

SAVING
LIVES
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LIVES



Fill the Nutrient Gap Philippines

SUMMARY REPORT



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Fill the Nutrient Gap **Philippines** | SUMMARY REPORT

The nutrition situation in the Philippines is alarming

Malnutrition is widespread across the Philippines. There has been little progress in addressing undernutrition, and overnutrition has emerged as a serious concern. This growing double burden hinders the country's potential for social and economic development. Thirty three percent of children under the age of 5 years (4 million children) are stunted and unlikely to reach their full mental and physical potential. Overweight and obesity rates of adults have nearly doubled over the last two decades (up to 31 percent), contributing significantly to public health problems.

Despite overall economic growth, the percentage of stunted children has not reduced in 15 years due to several factors including poverty, natural and manmade disasters, low consumer demand for nutritious food, agriculture policies focused predominantly on rice self-sufficiency, low prioritisation from government agencies to address nutrition, and limited commitment and capacity of local government units to deliver nutrition interventions. Poor infant and young child feeding is indicated by an increase in stunting, from medium prevalence (17 percent) in children aged 6–11 months to very high prevalence (36 percent) in children aged 12–23 months.

Increasing overweight and obesity rates follow changes in the food environment and a concurrent shift of consumer preferences toward energy-dense processed food. There is, too, an increase in sedentary lifestyles that comes with rapid urbanisation.

Addressing malnutrition sustainably must take a lifecycle approach, targeting all children, adolescent girls and

pregnant and lactating women, with a range of interventions adapted to the local context and coordinated across multiple levels and sectors of government. The Government of the Philippines recognises that addressing the malnutrition challenge requires broad cooperation and commitment from several government agencies, other public sector entities and the private sector, notably those across the food, health and social protection systems.

The commitment to improve nutrition must be taken seriously at national and local levels, and coordination must be strengthened. The Philippines Plan of Action for Nutrition 2017–2022 (PPAN) addresses the shortcomings of previous plans and outlines the interventions needed to improve the current nutrition situation. Nutrition programming can only be as strong as the national leadership, the regional resources available to support and encourage local actors, the local will and capacity to implement effective nutrition-specific and nutrition-sensitive interventions, and the coordination across sectors and levels of government. Development partners can play an active role to fill gaps in programming and provide technical assistance.

The way forward is to ensure access to the information and evidence that is required to inform and prioritise a range of effective interventions targeted at vulnerable populations. Interventions must be context-specific and appreciate the inequality of access to nutritious food, purchasing power and nutritional status, the rapidly developing economy and urbanising environment, and the vulnerability of populations under threat of natural and manmade disasters and living in geographically isolated and disadvantaged areas.

Several factors need to be addressed: constraints of availability, physical and economic access, and choice of nutritious food from supply (food system) to demand (public sector services and consumers). This requires strong commitment, good understanding and clear acknowledgment of a shared responsibility to address the alarming nutrition situation. It also requires effective coordination across local government, including the health, agriculture, social welfare and development, and education sectors, plus development partners and the country's extensive private sector.

Fill the Nutrient Gap (FNG) in the Philippines: Purpose

In response to the Government of the Philippines' goal of improving nutrition outcomes and delivering on the objectives outlined in the PPAN, the Food and Nutrition Research Institute (FNRI) and the World Food Programme (WFP), supported by UNICEF, collaborated to conduct an FNG nutrition situation analysis in 2018. The FNG process brought together stakeholders from a variety of sectors including health, agriculture, social welfare and development, education and the private sector.

The FNG analysis and its stakeholder engagement process facilitated a greater understanding of food systems and nutrition contexts across the country. The results from the FNG are to be used to support operationalisation of the PPAN by identifying and prioritising context specific policies and programme packages that can improve nutrient intake of key target groups through improved access and choice of nutritious food.

FILL THE NUTRIENT GAP: SITUATION ANALYSIS FOR DECISION-MAKING ON NUTRITION

The FNG analysis is used to identify which nutrition-specific and nutrition-sensitive interventions are most appropriate in a given context to improve availability, physical access, affordability and choice of nutritious foods, which are required to have an adequate nutrient intake. Barriers arising from any of these systems can contribute to inadequate nutrient intake, one of the two direct causes of malnutrition (the other being disease).

The analytical process was developed by WFP with technical support from research institutes: the University of California, Davis; the International Food Policy Research Institute (IFPRI, Washington DC); Epicentre (Paris); Harvard University (Boston); Mahidol University (Bangkok), Save the Children (SC-UK, London) and the United Nations Children's Fund (UNICEF). The FNG provides a framework for strengthened situation analysis and multi-sectoral decision making that identifies context-specific barriers to adequate nutrient intake among specific target groups. It engages different sectors, across the food, health and social protection systems in particular, to propose cost-effective strategies to overcome barriers. It has been used in almost twenty countries to date.

The FNG combines review of secondary data and information with linear programming (LP) analysis using the CotD software developed by Save the Children United Kingdom. The analysis considers a range of factors that reflect or affect dietary intake, including local malnutrition characteristics; the enabling policy environment; type and availability of nutritious foods in local markets; affordability of nutritious foods; nutrient intake; local practices; and cost optimization.

The consolidated information is analysed and the findings are reviewed by a multi-sectoral group of stakeholders, at relevant levels, to come to a shared understanding of the issues, context and solutions. Through this consultation process, context-specific optimal policy and programme actions, including possible entry points for interventions, are jointly identified for different sectors, for example, health, social protection and across the food system, and stakeholders from the public and private sectors.

FNG in the Philippines: Process

The FNG process in the Philippines took place from April to November 2018, with inception meetings in April, validation of preliminary results in national and subnational technical meetings in October, and the dissemination of final results and development of recommendations in meetings with technical staff and policy influencers in November.

The analysis comprised a comprehensive literature review of available secondary data sources in combination with linear programming (LP) using the Cost of the Diet (CotD) software. The aim of the FNG analysis was to identify policies and intervention packages best suited to improving access to nutrients. It analysed the context-specific barriers to adequate nutrient intake and modelled interventions defined in the PPAN and the First 1,000 Days programme, passed into law in 2018 to address the health and nutrition of infants, young children, pregnant and lactating women and adolescent girls.

The FNG assessment was led by the Food and Nutrition Research Institute (FNRI) and the WFP country office and headquarters in partnership with UNICEF. At the start of the process in the Philippines the FNG team met with government, non-government, United Nations (UN), and other development partners to introduce the FNG process, collate key secondary data sources and identify interventions and

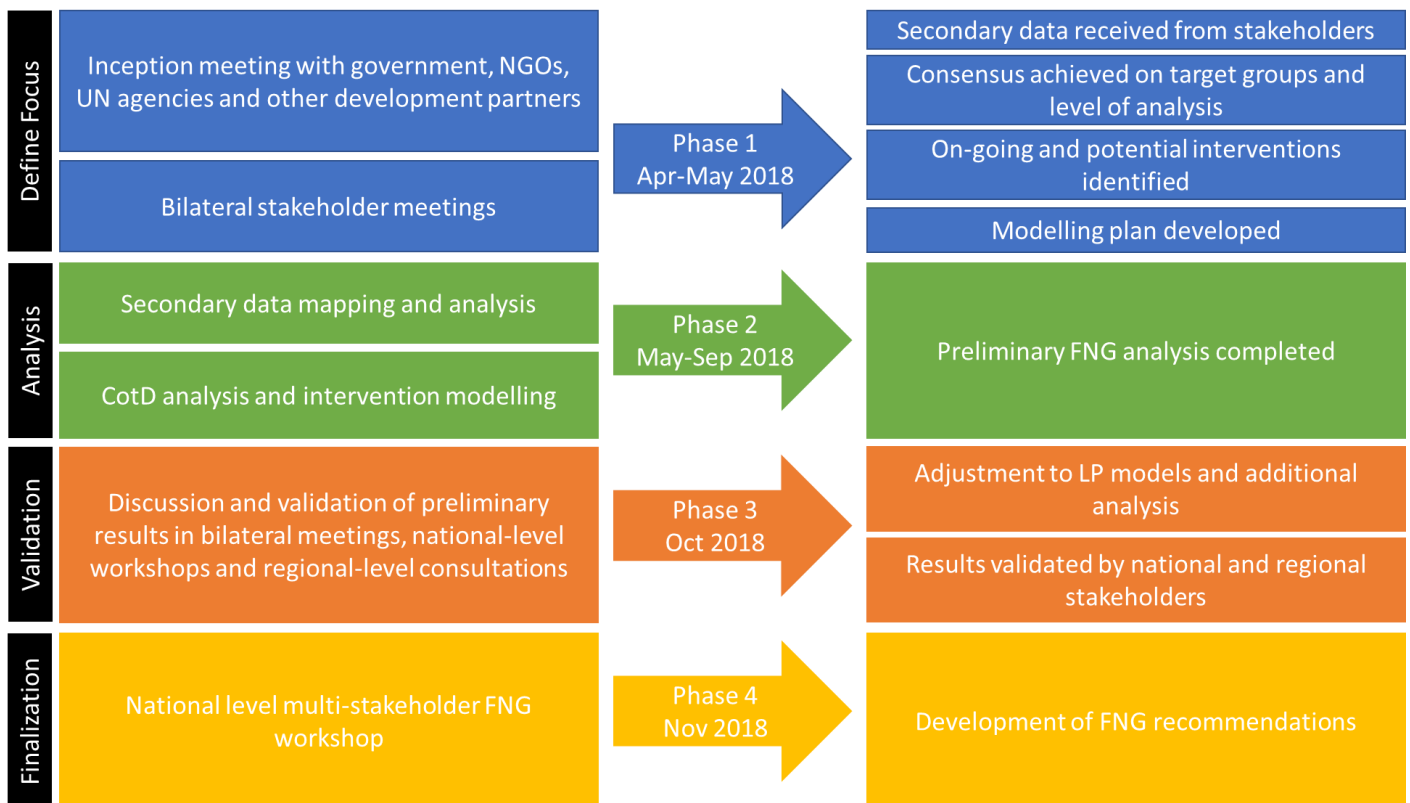
entry points for CotD analysis and modelling. Stakeholders identified target groups as those connected to the first 1,000 days from conception to a child's second birthday, preschool and school age children, pregnant and lactating women and adolescent girls.

During the analysis phase over 130 secondary data sources were reviewed. LP analysis was conducted to estimate the cost of a nutritious diet and percentage of households unable to afford a nutritious diet in all 17 regions of the Philippines, and to model interventions in seven priority regions identified by stakeholders (MIMAROPA; Bicol; Western Visayas; Eastern Visayas; SOCCSKSARGEN; NCR; and ARMM).

To validate the results, preliminary findings were presented to partners and stakeholders in bilateral meetings, a national workshop and four regional consultations with representatives from MIMAROPA, Western Visayas, NCR and ARMM.

During the finalisation phase, stakeholders collaborated to develop recommendations based on FNG findings in a technical workshop. Findings and stakeholder recommendations were then launched in a high level meeting with policy makers. The detailed FNG process in the Philippines is illustrated in Figure 1.

Figure 1: The FNG process in the Philippines.



COST OF THE DIET ANALYSIS

The CotD software uses LP to understand the extent to which poverty, food availability and prices may affect the ability of people to meet their nutrient needs. Using price data collected from markets or from secondary sources, the software calculates the amount, combination and cost of local food that is required to provide individuals or households with their average needs for energy and their recommended intakes of protein, fat and micronutrients¹. These diets are calculated within defined constraints to prevent the inclusion of unrealistic types or amounts of food and the provision of excessive amounts of nutrients.

The FNG approach defines the Staple Adjusted Nutritious Diet: the lowest cost nutritious diet that includes the typical staple food and excludes food that is considered taboo². This diet is referred to as the 'nutritious' diet throughout this summary. Population expenditure data is compared to the cost of the nutritious diet and is used to estimate the proportion of the population that would not be able to afford it. This non-affordability can be estimated and compared across different regions, seasons or countries.

As part of the FNG process, CotD analysis was undertaken for the 17 regions defined in the 2015 Philippines National Nutrition Survey (NNS). For all regions except the National Capital Region (NCR), separate analyses were conducted for urban and rural areas. The 2015 NNS provided data on food prices and availability, based on 24 hour household observation surveys. The 2015 Family Income and Expenditure Survey (FIES) provided data on household food expenditure, including monetised consumption of self-produced food.

The lowest cost of a nutritious diet was estimated for a model household of five members, which included a breastfed child of 12–23 months, a child of 6–7 years, an adolescent girl of 14–15 years, a lactating woman and an adult man. Two rice-based meals per day were included to account for approximately 50 percent of dietary energy from preferred staples. This was done for all household members except the child aged 12–23 months, who received one portion per day. Additional servings of rice could be selected by the software.

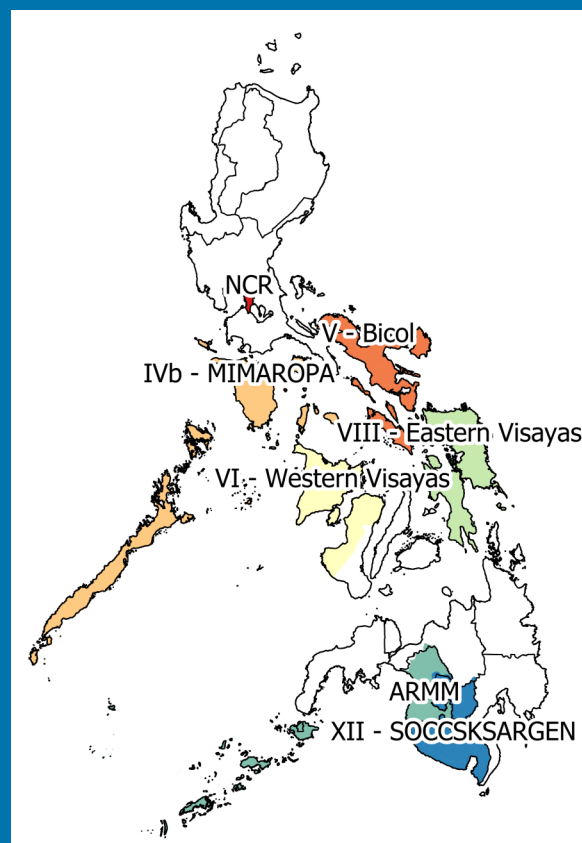
CotD software was used to model interventions proposed by stakeholders with the objective of improving the affordability of a nutritious diet for individuals and/or households. Based on the severity of malnutrition indicators and the prioritisation of ongoing programmes, stakeholders identified seven regions for intervention modelling: MIMAROPA; Bicol; Western Visayas; Eastern Visayas; SOCCSKSARGEN; NCR; and ARMM (Figure 2).

The selection of potential interventions for modelling was informed by secondary data review and stakeholder consultations. It included:

- increased availability of local nutritious food;
- different types of complementary food or specialised nutritious foods (SNF) made available through the market and/or social safety nets;
- micronutrient supplementation;
- fortification of staple food and;
- conditional cash transfers for vulnerable households.

The modelled interventions are theoretical and would need to be accompanied by complementary behaviour change interventions to promote nutritious choices by consumers.

Figure 2: Regions included in intervention modelling analysis.



1. As defined by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The need for 9 vitamins and 4 minerals is included.

2. This diet is not intended to reflect what individuals or households are currently eating, nor should it be used to develop food-based recommendations or dietary guidelines.

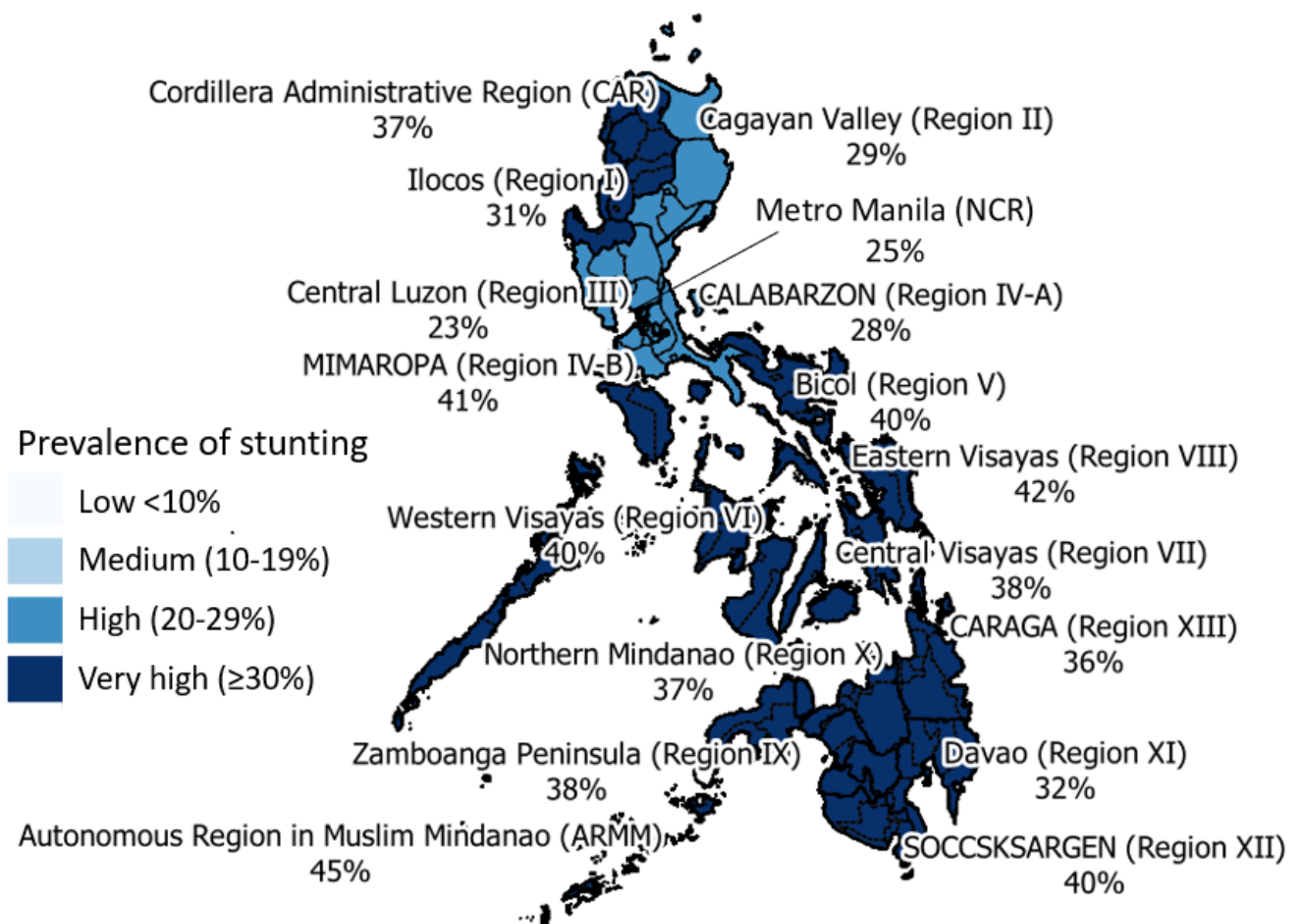
Malnutrition overview

After a reduction in stunting prevalence from 45 percent in 1989 to 34 percent in 2003, little improvement has been seen. The 2015 prevalence of 33 percent is classified as very high by WHO (based on new 2018 classifications). Stunting prevalence correlates with poverty – 50 percent of children in the poorest socio-economic strata are stunted compared to 15 percent in the richest. Stunting prevalence is high or very high in all regions of the Philippines, ranging from 23% in Central Luzon to 45% in ARMM (Figure 3). Stunting is higher in rural than in urban areas (38 percent and 28 percent respectively). Stunting prevalence is 17 percent among children aged 6–11 months and 36 percent for children aged 12–23 months. This suggests dietary inadequacies during the period when breastfeeding should be frequent and complementary feeding should be diverse.

Wasting prevalence has remained unchanged since 1989, fluctuating between 6 and 8 percent. Anaemia rates have decreased across all groups since 2003, but rates are still at 25 percent among pregnant women, 41 percent for children aged 6–11 months, 25 percent for children aged 12–23 months and 14 percent for children aged 24–35 months.

The prevalence of overweight and obesity among adults has nearly doubled from 17 percent in 1993 to 31 percent in 2015. Among adults, 35 percent of women and 27 percent of men are overweight or obese. Nine percent of adolescents aged 10–19 are already overweight or obese. Overweight and obesity correlates to wealth – 44 percent of adults in the richest socio-economic strata are overweight or obese compared to 17 percent in the poorest.

Figure 3: Stunting prevalence in the Philippines by region (National Nutrition Survey, 2015)



FNG in Philippines: Findings³

1.

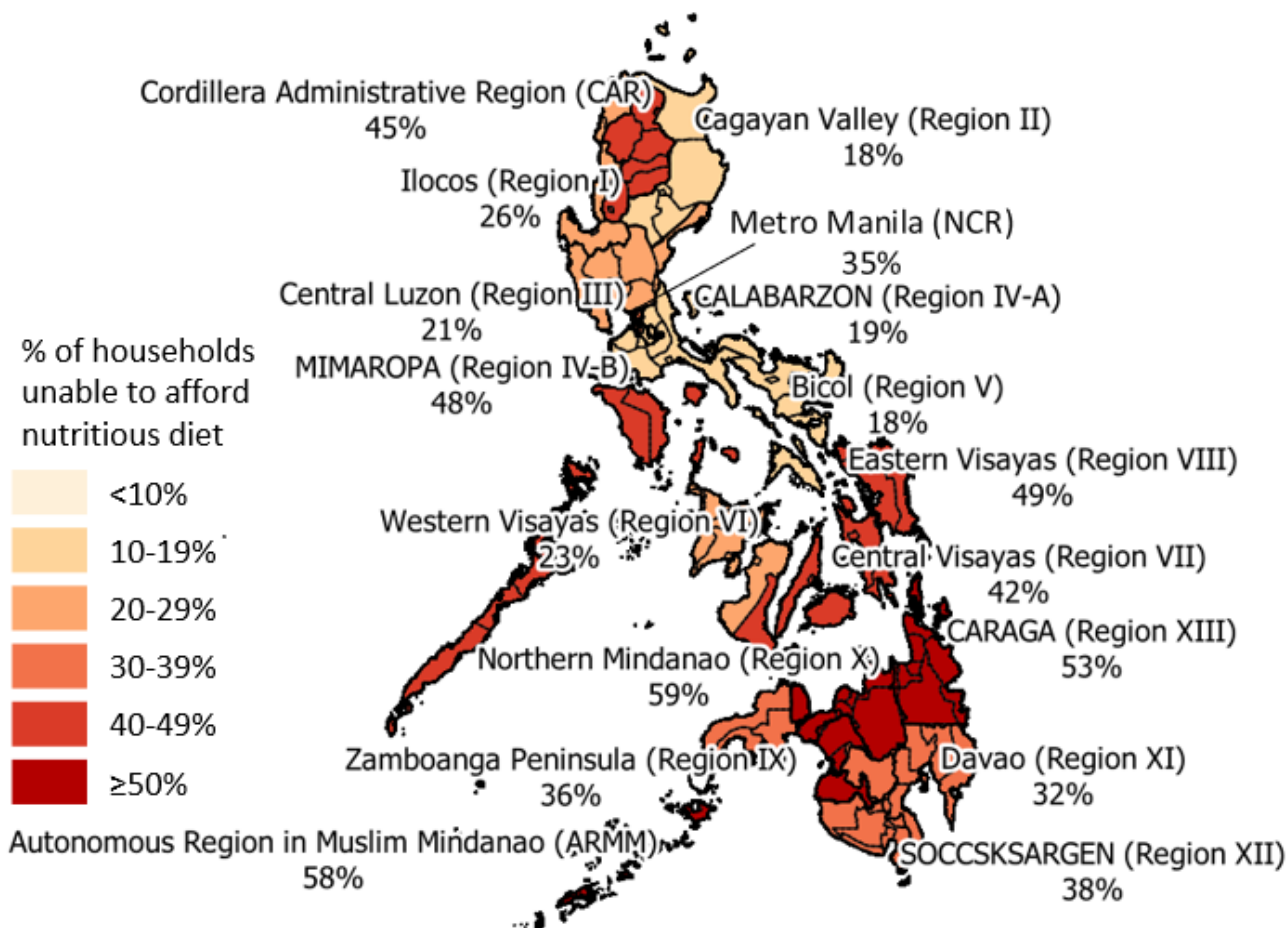
WHILE ALMOST ALL HOUSEHOLDS WOULD BE ABLE TO AFFORD A DIET THAT MEETS ENERGY NEEDS, ONE THIRD WOULD NOT BE ABLE TO AFFORD A DIET THAT MEETS NUTRITIONAL NEEDS. NON-AFFORDABILITY OF A NUTRITIOUS DIET IS ASSOCIATED WITH STUNTING PREVALENCE. THE MINIMUM WAGE IS INSUFFICIENT TO ACCESS A NUTRITIOUS DIET.

Nationwide the average cost of the energy-only diet for the modelled five person household was PHP (Philippine peso) 108 per day. Ninety seven percent of households would be able to afford this diet. The average cost for the nutritious diet was PHP 206. One third of households would not be able to afford a nutritious diet, ranging from 18 percent in Bicol to 59 percent in Northern Mindanao (Figure 4). A strong correlation was found between stunting prevalence and the non-affordability of a nutritious diet by region, which suggests that economic access to nutritious food is a barrier to providing a nutritious diet to young children.

The costs of energy-only and nutritious diets were compared to the minimum wage level, ranging from PHP 210 per day in MIMAROPA to PHP 444 per day in NCR. If one member of the FNG model household were paid a minimum wage for five days per week and 70 percent of this wage were spent on food, households in two of the 17 regions would not be able to afford an energy-only diet. If households spent 42 percent of their wage on food, which is the national average for the percentage of expenditure spent on food, households in 13 out of the 17 regions would not be able to afford an energy-only diet. Regardless of whether they spent 42 percent or 70 percent on food, in all regions the model household would not be able to afford a nutritious diet if paid a minimum wage only.

4Ps (Pantawid Pamilyang Pilipino Program), the nationwide conditional cash transfer social safety net, provides households with a maximum of PHP 1,400 per month. This amount alone provides less than one third of the cost of an energy-only diet for the modelled five person household. This suggests that further interventions would be needed to ensure access to a nutritious diet for vulnerable households.

Figure 4: Percentage of households unable to afford a nutritious diet by region.



3. Complete details of the findings, a full list of data sources used and references can be found in the full report.

2.

BREASTFEEDING RATES, DIETARY DIVERSITY AND FEEDING PRACTICES FOR YOUNG CHILDREN ARE SUBOPTIMAL. SNF AND MICRONUTRIENT SUPPLEMENTATION CAN SUPPORT CAREGIVERS IN PROVIDING NUTRITIOUS DIETS TO YOUNG CHILDREN.

The National Nutrition Survey carried out by FNRI in 2015 reports that half of children aged 0–5 months are exclusively breastfed and a quarter are exclusively breastfed at 5 months of age. The percentage of children who are breastfed along with complementary feeding is 58 percent for children aged 6–11 months and 43 percent for children aged 12–23 months. Among children aged 6–23 months, fewer than one in five (19 percent) have a Minimum Acceptable Diet (MAD). Ninety two percent meet Minimum Meal Frequency (MMF) but only 29 percent meet Minimum Dietary Diversity (MDD).

To estimate the impact on the cost of a nutritious diet for a child aged 12–23 months when supplements or Specialized Nutritious Foods (SNF) would be provided, CotD analyses were conducted for in-kind provision of Supercereal+, a similar Filipino product called Rimo (a blend of rice and monggo (mung bean), Lipid-based Nutrient Supplement Small Quantity (LNS-SQ), two similar Filipino products called Momsie™ and Momsie Plus, and Micronutrient Powder (MNP). It was found that each of the five products could reduce the daily cost of the nutritious diet (Figure 5): Supercereal+ and LNS-SQ from an average of PHP 11 to PHP 6, and Momsie Plus to PHP 7. MNP does not contain protein and calcium and Rimo does not contain calcium, therefore in the modelling these products were less effective in reducing the daily cost of the nutritious diet than SNF containing these key nutrients.

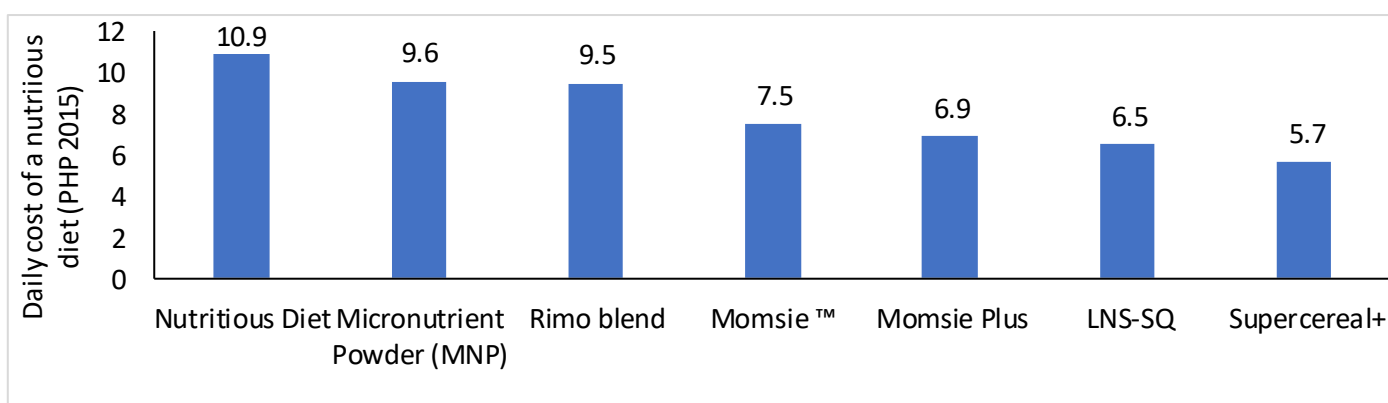
3.

MEETING THE NUTRITIONAL NEEDS OF ADOLESCENT GIRLS AND PREGNANT AND BREASTFEEDING WOMEN WOULD COST THE HOUSEHOLD THE MOST. THEIR MICRONUTRIENT NEEDS ARE HIGHER, WHICH MEANS THEY REQUIRE THE LARGEST SHARE OF THE MORE EXPENSIVE NUTRITIOUS FOOD. THIS IS GENERALLY NOT CONSIDERED IN HOUSEHOLD FOOD ALLOCATION, PUTTING THEM AND THEIR CHILDREN AT GREATER RISK OF MICRONUTRIENT DEFICIENCIES. DIETARY SUPPLEMENTATION CAN REDUCE THE COST OF ACCESSING A NUTRITIOUS DIET FOR ADOLESCENT GIRLS AND PREGNANT/LACTATING WOMEN.

CotD analysis identified adolescent girls and lactating women as having the most expensive nutritious diets in the model household due to high nutrient requirements compared to recommended energy intake. These two household members comprised 60 percent of the total household nutritious diet cost (Figure 6). In many cases, food allocation, in terms of quantity and sharing of food preferred by households, is not based on nutrient-density needs but on perceived energy requirements and intra-household dynamics. This finding suggests an insufficient proportion – and total amount – could be allocated to household members particularly in need of nutrient-dense food. Prioritisation and improving purchasing power for the household to buy nutritious food are crucial for improving access to nutritious diets.

To estimate the impact of supplements and SNF for adolescent girls and lactating women, CotD analysis was used to estimate the daily cost of the nutritious diet for these individuals with in-kind provision of Supercereal, iron and folic acid tablets (IFA), Multiple Micronutrient Tablets (MMT), an LNS-SQ for pregnant and lactating women (Enov'Mum). CotD analysis found that these interventions could reduce the daily cost of the nutritious diet by 32–51 percent for an adolescent girl and by up to 38 percent for a lactating woman (Figure 7).

Figure 5: Daily cost of nutritious diet for child-under-two with supplements and SNFs⁴ provided in-kind (averages across modelling regions).



4. Portion sizes do not necessarily reflect current packaging and were adjusted to be comparable with similar international products: MNP: 1 g; Rimo Blend and Supercereal+: 30g; Momsie™ and LNS-SQ: 25g; Momsie Plus: 20g. Frequency: up to once daily except for MNP up to 3 times per week.

Figure 6: Portion of total household cost for a nutritious diet by household member (national average).

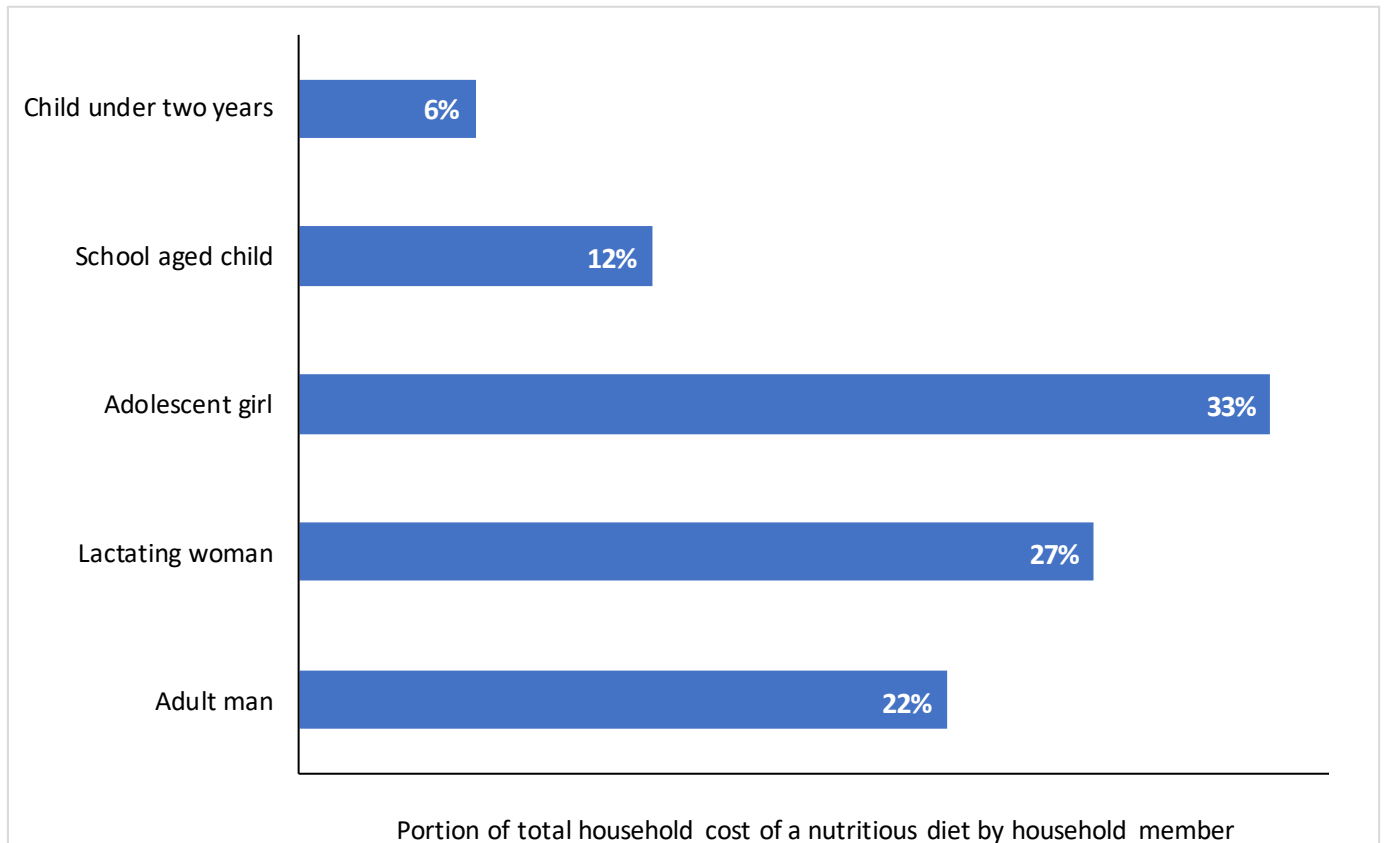
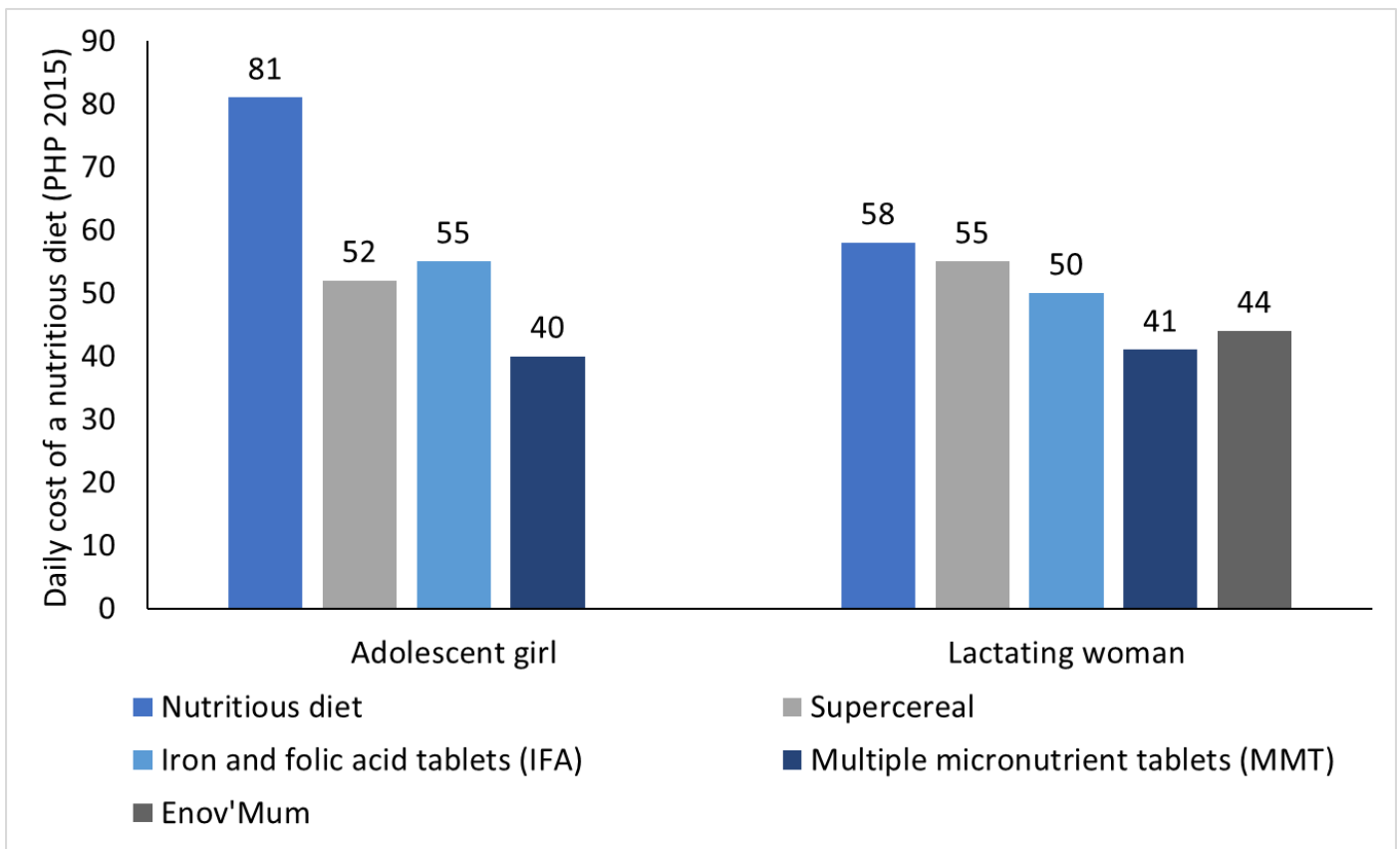


Figure 7: Daily cost of nutritious diet for adolescent girl and lactating woman with supplements and SNFs⁵ provided in-kind (averages across modelling regions).



5. Portion sizes: Supercereal 120g; IFA and MMT 1g; Enov'Mum 20g. Frequency: up to once daily.

4.

UNDERNUTRITION AND OVERWEIGHT/OBESITY AMONGST THE URBAN POPULATION AFFECTS MILLIONS OF PEOPLE AND IS INCREASING, ESPECIALLY IN METRO MANILA. FINANCIAL INSECURITY AND HIGH FOOD PRICES ARE THE MAIN BARRIERS TO ACCESSING NUTRITIOUS DIETS. IDENTIFYING AND TARGETING THE MOST VULNERABLE IN INFORMAL SETTLEMENTS IS CHALLENGING.

Although stunting prevalence is lower in NCR (25 percent) than the national average (33 percent), the sheer size of Metro Manila (13 million people) makes for a very high caseload of stunting across a relatively small geographic area: around 400,000 children under 5 years within NCR. Other forms of malnutrition – wasting, micronutrient deficiencies and overweight – make the triple burden of malnutrition an increasing concern. Despite a small decrease from 2013 to 2015, NCR has the highest prevalence of overweight children under 5 (6 percent) and overweight and obesity in adults (37 percent), with 10 percent of adults being obese.

As urbanisation is expected to continue, the increasing density means that the burden of malnutrition and related health factors are expected to continue to grow. Vulnerabilities specific to the urban environment are being explored through different agencies, with existing data highlighting the challenges individuals and households need to overcome to consume a nutritious diet.

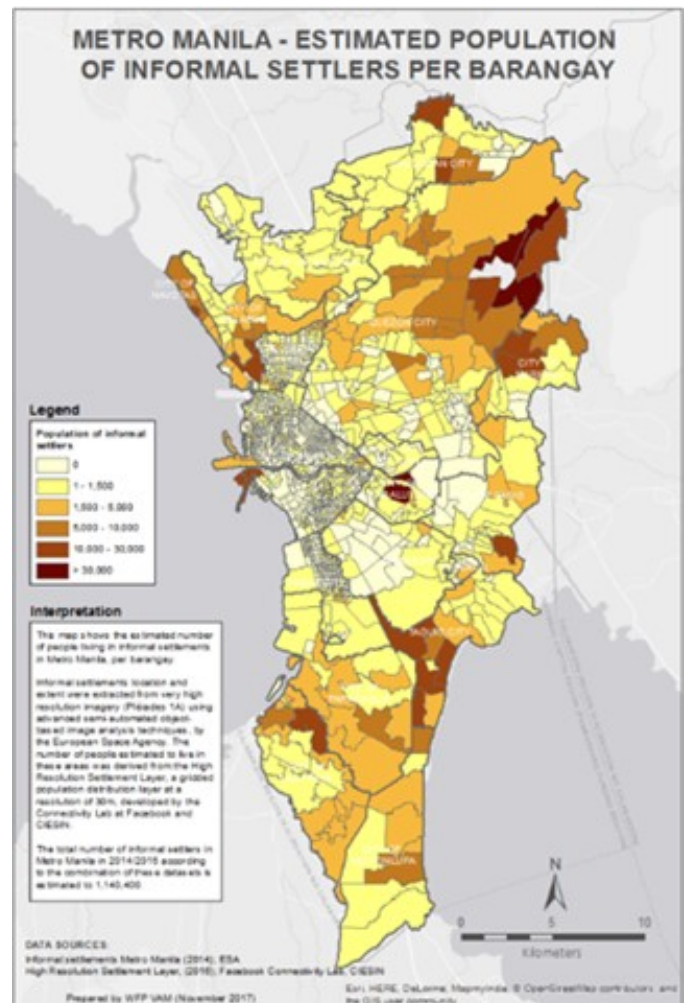
Breastfeeding rates are considerably lower in urban areas than in rural areas, and lower among working mothers than non-working mothers. Living in an urban area and working are both associated with increased undesirable and decreased desirable YCF practices; urban working mothers are the group with the poorest YCF practices. Only 25 percent of urban working mothers practice exclusive breastfeeding for the first 6 months of their infant's life, half that of a low national average of 49 percent. The exclusive breastfeeding rate for urban working mothers is 10 percentage points lower than for rural working mothers. The reverse trend is visible for the percentage of bottle fed-children. There is a clear association between mothers' workload and reliance on bottle-feeding (45 percent for non-working and 71 percent for working mothers), a factor that is further increased by urban residence; 77 percent of urban working mothers' children are bottle fed.

Given that there is virtually no own production and that urban gardening initiatives are still in their infancy, access to food is determined almost exclusively by having sufficient money. In the urban environment, processed food is readily available, ranging from food stalls and street markets to industrially produced ready-to-eat products. Not all of these are expected to have undesirable effects on nutrition: there are anecdotal examples of street vendor collectives emphasising healthy eating. However, the majority of food that is being advertised is classified as unhealthy, stressing the potential of private sector collaboration to improve nutrition.

As the urban population continues to grow, reaching the urban poor has been recognised as a priority by government and development partners. Tackling the high numbers and high density of malnutrition is an opportunity and a challenge. It is estimated that around 4 million people in NCR live in informal settlements without access to basic health or sanitation infrastructure. They are vulnerable to security risks and climate shocks, and they are difficult to reach after disasters.

The informality of the settlements makes the urban poor more mobile, posing barriers for targeting, monitoring and sustaining interventions. High resolution satellite imagery (Figure 8) has provided initial evidence that the density of informal settlers varies greatly between barangays (the smallest administrative division; the native Filipino term for a village, district or ward), meaning implementers may need to differentiate interventions and programmes at the lowest level. Formative research carried out in different local government units of Metro Manila by WFP indicated a high variance in vulnerability within a close geographic range, but co-occurring patterns of vulnerability. LGUs that reported a high prevalence (25 percent or higher) of daily labour or informal sources as their main source of income also had high prevalence (10 percent or higher) of food sourced from landfills and general insecurity.

Figure 8: Estimated density of informal settlements per Barangay (VAM, Global Food Security Cluster 2017).



5.

CONSUMPTION OF STAPLE FOOD SUCH AS RICE IS ABOVE RECOMMENDED LEVELS. DIETARY DIVERSITY INCREASES WITH WEALTH BUT FRUIT AND VEGETABLE CONSUMPTION IS LOW REGARDLESS OF ECONOMIC STATUS.

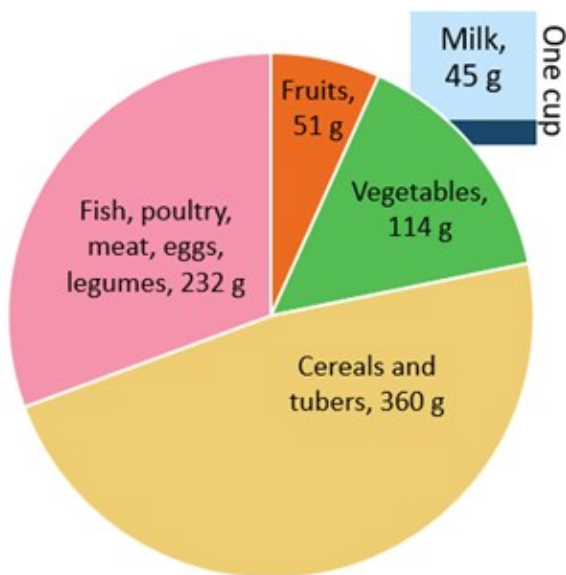
Average food intake compared to Pinggang Pinoy, a food guide that uses a familiar food plate model to convey the right food group proportions on a per-meal basis, shows the national diet is high in cereals and tubers and low in fruit and vegetables (Figure 9). This is in line with reported energy consumption: nationwide, 73 percent of energy comes from staples compared to the 50 percent recommended by WHO. This pattern is consistent for all socioeconomic strata (Figure 10), with a small decrease in cereal consumption for the richest groups. Individuals in the richest wealth quintile consume almost six times as much meat and five times as much poultry as the poorest wealth quintile, but fewer vegetables than the poorest quintile. Individuals in the poorest wealth quintile consume very small quantities of meat and poultry.

Improving the nutrition situation will require addressing dietary preferences as well as economic access to nutritious food. One concern is that the least consumed food regardless of income includes the most affordable sources of micronutrients: green leafy vegetables, legumes, papaya, pepper, water spinach, carrot, avocado

and banana. This suggests households that could likely afford a nutritious diet are not meeting nutrient needs.

High consumption of rice suggests fortification could be an entry point for improving nutrient intake in the short term. Only 2 percent of the national rice supply is fortified despite strong legislation dating back to 1952, which mandates fortification of rice with iron. CotD analysis compared non-fortified rice with: 1) iron-fortified rice as per current government guidance (2 mg per 100 g rice, achieved with a 1:200 blending ratio of fortified kernels to unfortified rice), 2) iron-fortified rice with a higher concentration, achievable through modifying the fortified kernel's iron concentration (3.5 mg per 100 g rice, 1:200 blending ratio), 3) multi-micronutrient-fortified rice (1:200 blending ratio), 4) multi-micronutrient-fortified rice with an increased blending ratio (1:100, which is more common internationally), 5) biofortified Golden Rice with vitamin A, 6) biofortified rice with zinc (Table 1). CotD analysis found multi-micronutrient-fortified rice blended with a 1:100 ratio could reduce the cost of a nutritious diet for the model household the most, by 21 percent (Figure 11), due to its higher content of a range of micronutrients. Multi-micronutrient-fortified rice blended with a 1:200 ratio and iron-fortified rice with higher iron content in premix could reduce the cost of a nutritious diet by 13 percent. Iron-fortified rice with the current premix composition could reduce the cost of a nutritious diet by 8 percent.

Figure 9: Actual intake of foods as reported by NNS 2013 compared to recommended Pinggang Pinoy food-based dietary guidelines.



Actual intake measured by 8th NNS

Pinggang Pinoy recommended intake

Figure 10: Daily per capita consumption by food group across socio-economic strata (NNS 2015).

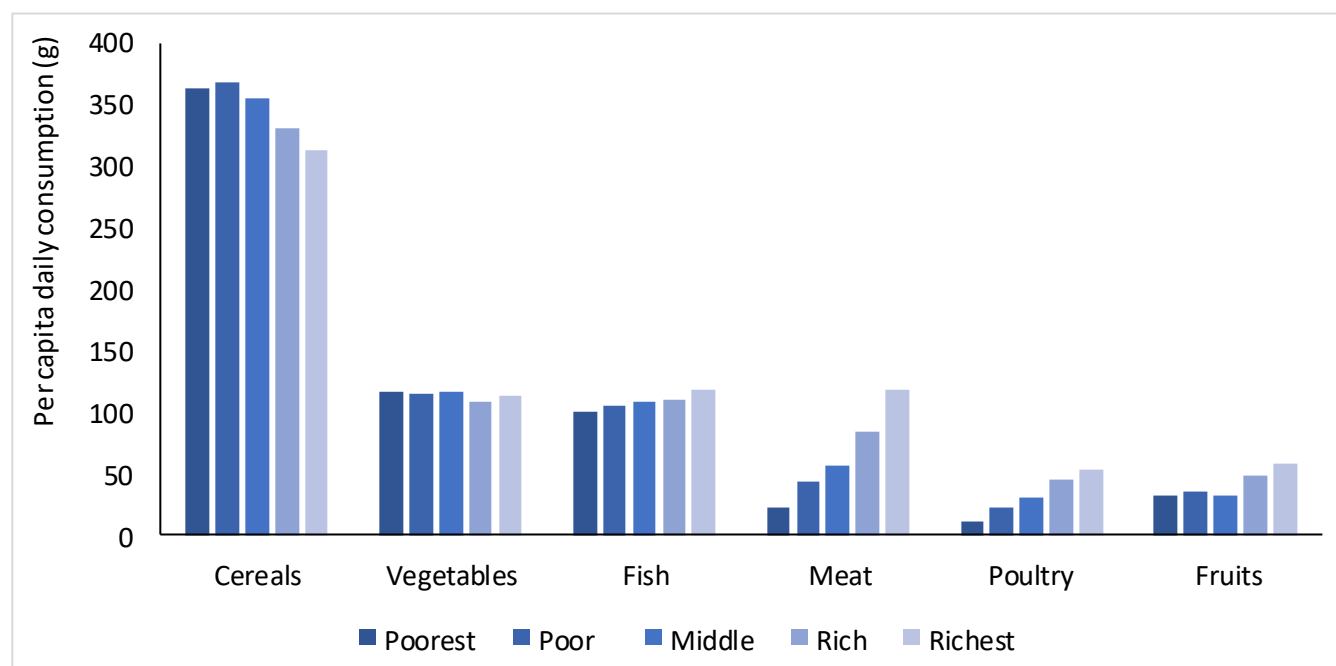
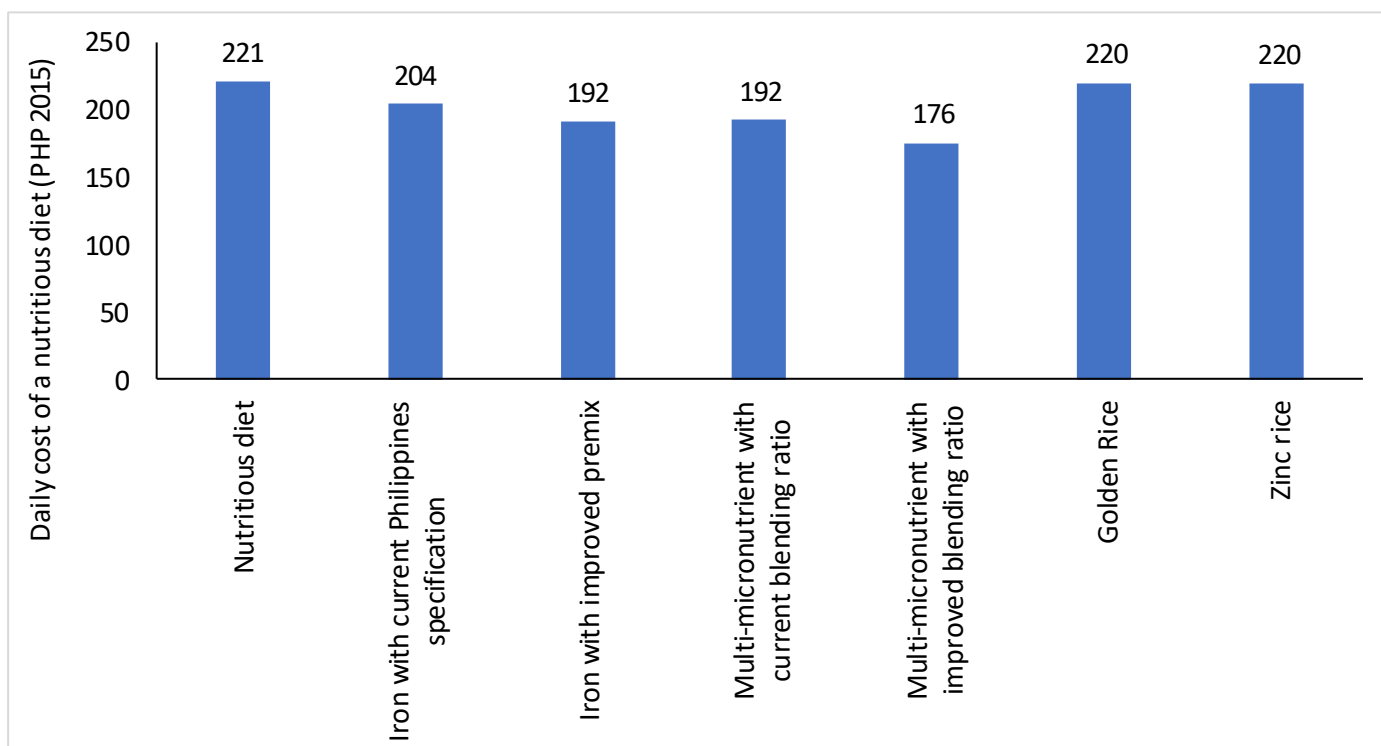


Table 1: Details of fortified and biofortified rice included in CotD modelling.

Type of rice	Iron with current Philippines specification	Iron with improved premix	Multi-micronutrient ⁶ with current blending ratio	Multi-micronutrient ⁶ with improved blending ratio	Golden Rice	Zinc rice
Micronutrients	Fortified with iron (2 mg/100g)	Fortified with iron (3.5 mg/100g)	Fortified with vitamin A, vitamin B1, niacin, vitamin B6, folate, vitamin B12, iron and zinc	Fortified with vitamin A, vitamin B1, niacin, vitamin B6, folate, vitamin B12, iron and zinc	Biofortified with vitamin A (125 ug RAE retinol/100g)	Biofortified with zinc (2.1 mg/100g)
Blend ratio (fortified kernels: unfortified rice)	1:200	1:200	1:200	1:100	n/a	n/a

Figure 11: Daily cost of the nutritious diet for a model household with non-fortified rice compared to fortified rice and biofortified rice (averages across modelling regions).



6. Composition of multi-micronutrient fortified kernels per WFP's specification, available at: <http://foodqualityandsafety.wfp.org/specifications> (Select "Rice: 25% Broken Fortified Rice")

6.

THE POLICY FOCUS ON RICE SELF-SUFFICIENCY, COMBINED WITH LOW DEMAND FOR VEGETABLES, DOES NOT INCENTIVISE AGRICULTURAL DIVERSIFICATION. GROWTH IN AGRICULTURAL PRODUCTIVITY HAS BEEN SLOW IN RECENT YEARS DUE TO LIMITED ACCESS TO INPUTS AND TECHNOLOGY, AND UNCERTAIN PROPERTY RIGHTS. EXPANDING HOMESTEAD PRODUCTION OF FRUIT AND VEGETABLES CAN IMPROVE ACCESS TO NUTRITIOUS DIETS.

Agriculture comprises almost one third of total employment in the Philippines but contributes only one tenth of the total GDP. Compared to other Southeast Asian countries, production and productivity growth has lagged for decades despite government support to agriculture being five times the OECD average. Agricultural policy focused on rice self-sufficiency has encouraged producers to increase their share of rice in total production, by value and by land use⁷. Greater policy focus on diversification could improve food security and nutrition. The agrarian reform process, designed to redistribute public and private land to landless farmers and farm workers, has been underway since the late 1980s. It has affected ownership of close to three-quarters of total agricultural land and has yet to be finalised. As a result, property rights remain uncertain, farmers struggle with securing financing, and investment in agricultural infrastructure is low.

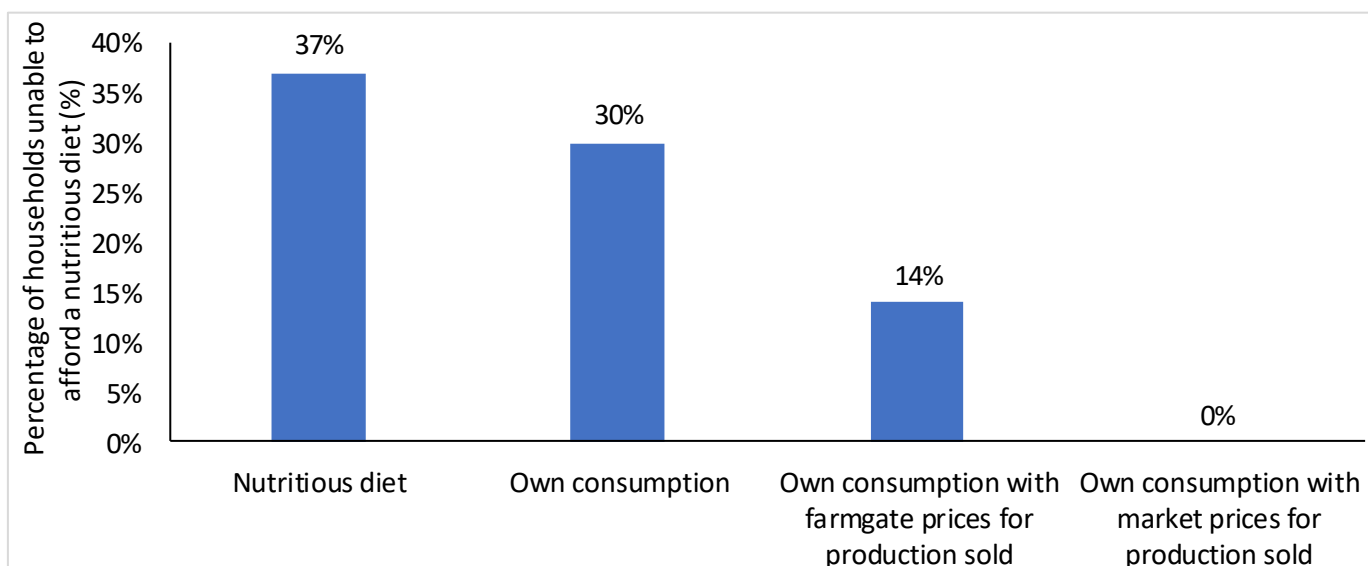
The Philippines’ archipelagic geography complicates supply chain infrastructure and distribution of fresh food across 7,000+ islands. High transportation costs encourage decentralised production and disincentivise distribution of food to potential consumers. While many

food items are transported to Metro Manila for a guaranteed market, few mechanisms are in place to distribute across and within regions, and low storage capacity in areas of production leads to post-harvest losses when food is not shipped quickly.

More than half of green, leafy and yellow vegetables⁸ and more than a quarter of other vegetables⁹ consumed are produced by the households consuming them. This highlights the potential of home gardening interventions to improve access to nutritious food. This may require households to grow a greater variety of crops and increase the sizes of their plots. CotD analysis modelled the production of fresh food such as kangkong, squash, tomatoes, eggplant, string beans and watermelon through kitchen garden interventions. It was found that across rural areas in the regions modelled (excluding NCR), own consumption of garden crops could reduce the daily cost of the nutritious diet for the model household from PHP 171 to PHP 157. Consumption of fruit and vegetables in the model was 3.7 times the reported per capita consumption in the 2013 NNS and households would need to change current consumption patterns for the kitchen garden model to achieve this impact.

CotD analysis estimates that without an intervention, 37 percent of the rural population in these areas would not be able to afford the nutritious diet. With own consumption of kitchen garden crops, 30 percent would not be able to afford the nutritious diet. If households were to sell surplus production at reported farmgate prices (PHP 37 daily income) 14 percent would be unable to afford the nutritious diet. If households were to sell their products at market prices for their crops (PHP 148 potential daily income), virtually all households would be able to afford the nutritious diet (Figure 12).

Figure 12: Percentage of households unable to afford the nutritious diet with consumption and sale of kitchen garden crops (averages across rural areas in six modelling regions).



7. Rice production increased from 16% of total value in 1991 to 22% in 2013 and from 26% of harvested areas in 1990 to 33% in 2013.

8. FNRI classifies as green, leafy and yellow vegetables malunggay, carrot, squash fruit, kamote and kangong.

9. FNRI classifies as other vegetables onion, garlic, eggplant, string beans and cabbage.

7.

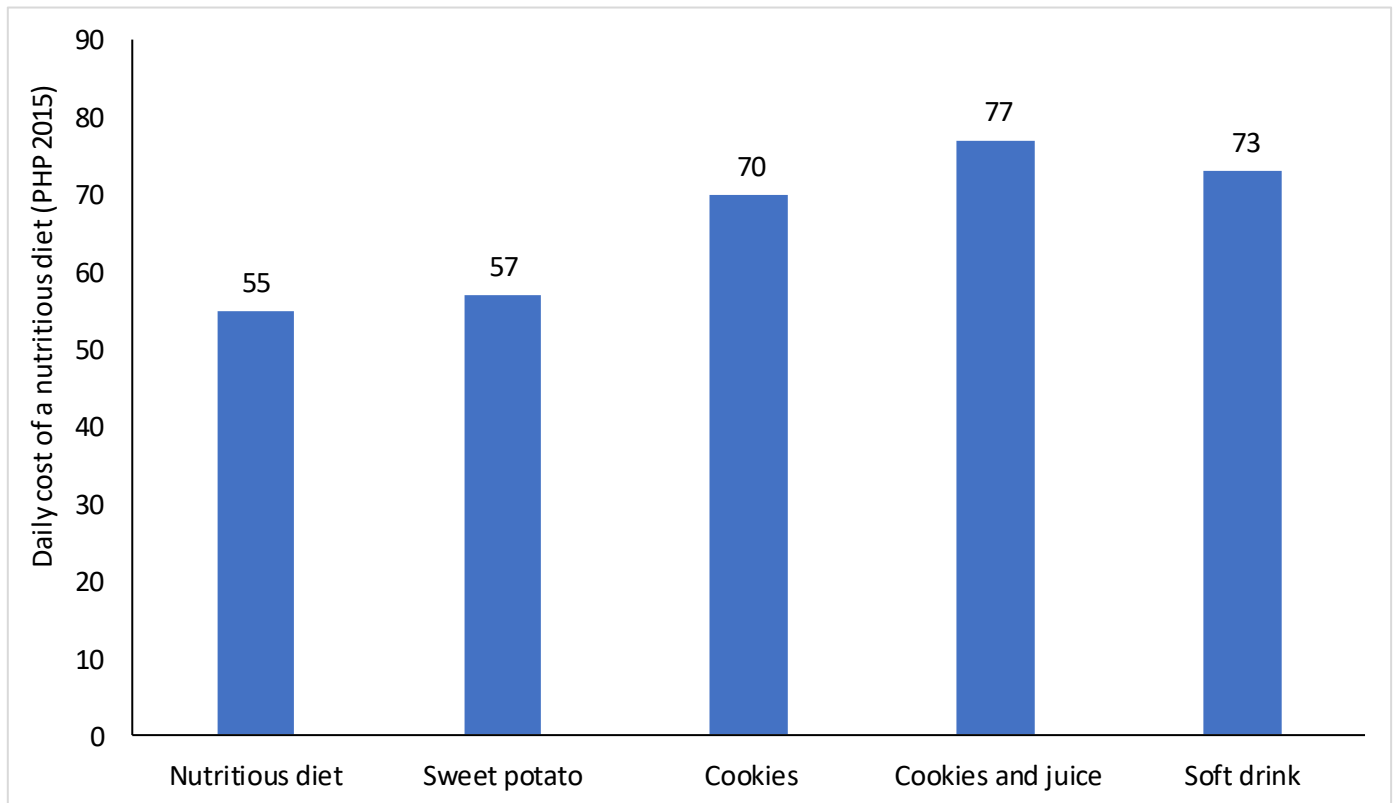
INCREASING PREVALENCE OF OVERWEIGHT AND OBESITY THROUGHOUT THE PHILIPPINES IS A GROWING CONCERN. ADVERTISING UNHEALTHY FOOD HIGH IN CALORIES AND LOW IN MICRONUTRIENTS INFLUENCES FOOD CHOICES. URBANISATION GENERALLY RESULTS IN INCREASED SEDENTARY LIFESTYLES AND CHANGING FOOD CONSUMPTION PATTERNS.

The Philippines is facing a double burden of malnutrition with a persistently high prevalence of undernutrition and an increasing prevalence of overweight/obesity. On average, 18 percent of food consumed is processed¹⁰ and 36 percent of households report at least one family member consuming daily meals or snacks outside the home. CotD analysis estimated the cost of a nutritious diet with snacks and found that for an adolescent girl unhealthy snacks increased the daily cost of the nutritious diet by as much as 40 percent (Figure 13). Unhealthy snacking contributes to the energy requirement without contributing nutrients. As a result, remaining food consumed must be more nutrient-dense and this is more expensive. In reality, overconsumption of energy might lead to overweight or obesity rather than the consumption of more nutrient-dense food.

Whether or not individuals compensate for unhealthy snacking by eating more nutrient-dense food, an increasing cost of meeting nutrient needs is a barrier to adequate nutrient intake. Unhealthy snacking not only increases the risk of overweight/obesity but also the likelihood of micronutrient deficiencies. Access, ease of consumption, affordability and taste preferences are considered the main drivers of the high demand for unhealthy food.

A survey of food advertising around schools in Manila estimates that 85 percent of advertised food and drink is “unhealthy,” classified as not contributing to recommended daily nutrient requirements. Soft drink ads were most frequent. Advertising of unhealthy food high in calories and low in micronutrients is ubiquitous. The television advertising budget of one ice cream company was reported to be more than 10 times the National Nutrition Council’s (NNC) budget for programmes and projects. This indicates the importance of encouraging private sector actors to acknowledge their role in nutrition, and the shared responsibility of working to improve the nutrition situation given the sector’s expertise and success targeting and messaging to different consumer groups.

Figure 13: Daily cost of nutritious diet for adolescent girl with snacking¹¹ (averages across modelling regions except for NCR where a nutritious diet could not be calculated for an adolescent girl without exceeding energy limits).



10. FNRI defines processed food as “food that has been changed from its natural state, either for safety reasons or convenience. It may contain additives, artificial flavourings or chemical ingredients and is usually packed in boxes, cans, plastics or bags.”.

11. Portion sizes (daily): sweet potato 50g; cookies 30g; juice 180 mL; soft drink 194 mL.

8.

CONSIDERING THE VULNERABILITY OF THE PHILIPPINES TO NATURAL DISASTERS, EMERGENCY PREPAREDNESS PLANS, PROGRAMMES AND MONITORING TOOLS NEED STRENGTHENING TO INCLUDE NUTRITION.

Much of the Philippines is exposed to typhoons, especially the northern and eastern parts of the country. Coastal populations are vulnerable to rising sea levels and urban populations are vulnerable to floods due to inadequate drainage infrastructure. Droughts and landslides are increasing. Among the lessons learned from the typhoon Haiyan response in 2013 was that after the disaster livelihoods and assets were destroyed and incomes were reduced for months, while markets functioned relatively well albeit with increased food prices due to increased supply chain costs as a result of damaged infrastructure.

The Department of Social Welfare and Development’s (DSWD) Family Food Pack, designed to support families affected by natural disasters, was developed with the nutrient values of specific target groups in mind and covers most of the nutrient needs for a family of five. However, in regional FNG consultations stakeholders reported that food provided does not match the ration outlined in the policy (Table 2). One factor is the delay in

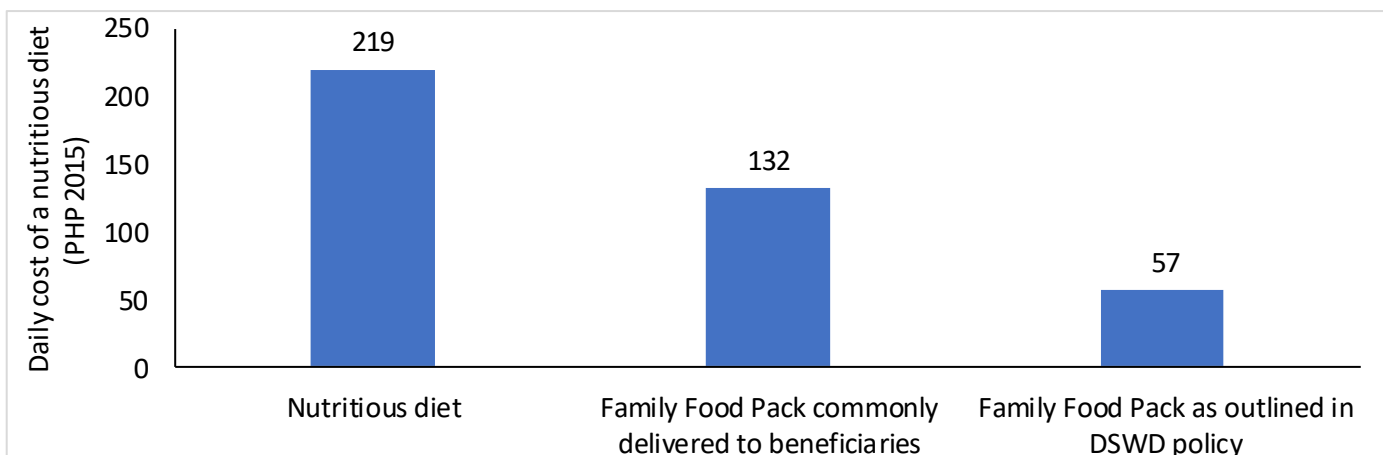
procurement — provisions delivered in 2018 were procured in 2016 before the adoption of the new policy. Canned laing and canned pinakbet are not delivered because they are not popular among beneficiaries according to regional stakeholders consulted during FNG validation. Multi-Nutrient Growth Mix (MGM) is not provided due to limited national production capacity. Most of the rice provided is not fortified due to increased cost.

CotD analysis estimated the difference between the Family Food Pack [1] outlined in DSWD policy and the actual Family Food Pack [2] commonly delivered to beneficiaries. It found that with Family Food Pack [2], households would need to spend more than twice as much in addition to the Family Food Pack to meet nutrient needs, compared to the amount they would have to spend if they received Family Food Pack [1] (Figure 14). This highlights the importance of designing policies that are realistic and accepted by beneficiaries, and of making sure that delivered interventions meet the standards defined in policy. After a disaster, affected households may be dependent on food assistance for months. If delivery of interventions falls short of the standards in programme design, beneficiary needs will not be met for a substantial period of time. This increases their risk of poor health, lowers productivity, and can affect growth and development of young children.

Table 2: Composition of planned Family Food Pack commonly delivered to beneficiaries compared to the Family Food Pack as outlined in DSWD policy.

Food/ commodity (Total weight per day)	Rice, Iron Fortified (g)	Rice, Not Fortified (g)	Corned Beef, Canned (g)	Sardines, Canned (g)	Laing ¹² , Canned (g)	Pinakbet ¹³ , Canned (g)	Multi-Nutrient Growth Mix ¹⁴ (g)	Instant Coffee (g)
Family Food Pack commonly delivered to beneficiaries		3000	150	310				60
Family Food Pack as outlined in DSWD policy	3000		150	310	155	225	20	60

Figure 14: Daily cost of a nutritious diet with Family Food Pack as delivered to beneficiaries compared to Family Food Pack as outlined in DSWD policy (average based on modelling areas).



12. Laing is a vegetable dish made with dried tabo (gabi) leaves, coconut milk, shrimp paste and chili peppers.

13. Pinakbet is a vegetable dish made with mixed vegetables steamed in fish or shrimp sauce.

14. MGM is a 2g sachet with six micronutrients (including iron and vitamin A) that were identified as not commonly consumed in FNRI’s dietary intake survey.

9.

EXISTING (PRE-)SCHOOL MEAL PROGRAMMES CAN PROVIDE CHILDREN WITH NUTRITIOUS FOOD. TO IMPROVE THEIR CONTRIBUTION TO MEETING NUTRIENT REQUIREMENTS, THE SCHOOL MEAL NEEDS TO INCLUDE MORE NUTRITIOUS FOOD.

Ninety six percent of children are enrolled in primary school. School meal programmes as an entry point can reach a high number of beneficiaries. Findings suggest school meals could effectively lower the cost of the nutritious diet for pre-school children in programmes implemented by DSWD and for school age children in programmes implemented by the Department of Education (DepEd) (Figure 15).

The diets of children in school are often deficient in micronutrients. Improving nutrient intake has the potential to improve learning outcomes. When DepEd’s targets for the percentage of reference nutrient intake (RNI) met for key micronutrients was compared to WFP’s new international guidelines for school meal programmes, current targets for ongoing programmes were found to be below WFP’s recommended values of micronutrients including vitamin B1, pantothenic acid, folic acid, calcium, iron and zinc (Figure 16). WFP targets are set at 50 percent of the daily intake requirement as it is assumed that the food children receive at home is less nutrient-dense. Reformulating school meal guidelines could improve the nutrient intake of beneficiaries.

Figure 15: Daily cost of nutritious diet for a preschool aged child (4-5 years) and for a school aged child (6-7 years) with school meals (averages across modelling regions).

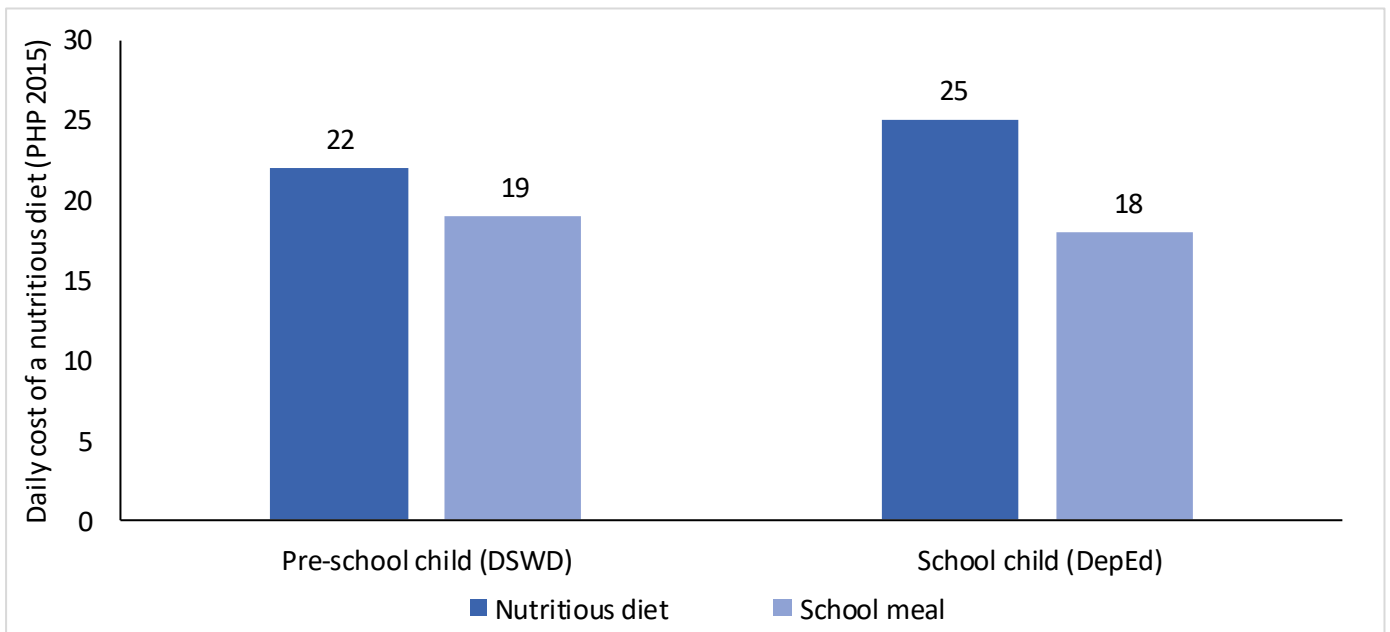
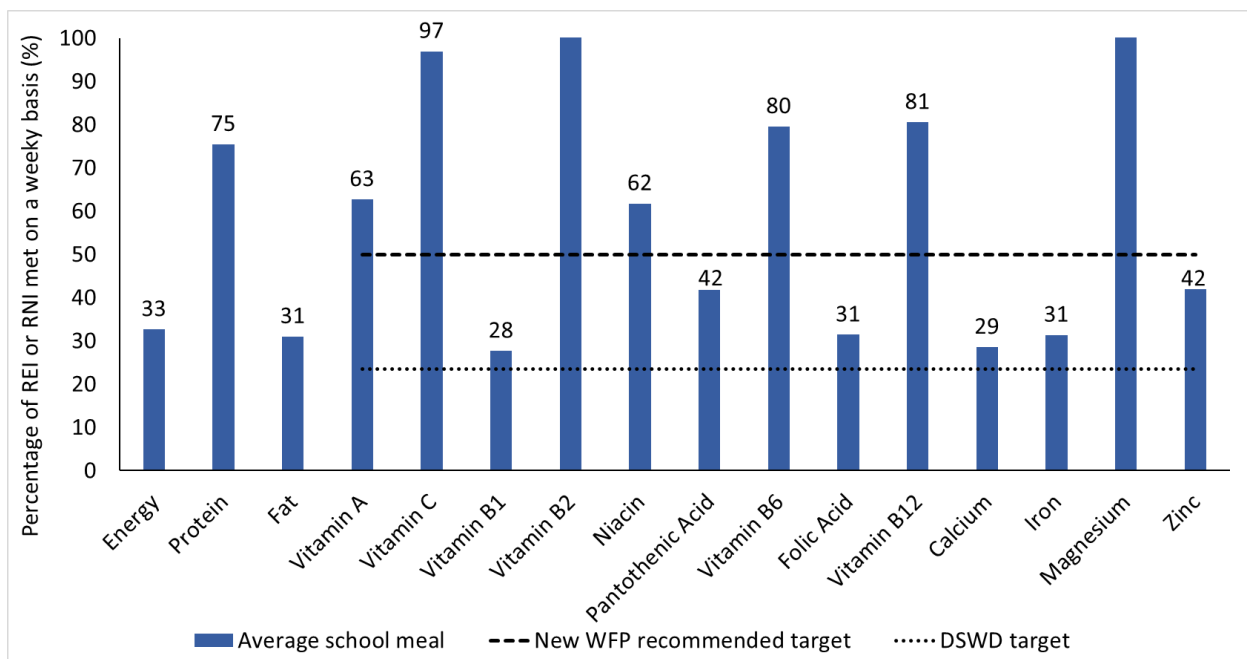


Figure 16: Percentage of weekly REI and RNI provided by school meals compared to WFP’s recommended target and DSWD’s target (averages across modelling regions).



10.

MULTISECTORAL INTERVENTIONS, AS DEFINED IN THE PPAN, HAVE THE POTENTIAL TO SIGNIFICANTLY IMPROVE ACCESS TO NUTRITIOUS DIETS AND REDUCE MALNUTRITION. TO REALISE THE PPAN'S FULL POTENTIAL, NATIONAL AND LOCAL COMMITMENT TO NUTRITION MUST BE STRENGTHENED AND COORDINATION IMPROVED.

A combination of multisectoral interventions for each target group as defined in the PPAN was modelled to estimate the potential reduction in the percentage of households unable to afford the nutritious diet. (Table 3) These interventions included a daily portion of Rimo blend for the child under two, a school meal for the child aged 6–7, and iron and folic acid tablets for the adolescent girl and lactating woman.

An estimate of the percentage of households unable to afford the nutritious diet if all households received the PHP 1,400 cash transfer through 4Ps was performed, and assumed households spent 70 percent of the transfer on nutritious food in addition to what they already spend on food. Without an intervention 35 percent of households in the modelling areas could not afford a nutritious diet. This percentage was reduced to 22 percent of households with 4Ps cash transfer, 21 percent of households with the intervention package and 7 percent of households with the combination of the intervention package and 4Ps cash transfer (Figure 17).

Effective implementation of the multi-sectoral intervention package requires: 1) consistent delivery of high quality supplements and nutritious food; 2) messaging campaigns promoting compliance and addressing concerns with acceptability and; 3) monitoring and evaluation to identify issues in implementation and inform iteration in response. Cash transfers effectively improving access to nutritious

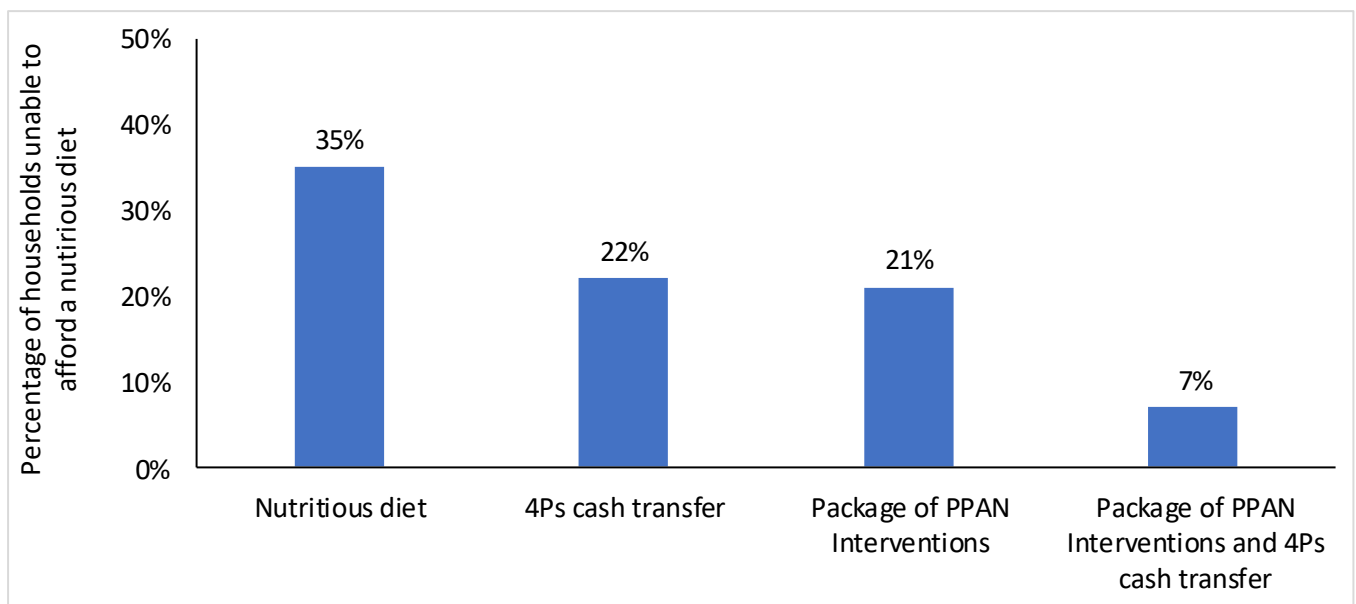
food requires: 1) households understanding which food is nutritious; 2) nutritious food being available in local markets and; 3) beneficiaries having the desire to purchase and consume nutritious food.

Corresponding behaviour change messaging would be necessary to help achieve this outcome. One strategy to link cash transfers to nutrition would be to combine cash with in-kind or commodity specific e-vouchers. This would increase demand for nutritious food and provide an incentive for food manufacturers to produce these products by providing a consumer base.

Table 3: Overview of package of PPAN interventions.

Package of PPAN interventions	
<i>Target group</i>	<i>Modelled intervention</i>
Child under two	Rice monggo (30 g daily)
School-age child	Average of 5 current DepEd menus (costing 16-20 PhP per meal, per child, per school day)
Adolescent girl	Iron and folic acid tablet (1g daily)
Lactating woman	Iron and folic acid tablet (1g daily)
Cash transfer	
<i>Target group</i>	<i>Intervention</i>
Household	1400 PHP per month

Figure 17: Percentage of households unable to afford a nutritious diet with a multi-sectoral intervention package and with 4Ps cash transfers (averages across modelling regions).





Stakeholder Recommendations

The following recommendations were developed by stakeholders during the technical workshop held in November 2018. Participants¹⁵ worked together in six groups, Health, Education, Social Welfare, Food Processing, Agriculture and Governance, to discuss how each sector can deliver key nutrition-specific and nutrition-sensitive interventions under conditions of varying time and financial resources. Recommendations were presented to policymakers in a follow-up higher level meeting.

HEALTH

- 1) Keep investing in the First 1000 Days and improve the nutrition component of the Maternal Newborn Child Health and Nutrition strategy
 - Immediate postpartum and postnatal care
 - Promote infant and young child feeding (IYCF)
 - Timely introduction of complementary feeding
 - Promotion of best practices to achieve minimum acceptable diet
 - Support exclusive and continued breastfeeding
 - Further extension of maternity leave
 - Tax incentives for good maternity scheme
 - Occupational protection
- 2) Prioritize pregnant and breastfeeding women, and adolescents
 - Iron and folic acid and multi-micronutrient tablets
 - Nutrition programming in adolescent health clinics
- 3) Continue to include overweight and obesity prevention in health policy measures
 - Food labelling and regulations for health and nutrition claims
 - Complemented by strong education campaign to inform consumers about labelling
 - Sugar tax
 - Enforcement of only healthy foods at schools
- 4) Deliver strong and consistent behaviour change communication on improving dietary diversity

SOCIAL WELFARE

- 1) Ensure inclusion of nutrition indicators in revised social protection strategy
- 2) Re-design and standardize pre-school feeding recipes
 - Compensate for gaps at home
 - Ensure all children are included in day care centers and child development centers
 - Not only those visibly malnourished, because a complement to the home diet is important for many, especially to fill a gap in micronutrient intake
 - Appropriate coverage for children with disabilities and children from indigenous communities
 - Review best practices for local procurement

EDUCATION

- 1) Use opportunity to reach a large number of children and adolescents
 - Improve dietary diversity and micronutrient fortification and supplementation
 - Consider age-specific needs
 - Include overweight and obesity prevention
 - Ensure anti-obesogenic school environment
 - Regulation of marketing and sale of unhealthy food
 - Increase availability of low-cost healthy food options in schools
- 2) Connect school meals
 - Connect with local smallholder farmers
 - Ensure fidelity to standardized recipes in school-based feeding meals
 - Expand feeding to undernourished adolescents in secondary schools
 - Micronutrient supplementation (iron with folic acid) for all adolescent females once a week
 - Use of biofortified/fortified staples (rice/flour/salt) and other food products in food offered in feeding programs and school canteens
- 3) Capitalize on nutrition curriculum development initiatives

FOOD PROCESSING

- 1) Unleash the potential of fortification
 - Fortification of staple foods and specialized (targeted) foods
 - For all government food purchases
- 2) Capitalize on NFA's unique position and scale with fortified rice, requires:
 - Additional resources
 - Memos and directives
- 3) Support blenders
 - Appropriate use of technology
 - Incentives to fortify

15. Participants included representatives from the following government agencies and organizations: National Nutrition Council (NNC), Department of Health (DoH), Regional Health Office, Department of Social Welfare and Development (DSWD), Department of Agriculture (DA), Department of Science and Technology Food and Nutrition Research Institute (DOST—FNRI), Department of Education (DepEd), Department of Interior and Local Government (DILG), National Food Authority (NFA), National Economic Development Authority (NEDA), Office of the Vice President (OVP), Plan International, Save the Children-Philippines, Nutrition International, International Rice Research Institute (IRRI), International Care Ministries Foundation Inc (ICM), Nutridense Food Manufacturing Corporation, Alcanz International LLC, University of the Philippines Diliman, University of the Philippines Los Banos Institute of Human Nutrition and Food College of Human Ecology (UPLB-IHNF-CHE), WFP, UNICEF, FAO, WHO, Adventist Development and Relief Agency (ADRA), Kalusugan ng Mag-Ina (KMI), Nutrition Center of the Philippines (NCP), Philippines Society of Nutritionist and Dietitian (PSND).

AGRICULTURE

- 1) Think beyond rice
 - Promote diversification and intensification of production to improve availability of nutritious foods
 - Increase research, development and promotion of nutritious foods
 - Particularly in upland areas
- 2) Invest in productivity of smallholder farmers
 - Community organization, including farm clustering
 - Improved agricultural extension
 - Access to affordable technology and improved inputs, e.g. irrigation
 - Access to post harvest facilities
- 3) Grow **quality** homestead gardens
 - Enough of the right varieties in good quantities
- 4) Promote nutrition and food security in schools and communities
 - Support school gardening by training teachers on soil cultivation and crop production
 - Implement LGU-level programs on dairy production and processing
 - Barangay and School Milk Feeding

GOVERNANCE

- 1) Build on regional and provincial guidance for implementation
 - Expand to municipal level
- 2) Base internal revenue allocation on inclusion of food and nutrition security in investment plans
 - Further explore matching grant scheme
- 3) Reinforce accountability of other sectors to support nutrition
 - Regular updates from Cabinet Secretary to President
- 4) Use orientation package to sensitize elected officials on nutrition
- 5) Add nutrition pillar to Seal of Good Governance
- 6) Revisit human resource requirements for Barangay Nutrition Scholars and Nutrition Action Officers

DATA GAP: URBAN CONTEXT

Better understand the urban environment and the specific vulnerabilities that impact nutrition and food security.



CONTRIBUTORS

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LIST OF ACRONYMS

4Ps - Pantawid Pamilyang Pilipino Program (conditional cash transfer program)
ARMM - Autonomous Region in Muslim Mindanao
CotD - Cost of the Diet
DepEd - Department of Education
DSWD - Department of Social Welfare and Development
FAO - Food and Agriculture Organization
FIES - Family Income and Expenditure Survey
FNG - Fill the Nutrient Gap
FNRI - Food and Nutrition Research Institute
GDP - Gross Domestic Product
GFA - General food assistance
IFA - Iron and folic acid tablet
IFPRI - International Food Policy Research Institute
LGU - Local government unit
LNS-SQ - Lipid-Based Nutrient Supplement Small Quantity
LP - Linear programming
MAD - Minimum Acceptable Diet
MDD - Minimum Dietary Diversity
MGM - Multi-nutrient Growth Mix
MIMAROPA - Administrative region comprising Mindoro, Marinduque, Romblon and Palawan
MMF - Minimum Meal Frequency
MMT - Multiple micronutrient tablet
MNP - Micronutrient powder
NCR - National Capital Region
NNC - National Nutrition Council
NNS - National Nutrition Survey
OECD - Organisation for Economic Co-operation and Development
PPAN - Philippines Plan of Action for Nutrition
PHP - Philippine peso
Rimo blend - Rice and monggo blend
RNI - Reference nutrient intake
SNF - Specialised nutritious foods
SOCCSKSARGEN - Administrative region comprising South Cotabato, Cotabato City, Cotabato Province, Sultan Kudarat, Sarangani and General Santos City
UN - United Nations
UNICEF - United Nations Children's Fund
WFP - World Food Programme
WHO - World Health Organization

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