

LEVERAGING SCHOOLS AS PLATFORMS FOR EFFECTIVE NUTRITION INTERVENTIONS: SCHOOL BASED FEEDING PROGRAMS

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Leveraging Schools as Platforms for Effective Nutrition Interventions: School-Based Feeding Programs

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Introduction

School feeding is defined as a targeted social safety net that provides both educational and health benefits to the most vulnerable children, thereby increasing enrollment rates, reducing absenteeism, and improving food security at the household level.¹The importance of school feeding has been increasingly recognized. Across the world, there are many types of school feeding programs as there are countries. These can be classified into two main groups depending on the program modality: *in-school feeding*, where children are fed in school and *take-home rations*, where families are given food if their children attend school.² School feeding is a complex intervention and designing effective programs on a national scale requires collaborative effort, evidence base, and impact-driven approach that can allow efficient implementation and long-term outcomes. Given current estimates of per capita cost of school feeding, this translates into a potential annual investment of between US\$47 billion and US\$75 billion, with most of this money coming from government budgets. These numbers illustrate the near-universal recognition of the importance of school feeding.³With its imminent universality, a school feeding program with the reemergence of nutrition as a priority and highlight of concern, opens an opportunity for integrated approaches and can be linked to several programs across government agencies addressing key areas in attaining sustainable development goals (SDG).

School feeding may not be a long-term intervention, but, over the past decade, it has engaged several countries, demonstrating that it can be a cost-effective investment for school health programs. Almost every country in the world (where information is available) seeks to feed its schoolchildren. Around the world, 368 million children or about one out of every five children gets a meal at school every day. This includes pre-primary-, primary- and secondary-school children from 169 developing and developed countries. The average annual cost of school feeding per child varies greatly—from about US\$56 in low and lower-middle income countries to around US\$370 in upper-middle and high-income countries. Global investment in these programs is huge, around US\$75 billion per annum. Most of the investment comes from government budgets.⁴

Undernutrition and school feeding in the Philippines

The Philippine National Nutrition Survey conducted by the Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST) in 2013 showed that 31.1% of children in the Philippines (ages 5–10) were stunted, 31.2% were underweight, and 8.4 % were wasted. When the age bracket is raised to 10-19 years, 31.9% of children were reported as stunted and 12.5% were reported as wasted, according to 2015 data. In the Department of Education (DepEd) Nutrition Status Baseline Report for School Year (SY) 2015–2016, there were 1,845,687 severely wasted and wasted students from Kindergarten to Grade 6. Both of the perennial and arising nutritional concerns of the Philippines continuously call for more aggressive action and greater focus to be able develop systems that result in sustainable gains in nutritional outcomes.

The DepEd has been conducting supplementary feeding in schools since 1997 with the objectives of addressing short-term hunger in public elementary schools. In 2012, the focus of the feeding program has been shifted from addressing short-term hunger to dealing with the more serious issues of undernutrition. The School-Based Feeding Program (SBFP) has, for its main objectives, the rehabilitation of severely wasted children (bringing them to normal nutrition status) and the improvement of classroom attendance of these children; enhancing the holistic health and behavior of students is also valued. Its specific goals are to (1) rehabilitate at least 70% of the severely wasted beneficiaries to normal nutritional status at the end of 120 feeding days; (2) ensure 85–100% classroom attendance of beneficiaries; and (3) improve children's health and nutrition values and behavior DepEd, through the School Health Division (SHD), Bureau of Learner Support Services (BLSS), has conducted the feeding program and made policy improvements to make sure that it meets its objectives for the past 6 years. The annual program evaluation indicates that 73% of the undernourished student beneficiaries convert to normal nutrition status at the end of 120 feeding days. School attendance was also noted at 98%. Furthermore, the children were observed to have better class participation and to have developed good health habits such as the washing of hands and good grooming.⁵ With clear policies, evidence, and action, SBFP implementation

can be further adapted to the dynamic and complex issues arising from its operation. Further refinements can be undertaken accordingly, especially for complementary activities that can contribute to achieving its goals.

Project description

The Integrated Approach to Address Food and Nutrition Security in the Philippines is a 3-year research project that aims to demonstrate and refine the effectiveness of using an integrated and complementary approach of school garden, supplementary feeding, and nutrition education to address the nutritional needs of school-age children. This can be done through strengthening the links between the three components (GarNeSupp; Gardening, Nutrition Education and Supplementary Feeding). The project is being implemented by the International Institute of Rural Reconstruction (IIRR) in partnership with FNRI-DOST) and DepEd with support from the International Research and Development Centre Canada. The project was undertaken in 58 public elementary schools in the provinces of CALABARZON, Philippines. The project and research effort commenced in March 2015 and ended in February 2018.

Objectives

To further enhance the implementation of the SBFP through an integrated approach; to link the SBFP to school gardening and nutrition education

Specific objectives

1. Identifying and strengthening the links of SBFP to the two other components
2. Fine tuning the implementation strategies through understanding the needs, gaps; and good practices that may enable efficient and sustainable implementation
3. Enhancing the impact of school nutrition interventions through the promotion and use of an integrated approach

Methodology

The Project was conducted in public elementary schools in Cavite province and selected schools in other provinces of Region IV-A. A total of 58) schools (40 schools in Cavite and 18 schools in another four provinces) were selected using purposive sampling; they received direct support and technical assistance. Each school was designated as a lighthouse school (LS), a school that serves as a focal point for discovery, learning, sharing, and dissemination of integrated school nutrition innovations within the divisions and region, thus supporting outreach scaling. Each designated LS also serves as exemplary demonstration of what can be achieved when various school-based nutrition activities are integrated.

The following is the list of LS in Region IV and their specific locations.

58 lighthouse schools in CALABARZON

School	District
Division of Cavite Province	
1. Upli ES	Alfonso
2. Amadeo ES	Amadeo
3. Mariano Anakay ES	Amadeo
4. Carmona ES	Carmona
5. Bailen ES	Gen. E. Aguinaldo
6. General Gregorio S. Aloña Sr. MES	General Trias I
7. Sunny Brooke ES	General Trias II
8. San Gabriel 2 ES	GMA
9. Indang CS	Indang I
10. Alulod ES	Indang II
11. Potol Sta. Isabel ES	Kawit
12. Medina ES	Magallanes
13. Maragondon ES	Maragondon
14. Panungyan ES	Mendez
15. Naic ES	Naic I
16. San Roque ES	Naic II
17. Noveleta ES	Noveleta
18. Bagbag 2 ES	Rosario
19. Kalubkob ES	Silang I
20. Bulihan Sites & Services Project ES	Silang I
21. Maguyam ES	Silang I
22. Pulong bunga	Silang I
23. Malabag ES	Silang II
24. Carlos Batino MES	Tagaytay
25. Isidro Cuadra ES	Tagaytay
26. Julugan ES	Tanza
27. Ternate CS	Ternate
28. Lapidario ES	Trece Martires City
City Division of Bacoor	
29. Talaba ES	Bacoor II
30. Bacoor CS	Bacoor I
31. Malipay ES	
City Division of Imus	
32. Imus Pilot ES	Cluster I
33. Governor Camerino ES	Cluster II
34. Tinabunan ES	Cluster III
City Division of Dasmariñas	

35. Dasmariñas II CS	Cluster V
36. Dr. Jose P. Rizal Elementary School	Cluster VIII
37. Langkaan ES	Cluster II
38. Malinta ES	District III
39. Paliparan ES	District IX
City Division of Cavite	
40. Sangley ES	N/A
City Division of Binan	
41. Timbao ES	Cluster 1
City Division of San Pablo	
42. San Roque	Fule Almeda
Division of Laguna	
43. Liliw CES	Liliw
44. Majayjay ES	Majayjay
City Division of Lucena	
45. Lucena East III ES	East
City Division of Tanauan	
46. Tinurik ES	Tinurik
City Division of Antipolo	
47. Kaysakat ES	Kaysakat
City Division of Sta Rosa	
48. Caingin ES	Caingin
City Division of Batangas	
49. Malitam ES	District IV
Division of Quezon Province	
50. San Antonio CS	San Antonio
51. Pitogo CS	Pitogo
Division of Batangas Province	
52. Ayao-iyao ES	Lemery
53. Pinagtungulan ES	San Jose
Division of Rizal Province	
54. Wawa ES	Tanay
55. Binangonan ES	Binangonan
City Division of Lipa	
56. Lumbang ES	Lumbang
City Division of Calamba	
57. Eduardo Barretto Sr. ES	East I Cluster I
City Division of Tayabas	
58. North Palale ES	North

Three sentinel schools or direct research sites were designated: Tinabunan Elementary School (ES) from the Division of Imus City; Sunnybrooke ES and Julugan ES both from the Division of Cavite Province. These are schools where the integration of the three components—i.e. gardening, supplementary feeding and nutrition education—was carefully monitored and studied. Regular supervision, monitoring, and technical and operational assistance were extended by the project team to these selected schools. The SBFP implementation in these schools was observed and further supported in order to understand the needs and gaps in the program. These three schools serve as primary model and action research sites for demonstrating and generating evidence of the value of the integrated school nutrition model.

Development of implementation guidelines

The project team worked closely with partners from DepEd and FNRI-DOST to develop implementation guidelines for the integrated school nutrition model using consultative and participatory processes. It was formulated after a careful study of the functional and structural challenges encountered in Phase 1. The identified gaps were addressed through further refinements in the implementation and sustainability measures. Implementation guidelines were developed specifically for each component at the start of Phase 2.

Training of trainers

A capacity building program for the 58 schools was conducted to facilitate the establishment of lighthouses across Region IVA. The school administrators and teachers from the 58 schools were divided into two batches: Batch 1 (May 2-3, 2016) consisted of 40 schools from Cavite and Batch 2 (May 23-24, 2016) comprised the remaining 18 schools from other divisions in Region IVA. The training provided each school an opportunity to discuss and review the implementation of the model in their respective schools. Through experiential learning and the combination of interactive lecture and hands-on sessions, a plan of action was further developed by the participants.

Learning exchange events

Aside from the Division- and school-initiated learning events, there were also two learning exchanges organized by the project team in coordination with two of the research schools to model how schools can serve as a platform for nutrition and environmental learning. On February 28, 2017, a learning exchange for non-government organizations, government agencies, local media, and other schools was held in Tinabunan Elementary School, one of the sentinel schools. It served as an avenue for 98 delegates from different agencies to learn about the integrated school nutrition model as well as to share their work related to the research project. There was also an exchange of ideas regarding good practices on gardening, nutrition education, and feeding programs.

An inter-division learning and recognition event was also held on March 24, 2017 in Pinagtungulan Elementary School, one of the LH schools in Batangas Province. The event attended by 90 participants became a venue to recognize and promote in Region 4A some innovative strategies that schools developed to help them implement the integrated nutrition model effectively and efficiently. Below are the good practices recognized from the LH Schools:

- Strong integration of school gardening and feeding program
- Innovation of various gardening techniques
- Consistency in use of school garden as a learning laboratory

- Year-round school garden diversity
- Distribution of most number of seeds/planting materials shared with parents and schools
- Promotion of indigenous vegetables to parents and children
- Innovation of recipes using indigenous vegetables

Consultative Workshop on Improving Food Security in the Philippines through school interventions

A 3-day consultative workshop among school heads of the 58 LS was held on October 24-26, 2017. It served as an avenue to gather feedback to enhance the integrated school nutrition model (ISNM) guidelines and to strengthen the capacity of school administrators in implementing the ISNM through technical update sessions, benchmarking visits, and a study tour to the Institute of Plant Breeding and International Rice Research Institute.

Monitoring and technical assistance

The team conducted school visits to the 58 LH schools around CALABARZON from July 2016 to December 2017. The visits included documentation of good practices and challenges encountered through key informant interviews (KIIs), technical assistance, monitoring, evaluation, and periodic data collection. (*Annex 2. SBFP Form*) The implementation and integration of the three project components (gardening, supplementary feeding and nutrition education) in the 58 LH schools were monitored through four rounds of data-gathering and mentoring visits:

- 1st round: July 4–August 24, 2016
- 2nd round: September 21–November 15, 2016
- 3rd round: May 16–July 18, 2017
- 4th round: October 9–Dec 14, 2017

Enhancement and distribution of information, education, communication (IEC) materials

The development of IEC materials was continued for Phase 2; posters, modules, and recipe booklets were distributed, including enhanced crop labels, and were recommended for use in nutrition education during feeding. The IEC materials were posted and were commonly used within the feeding facility to further provide a conducive learning venue in the feeding areas of the school. Several types of IEC materials were used for various purposes and were linked to other components of the program.

LIMITATIONS

Data collection was conducted on scheduled visits and monitoring; not all data can be directly validated through thorough observation. The complexity and the dynamics in daily school environment may limit the specific key area or indicator validation.

Key Findings

A. Compliance to submission date requirement

Nutritional assessment and identification of beneficiaries

According to DePEd order 51 s. 2016 under eligible activities, schools are expected to conduct a nutritional assessment of kindergarden to grade 6 pupils, during the first 3 weeks of June of school year 2016-2017. Each school is expected to identify the severely wasted (SW) and wasted (W) children not later than July 2016. The names of those SW and W, profile, and details of the school should be provided by the respective

School Division Office before July 2016. Timely submission was aimed at initiating the timely start of the program and to allow the school's 120-feeding-day cycle to be completed.

Table A.1 Percentage of schools submitting – Compliance with submission date requirement

Month submitted to School Division Office N=58 schools	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 %
June	90 (52)	93 (54)
July - September	10 (6)	7 (2)

The schools are required to submit the list of identified beneficiaries (nutritional assessment) data to their school division office. Interviews showed that schools usually complied by providing information on the succeeding late enrollment, which comes after the month of June. The data show a slight increase in compliance levels, from 52 to 54 schools; this could be the result of several improvements in the tasking (designating responsibilities) of teachers in selected schools. The continued improvement of the capacities of schools to prioritize resources and assign tasks related to enhancement of the SBFP implementation has also helped. This is an important improvement because the timely submission of data helps to facilitate the release of funds to schools so that the full cycle of 120 days of feeding can be accomplished.

B. Nutritional assessment

Anthropometric measurements conducted by June 2016

The schools are expected to comply and submit their nutritional assessment data only after conducting the nutritional assessment of the school children at the start of the school year. The guidelines require that the schools do weight and height measurements during the first 3 weeks of June. The nutritional assessment activities need to be completed by June 2016. The importance of weighing (at the start of the school year) is meant to ensure that a reliable baseline database is established within the first month of the school year and before any intervention to the children can be implemented. These data become the basis for assessing the improvement of nutritional status of the children; more importantly, the potential (target) beneficiaries for SBFP can be identified through this process. In studies undertaken in this research effort, it was confirmed that most of the schools did comply with the requirements.

TABLE B. Percentage of schools that completed the assessment activities

Month nutrition assessment activities were completed N=58	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
June	69.0 (40)	72.4 (42)
July	27.6 (16)	25.8 (15)
Non- SBFP/NA	3.4 (2)	1.7 (1)

As many as 40 out of 58 schools performed the anthropometric measurements of school children at baseline and 42 out of 58 conducted measurements at the endline as well. The remaining schools conducted the weighing and height measurements as late as July. According to teachers and coordinators, this was because there were still school enrollees even after August. Other school activities and the assignment of teachers can also affect the timely conduct of measurements. As a result, accuracy and efficiency of measuring were also affected. However, there were improvements observed in selected schools: this included the improvement of methods and system of weighing and height measurements; use of additional anthropometric tools in selected schools (*see data on anthropometric tools*). Improvement of their internal processes such as assigning personnel and providing areas for weight and height measurements was noted.

C. Release of funds to schools

DepEd has regional allocations for SBFP. School funds were released or downloaded to schools in different months.

TABLE C Month fund was release to schools

Month of fund release	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
August	0	0
September	0	70.7
October	63.80	22.41
November	18.96	5.2
Non SBFP recipient/NA	3.4	1.7
September	12.06	0

D. Feeding start date (month)

The feeding start dates among schools varied due to fund availability and dependence on the date when fund download took place. Most of the schools started their feeding program in October 2016 (72.4% of the schools); others began in September 2016 (20.7%). of Very few schools (1.7%) were able to start by July and August of 2016. These delays were associated with timing of fund release.

TABLE D. Feeding start date, SY 2016-2017

Feeding start (date/month)	Percentage N=58
August	1.7
July	1.7
na	3.4
October	72.4
September	20.7%

E. Excel-In-Use, CGS-based for BMI calculation

The DepEd guidelines state that, to ensure the accuracy of body mass index computation, all schools are enjoined to use the BMI software provided in a CD to each School Division Office. The Food and Nutrition Research Institute (FNRI) developed a CGS-based excel file for the use of the 58 LH schools at the start of the project. Training on the FNRI software occurred during the Trainer’s Training for LH schools (April 2016, before the start of the school year). The LH schools were asked during monitoring team visits to indicate the software used for baseline calculations for their nutritional assessment. A common software in all schools is needed to ensure a uniform output for calculations and comparison.

TABLE E Percentage of schools using CGS-Excel

CGS-based software in use N=58	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
DepEd software	88 (51)	96.5 (56)
DepEd 2015 Excel/manual Calculation	8.6 (5)	1.7 (1)
FNRI provided	3.4 (2)	1.7 (1)

The data showed high usage of the DepEd-provided excel file. It is used by 51 schools at baseline and 96.5% at endline. Schools coordinators are *mandated* to use the DepEd-endorsed BMI software for calculations; this is what DepEd recommends during the orientation of the SBFP coordinators.

F. Trained teachers to use the CGS-based software for BMI calculation

In relation to the use of software, the IIRR team asked the respective schools if there are teachers in the school who are trained or have technical know-how in using the software. Although formal training cannot be verified by the team, the teachers who attended the IIRR training and the SDO’s SBFP orientation can signify exposure or participation in formal training.

TABLE F. Percentage of schools with teachers trained in the Use of the CGS-Excel File

Schools with trained teachers who can use the software N=58	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
With trained	97 (56)	91 (52)
Without trained	3 (2)	8 (5)

The number of schools with trained teachers who use the excel file was 56 at baseline and 52 at endline. Most schools have capable teachers who can use excel files. Older teachers may not be comfortable in using a PC or excel software. In such cases, these tasks were assigned to younger teachers with the required skills.

Teachers or coordinators are requested to attend the SBFP orientation at the start of the school year for updating and training in the use of new tools. However, not all teachers sent to these training courses eventually handled the SBFP implementation due to conflict of activities and schedule. *(Please see data on participation in SBFP orientation,)*

G. Anthropometric tools in use

The DepEd guidelines recommend the use of a beam balance weighing scale in schools. However, a height scale was not specifically indicated in the latest guidelines (2016). Standard or calibrated anthropometric tools are essential for getting accurate measurements (in identification of beneficiaries for feeding programs). The use of a calibrated scale can ensure efficient compliance in the submission of the necessary documents to their respective division offices.

TABLE G Anthropometric tools used in schools

Tool (weight)	Baseline June 2016 S/Y 2016 – 2017 %	Endline November 2017 S/Y 2017-2018 %
Bathroom scale (BRS)	74.1	52
Beam balance (BB)/Detecto	17.2	31
Seca	0	1.7
Electric	0	6.9
Beam balance/Dial	6.9	8.4
Both BB and BRS	1.7	0

Tool (height)	Baseline June 2016 S/Y 2016 – 2017 %	Endline November 2017 S/Y 2017-2018 %
Tape measure (TM)	69	65.5
From beam balance (BB)	20.7	29.3
Height chart	5.2	3.4
Meter stick	3.4	0
Both TM and BB	1.7	1.7

The bathroom scale was most commonly used by the schools for weighing, followed by the beam balance (Detecto). For height measurement, the tape measure was the most commonly used tool (at baseline 69%; at endline 65.5%), followed by the height-measuring tool attached to the beam balance (20.7% at baseline; 29.3% at endline).

During the rounds of visits, the schools were reminded of the importance of calibrated measuring tools and were given key tips for accurate measurements. Schools were also encouraged to seek funds to acquire calibrated anthropometric tools. There were schools that received support from outside sources; others borrowed such equipment from their respective barangays.

H. SBFP core group

School heads were advised to establish a core group among the school personnel. A feeding teacher is designated by the school head. The minimum composition of the core group was two teaching staff and one parent or vice versa. The schools were asked to report compliance by providing a list of people involved (as means of verification).

TABLE H. Percentage of schools with established core group

With core group N=58	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
Yes	91.4 (53)	94.8 (55)
No	8.6 (5)	5.2 (3)

At baseline, 91.4 % of the schools reported having a core group. At endline, the figure rose to 94.8%. This core group list is included in the SBFP documents collected. However, during actual visits and from observations, it was apparent that not all schools actively engaged their core groups. Schools reported that teachers have several tasks. In practice, the SBFP coordinator normally carries the bulk of the responsibility for implementation, normally supported by auxiliary teachers or teachers who may only have free time during feeding or SBFP activities. This normally varies from one feeding event to another.

I.1. Parent volunteers

The SBFP core group can be composed of a number of volunteers from among the parents, particularly the parents of pupils identified as undernourished, severely wasted (SW), or wasted (W).

Parent volunteers in schools came from varying groups of parents. Two types were identified and classified: Type 1 parents are those whose children are current beneficiaries of SBFP in the school and Type 2 parents whose children may have benefited from SBFP in the past or are just a regular volunteer.

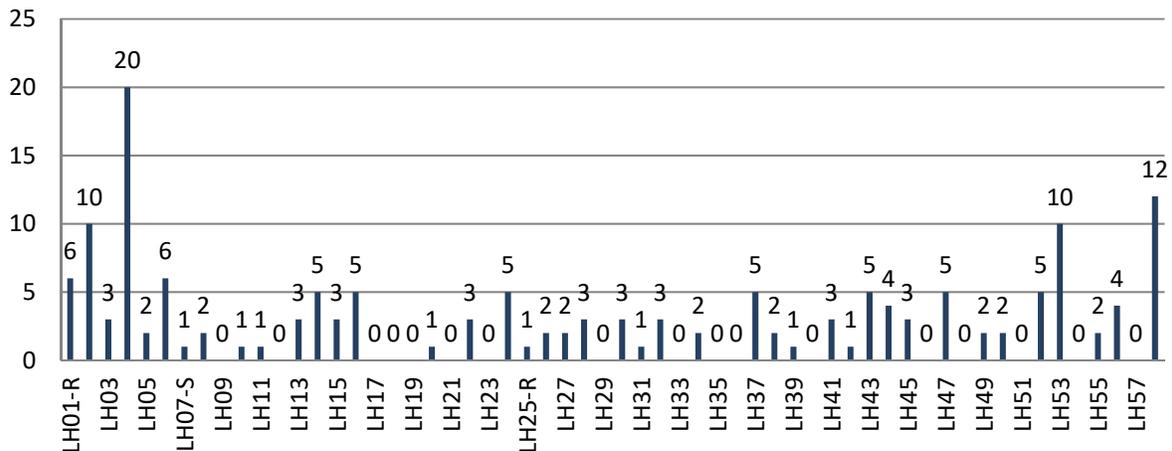
The total number of parent volunteers in schools was determined and averaged, to know if there was improvement in volunteer engagement.

Figure 1A Average number of parent volunteers in 58 lighthouse schools.

Average volunteers among 58 LH schools N=58	Baseline June 2016 S/Y 2016 – 2017 Average volunteers (Sum of volunteers in LH schools/58 LH schools)	Endline November 2017 S/Y 2017-2018 Average volunteers (Sum of volunteers in LH schools/58 LH schools)
TYPE 1	2.76	3.33
TYPE 2	1.24	2.26

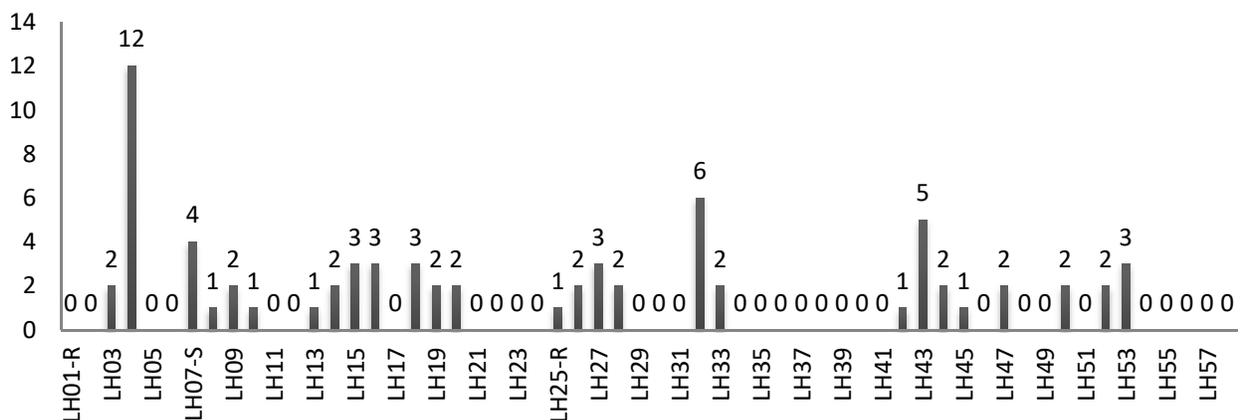
Volunteer engagement has increased from baseline to endline for both types. For type 1, the average of 2.76 volunteers per school at baseline has increased to 3.33 volunteers at endline. For type 2, it was 1.26 at baseline and 2.26 at endline.

Figure 1.1B (Class 1) Number of parent volunteers with current SBFP recipient pupils per lighthouse school, SY 2016-2017



The figure shows (Class 1) the number of parent volunteers with child in school currently in the SBFP per LH school; there are schools with a high number of volunteers. Seventeen schools did not have any volunteers for their SBFP activities. The data show a high number of volunteers for LH04, LH53, and LH58; these schools notably had good PTA engagement, strong level of support from the school head, and good community or barangay relations that may have contributed to the increased number of parent volunteers. These schools also have good practices and improved implementation strategies along with other schools with volunteers.

Figure 1C. (Class 2) Number of volunteers without SBFP recipient pupils per lighthouse school SY 2016-2017



The above figure represents (CLASS 2) the number of volunteers currently without SBFP beneficiary children in school. The survey conducted beginning school year 2016-2017 revealed that 27 schools had volunteers with no SBFP beneficiary child in school. Either the parent volunteer is a member of the PTA or may previously have had a child benefiting from SBFP. The data show as high as 12 volunteers for LH04 and from few to zero volunteers in several schools; the major factors that encouraged volunteers may also be the PTA activities and good relationship with their respective community. Schools with strong PTA presence and good relationship with their barangay have volunteers for their school activities.

I.2 Number of paid helper/cook/support

A helper or cook is an essential part of the core group in SBFP implementation, especially during the preparation of feeding activities. To ensure efficient implementation of the program, DepEd allowed the hiring of one labor or cook per 40 SBFP beneficiaries, subject to availability of funds.

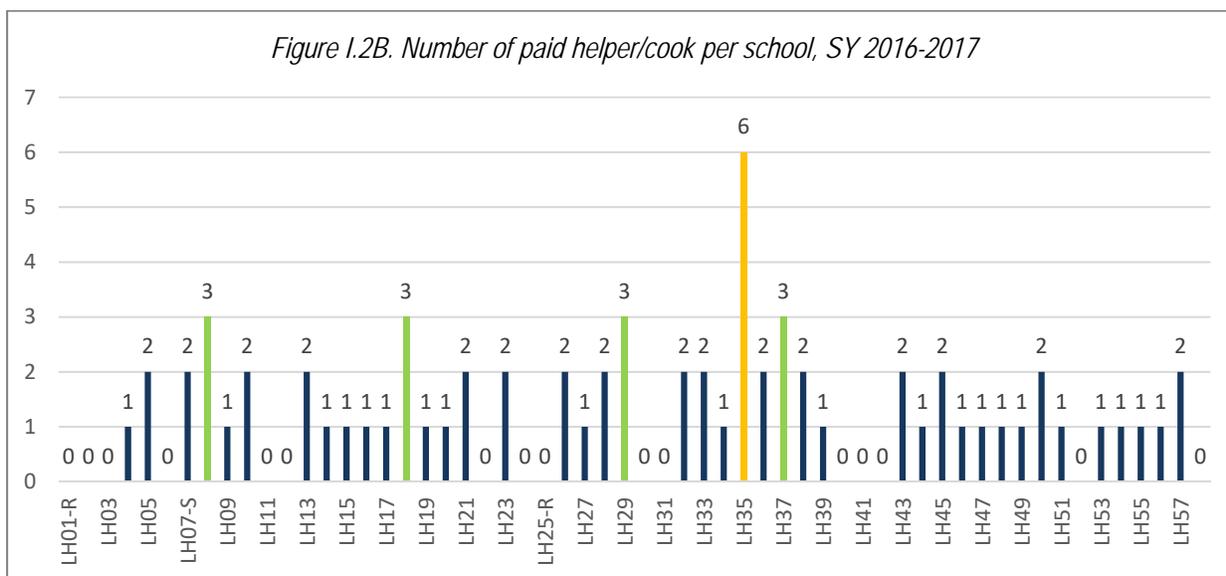
Table I.2A Utilization of fund source for hiring helpers/cooks

FUND SOURCE	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
Using both canteen and SBFP funds	3.4 (2)	6.9 (4)
Using canteen fund	44.8 (26)	43.1 (25)
SBFP fund	24.1 (14)	32.7 (19)

	Baseline June 2016 S/Y 2016 – 2017 %	Endline November 2017 S/Y 2017-2018 %
No hired Cook/Helper	27.6 (16)	17.3 (10)

The table above shows that the canteen remains the primary source of support for hiring a helper/cook, with 44.8% of the schools at baseline and 43.1% at endline using canteen funds for that purpose. SBFP funds were used by 24.1% of schools at baseline and by 32.7% of schools at endline. Schools that used both canteen and SBFP funds comprised 3.4% at baseline and 6.9% at endline.

At baseline, 27.6% of the LH schools were not able to hire any cook/helper from their funds; this was reduced to 17.3% at endline. Conditions in schools may have varied—some schools intentionally did not hire cooks/helpers, some schools may have limited funds, or other schools deemed it unnecessary because of a minimal number of beneficiaries.



The figure above shows the number of paid helpers per school; LH35 had the highest number with six, followed by LH08, LH18, LH29, and LH37 with three paid helpers each. LH035, the school with the highest number of helpers, also had the highest number of SBFP beneficiaries at 957 based on submitted 2016 nutritional status baseline data.

The average paid helper or cook among 58 schools was 1.22 at baseline and 2.17 at endline. The issuance of additional provision and amendment to DepEd Order 51 of 2016 may have improved the utilization of additional manpower to support SBFP activities. The addendum mentioned the inclusion of hiring one cook per 40 SBFP beneficiaries under eligible activities of the program; subject to fund availability.

The research and monitoring visits revealed that a few schools were not aware that they were allowed to hire additional cooks. The hiring of cooks/helpers may still depend on the size of the school and the school budget (MOOE).

I.3 Average time spent for SBFP activities by feeding coordinators

The feeding coordinator or the assigned SBFP coordinators are also teachers with other assigned tasks. The average time spent by feeding teachers in SBFP activities is 3.62 hours per day. The highest reported time spent is 6 hours and the lowest reported time spent is 1 hour.

TABLE I.3 Average time spent (hours) for feeding activities by teachers/SBFP coordinators

	Baseline June 2016 S/Y 2016-2017 Ave. no. of hours	Endline November 2017 S/Y 2017-2018 Ave. no. of hours
Average time spent for SBFP activities	3.62	3.74 h
Highest reported	6	6 h
Lowest reported	1	1 h

J. Menu options for the school based feeding program

The DepEd schools are required to use a minimum of 20 cycles (1-2 months) of menu, with the recommended rice and viand. A variety of menus exists, including the malunggay-based FNRI recipe and others that were recommended by each SDO of the schools. The FNRI recipe was already introduced during Phase I and was also recommended during the training of teachers involved in the project. The recipe book has 20 entries; during the survey, the school menu cycle was collected and coordinators were interviewed on how many of the recommended recipes were adopted in their 20-cycle menu.

TABLE J Average number of recipessed and adapted from the 20 recommended FNRI recipes

Recipe source N=58	Baseline June 2016 S/Y 2016 – 2017 Number of recipes adopted	Endline November 2017 S/Y 2017-2018 Number of recipes adopted
FNRI recipes	7.19	9.70
Malunggay-based	12.83	10.30

The FNRI recipe was recommended at the start of the project because the recipe is already standardized and included indigenous vegetables as primary ingredient options. Recipe adaption can help in utilizing garden vegetables in compliance with set guidelines.

Schools were encouraged to adjust or explore other recipe combinations of recipes to enable them to utilize the garden produce and to meet the needs of beneficiaries. During visits to LH schools, FNRI recipe booklets were provided. Technical assistance was extended to improve the consumption of vegetables and crops through meals served during feeding. Schools were encouraged to ensure that such foods is suited to the needs of the children. Adjustments to the recipes could be made to adapt to the needs of the school children and the program without compromising financial and documentation-related concerns with SBFP activities.

Initially, response to the recommended recipes was anticipated to be poor because the 20-cycle-menu feeding compliance was strongly tied to SDO recommendation (which was previously composed of malunggay recipes). From 7.19 FNRI selected recipes at baseline, the number of recipes adopted had increased to 9.70.

K. Feeding modalities

Several feeding modalities were developed and suggested by DepEd. Two modalities were common among LH schools: the regular SBFP model and the hiring of cook model (HOC).

Table K. Percentage distribution of feeding modalities utilized by schools

Feeding modality N=58	Baseline June 2016 S/Y 2016 – 2017 % (N)	Endline November 2017 S/Y 2017-2018 % (N)
Catering	3.4(2)	3.4(2)
Hiring of cook	31 (18)	39.6 (23)
Non-SBFP	3.4 (2)	1.7(1)
Regular	62 (36)	55.2 (32)

The regular feeding scheme was still the most common among schools, followed by the HOC modality. The two modalities used the same procurement method and liquidation and accounting process with bids and awards committees established. The school head, with the feeding coordinator, is required to submit a liquidation report to their respective SDO. The two modalities differed in feeding mechanics: HOC utilized a cook/s and followed recommendation to hire one cook per 100 recipients, while the regular scheme solely relied on parent volunteers.

The schools find it convenient to utilize both modalities because of less operational requirements. There were benefits and advantages in using catering, such as less work for coordinators and use of preferred menu. Most schools may have not yet explored other feeding modalities. Reasons included food safety concerns with catering scheme and applicability in varying school situations. Other unique operational issues arise for big schools with large feeding programs having over a hundred of recipients.

L. Participation of SBFP coordinator in SBFP orientation

SDOs are advised to conduct an orientation seminar for school heads and teachers. Schools also orient other people or groups involved in SBFP implementation (especially parents).

TABLE L Percentage of participation of SBFP coordinator in SBFP orientation (division/district Level)

	Baseline June 2016 S/Y 2016 – 2017 % (N)		Endline November 2017 S/Y 2017-2018 % (N)	
	Yes	No	Yes	No
School heads or teachers participating in SDO SBFP orientation	88 (51)	12 (7)	65.5 (38)	34.4 (20)

Table L shows the number of schools with school heads or SBFP coordinators attending the SBFP orientation before the start of the feeding. At baseline, 51 schools have sent their representatives and 38 schools did so at endline. It was observed during the visits that the SBFP coordinators were not always sent to the SBFP orientation. Instead, other teachers were sent to represent the coordinators at the SBFP orientation. The main coordinator or school head should be designated to attend such events so they can receive pertinent updates on SBFP standards or guidelines. As a result, many coordinators were not aware of key details in the guidelines and recommended practices (menu cycle, BMI calculation excel file use, anthropometric measurement, procedures for hiring additional cooks, liquidation practices, partnerships, PTA, complimentary activities, etc.).

M. Participation rate of parents in SBFP orientation

Before any feeding activity starts in a school, parents of recipients were gathered for orientation on SBFP. This is undertaken as part of the implementation process. This activity is a good opportunity to discuss information

necessary to improve the child’s nutritional status and to increase support for complimentary activities under the program, including nutrition education for parents and GPP-related activities.

Among the 58 schools surveyed during school year 2016-2017, 42 schools had maintained records of attendance of parents in the SBFP orientation. Considering attendance versus number of beneficiaries per school, average participation rate was 38%.

Most schools had low participation rate of parents with SBFP recipients. There were times the school rescheduled the orientation activity to accommodate parents. The reasons for the low participation varied, including the fact that both parents in urban and rural areas are at work. In a few cases, schools with good relationship with the community and barangay have been able to engage parents; those with active PTAs have higher parent attendance too. Parent engagement continues to remain a challenge in schools and community engagement strategies are necessary to increase the level of parent participation. Different schools may have different dynamics and schools may have different approaches in engaging parents support.

N. Designated feeding facilities

TABLE N Percentage of schools with designated facilities

Designated feeding facility	Baseline June 2016 S/Y 2016 – 2017 %	Endline November 2017 S/Y 2017-2018 %
Feeding room	55.2	66.30

Handwashing area near feeding room	Baseline June 2016 S/Y 2016 – 2017 %	Endline November 2017 S/Y 2017-2018 %
Yes	94.8	91.37
No	5.2	8.63

Discussion

Nutritional assessment, identification of beneficiaries, anthropometric tools, and core group

Every school has varying capacities and resources; specific standards based on school experience, size, or setting can be further developed to allow better ways to implement the program. Schools are commonly challenged with various activities every month and it will be helpful to set deadlines accordingly and aligned these with school activities—for example, nutrition assessment is set before June when students just start to enroll. Systems to be developed can be based on actual teacher and school feedback so scaling out can be easily adapted to varying school situations.

The DepEd may need to strongly standardize the tools to be used in collecting height and weight measurements, including the software for producing data and identifying recipes. It was observed that different schools have different equipment provisions. Processes to collect data and identify beneficiaries differed. This may lead to varying results and differences in the manner of implementation. The anthropometric tools and indicators in identifying beneficiaries should be aligned with current national standards. This way, DepEd data can be better used for future research and for other program development. It will be more data-driven, accessible, and aligned with other agency data such as those from FNRI-DOST for more purposive policy making.

Supervisors, principals, SBFP coordinators, nurses, and related focal persons should exclusively receive training for the full implementation of the program. If training all these persons is not feasible,; communication and channels of transfer of program knowledge should be precise and clear to the school and its members.

Volunteer engagement

The engagement of volunteers has been a challenge for most of the 58 schools. However, schools with an established relationship with the community and with a well-organized PTA have been able to address this challenge. Schools using the collaborative and relational approach were able to manage and engage support from volunteers. There were only a few cases where parents were able to support schools voluntarily on their own initiative. Schools able to provide offices or working space for the PTA secured greater support from parents. This was viewed by parents as an indicator that the school leaders valued parents' engagement as volunteer workers.

Menu, the link to two other components

The menu itself can help link up with other components. It can serve as an educational tool for both parents and students. The menu can be the key driver in the utilization of the school garden produce. It can ensure the achievement of the program objectives. However, strict compliance with the guidelines can discourage the use of garden produce and affect the expected outcome from the integration of the model. Schools with stiff compliance with what was recommended have limited utilization of garden produce.

In schools with flexibility in their menu cycle and with provisions for an additional number of cycles have facilitated increased utilization of garden produce. This prompted the garden teacher to produce diverse crops and vegetables. The school's system of procurement and modalities should be reviewed to permit flexibility in the use of standardized menu and of available and diverse produce. The current DepEd SBFP guidelines suggest that the authority is with the schools themselves to change and select their own menu. However, most LH schools relied on the menu recommended by their respective division office. Schools were hesitant to expand or develop their own menu because of liquidation and ordering concerns.

The FNRI-DOST recipe was a trial balloon to see how schools would adapt to standardized recipes outside of the previously recommended *malunggay*-based recipes. At most, the schools were using almost half of the 20 recipes in the booklet because they are mostly applicable to the school and the recipients. There are a few

recipes that were replaced over time as ingredients were not available or the children did not like the taste; reasons varied in the different schools.

To better utilize the garden produce and to promote diversity in the diets of children, schools should have better control in the selection of their menu options. Participatory recipe development can promote discovery and experimentation in the use of garden produce. This will motivate not only the students but also the parents and teachers to expand their knowledge of local and locally adopted crops and vegetables. The menu itself can be the key in educating the parents about the value of vegetables. Parents have been known to request for recipes because their children requested for the same recipe at home. Schools should be empowered to utilize more their own garden produce for their SBFP menu.

Feeding modalities

The regular SBFP feeding modality (school-managed) is most commonly practiced by schools in Region IV. In Rizal Province, the catering modality was used by the LH schools. Food was delivered to the schools by the caterer and distribution was supervised by the feeding coordinator or teachers. This is common in schools with medium to small number of students. In Cavite schools, the use of catering modality met with concerns related to bidding and food safety. There have been instances of food poisoning and safety in Cavite in the past. Catering may not be applicable in schools with more than 500 SBFP beneficiaries. The use of other modalities should be explored by the schools and its divisions to address issues related to workload of focal persons, delivery, storage, food safety, and procurement of commodities.

Feeding facilities

Feeding programs have been implemented since 1997, although feeding facilities until now are not a regular feature of all schools. With the increasing number of children in schools, it is challenging to address both the need for classrooms and for feeding facilities. Dedicated feeding facilities offer a conducive environment for learning and for food preparation and as a dining area for children. In sentinel schools or school research sites, the feeding facility serves as a place for providing nutrition education sessions during meals. Nutrition education during feeding has become a complementary activity for SBFP and the feeding area underwent several upgrades to create an educational and child-friendly environment in sentinel schools. Posters containing nutrition information and several learning materials are also widely visible in feeding centers. Other schools have built learning resource centers beside the feeding center. This serves also as mini-nutrition library for both students and teachers. Most materials in the center were gathered and provided by external donors. These centers have also opened up opportunities to gather external partners who can support nutrition and education initiatives.

An SBFP has its own facility not only for meals but for several purposes: nutrition education and *Gulayan sa Paaralan* Program. Feeding facilities in schools reduce the risks of food poisoning with increased nutrition education activities. Irregularities in implementation are noted when feeding centers do not have a dedicated space.

Conclusion

The implementation of SBFP using the integrated approach resulted in bridging the gaps between components and bringing about unique implementation strategies of the three components gardening, nutrition education, and supplementary feeding. The integrated model proved to be a necessity in seeking lasting impacts of nutrition intervention in schools.

The three components have common links where key outcomes can be generated; upgrading the feeding facilities and Gulayan sa Paaralan (garden) resulted in more unique and varying nutrition education activities. Its potential as a platform in extending outcomes to the community has been proven with the sentinel school experience. The school menu had played a key role in promoting indigenous and locally adopted vegetables and crops. Not only was it planted and sourced from the garden, but it also became a tool for educating the children's parents.

The SBFP implemented as an integrated model had given birth to various practices unique to each school setting. Across schools, the learning experience was more on the discovery of possible strategies implemented in enhancing the model; strategies that were before common practices were enhanced when the three components were incorporated. It has pushed forth collaboration between focal persons and school heads and other external partners, producing sustainable outcomes. The new practices discovered in implementing the SBFP have highlighted the need to have a nutrition education program. Practices in schools revealed that SBFP can be a good opportunity to educate children and their parents about nutrition and health. The model has a huge potential to further develop a stable nutrition education program.

The nutritional status outcome can be better achieved not only by consistently feeding the children for 120 days but also by addressing the behavioral, social, and environmental experience of the children. The presence of a functional garden as a learning venue and the increased nutrition education activities in schools have played a huge role in ensuring lasting outcomes.

The SBFP has achieved more than feeding the children. It gave value to various aspects that may have strong links to nutritional outcomes—school gardening, food safety and feeding facilities, menu selection, community and barangay relations, parent participation, and school prioritization and leadership.

Continued technical assistance, monitoring, and evaluation have significantly improved the schools' SBFP implementation. It is a key driver of program sustainability.

The SBFP as a program has been valuable and has evolved to address issues across other components. The integrated approach has increased its value to schools, realizing its potential and feasibility. It has shown insights that highlight its weaknesses and multiple benefits. Enhancing implementation efficiency and management can greatly improve nutritional outcomes and intangible gains.

Recommendations

Nutritional assessment and identification of beneficiaries, SBFP support

- The focal person for anthropometric measurement shall be a trained staff who has attended anthropometric training or similar exercise.
- Establishing barangay or community support is highly encouraged to ensure BNS/BHW support in anthropometric measurements in big schools or obtain PTA and volunteer support for SBFP activities.
- A uniform procedure/SOP in the conduct of nutritional assessment shall be adapted from baseline to endline; the trained focal person will do the actual measurement and will be assisted accordingly by each grade level adviser or BNS/BHW as scheduled. A designated area in the school that is conducive to the conduct of such measurements shall be determined.
- The same calibrated anthropometric tools must be used from baseline to endline to prevent inconsistencies in nutritional assessment results.

Orientation of Program Implementers

- Orientation topics shall include enhanced GPP and use of garden produce for feeding. The integrated approach is highly encouraged, emphasizing the key links between programs.
- Monitoring and evaluation have played an important role in achieving sustainability; a better M&E system for the integrated school nutrition model shall be developed.

Commodities

- Selection of standardized recipes by school heads and school committees to be used for feeding as a cycle menu shall be well-coordinated with the GPP coordinator. The menu cycle selected should allow food and nutrient variety in recipe selection and should enable the GPP annual crop planning guide to be attached to the menu cycle. This shall enhance regular use of garden produce for feeding and ensure diet diversity for beneficiaries and school children.
- There should be representation of a finance or accounting body of DepEd in future meetings to develop strategies in improving the documentation process and handling liquidation concerns.
- As the objective is to enhance the nutritional status and well-being of children, the use of artificial flavorings, additives, and other forms of instant flavorings in cooking and meal preparation in school feeding is highly discouraged. As much as possible, schools are advised to use vegetables, spices, or herbs and other natural sources of flavor that are available to enhance the flavour of dishes.
- Mechanisms to improve the distribution of iron-fortified rice shall be enhanced through SDOs..

Feeding proper

- The feeding facility should allow nutrition education during feeding in whatever form viable and practical for the school's and teachers' capacity and resources. Schools are encouraged to have a

feeding area that can be attractive to children, one that will make them visit and enjoy learning there. Any form of nutritional IECs as well as other available educational materials should be posted in the feeding areas.

Complementary activities

- Nutrition education during feeding is encouraged and can be tailored based on the school's capacity and on practicality. At the minimum, schools are recommended to at least educate the beneficiaries before meals on the value of food and nutrients, especially local vegetables and crops sourced from their gardens for growth and development or on any topic that may enhance their attitudes and practices toward well-being. Short and simple nutrition messages at the start of the feeding session are also recommended. Suggested activities or media may include educational audio and videos, posters, crop labels, flip charts, stories, or any applicable nutrition education materials. Promotion of indigenous and locally adopted vegetables and crops is highly recommended.

Food safety adherence

- To ensure food safety in cooking and preparation, schools should have observable and practical minimum requirements of all food handlers, including scheduled or random volunteers. (Use of hairnets, aprons, gloves; having clean and cut nails, no jewelry, and other standards set the guidelines shall be observed on a regular basis.)

Health and nutrition education

- Information, education, and communication materials provided by the National Nutrition Council and the Food and Nutrition Research Institute-DOST may be used.
- Ensure that all nutrition and health materials used, posted, and distributed within the school premises are sourced from legitimate sources and updated at all times based on official sources (e.g., Pinggang Pinoy, Nutritional Guidelines for Filipinos, Iron-Rich Recipes, etc.).

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