



REPORT

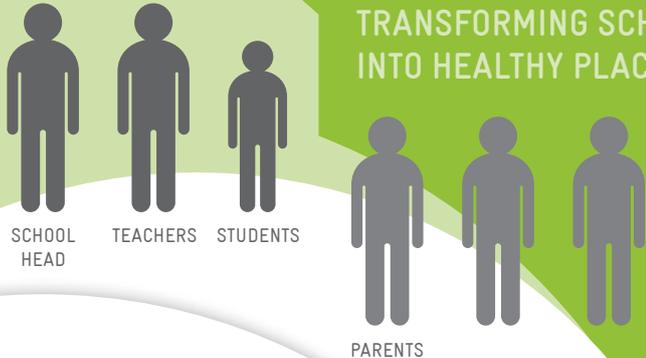
Assessment of Cooking Systems & Practices

in Public Elementary Schools in the Philippines



FIT FOR SCHOOL

MAKING CHILDREN
FIT FOR SCHOOL //
TRANSFORMING SCHOOLS
INTO HEALTHY PLACES



STAKEHOLDERS



INTERVENTIONS



INFRASTRUCTURE & MATERIALS

SCHOOL MANAGEMENT



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1. Background

It is widely recognized that malnutrition has a negative impact on the school performance and attendance of children [1, 2]. The implementation of school-feeding programs (SFP) is a very popular intervention by governments and donors around the globe. SFPs have the intention to alleviate short-term hunger, improve nutritional status and cognitive span of children, and to increase the school attendance [4].

Each implementing country uses a different approach on SFP according to its distinctive context. SFPs are mainly classified based on coverage of beneficiaries, methods and meals provided. Some SFPs are implemented to a target of beneficiaries usually based on geography, economic status or nutritional status. In contrast some SFPs are implemented universally, or to all students regardless of any qualifier. Some SFP use on-site feeding in the school venue, while other programs provide take home rations [1]. The in-school feeding program can further be distinguished into two common approaches: provision of warm and freshly cooked meals versus provision of high-energy biscuits or snacks [3]. SFPs can also be characterized according to frequency and regularity of feeding. As of 2013, World Food Program (WFP) estimates that 368 million children worldwide are given daily feeding in schools [5].

In accordance with the global nutrition report in 2015 the prevalence of wasting is alarming and 7.9% of the children in the Philippines suffer from the burden of wasting while 5% of all children under-five suffer from overweight [6]. SFPs have the potential to address both ends of malnutrition spectrum. In this regard, it is important to investigate on the existing capacities of government structures to scale-up SFPs.

History of SBFP in the Philippines

The implementation SFPs has a long history in the Philippines. In 1997, the Department of Education (DepEd) implemented the Breakfast Feeding Program (BFP) with the goal to address short-term hunger syndrome among public school children. Due to the increasing morbidity and mortality commonly caused by undernutrition, BFP shifted to a long-term goal to address undernutrition in children. The program initially covered 42,000 children, who were categorized as severely wasted based on WHO classification. At that time the number of children covered by the Breakfast Feeding Program represented an estimated 7.5% of the total number of identified severely wasted children in the Philippines [7].

DepEd is currently implementing a targeted School-Based Feeding Program (SBFP) under an umbrella School Health and Nutrition Program (SHNP) coordinated by its Bureau of Learner Support Services (BLSS) formerly the Health and Nutrition Center (HNC) starting school year (SY) of 2011- 2012 . Recognizing that the benefits of school feeding also impacts directly on educational indicators, the SBFP has shifted its main aim to improving classroom attendance of target beneficiaries to more 85% per year, with secondary aims of providing meals to address short-term hunger, improvement of nutritional status of target beneficiaries [7, 8].

In 2018, SBFP was named an integral component of DepEd's efforts towards convergence of all of its school health programs under the new policy Oplan Kalusugan sa DepEd (OK sa DepEd) along with Gulayan sa Paaralan Program (Vegetable Garden in Schools Program) and Water, Sanitation, and Hygiene (WASH) in Schools (WinS) to achieve prevention of dental caries, improved nutritional status and improved attendance in schools [9].

SBFP Procedures

Up until SY 2013 to 2014, DepEd SBFP has been targeting severely wasted Kinder to Grade 6 students only. In SY 2014 to 2015, the target coverage has included wasted students as budget allows, while still prioritizing severely wasted students. Next priority are Kinder to Grade 3 students who are most at-risk for school drop-out. Estimated budget allocation was based on nutritional report submitted by the school the previous school year. At the beginning of each school year the school nurses measure the height and weight of each child attending the school. The child's nutritional status is identified accordingly to the WHO growth tables. This will be the basis on actual number of target beneficiaries for the school year [8].

The budget for SBFP is Php 16 per child per day, which includes Php 15 for ingredients and Php 1 for operational expenses. Allowable operating expenses includes costs for basic cooking utensils, office supplies for reports, minimal transportation fees, water and fuel. The budget of each school per year was based on

the number of targets x Php 16 x 120 days. From this estimation, the duration of the feeding may be more or less 120 days depending on the actual number of targets.

To date in SY 2017 to 2018, DepEd has expanded the SBFP to also cover all wasted children. It has further increased the budget to Php 18 per child per day (Php 16 for ingredients and Php 2 for operating expenses). The budget increase is supposed to include manpower and labor costs for cooking and purchase of dishwashing soap for cleaning. In addition, the budget is also expected to cover at least 120 days of feeding which may be able to be extended to more days or expanded to more beneficiaries of normal nutritional status as the budget allows [10].

Slowly, the DepEd SBFP is planning to expand the coverage of its targeted SBFP with eventual aim of universal coverage. Upscaling of a program on this scale requires assessments of barriers to properly address the limitations to the upscaling process.

Updates on DepEd SBFP Policy // Table 1

School Year	2013-2014	2014-2015	2017-2018
Beneficiaries	40,361 students	562,262 students	1,823,443 students
Nutritional status	All severely wasted	All severely wasted and to include wasted students as budget allows	All severely wasted and wasted students, to include other students as budget allows
Budget per child per day			
Total	PHP 16	PHP 16	PHP 18
Ingredients	PHP 15	PHP 15	PHP 16
Operating expenses	PHP 1	PHP 1	PHP 2
Budget inclusion	Cooking utensils, office supplies, transportation, water and fuel	Cooking utensils, office supplies, transportation, water and fuel	Cooking utensils, office supplies, transportation, water and fuel, labor and manpower costs, dishwashing soap
Duration	120 days, may be more or less depending on budget allocation and actual beneficiaries	At least 120 days for priority targets	At least 120 days for priority targets

Other Feeding Programs in the Philippines

Aside from the DepEd SBFP there are several other feeding programs implemented independently.

World Food Program

One example is the World Food Program (WFP) SFP intervention which focus on areas affected by conflict in central Mindanao. WFP provides school-aged children with hot meals on every school day. These meals cover a third of the children's daily micronutrient needs. The program has reached 65,000 children in Maguindanao. Similar to the SBFP, teachers and parents are functioning as the core group and are responsible for preparing the meals [11].



Department of Education / Jollibee Group Foundation / Busog, Lusog, Talino BLT

A collaboration between the Jollibee Group Foundation (JGF), the DepEd, and Local Government Units (LGU) was introduced to support the existing DepEd SBFP. The partnership program called Busog, Lusog, Talino (BLT), summarizing the desired outcome of the support: well-fed, healthy, and smart children, addresses short-term hunger to encourage school attendance and better learning [12].

BLT kitchens are a pilot project in order to facilitate an optimized cooking process of the program. The public-private partnership program feeds 142,000 pupils from 1,500 schools nationwide through the BLT kitchen since 2007. BLT targets the 40 most undernourished Grade 1 and Grade 2 students in the target schools with daily lunch for 120 days similar to SBFP. In addition, BLT conducts training in food preparation and budgeting to parents. Central schools or schools with a bigger population are encouraged to shift to SBFP funding to allow adequate budget coverage since BLT only covers 40 students in each school. However, schools may still adapt the BLT approach [8,12]



NGO Gawad Kalinga GK / Kusina ng Kalinga KnK

Another successful feeding system model is being implemented by the NGO Gawad Kalinga (GK) which implements Kusina ng Kalinga (KnK) with the additional goal of improving local economy and promoting positive values aside from addressing hunger and malnutrition. In KnK, 2-3 regular GK staff and 10 t15 volunteers manage a centralized kitchen that feeds 2,000-5,000 children per day. The kitchen operations start daily at 4:00 AM and ends at 2:00PM and includes procurement of local ingredients, cooking and packing of nutritious lunch in colorful lunch boxes and delivering these to target areas in schools, streets and conflict areas. Knk currently has 12 kitchens in the Philippines and covers 22,000 children per day. They intend to increase beneficiaries to up to 100,000 per day [13].

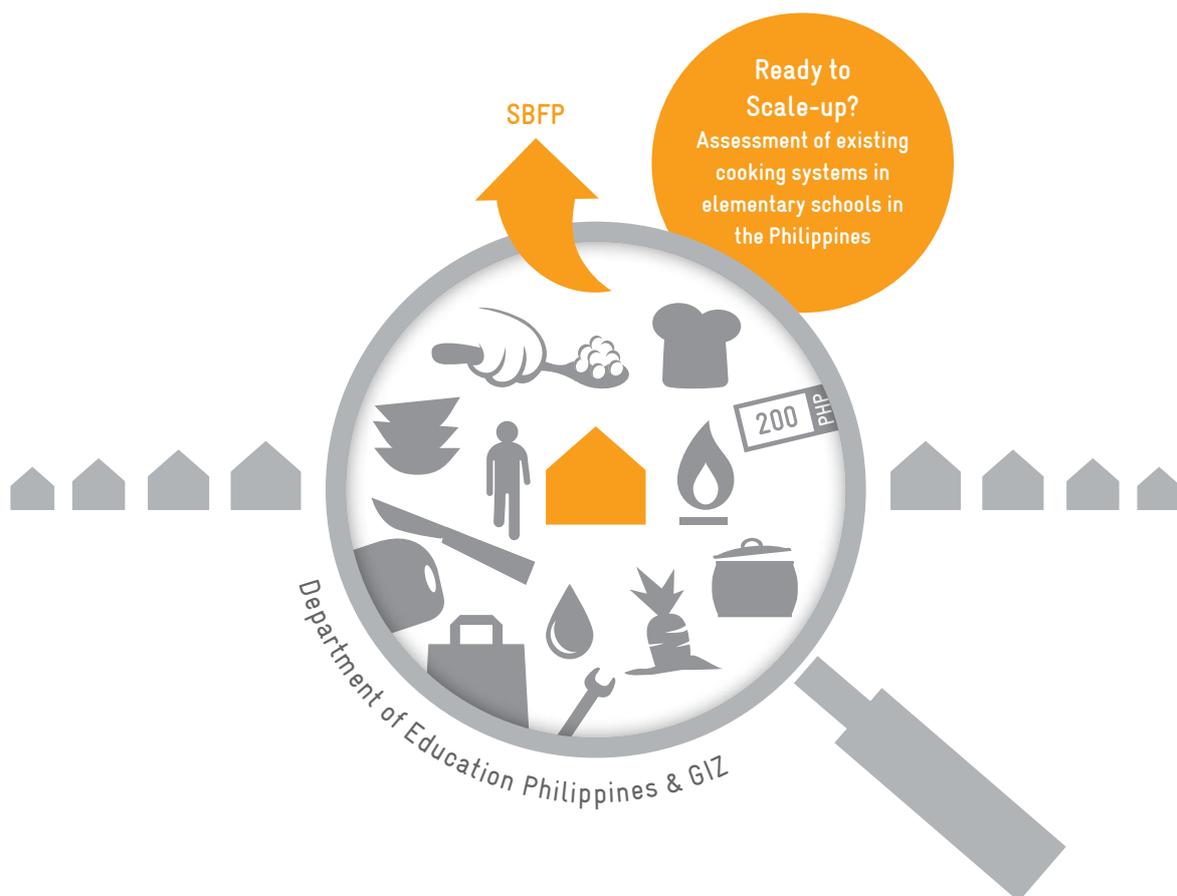




2. Purpose and Objectives of Cooking Systems Assessment

An essential element to the SBFP is the preparation and cooking of meals for the targeted children. The status and capacities of cooking systems in schools are important factors in implementing a feeding program. In this regard, it is essential to explore the characteristics of existing cooking systems to shed light on logistics aspect of implementation and assess the readiness of schools for a scaled-up feeding program that intends to cover an increasing number of beneficiaries.

It is essential to understand the extent to which the cooking systems could be a limitation to the planned upscaling process of the SBFP and to find ways to address this concern. The Department of Education (DepEd) collaborated with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to conduct an assessment of existing cooking systems in elementary schools in the Philippines.



MENU FOR TODAY

SPAGHETTI	12.00	SHANGHAI	12.00
PALABOK	12.00	TURON	12.00
CHICKEN JOY	12.00	LUMPIA	12.00
SIOPAO	12.00	CHIPS	12.00
BIHON	12.00	HOTCAKE	12.00
BARBECUE	12.00	PLUTO	12.00
SIOMAI	6.00	BIGYONES	12.00
EGG SANDWICH	12.00	EMPANADA	12.00
LUMPIANADA	12.00	BAGUETA	12.00
TOASTED	5.00	MACARONS	12.00
CASSAVA	7.00	KEJAPAN	12.00
BURGER SANDWICH	6.00	YEWA	12.00
POPCORN	3.00	SINIGAR	12.00
SANDWICH	7.00	PIZZA	12.00
BANANQUE	5.00	DRINKS	12.00



10 Nutritional Guidelines for Filipinos

(Mga Gabay sa Baitang Nutrisyon Para sa Pilipino)

English: The Nutritional Guidelines for Filipinos are primary recommendations to promote good health through proper nutrition.

1. Eat a variety of foods everyday.
2. Eat more fruits and vegetables in all meals and have one serving each while watching fat/sodium/sugar.
3. Eat more protein to support growth through proper diet and exercise. Don't grow up early.
4. Consume fat, for most quality in small amount.
5. Eat more calcium to support growth and bone health.
6. Eat more iron-rich foods to support growth and energy.
7. Consume only salt and sodium in their natural form. Salt is not good for health.
8. Use iodized salt. Don't use excessive table salt.
9. Eat more whole grains.
10. Consume only pure and good quality oil and fats.



Objectives of Cooking Systems Assessment

The goal of the study was to assess the current status of cooking systems being used in public elementary schools in the Philippines and to describe the cooking practices within the setting of the school related to the SBFP. Specifically, the objectives of the study were the following:

.....

1 To describe the cooking system situation in schools in terms of the following:

.....

- Amount and type of cooking equipment
 - Characteristics of cooking place
 - Energy source used in cooking
 - Stoves used in cooking
-

2 To define the responsibilities of the following stakeholders in school-based feeding:

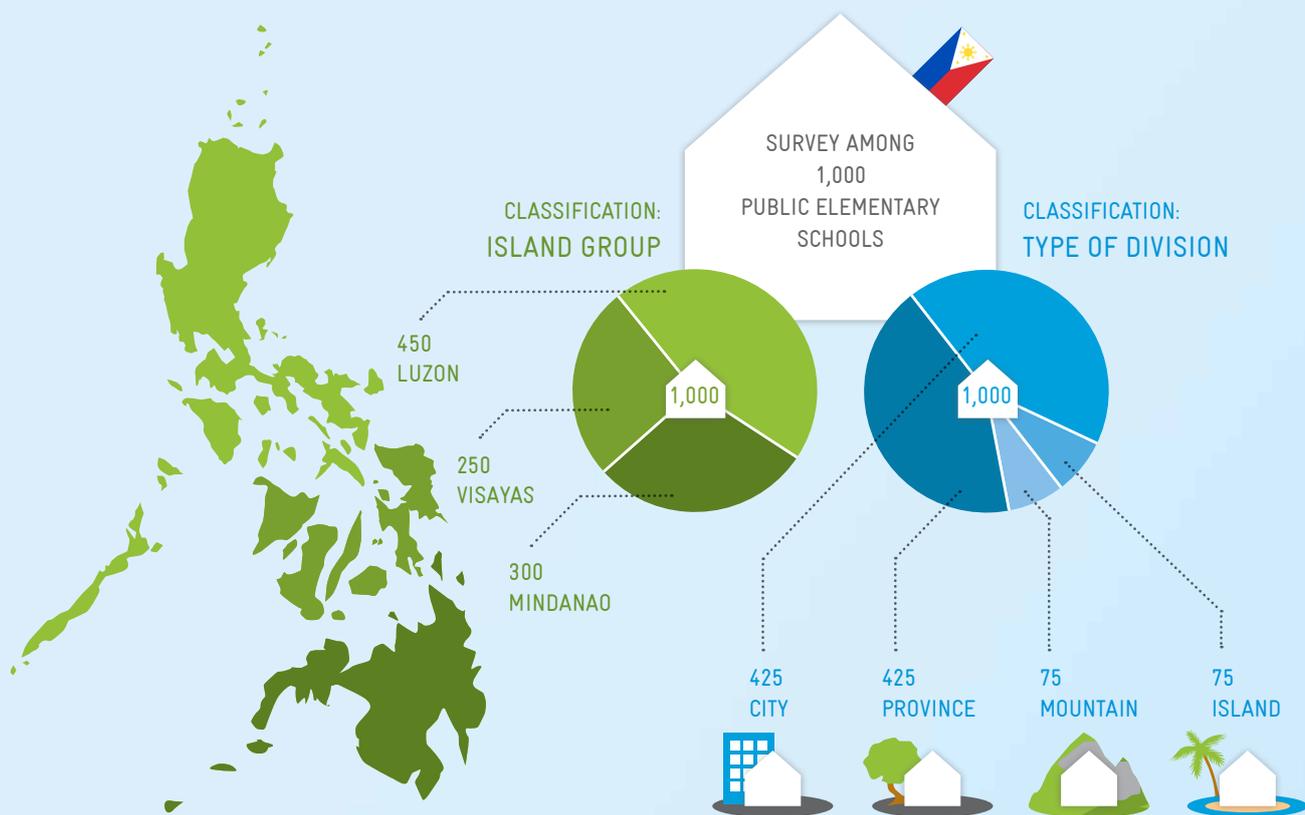
.....

- Department of Education
 - School Principal
 - Teachers and School Head
 - Parents
 - Students
 - Local Government
 - Private sector and NGOs
-

3 To formulate recommendations for inputs to:

.....

- Policy and design of SBFP
- Scale-up of SBFP



Number of Public Elementary Schools in the Country SY 2014 // Table 2

	Number of Schools	Percent of Schools Targeted for the Survey
Luzon	17,346	45%
Visayas	9,973	26%
Mindanao	11,329	29%
Total	38,648	100%

Number of Schools Participated in the Study // Table 3

	Schools in Sample (n)	Schools Responded (n)	Response Rate (%)
ISLAND GROUP			
Luzon	450	289	64%
Visayas	250	186	74%
Mindanao	300	180	60%
TYPE OF DIVISION			
City	425	247	58%
Province	425	296	70%
Mountain	75	68	91%
Island	75	44	59%
Total	1,000	655	66%

3. Methodology

Sampling

The study used a two-stage, proportionate mixed stratified-random and purposive sampling. A total of 40 divisions were proportionately sampled from each of the 3 major Island Groups – Luzon, Visayas, Mindanao. The divisions were further classified into four types of divisions: City Division and Province Divisions following DepEd classification, and purposive selection of remotely located divisions classified into Mountain and Island Divisions according to location.

A total of 1,000 public elementary schools (approximately 3 % of the total public elementary schools in the country for SY 2014) were selected to participate in the study.

Survey Administration

A paper-based self-administered questionnaire was developed by a team from DepED and GIZ. The tool consisted of five parts to gather information on the following:

-
- Basic school information
-
- Cooking place and stoves
-
- Cooking equipment
-
- Energy source
-
- School feeding practices
-

Majority of the items were formatted as a checklist while an open-ended section asking for problems encountered in cooking system was included to allow deeper understanding of scenarios that need to be addressed. Pilot-testing of the tool was done in 11 schools from three different areas, Quezon City, Maguindanao and Batangas. Schools were also asked to provide photos of their cooking system environment by submitting electronic copies via email.

DepEd Central released a memo containing the purpose of the study and expected participation of schools which was addressed to Regional Directors and School Division Superintendents (SDS). A focal person was assigned in each Division to distribute the questionnaires to the sampled schools. Questionnaires were answered in each school by the school feeding coordinator, principal, or designated teacher. The division focal person collected the accomplished questionnaires and sent them back via courier service to the GIZ office in Manila for data encoding, processing and analysis. Data collection was conducted between December 2015 and February 2016 wherein schools were given four weeks to complete the questionnaires.

Double encoding using Microsoft Excel 2013 was done guided by a coding manual to reduce errors. Qualitative data were coded by a group of researchers who identified major themes from the reported problems in cooking system prior to encoding. Data cleaning and data analysis was done using STATA SE version 13.1.

Characteristics of Surveyed Schools

A final sample of 655 schools out of 1000 schools answered the questionnaire resulting in a response rate of 66 %. The findings will be discussed in the following section showing the differences between the 3 main Island groups and the main types of divisions – City and Province. The small and purposive sample size on Island and Mountains schools are discussed in a separate section.



5. Findings

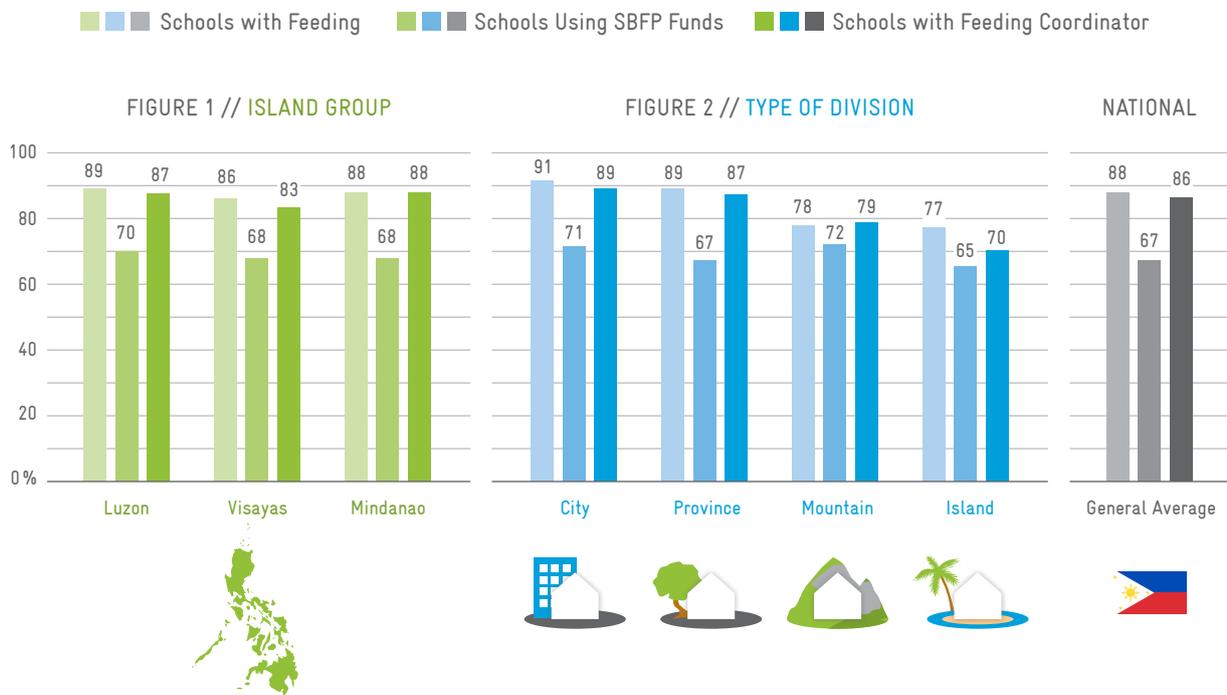
Status of School Feeding

Of the participating schools, 87% had feeding programs running for at least 1 to 2 years. Despite national implementation and availability of funds, only 60% of the schools reported using SBFP funds. Nearly all of those schools implementing school feeding programs had an assigned feeding coordinator. The figure does not differ much across island group (Fig 1) and types of division (Fig 2). Additional support from PTA, LGU, NGOs, and canteen proceeds augment the feeding program in half of the SBFP funded schools. However,

the study did not specify the amount of support from these respective other sources. Some of the schools also highlighted the importance of “Gulayan sa Paaralan” in school feeding but face problems in maintaining it during school holidays.

“During summer time, the school can’t maintain its ‘Gulayan sa Paaralan’ because of lack of water supply so feeding program is not done on a regular basis. There should be a continuous feeding program since many pupils were identified for feeding.”

Status of SBFP Implementation // Figure 1 & 2



Despite the DepEd mandate that all public elementary schools receive SBFP funding, 31 % of the schools reported that SBFP funds were not being used. Figure 3 shows that significant percentage of schools use the support/funds from MOOE, LGU, PTA, NGO and canteen proceeds. Most of the schools received support from two or more of these sources.

The use of SBFP funding must clearly be encouraged and is the best way for the schools to be able to implement SBFP to all beneficiaries. While there were schools that receive funds from donor organizations, the funds they have were still reportedly not enough to cover their actual target beneficiaries. While the policy aims to target all severely wasted and wasted Kinder to Grade 6 students, budget discrepancies may happen as the actual beneficiaries for the current year exceed the expected beneficiaries which is based on data from previous year and budget allocation from the division. The guidelines further indicate that severely wasted children should be prioritized over wasted children, and that children from Kinder to Grade 3 prioritized over older children in targeting and encourage schools to augment their funds by tapping other sources and donors. There may be a need to explore the actual coverage to properly address the discrepancies.

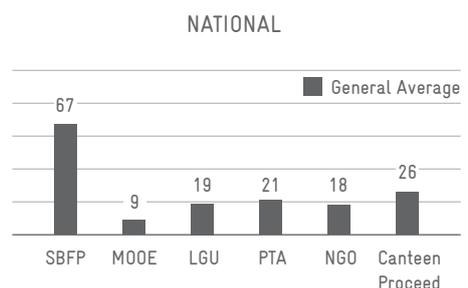
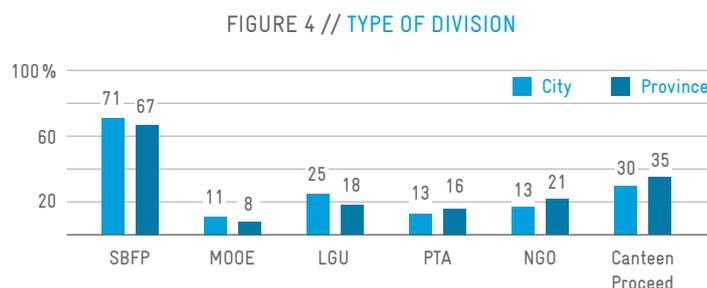
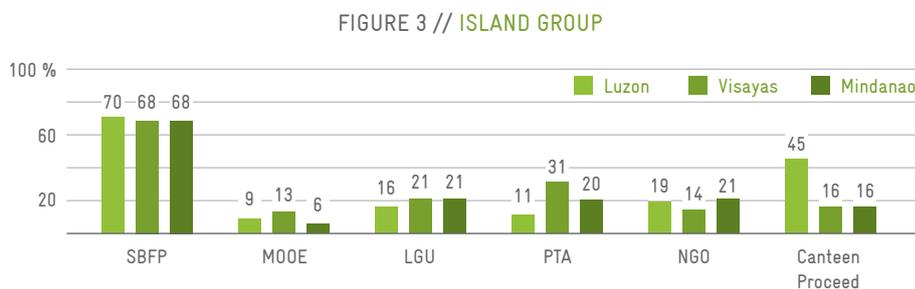
SCHOOL 212 THAT DOES NOT USE SBFP FUNDS AND INSTEAD FULLY RELIES ON NGO SUPPORT ALONE // "Due to insufficient fund, we had also limited number of students or beneficiaries are being supported. Maybe we need other organizations/sponsors that will also support. There is a need for our students to continually receive assistance for us to reach the 100 % normal for the said beneficiaries at the end of the school year program."

Several schools reported additional issues in administrative procedures when using SBFP funds such as delays and complicated process of liquidation. These issues may also be the reason why some schools were reluctant or hesitant to rely on SBFP funds.

SCHOOL 92 // "Funding is okay but it should be given ahead of implementation."

For liquidation and documentation purposes, schools had to submit official receipts of items they bought for cooking, which added to the management requirements and the responsibilities of a school principal. This also proved to be difficult especially for remote schools, as they oftentimes only have access to informal public markets. Procurement from local markets or farmers should be promoted to support local economy, but it is not preferred as these local markets cannot provide official receipts. Grocery stores that issue receipts were oftentimes far away and traveling there requires time and financial resources.

Sources of Funds for School Feeding // Figure 3 & 4



SCHOOL 151 // "No receipt from public market."

SCHOOL 156 // "Lots of paper work."

The delays in receiving funds also caused lapses in implementation. Should the school aim to be diligent in implementation, this caused additional burden to school personnel who resorts to using their own personal resources.

SCHOOL 734 // "It requires almost a month from the day of filing the request. Release of SBFP funds is delayed."

SCHOOL 871 // "Liquidation was done but the cash advance is delayed. To continue feeding we make (utang) to our co-teacher for financing."

SCHOOL 156 // "Sometimes claiming of funds is late. Thus, the teacher needs to come back causing expensive fare."

These experiences were reflected in the response of 28 % of the schools pointing out funds are not enough to buy the ingredients and cover all feeding beneficiaries (Fig 5). This concern was most pronounced in Visayas (33 %) followed by Luzon (28 %) and Mindanao (24 %). There were slightly more City schools (34 %) who complained of limited funding compared to Province schools (28 %) (Fig 6).

SCHOOL 81 // "Due to insufficient funds, the food we prepare is not enough for the beneficiaries."

SCHOOL 528 // "Php 15 per child is not enough because the commodities were very high in cost."

There were also schools that said the amount received from SBFP was not enough for food but the budget for operational expenses is not enough. They required parents to bring additional ingredients and condiments to complete the dishes. They also claimed that the costs of transportation to and from the market were not well covered in the budget.

SCHOOL 870 // "The 1.00 for operational expenses is not enough for the fuel and cooking equipment. Insufficient fund."

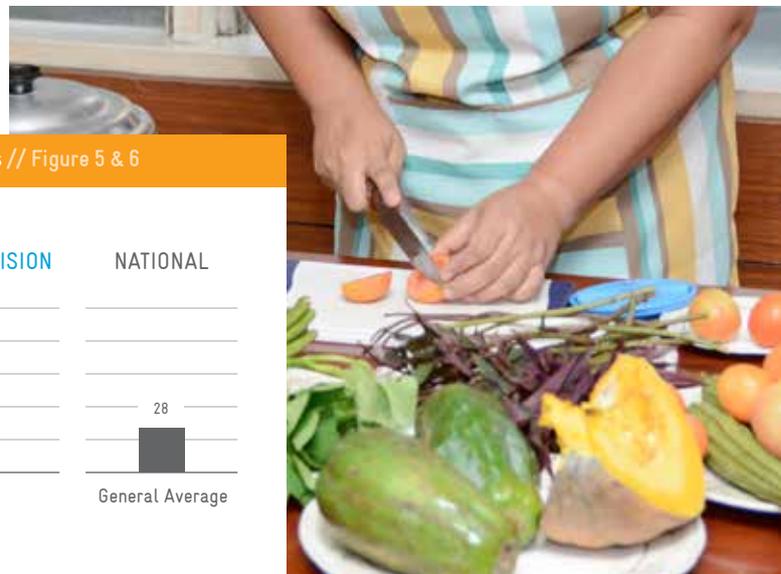
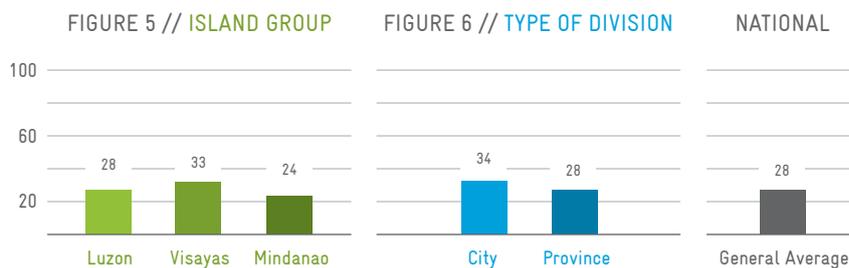
SCHOOL 43 // "Sometimes parents (are in difficult situation about) where to get the things they will use like sugar and cooking oil because sometimes the assigned cook will be the one to provide sugar and vegetables through their own expense."

SCHOOL 912 // "Fund allocated for the transportation is not enough considering as one of the farthest school in our district."

Several schools also reported the need for additional equipment and repairs of cooking place. There were some school heads who do not tap appropriate budget lines available to improve their cooking systems and to manage the SBFP appropriately. While cooking utensils cannot be charged to school MOOE, the SBFP operating expenses could be tapped and augmented by other income-generating programs of the school (IGP).

SCHOOL 543 // "As a school head, I would like to see our kitchen more improved since equipment/kitchen utensils cannot be charged to our MOOE. Presence of such tools would satisfy and give better services to our children."

Schools with Concerns on Limited School Feeding Funds // Figure 5 & 6



Beneficiaries

The average number of student enrollees per school was 413, with schools having less than 100 enrollees to schools having as many as 4,382 enrollees. Of these children, an average of 13 % out of all responding schools were determined to have low weight and height for their age and thus were targeted as school feeding beneficiaries.

Schools in Luzon had the lowest percent coverage at 10 %, followed by Visayas at 15 % and Mindanao with the highest at 16 % (Table 4). The school feeding coverage could also reflect the differences in nutritional status and economic status of children living in these island groups. The estimated national average number of student beneficiaries per school was 41 students. The average beneficiaries in Luzon (41 students) and Mindanao (45 students) did not vary much from the national average while the average was considerably less in Visayas with only 29 beneficiaries but with the broadest range. The proportion of disadvantaged children living in Mindanao is higher than in Luzon. However, schools in Luzon and Visayas have bigger population and thus face bigger logistical problems in feeding more children in every feeding day.

The data further showed that the challenge of SBFP is bigger for schools in city divisions compared to province divisions as they have higher average number of beneficiaries (51 students vs 37 students) and percentage coverage (14 % vs 12 % respectively) compared to schools from province divisions.

The huge differences in the actual number of beneficiaries reflect the variation in nutritional status. These show the variation in the needs of the schools to properly implement school feeding not only in terms of financial and cooking supplies but also in manpower requirements and management strategies. Food preparation for hundreds of children is a different management task and would require more time and effort compared to cooking for only 10 children.

Interestingly, a further look at the data showed that percentage of beneficiaries out of the total enrollment was related to the school size. Bigger schools had lower percentage of feeding beneficiaries than small schools. However, this could also be explained by the fact that there were more big schools in Luzon compared to the other Island groups Visayas and Mindanao where more provincial and remote divisions were located and therefore had higher prevalence of malnutrition. In addition, 58 % of schools reported an increase in feeding beneficiaries between 2 school years which was linked to an increase demand in resources for school feeding.

One in every 8 children were school feeding beneficiaries.

SBFP Targets per School // Table 4

	Average Enrollment	Percentage of School Feeding Beneficiaries	Average Number of School Feeding Beneficiaries	Lowest Number of Feeding Beneficiaries in a School	Highest Number of Feeding Beneficiaries in a School
ISLAND GROUP					
Luzon	504	10 %	46	2	516
Visayas	287	15 %	29	2	697
Mindanao	391	16 %	45	2	210
TYPE OF DIVISION					
City	502	14 %	51	2	697
Province	405	12 %	2	4	192
Total	413	13 %	41	2	697



Cooking Facilities

→ Cooking Place

Of the surveyed schools, 74% said they have a designated place for cooking within school grounds. This figure was similar across all island groups (Fig 7) and types of division (Fig 8). Schools without a cooking place prepared meals by improvising on open school grounds or asking volunteer parents to cook at their homes and bring food to the school.

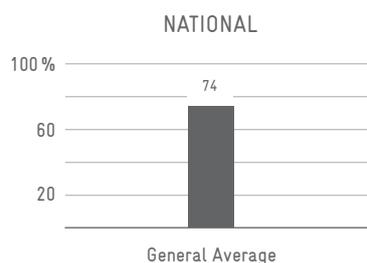
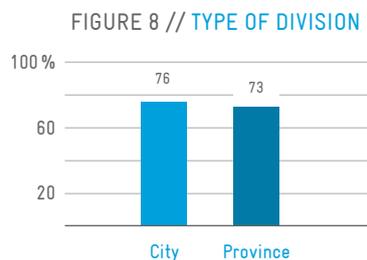
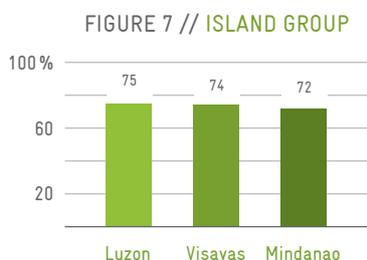
SCHOOL 913 // "School has no cooking area... and has no available cooking equipment. Parents have to cook in their household for there is no available cooking equipment in school and have to bring it in school for feeding."

Only 58% of the schools had a school canteen where children can buy food. However, an even lower percentage of 34% of schools had a canteen where cooking is possible. Almost all of these school canteens were run by school cooperatives, an organization usually composed of parents, teachers, and alumni. Significantly more schools in Luzon (53%) had school canteens where cooking is possible compared to Visayas (21%) and Mindanao (16%) which could reflect that schools in Luzon have better facilities than schools in other parts of the country (Fig 9).

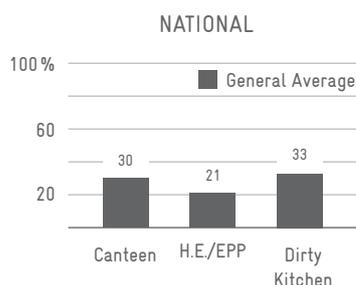
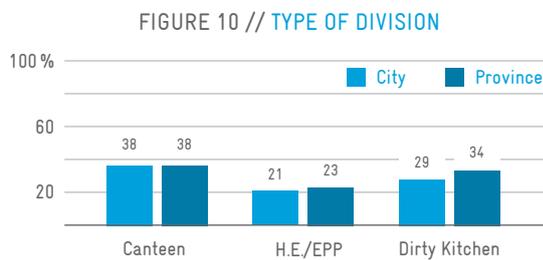
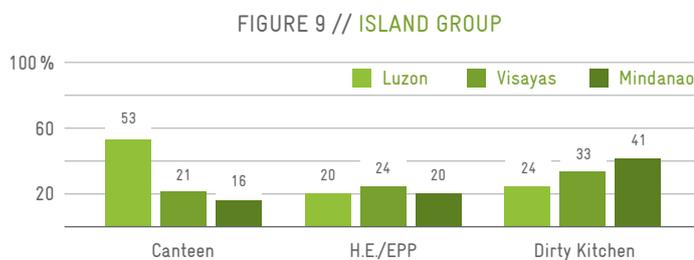
Some schools said that use of the canteen for cooking for regular school feeding was inappropriate because it does not have the right space. Further, the school canteens were used as a shared space between the school-funded school feeding and proprietary selling of foods which causes delay in preparation and serving of meals.

SCHOOL 154 // "Late eating habit because the place (canteen) is occupied by food preparation of recess."

Schools with a Cooking Place within School Grounds // Figure 7 & 8



Types of Cooking Place in School Grounds // Figure 9 & 10



A significant number of schools (21 %) also used their Home Economics (H.E.) room or Edukasyon Pantahanan at Pangkabuhayan (EPP) in Tagalog. EPP is a subject in school where children learn household chores including cooking and cleaning and performing these tasks in a room that simulates a typical Filipino home. Use of the EPP room however, meant that EPP classes cannot properly be held in the place instead. Its adequacy for bulk cooking was also in question as the kitchen set-up mimics a common household. Based on SBFP policy, children should also consume the food at a designated feeding area in the school and to bring the food elsewhere. However, H.E. rooms cannot accommodate a large number of students to eat at the same time.

SCHOOL 31 // "Designated HE room is used for cooking place and canteen. HE room is not well-ventilated ... insufficient dining table."

Another common type of cooking place is the so-called dirty kitchen which is especially prevalent in Mindanao schools (41 %) and to a smaller extent in

Visayas (33 %) and Luzon (24 %). Dirty kitchens are outdoor kitchens which may or may not be roofed which main purpose is to keep indoors free of smoke and smell from cooking. These are commonly seen in the Philippines and other countries in Asia. While household dirty kitchens are efficient in keeping smoke and fire-hazards away from homes and in maintaining sanitary conditions, dirty kitchens in some schools were reportedly not appropriate for SBFP purposes. Among the concerns were lack of appropriate roofing that makes cooking impossible during rainy and windy weather, having small space and lack of water supply.

SCHOOL 184 // "Sometimes it is hard to cook, especially during windy or rainy days, because the cooking place is an open area."

SCHOOL 75 // "It is very narrow and there is no sink available."

SCHOOL 531 // "The cooking place has no roof to protect from the heat of the sun."

SCHOOL 914 // "No available water supply."



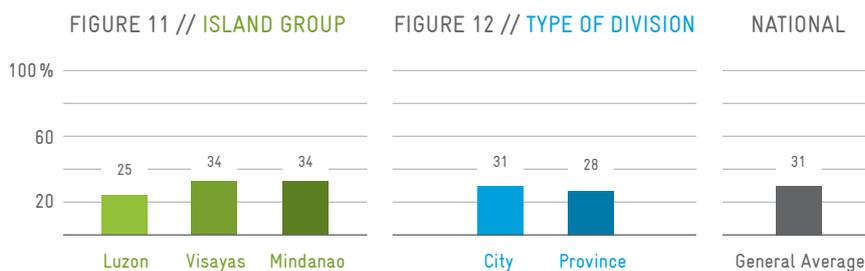
Nearly one-third of the schools complained about not having a cooking place or not having adequate space for cooking, which is a common problem across all island groups (Fig 11) and division types (Fig 12). But this is the least problem in Luzon which also had the most schools with school canteen. In some cases, the school used one of their classrooms or the principal's office for cooking while some used a make-shift cooking place on open school grounds which cause inconveniences in cooking and preparation because extreme weather conditions such as hot weather and rain made it impossible to cook food.

SCHOOL 32 // "Cooking is done mostly on the school ground so when it is windy or raining cooking will not be done ... takes time to set the cooking place."

There were also worries about health hazards and safety in the cooking place including problems in ventilation and smoke inhalation especially when using firewood. Some schools had their cooking place in a flood-prone area while some schools had unsecure cooking place where burglars can come in to steal school property.

SCHOOL 165 // "We need a safer, more secured canteen so that the cooking equipment need not to be moved to a safer room."

Schools with Concerns on Inadequate Cooking Space // Figure 11 & 12



→ Feeding Area

Schools reported on problems in actual food serving and dining, particularly for schools with a large number of recipients. They also talked about challenges related to having a dedicated space for feeding that can accommodate all of the children at the same time. Among the common needs for the feeding area they listed were:

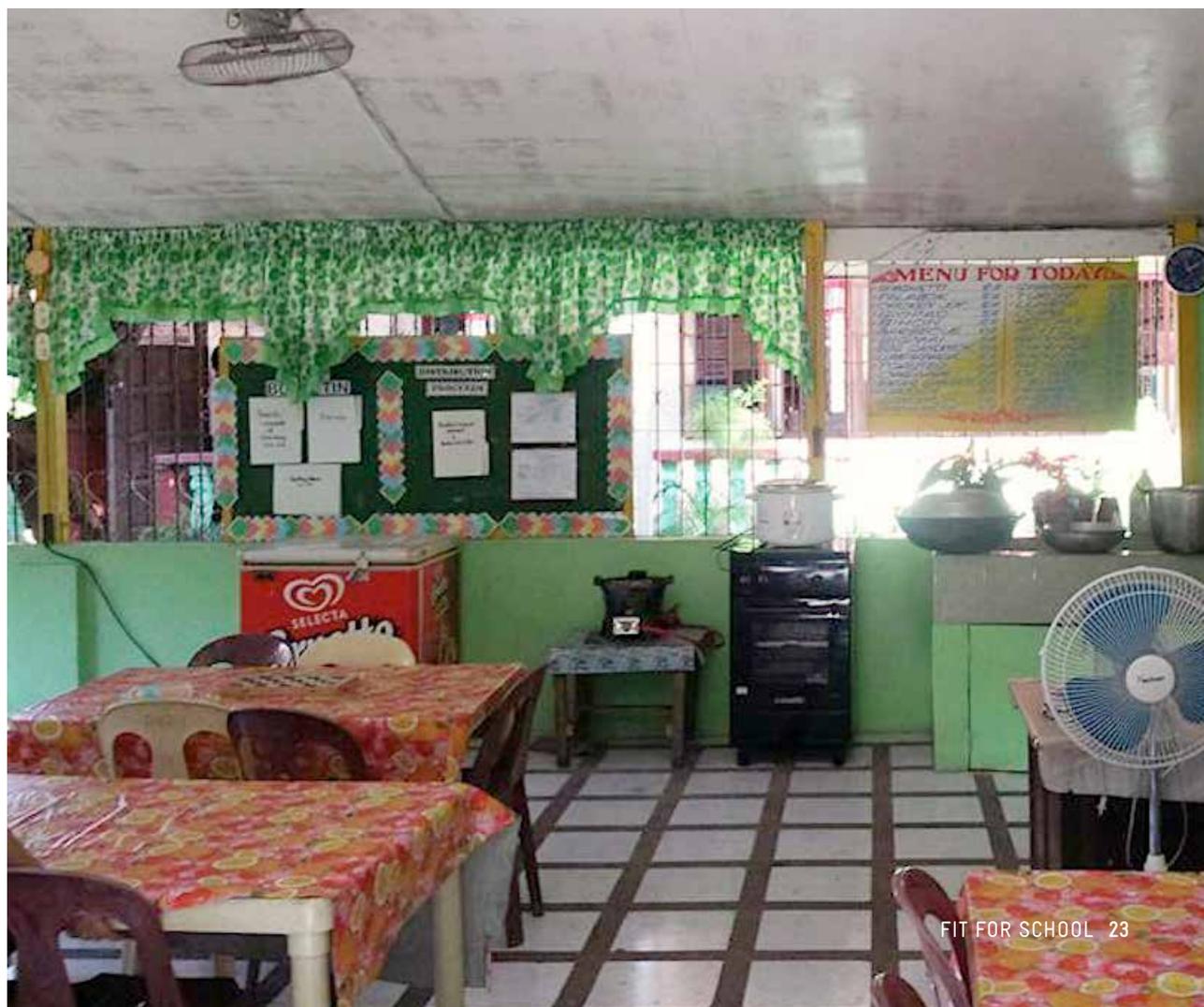
.....
→ Adequate dining space
.....

→ Dining table and chairs
.....

→ Eating utensils such as spoons, forks,
plates and glasses
.....

→ Potable water supply
.....

SCHOOL 728 // "Needs sufficient and potable water supply for the school feeding activities."
.....



→ Cooking Equipment

Schools need basic cooking equipment to allow food preparation for school feeding. Considering the bulk of food needed to be cooked and the nature of the recommended recipes from DepEd, schools usually have to prepare at least two different dishes: rice and viand. The survey asked about the characteristics and quantity of cooking pots and stoves that the school has. To ease the cooking process, schools would need 2 big cooking pots and 2 stoves. Having less than this would mean a prolonged cooking time.

Results showed that a third of the schools had limited cooking equipment, with only 63% of the schools with at least 2 cooking stoves and 66% have at least 2 cooking pans (Fig 13). The ownership of 2 cooking stoves was similar across island groups and division types (Fig 14). However, disaggregation by main island group shows that more schools in Luzon (71%) had at least schools with at least 2 cooking pots or pans, and quite similar situation in Mindanao (66%), while only half of schools in Visayas had at least 2 cooking pots.

Further, a third of the schools reported having inadequate cooking equipment. The problem was most prominent in Mindanao (39%), followed by Visayas (36%) and least in Luzon (29%). Furthermore, slightly more schools in province division (39%) compared to city division schools (34%) expressed complaints (Fig 14).

The survey also revealed common requests from the schools to have the following:

→ Big pots and pans to accommodate bulk cooking

→ Double burner stove to allow to cook rice and viand at the same time

→ Cooking utensils such as spoons, spatula, tongs, knives, chopping boards, containers, basins, trays, measuring cups

Adequacy of Cooking Equipment in Schools // Figure 13 & 14

FIGURE 13 // ISLAND GROUP

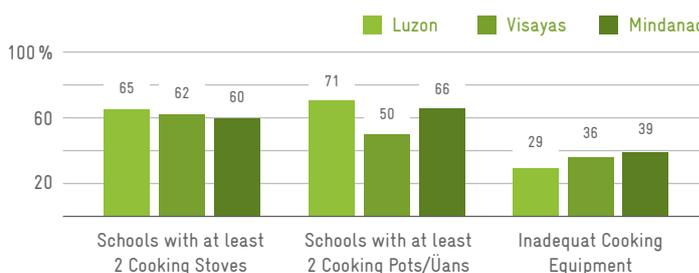
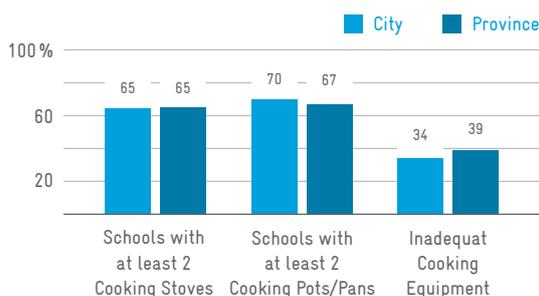
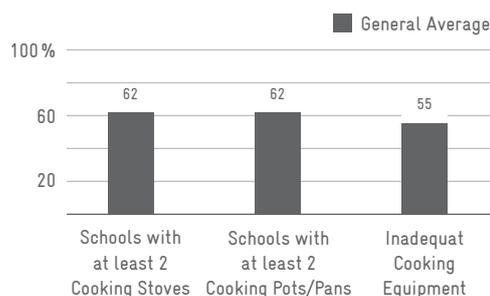


FIGURE 14 // TYPE OF DIVISION



NATIONAL



SCHOOL 75 // "There should be a double burner gas stove" –

SCHOOL 160 // "One stove is not enough especially there are many children to be fed"

For schools that did not have cooking equipment, they resort to borrowing from teachers, parents and the barangay which is something unreliable for a regular and long-term feeding. There also expressed problems on having old and broken cooking equipment.

SCHOOL 43 // "There is no cooking equipment. Teachers borrow the cooking equipment of the barangay. Teachers lend cooking pots but it is small and cannot cater the needs of all pupils. The school do not use kawali but instead use the big pots for cooking."



Fuel Used in Cooking

→ Type of Fuel Used in Cooking

Figures 15 and 16 describe the fuel used in schools based on reported cost in using each type. Despite 64 % of the sample schools having gas stoves, only 34 % reported to make use of LPG to prepare meals. Only 36 % reported on usage of charcoal or wood for cooking despite more schools owning improvised cooking stoves. Use of electricity was reported in 27 % of the schools which approximates the percentage of schools with rice cooker and electric stoves.

The mismatch in usage of energy sources and ownership of corresponding cooking stove could be explained by owning a stove and not using it in preference to another type of stove. The reported monetary costs of energy sources as a proxy indicator

for usage could have led to underestimation especially for charcoal and wood which were reportedly asked from parents and students as in-kind contribution to SBFP.

LPG was more commonly used in Luzon (49 %) than in Mindanao (26 %) and Visayas (19 %). Also, LPG was more common in city schools (44 %) compared to province schools (34 %). A complimentary figure shows that the usage of charcoal and wood was more widespread in Visayas (48 %) and Mindanao (43 %) compared to Luzon (25 %); and more in province schools (40 %) compared to city schools (32 %).

SCHOOL 851 // "Improvised stoves and cement block will be used if we cook plenty and times that the fuel gas is already consumed."

Types of Fuel for Cooking in Schools // Figure 15 & 16

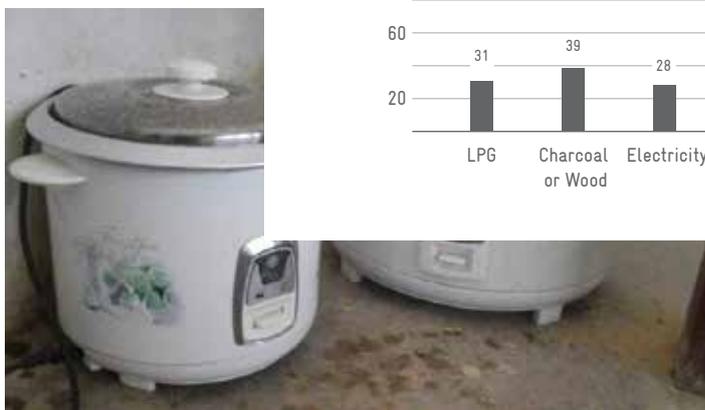


FIGURE 15 // ISLAND GROUP

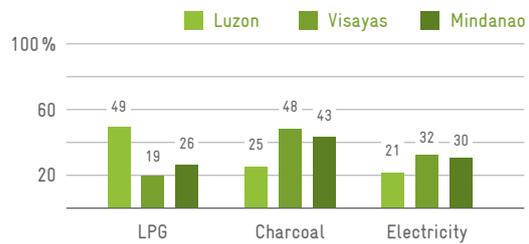
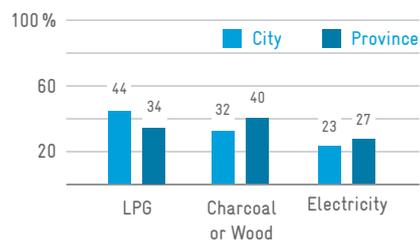
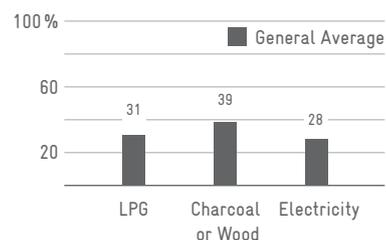


FIGURE 16 // TYPE OF DIVISION



NATIONAL

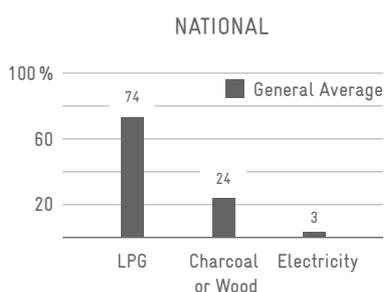
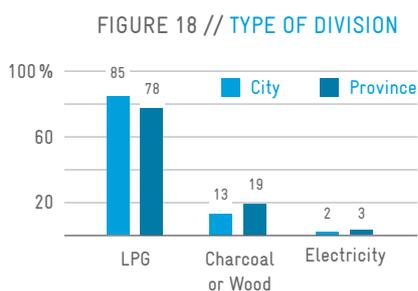
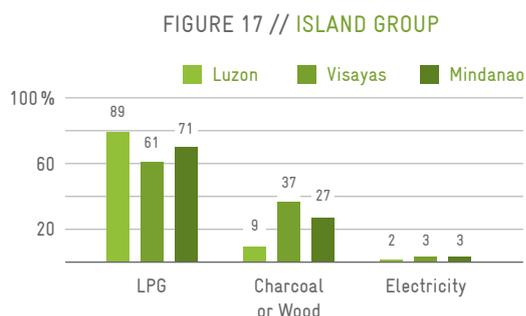


→ Preferred Type of Fuel

The most preferred source of energy for cooking was LPG (Fig 17) because of the convenience of setting it up, less smoke, and hotter burning capacity allowing for faster cooking. A huge majority of schools in Luzon (89%) prefer LPG, followed by Mindanao (71%) and least in Visayas (61%). Despite inconveniences and health hazards, there were still some schools that prefer cooking with charcoal or wood because it is the most readily-available fuel type in their area. In particular, more schools in Visayas prefer charcoal or wood (37%) compared to Mindanao (27%) and very few in Luzon (7%).

The distinction in preference of energy source was closely comparable across types of divisions: 85% of city schools and 78% of province schools prefer LPG while only 13% and 19% respectively, prefer using charcoal or wood (Fig 18). Only very few schools prefer usage of electricity. Almost a third of the schools across all areas also had an electric rice cooker in addition to gas or improvised cooking facility. Only a few schools own an electric stove which is also a less common and more expensive type of stove.

Preferred Type of Fuel for Cooking in Schools // Figure 17 & 18



USED AND PREFERRED TYPE OF FUEL FOR COOKING IN SCHOOLS



LUZON:
49% USE MOSTLY LPG
89% PREFER MOSTLY LPG



VISAYAS:
48% USE MOSTLY CHARCOAL OR WOOD
61% PREFER MOSTLY LPG

MINDANAO:
43% USE MOSTLY CHARCOAL OR WOOD
71% PREFER MOSTLY LPG

Overall, the most common type of cooking systems that schools use were gas stoves and improvised facilities. Gas stoves were the most used system in Luzon (85%), but less in Mindanao (52%) and Visayas (42%). Improved cooking stoves such as those made of stones or metal which uses firewood or charcoal as source of energy were most prominent in Visayas (77%) followed by Mindanao (71%) and least in Luzon (41%) (Fig 19). This data is also consistent with cooking place available in the school. Presence of gas stoves in schools was slightly more in city schools (73%) compared to province schools (66%). Improved stoves were more prevalent in province schools (65%) compared to city schools (47%) (Fig 20).

Type of Cooking Stoves in Schools // Figure 19 & 20

FIGURE 19 // ISLAND GROUP

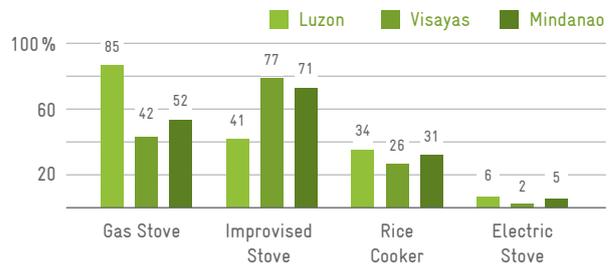
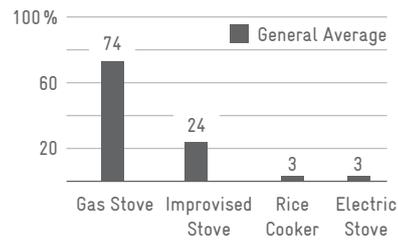


FIGURE 16 // TYPE OF DIVISION



NATIONAL



**MOSTLY USED
COOKING STOVES
IN SCHOOLS**



LUZON:
85 % GAS STOVES



VISAYAS:
77 % IMPROVISED STOVES

MINDANAO:
71 % IMPROVISED STOVES



Sources of Funds

→ Funds for Repair

Figure 21 shows that the most common source of funds for cleaning and repair of cooking systems were personal contributions from teachers and school head (29%), followed by donations from parents or use of the PTA fund (25%) and income from canteen and other income generating projects (IGP). Some of the schools also used MOOE (18%). This profile did not significantly vary across types of division (Fig 22). However, use of canteen proceeds was twice more prevalent in Luzon (36%) compared to Mindanao (18%) and Visayas (11%). On the other hand, more schools from Visayas tap on the contributions from parents and PTA funds (32%) compared to Mindanao (29%) and even less in Luzon (18%).

There were also a few schools that use contributions from LGU, community and NGOs while very few also stated that they did not need any repairs so far. The findings indicate the need to clarify available budget lines for the schools to tap so that out-of-pocket contributions from teachers, principals and parents could be avoided.

Sources of Funds for Repair of Cooking Systems // Figure 21 & 22

FIGURE 21 // ISLAND GROUP

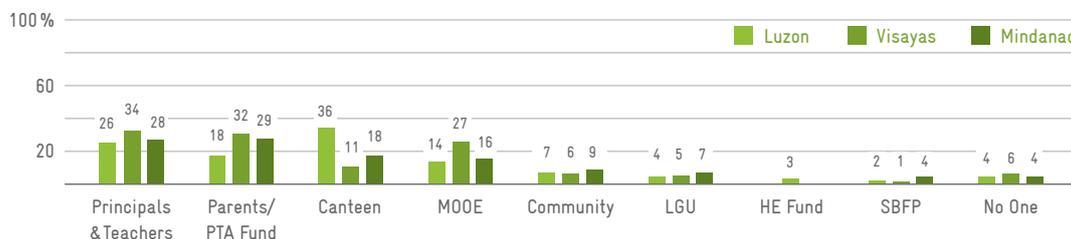
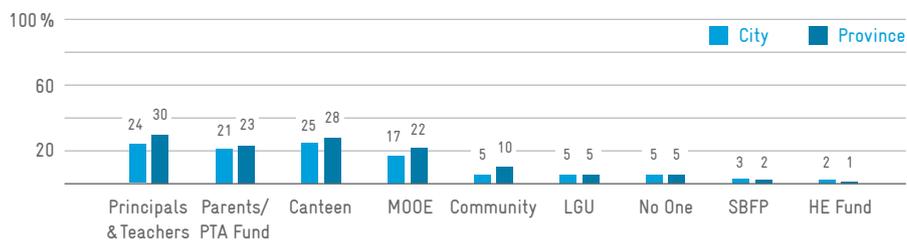
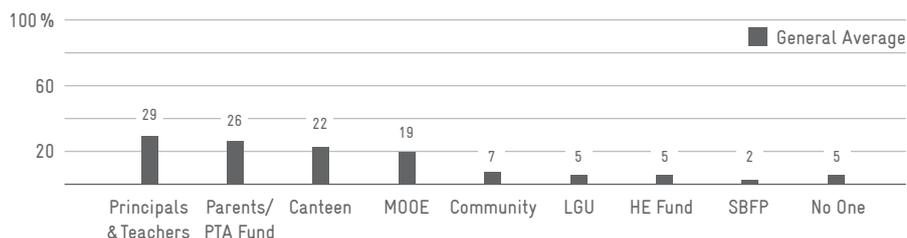


FIGURE 22 // TYPE OF DIVISION



NATIONAL



→ Funds for Fuel

Almost all of the schools that reported expenditures on LPG from MOOE funds. Their budget is further augmented by canteen proceeds and other income-generating projects of the schools, donations from parents and PTA funds, and out-of-pocket contributions from teachers. Few schools also get funding from their respective LGU. The results do not differ much across island groups and types of division (Fig 24) except in Luzon, where more schools rely on canteen proceeds to fund LPG (Fig 23).

→ Sources of Funds for Charcoal/Wood

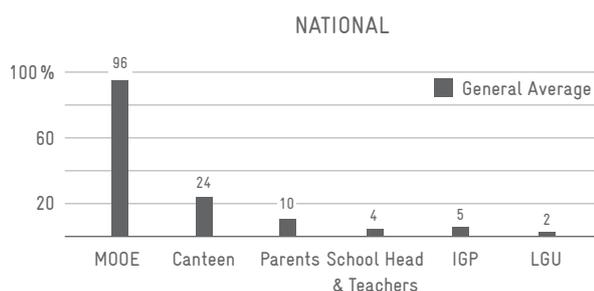
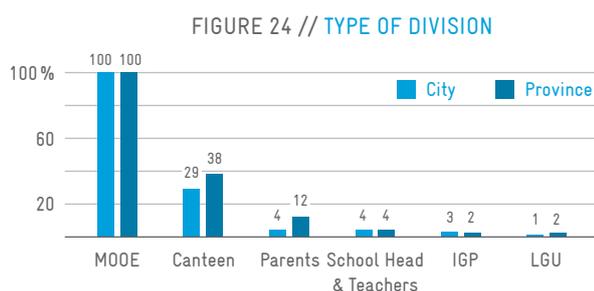
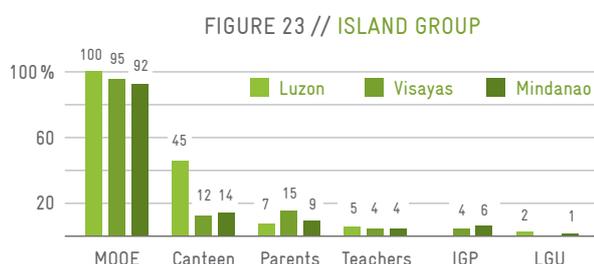
Most of the schools that reported usage of charcoal or wood for cooking were unable to report associated costs possibly because these are mostly from in-kind

contributions from parents and students and sometimes usage of firewood from trees within school ground or nearby area.

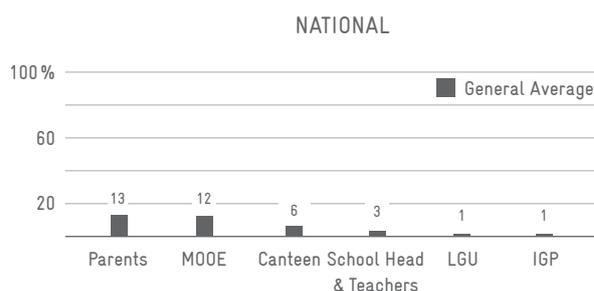
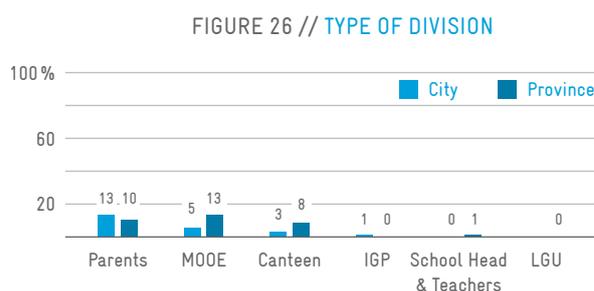
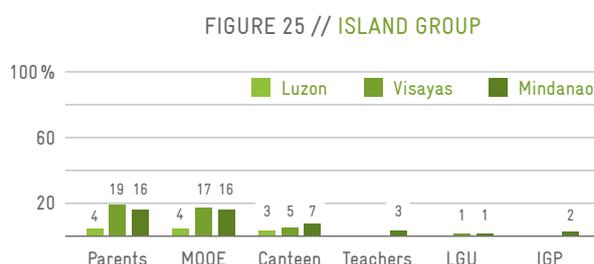
SCHOOL 43 // "We let pupils or parents to bring 2 pcs of firewood as the counter part of the assigned cook for that day. If we use LPG, teachers need to contribute but there were two volunteer teachers so they are hard-up where to get contributions. The school uses firewood donated by parents instead."

Luzon had the lowest percentage of schools which reported any funding for charcoal and wood which is understandable as the primary energy source used in the island was LPG (Fig 25). Between division types, more city schools get support from parents, while more province schools fund charcoal and wood from MOOE and canteen proceeds (Fig 26).

Sources of Funds for LPG // Figure 23 & 24



Sources of Funds for Charcoal/Wood for Cooking // Figure 25 & 26



Manpower

Shortage of manpower to support the school feeding was the most common problem raised by the schools. Manpower requirements for school feeding included shopping for ingredients, preparation of ingredients and actual cooking, serving of food, cleaning after cooking and feeding and repairs of cooking system and dining area.

A big majority of the schools rely on parents for cooking meals, which is highest in Visayas (95%), followed by Mindanao (90%) and least in Luzon (84%). Still a big percentage of schools also rely on teachers which is alternately highest in Luzon (78%), followed by Mindanao (72%) and lowest in Visayas (66%).

While parents are responsible for cooking in majority of the schools across all areas, they are not responsible for cleaning. Cleaning tasks which includes cleaning after cooking, washing the dishes after actual feeding and cleaning the cooking area and feeding area falls on either the teachers and pupils.

The below figures show us that most of the schools rely on teachers for cooking, cleaning and repair tasks related to the school feeding activities. This reality is burdensome to teachers who have to balance teaching and advisory duties along with supporting school programs such as SBFP. Tasks related to school feeding could go throughout an entire school day. The burden of additional work could lead to poor performance of teachers in his/her primary education roles and could also lead to mediocre or poor performance in school feeding as the only way to deal with it is to cut corners on one of the tasks.

Persons Responsible for Cooking Meals for School Feeding // Figure 27 & 28

Persons Responsible for Cleaning the Cooking Area // Figure 29 & 30

Persons Responsible for Repair of Cooking Systems in Schools // Figure 31 & 32

FIGURE 27 // ISLAND GROUP

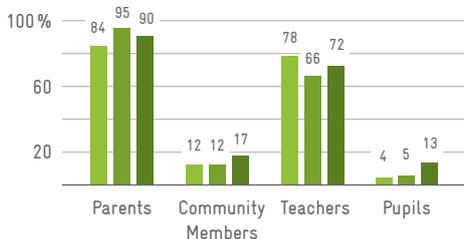


FIGURE 29

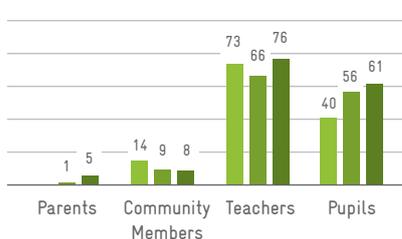


FIGURE 31

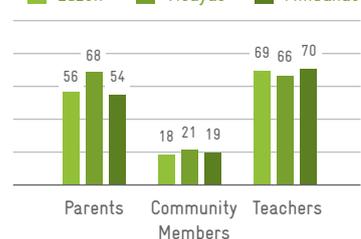


FIGURE 28 // TYPE OF DIVISION

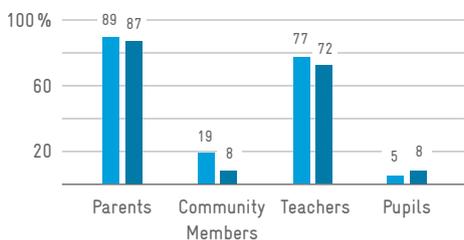


FIGURE 30

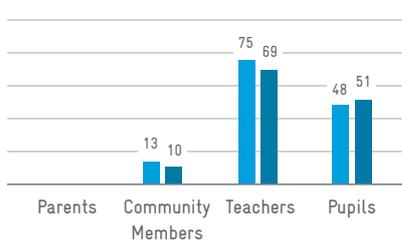
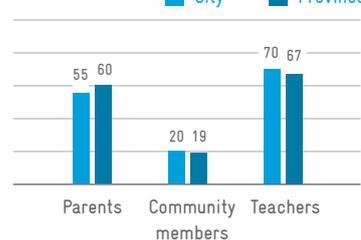
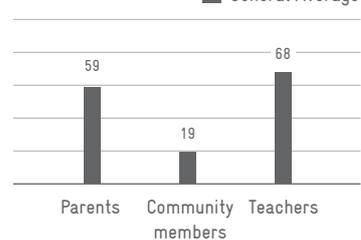
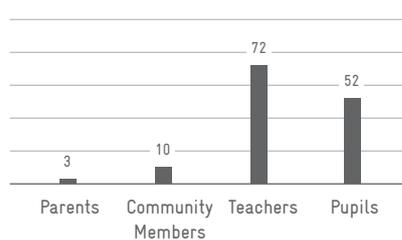
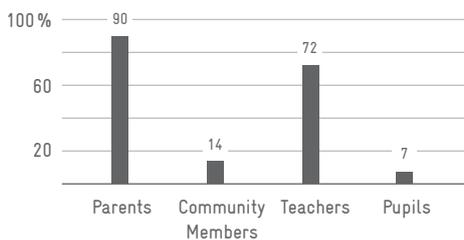


FIGURE 32



NATIONAL



SCHOOL 112 // "The feeding teacher shouldn't be given any other special assignment so that she can concentrate on the work. She can prepare on her best the nutritious foods for the beneficiaries."

SCHOOL 135 // "Insufficient staff. Teachers have to shorten their period to attend food preparation."

In addition, teachers or even the school head are the ones responsible for buying the ingredients from the market. As the all over responsibility of the feeding budget is with the school head, they are hesitant to give this burden to the parents, with whom they do not have an administrative relation, specifically when it comes to liquidation of funds. School heads are responsible for the school feeding budget, proper liquidation and reporting

SCHOOL 84 // "Time consuming. The feeding coordinator has no time to do the marketing for she is a class adviser. No sufficient staff to help in preparation and cooking of food."

SCHOOL 528 // "The school head will be the one to procure everyday especially fish, meat, poultry and vegetables as well. The school head will prepare the food when the parents were not around, the big pupils will help prepare food."

The most common strategy mentioned was to ask parents, especially of the beneficiaries, to take turns in cooking. However, a lot of the parents cannot do this regularly. The culture of "ningas-kugon" is also prominent in SBFP as participation of parents peaks at the start and dwindles as program runs. A lot of the schools (39%) had concrete problems on the

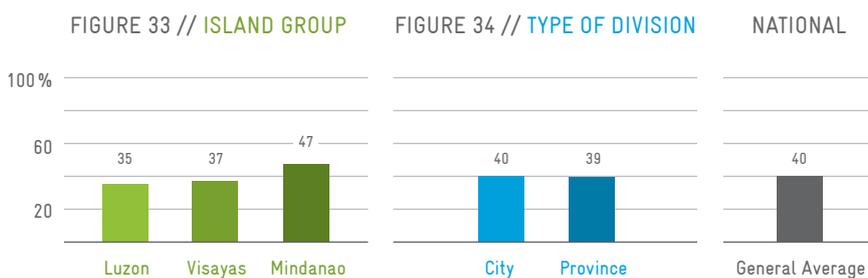
participation of parents. This was the same for both city and province divisions (Fig 34). Across island groups, Mindanao had slightly more schools with concerns on parent participation than in Luzon and Visayas (Fig 33). The usual complaint was that parents cannot commit and are unreliable in showing-up for their scheduled cooking assignment.

SCHOOL 42 // "Sometimes, parents are absent on their schedules date of cooking."

Even when parents are responsible for cooking, the preparation and after work are still with teachers. The figures also show that the cleaning (such as washing cooking materials, and dishes and cleaning of cooking and dining area) is done by teachers in most of the schools. Some schools also ask the older students to help out in cleaning with the supervision of the teachers. This is another task that consumes the energy and time of the teachers.

SCHOOL 43 // "Teachers were the ones cleaning the cooking area. Sometimes they ask the help of pupils. Parents also help specially if there are visitors in the school so they help the teachers. (on repairs) Teachers ask the help of some knowledgeable parents in the community. (on money for maintenance) Teachers will contribute in case there are some repairs needed. Meals were prepared by the parents. Parents were divided so they will rotate every day. Teachers will give instruction so parents will be the ones doing the cooking. Sometimes pupils from Grade V and VI will help fetching water. The school has 143 population of pupils with only 5 permanent teachers... teacher and grade four teachers are volunteer teachers."

Schools with Concerns on Limited Participation from Parents // Figure 33 & 34



Food Preparation

→ Buying of Ingredients from Market

Another prominent problem reported by the schools is the simple activity of buying needed ingredients from the market. Aside from having to assure that the store where they buy all ingredients can issue an official receipt for liquidation purposes, the schools also face practical problems on the distance of the market to the school. Some of the schools are also in inaccessible areas where transportation is hugely inconvenient. And in most cases, shopping for ingredients takes additional effort and time on the part of the teachers.

SCHOOL 33 // "Teacher- adviser don't have enough time in shopping for food."

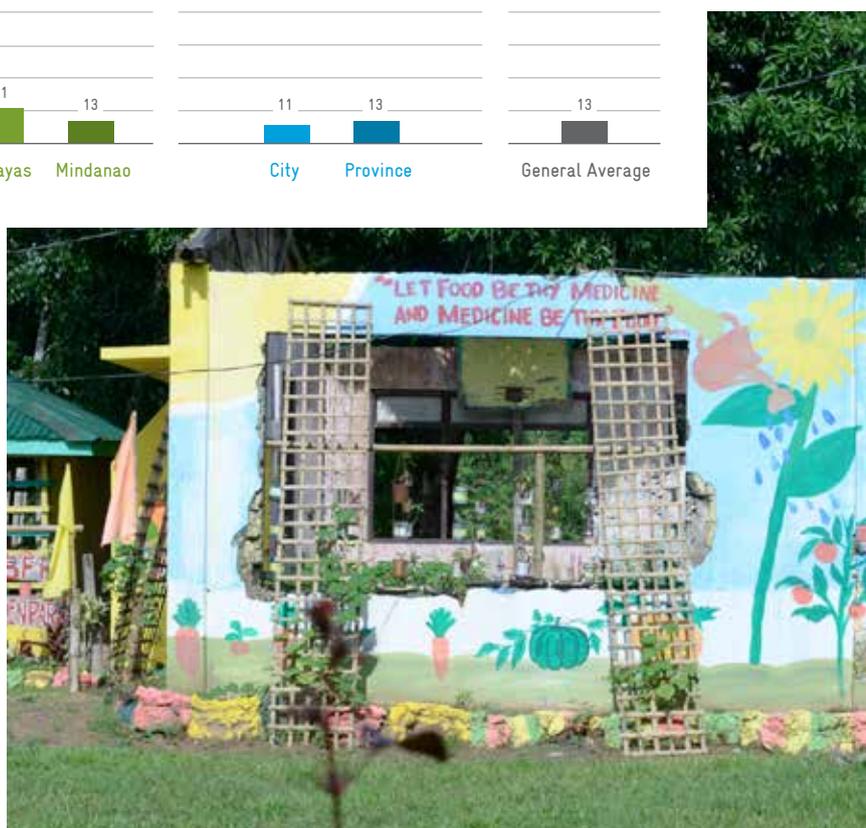
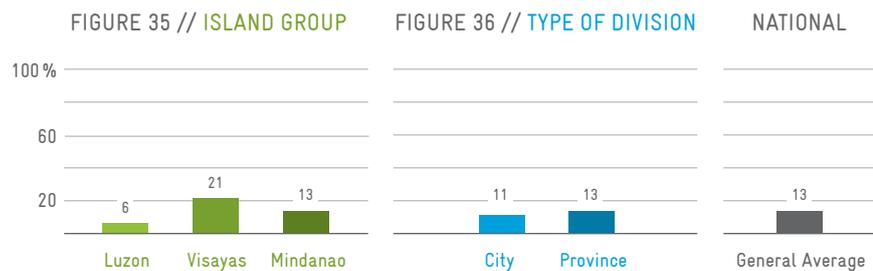
SCHOOL 60 // "We need enough time for buying ingredients wherein we should not affect our free time."

SCHOOL 526 // "Far from the market. The school is accessible only by walking and will last for almost 3 hours."

SCHOOL 914 // "The only source of transportation is motorcycle (habal-habal). Often times when heavy rain occurs marketing and procurement of food commodities are delayed or food are not procured on time."

SCHOOL 912 // "We found it very hard during rainy season to have marketing and procurement of food commodities. We have to extend our own pocket for additional transportation fee."

Schools with Problems on Accessing the Market // Figure 35 & 36



→ Food Storage

Another problem mentioned was the storage of food in the schools. Most of the schools did not own a refrigerator where they can keep frozen and perishable ingredients. Storage of food is a difficult task and requests for daily marketing which takes a lot of time from teacher or school principal.

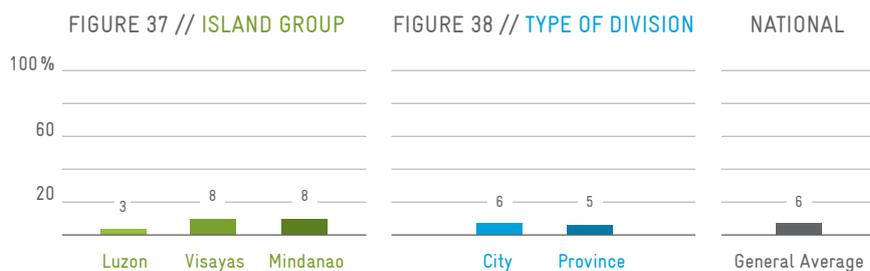
SCHOOL 31 // "Frozen foods cannot be purchased in advance."

SCHOOL 32 // "Problems on freshness of food, time of preparation and marketing."

The lack of storage also causes another problem – schools resort to doing short-cuts like buying unhealthy ingredients such as canned good and instant noodles because these can be easily bought in bulk and stored and saves time for preparation.

SCHOOL 726 // "Commercial food is unavoidable in conducting/ preparing school feeding i.e. Sardines, noodles, and etc."

Schools with on Appropriate Storage of Food // Figure 37 & 38





6. Limitations

This study is an attempt to characterize the different situations public elementary schools have to deal with in implementing school feeding. The non-randomized sampling was done in recognition of the cultural and geographical diversity in the Philippines. The study looked into the availability of resources for school feeding including space, finances, equipment and manpower. The results show variety of school settings in terms of school size, geography, community dynamics which reflects differences in school requirements.

The study used a paper-based self-reporting tool which is subject to information bias. We assume that the schools report the reality in their schools. Some schools had difficulties in providing conclusive information which were indicated by implausible values on (i.e. number of beneficiaries, or number cooking pots or amount of money) and lead to conflicting information in some schools.

Although the tool was pre-tested, there were still some schools that left parts of the survey blank as they might have had difficulties in understanding the question or the long questionnaire discouraged them to finish or give more details. Respondents leaving items unanswered lead to under-reporting for some survey topics. This was particularly true for items asking about use of different sources of energy and related budget spent on these energy sources. The reported costs are most likely an underestimation. Costs of wood and charcoal could not be easily calculated especially that schools mentioned that they ask these in the form of in-kind contributions from parents or community members. The cost of electricity could not be accurately calculated as the electricity bill will not distinguish between electricity used for rice cooker or for the light or electric fans the school was using.

The presence of problems in cooking systems portion was also left blank in a number of times which could mean that the school experiences no problems or that they failed to elaborate their problems into words. As an example, there may be more schools that face problems in not having a refrigerator than actually reflected in the survey.

SCHOOL 870 // "The questionnaire is too long to answer, however it is also good because we can express the problems we have had in our school that pertains to our food preparation and the budget for the school feeding program."

SCHOOL 874 // "Instructions of this assessment is clearly stated allowing anybody to fully understand. This assessment also serves as a chance for me to improve myself as a feeding coordinator."

The report may appear to gear towards reporting problems and inadequacies which is due to problems being probed more in the questionnaire and no specific questions being included to name strengths of the program. While the strengths and benefits of feeding programs have been expressed in many other studies, this study is unique in the way that it offered schools the schools to report the status provide space to express their experiences and their views.

7. Discussion

SBFP Coverage

Majority (89 %) of the 655 schools that participated in the survey had feeding programs. Only 60 % of these schools reported to use funds from the SBFP. Schools use funds from PTA, LGU, NGOs and canteen proceeds to either fully implement school feeding or augment their existing SBFP. Gulayan sa Paaralan was also prominently mentioned as a source of ingredients for school feeding.

The overall average percentage of school feeding targets out of enrollment was 13 % which was consistent with the latest national survey of malnutrition among school-age children. Mindanao had the highest percentage of beneficiaries indicating the higher rates of malnutrition and disadvantaged children. However, in terms of logistical aspects of implementation, the data showed that Luzon may be facing bigger challenges as schools are bigger and therefore had more feeding beneficiaries per school despite a lower rate of feeding target. On the other hand, Visayas had an average rate of feeding target but had lowest average number of feeding beneficiaries due to having smaller schools.

Funding

Only 60 % of the participating schools reported use of SBFP funds for school feeding showing the implementation gap in terms of coverage. Although, the results of this study may give some light on the reasons why schools choose not to tap on SBFP funds.

Almost one-third of the schools expressed problems in funding. For these schools, the budget was inadequate to cover all intended beneficiaries, purchase healthy ingredients, and cover operational costs including transportation fees and office supplies for reporting. Schools also mentioned delay in downloading of funds and difficulties in liquidation especially that local ingredients from the town market could not be purchased with official receipts.

Funds from repair come from various sources. In Luzon, the top sources of funds are canteen proceeds, followed by contributions from principal and teacher and PTA funds. In Visayas and Mindanao, more schools rely on out-of-pocket contributions from principals and teachers, and contributions from parents and PTA, followed by MOOE. Only a few school relied on support from the community, LGU, SBFP fund and HE fund.

Funds for LPG mainly come from the school MOOE. A big percentage of Luzon schools also rely on canteen sources. Both city schools and province schools had similar proportion of schools using canteen funds for fuel. Only few schools rely on contributions from parents, teachers, LGU and other income generating projects.

Money for charcoal or wood for cooking come from parents and MOOE, although a number of schools also mentioned that they ask parents and children to bring these to school in form of in-kind contributions.

Manpower

Feedback from the schools showed that implementation of school feeding has been very burdensome to teachers and school heads. Majority of the schools mentioned the teachers to be the ones responsible for cooking, cleaning and conducting repairs related to school feeding. In addition, the school personnel are also left with the task of procurement of ingredients, documentation and liquidation. Some complained that they were also contributing their personal money for expenses related to school feeding. Aside from overworking the school personnel, the tasks related school feeding competes with the main tasks of teachers as SBFP consumes the time intended for regular class and advisory tasks.

Majority of the schools rely on parent volunteerism in cooking. While the parents can provide free service, the schools are not assured of their attendance and their absence or lack of participation was a big obstacle to regular implementation of school feeding. In addition, the data showed that parents are minimally involved in repairs and cleaning of cooking areas as these tasks lie on teachers.

Cooking facilities

Only 74% of the schools had a designated cooking place. Schools without cooking place use make-shift cooking on open school ground on direct fire or ask the volunteer parents and community members to cook at their own homes. There were also problems on adequacy of cooking place especially for schools that need to feed a lot of children and would need multiple cooks and support staff to manage the daily school feeding.

Luzon had the most schools with school canteen while dirty kitchens were most popular in Mindanao. Schools that use their canteen for feeding also face time constraints as the space is shared for daily school feeding and proprietary selling of food. Dirty kitchens are ideal for keeping smoke outside and prevent hazards of smoke inhalation but schools with make-shift dirty kitchen or those which are without roof or poorly constructed face problems of discomfort for their volunteer cooks on extreme weathers such as intense heat in summer and event of rain.

On a less extent, problems on food preparation such as inaccessibility of market and lack of cold storage was mentioned by some schools.

In general, schools in Luzon had better facilities with more schools having a school canteen, at least 2 cooking pots, at least 2 cooking stoves, convenience in using LPG and gas stoves and also had less complaints on cooking facilities. Not surprisingly, gas stoves and use of LPG were most common in city schools where the supply is easier compared to province schools. Visayas and Mindanao schools more commonly used improvised stove fueled by charcoal or wood for cooking. These cooking systems take more time to set-up and produce more smoke and fire hazards which some schools verbalized concerns about.

For health and environmental reasons, option of clean-burning alternative fuel such as LPG is preferred as it leaves no harmful residue to soil and water. It is also relatively low-cost and safe. A lot of official business distributors offer free delivery of LPG to the doorstep and also includes safety installation services making it a convenient choice to schools in areas that can be reached by LPG suppliers. LPG also burns most efficiently with 1 kg of LPG producing the same combustion energy as 10.8 kg of traditional wood stove, and as much as 29.7 kg of traditional charcoal stove [14].

Charcoal is another type of fuel used in mixture with firewood for cooking using traditional and make-shift cook stoves. It has average energy content and burns cleaner than fire wood. However, charcoal production is considered one of the major reasons for forest degradation [15]. The practice of “kaingin” or slash and burn, a widespread in mountainous areas, is used to clear forests for farming, produce charcoal and ashes for fertilizer. Kaingin practice is under debate with some experts saying that the practice degrades a wide forest area and strips the soil of its nutrients [8]. Furthermore, charcoal burning also produce particulate matter that are harmful to the lungs [15]. Use of charcoal also requires more effort and time as the stove need to be set-up and the charcoal allowed to burn for a while to ensure high heat adequate for cooking.

Firewood is a more widely used fuel source with it being the most accessible and affordable. However, firewood is also the most energy inefficient and most harmful to the health and environment.

In the USA, 80 % of the particulates on the air had been connected to wood stove burning [1,2].

In the UK, a study revealed that domestic wood burning used for heating causes 2.4 times more pollution. [5].

Wood smoke consists of health hazards such as fine particles, benzene and carcinogenic polycyclic aromatic hydrocarbons (PAH), triggers asthma and other lung diseases. Those that are on increased risk are children, older adults, pregnant women and those with existing heart diseases, obesity and diabetes [16]. Smoke from wood burning stoves contribute to air pollution producing haze. While, heating is rarely needed in the country, the survey revealed the rampant and continuing practice of wood stove burning using make-shift stoves.

Wood burning could be less harmful if done correctly. Ensuring complete combustion minimizes particulate matter produces and allows the lungs to clear it up easily[17]. Transition to the convenience and safety of LPG could be complicated. Aspects on accessibility and costs could be major concerns for schools in remote areas and those who previously rely on in-kind donations of firewood and charcoal. For schools without access to LPG and uses charcoal or wood for cooking, it is important for them to use improved and efficient cook stoves that minimize smoke and ensure complete combustion.

Advises for schools that use charcoal or wood for cooking [2]

- Use modern clean-burning cook stoves such as gasifiers that also burn less fuel, save time and money.
.....
- Use seasoned firewood (wood that is dried for at least 6 months). Do not use freshly cut wood because these may contain as much as 50 % water which makes inefficient burning and leaves more harmful particle traces.
.....
- Charcoal is preferred to wood, if using wood, use wood pellets than chunks.
.....
- Use dry paper to light and rekindle small fire.
.....
- Do not burn other wastes such as plastic, painted or treated wood, magazines, rubber.
.....

8. Recommendations

Cooking Place

- Adequate space for multiple cooks to prepare food for many pupils
- Roofed to protect the cooks and equipment from sun and rain
- Adequate ventilation to protect from health hazards of smoke inhalation and fire

Basic Cooking Equipment

- At least 2 large cooking pots
- Refrigerator or cooler for storage of food
- Cooking utensils such as spoons, knives, basins, trays, measuring cups

Cook Stove and Fuel

- Use of clean fuel such as LPG and charcoal
- Use of corresponding improved gas stove to minimize smoke and maximize efficiency
- Proper storage for charcoal and wood to keep dry
- Information on safe and efficient usage of fuel of choice

Feeding Area

- Tables and chairs that can accommodate all beneficiaries
- Dining utensils such as plates, spoons, forks and glasses

Dedicated and Reliable Manpower

- Procurement of healthy and fresh ingredients
- Cooking of food
- Serving of food
- Cleaning of dining area and cooking area
- Liquidation, documentation and reporting

Funds for Operation Expenses

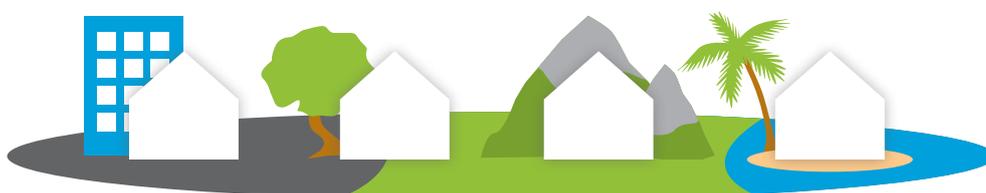
While the budget is enough for buying the ingredients, additional budget should be allocated for the following expenses:

- Fuel such as LPG and charcoal
- Transportation during procurement of ingredients
- Procurement of cooking equipment
- Repairs related to cooking and feeding

Assurance that School Feeding follows WASH Standards

- Access to water for cooking and water and soap for handwashing
- Access to potable drinking water
- Proper drainage
- Proper waste disposal

In order for the Department of Education to ensure successful school feeding implementation, the schools reported the need for the following.



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