Education and Culture – may facilitate a broader reach of PROGAS. The current distribution of implementation responsibilities is shown in Table 3.
2. **Implementing distinct measures of progress.** Mirroring approaches used in the Philippines and Japan, PROGAS could incorporate regular report submissions at the school, subdistrict, distinct, and provincial levels to track goal achievement and maintain program quality. The Ministry of Education and Culture could compile these findings into an annual or bi-annual nutrition report (akin to Japan's practice) to increase program transparency and facilitate ongoing improvement.
3. **Establishing partnerships with fishing distributors at the local level.** These partnerships can boost the economy by directing government investments to fisherfolk for blue food products, ensuring their catch nourishes the next generation of students.
4. **Incorporating nutrition education into school curricula.** There is potential to expand the

existing nutrition curriculum piloted through PROGAS to include a unit on blue food nutrition. Additionally, positions for nutrition educators and dietitians could be created in schools to ensure children have access to comprehensive health education.

5. **Embracing blue foods in school meal plans.** Blue foods, particularly small pelagic fish, are a nutrient-rich option that is both culturally significant and environmentally sustainable. They can be stored in various forms, including fresh, frozen, and dried. Table 4 presents a sample one-week menu that incorporates blue foods and is tailored to the Indonesian context.

Level	Implementing Authority	Duties & Responsibilities
Central	Directorate of Elementary Schools, MOEC	Establish PROGAS regulations Popularize PROGAS Establish target beneficiaries Distribute funds to target schools Conduct technical guidance Conduct monitoring
Provincial	Provincial Education Office	Program coordination, guidance, and control Communicate the program to the governor and District Education Office
District/City	District/City Education Office	Monitor, guide, and control the implementation of PROGAS Approve funding withdrawal and accountability report of fund usage Plan for follow up programs
Subdistrict	Regent	Attend technical guidance Monitor, guide, and control
School committee	School Committee	Attend technical guidance Share PROGAS with the community Encourage community participation and implementation of PROGAS
School	Head of School/Principal	Conduct the program, attend technical guidance, form a cooking team Modify the menu with assistance from the nutritionist of the Community Health Center Submit reports

Table 3. Distribution of Responsibilities in Implementing *Program Gizi Anak Sekolah* (PROGAS).

Sample Meal	Fruit Choice	Vegetable Choice	Blue Food Choice	Dairy/ Drink Choice	Whole Grain Choice	Indonesian Dish Inspiration	Affiliated Region
1	Locally Sourced Fruit	Cucumber, Lettuce, & Tomato Salad	Carp	Milk or Tea	(Fortified) Brown or White Rice	Ikan Bakar	Primarily Southern Indonesian Islands
2	Locally Sourced Fruit	Lettuce Salad or Vegetable Soup	Carp	Milk or Tea	(Fortified) Brown or White Rice	Pecel Lele	East Java, Indonesia.
3	Locally Sourced Fruit	Cucumber, Lettuce, & Tomato Salad	Skipjack Tuna	Milk or Tea	(Fortified) Brown or White Rice	Cakalang Fufu	Minahasa, North Sulawesi
4	Locally Sourced Fruit	Cucumber, Lettuce, & Tomato Salad	Prawn Shrimp	Milk or Tea	(Fortified) Brown or White Rice	Sate Udang	Primarily Southern Indonesian Islands
5	Locally Sourced Fruit	Lettuce Salad or Vegetable Soup	Freshwater or Saltwater	Milk or Tea	(Fortified) Brown or White Rice	Ikan Goreng	Primarily Southern Indonesian Islands

Table 4: Sample Weekly Menu for Indonesia
(Developed using the lunch structure provided by St. Joseph Health, 2021).

4b. International Support: The School Meals Coalition

A total of 97 countries – including those mentioned in the above case studies – belong to the School Meals Coalition, a global initiative created to "urgently improve and scale up school meal programs to ensure that every child has the opportunity to receive a healthy, nutritious meal in school by 2030" (School Meals Coalition, 2024). The Coalition empowers governments to commit to ending childhood undernutrition through partnerships with various organizations, including banks, NGOs, foundations, and academic institutions. For example, the World Food Program collaborates with Cambodia's Ministry of Education, Youth, and Sport, and the National Social Protection Council to provide meals to elementary schoolchildren (Madina,

2023). These joint efforts not only secure sustained funding but also facilitate the creation of research-based legislation to ensure the longevity of SFPs. Financial contributions to the World Food Program support a Task Force and Secretariat that further oversees progress and encourages long-term program continuity.

Indonesia has a strong political interest in providing school meals and has recently initiated a pilot program in collaboration with the School Meals Coalition. Partners such as the Indonesia Food Security Review and the Prabowo Subianto Foundation are working with the National Food Agency of Indonesia and the Government of Indonesia to develop a plan and guidelines for implementing free school meals. The Free School Meal and Milk Pilot Project currently feeds 3,500 children across 15 schools in the Warungkiara district, *Sukabumi*, demonstrating the significant benefits of free school meals for children's education and well-being. For instance, children receive meals rich in vegetables and a glass of milk, boosting their immune systems. One school principal noted that since the program started, no students have missed school, and classroom participation has increased (Agung, 2024). While this pilot program sets a positive example for the rest of the country, its benefits could be further enhanced by incorporating blue foods due to their high nutritional value. Although blue foods are currently excluded due to their higher cost compared to rice, milk, and vegetables, identifying a cost-effective solution could greatly benefit both children and the local economy (see Appendix 3).

5. Conclusion

A national School Food Program (SFP) in Indonesia offers a powerful solution to childhood malnutrition, promising to nourish children during crucial developmental stages while enhancing health literacy and cultivating lifelong healthy habits. This policy memo examines successful national SFPs and explores integrating nutrient-rich blue foods into Indonesia's existing SFP framework, alongside strategies for gaining international support.

Key elements for success include:

1. Incorporating nutrition education into school curricula
2. Prioritizing nutritious, locally sourced foods in children's meals
3. Fostering collaboration between the government and various organizations and aligning stakeholder goals
4. Implementing comprehensive budgeting and management systems
5. Conducting regular progress monitoring
6. Engaging communities, including chefs, food producers, fishers, and students
7. Embracing traditional food cuisines and cultures

These strategies not only address nutritional deficiencies but also stimulate job creation, stabilize local agriculture markets, and strengthen family bonds. Ultimately, a national SFP presents an opportunity for cultural transformation, nourishing and educating future generations to build a healthier, more resilient Indonesia.

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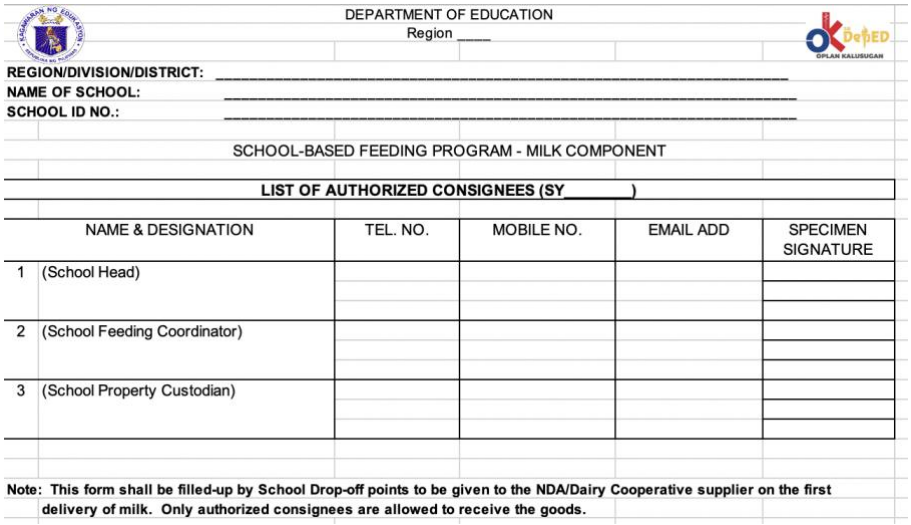
Appendices

Appendix 1. The following contains sample documents that the Philippines Department of Education receives from schools. The School Based Feeding Program (SBFP) utilizes a total of 11 documents to monitor the program implementation. SBFP Forms 5 and 8 are shown below as an example. The remaining forms submitted during 2021 can be accessed in this folder: https://drive.google.com/drive/u/0/folders/1TdvsuR4JC7MeIirDyRG2h9ElfGOlBvRo

SBFP Form 5. Milk Component Submission Form



DEPARTMENT OF EDUCATION
Region ____

REGION/DIVISION/DISTRICT: _____
NAME OF SCHOOL: _____
SCHOOL ID NO.: _____

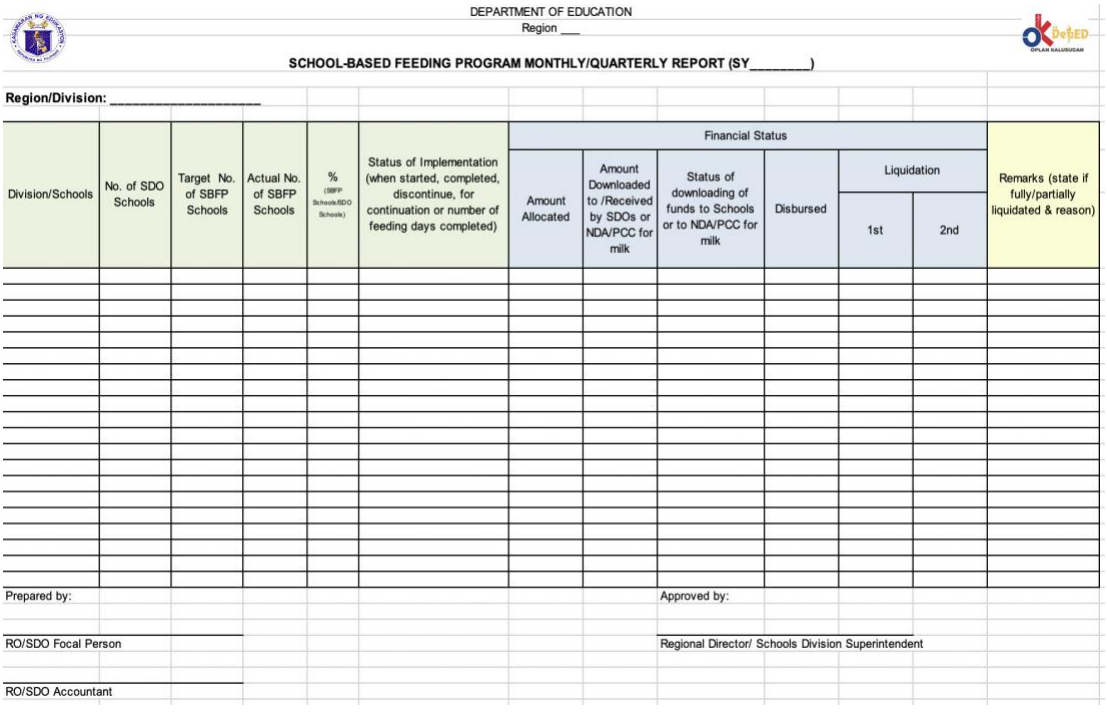
SCHOOL-BASED FEEDING PROGRAM - MILK COMPONENT

LIST OF AUTHORIZED CONSIGNEES (SY_____)

	NAME & DESIGNATION	TEL. NO.	MOBILE NO.	EMAIL ADD	SPECIMEN SIGNATURE
1	(School Head)				
2	(School Feeding Coordinator)				
3	(School Property Custodian)				

Note: This form shall be filled-up by School Drop-off points to be given to the NDA/Dairy Cooperative supplier on the first delivery of milk. Only authorized consignees are allowed to receive the goods.

SBFP Form 8. Monthly/Quarterly Report



DEPARTMENT OF EDUCATION
Region ___

SCHOOL-BASED FEEDING PROGRAM MONTHLY/QUARTERLY REPORT (SY_____)

Region/Division: _____

Division/Schools	No. of SDO Schools	Target No. of SBFP Schools	Actual No. of SBFP Schools	% (SBFP Schools/SDO Schools)	Status of Implementation (when started, completed, discontinue, for continuation or number of feeding days completed)	Financial Status					Remarks (state if fully/partially liquidated & reason)
						Amount Allocated	Amount Downloaded to /Received by SDOs or NDA/PCC for milk	Status of downloading of funds to Schools or to NDA/PCC for milk	Disbursed	Liquidation	
										1st	2nd

Prepared by:

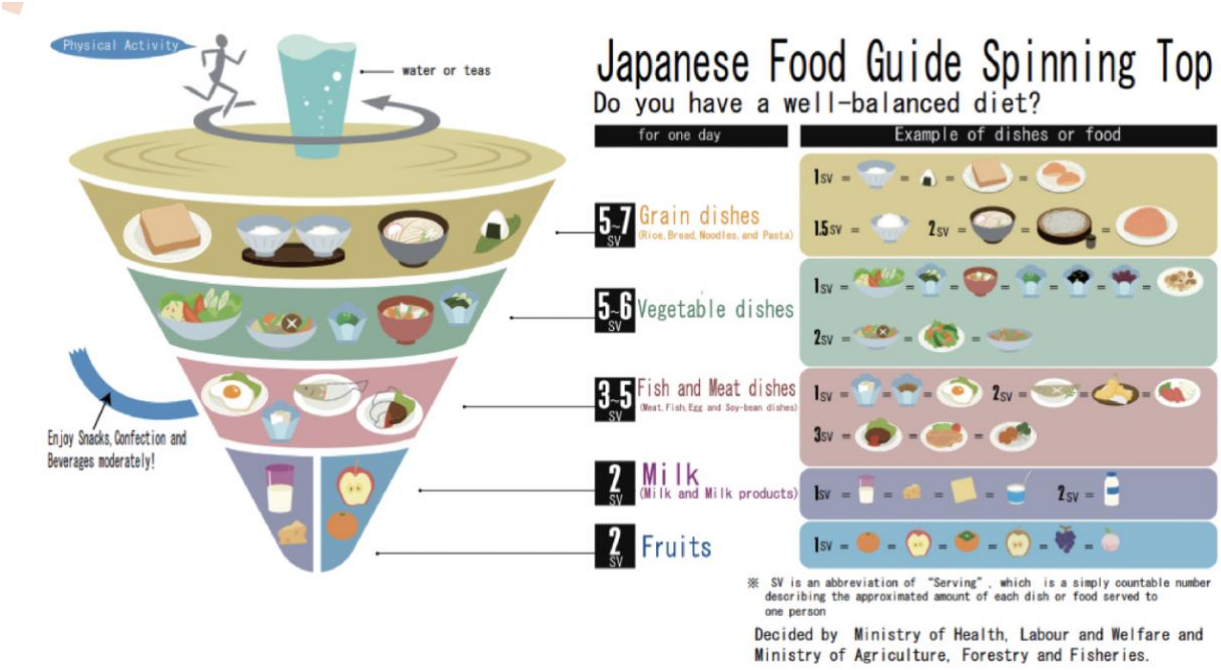
RO/SDO Focal Person

RO/SDO Accountant

Approved by:

Regional Director/ Schools Division Superintendent

Appendix 2. Japan's food guide, known as the "spinning top," offers a framework for a well-balanced diet. The following graphic was developed by the Ministry of Agriculture, Forestry, and Fisheries (MAFF). https://www.maff.go.jp/j/balance_guide/b_use/pdf/eng_reiari.pdf



Appendix 3. Policy Lab students curated this infographic from the School Meals Coalition's statistics on overall global success. https://schoolmealscoalition.org/