Nutrition Education in Child Care, Schools, and Community Settings


Philippines Case Study: Government Policies on Nutrition Education

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Abstract

Government policies at the national and local levels are central to the promotion, protection, and implementation of sound food and nutrition concepts in the Philippines. According to the 2015 national nutrition survey, persistent malnutrition problems, such as protein-energy malnutrition and micronutrient deficiencies (anemia, vitamin A deficiency, and iodine-deficiency disorders), continue to afflict a major proportion of Filipinos. In the Philippines, nutrition education and promotion date back as early as 1900 with the conduct of educational campaigns directed towards the prevention and control of epidemic diseases and to the care and feeding of young infants. This presentation begins with an overview of the Philippine Government, nutritional status of children, the Philippine Plan of Action for Nutrition, then devotes substantial attention to nutrition program for school children, and examines other potential legislative actions that may have an impact on the community and industry. While various nutrition education initiatives, addressing malnutrition problems among Filipinos, resulted in an improvement in some of the conditions, much is still to be done to achieve zero malnutrition for the Philippines. Eliminating hunger and malnutrition is technically feasible. The challenge lies in generating the requisite political will, developing realistic policies, and taking concerted actions nationally and internationally.

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Background and Introduction

The global and national food and nutrition situation indicates that >900 million people are hungry worldwide, yet >1 billion are overweight adults [1]. These global issues on malnutrition were also evident in countries in the Asia Pacific Region, such as the Philippines.

In the Philippines, nutritional problems are marked by undernutrition and overnutrition existing alongside one another [2]. According to FAO [3], malnutrition in the Philippines is caused by a host of interrelated factors – health, physical, social, economic and others. Food supply and how it is distributed and consumed by the populace have consequent impact on the nutritional status.

While reports indicate that there is enough food to feed the country, many Filipinos continue to go hungry and become malnourished due to inadequate intake of food and nutrients, while others are bulging and develop lifestyle-related diseases [2].

In a study carried out by DOST-FNRI and Save the Children in 2013, Php 328 Billion economic losses or 2.84% of the Gross Domestic Product are lost due to child undernutrition while around Php 1.23 billion are lost due to stunting-related grade-level repetition brought about by frequent absenteeism and repetition of subjects [2]. The joint study of UNICEF and the Department of Health’s National Nutrition Council using the DOST-FNRI data showed that child stunting, anemia (IDA), and iodine deficiency disorders account for highest economic losses, which is more than USD 3 billion dollar per year [4].

The aim of this paper is to assess the nutrition situation in the country, draft the blueprint for policy among school children, and select programs on nutrition education.

Need to Define the Nutritional Status of Filipinos

Assessment of the nutrition situation is the foundation on which effective interventions can be built to alleviate hunger and reduce the number of undernourished people. The DOST-FNRI tirelessly conducts national nutrition surveys (NNS) as part of its mandate to undertake research to define the citizenry’s nutritional status.

Over the years, the NNS has evolved from a focused assessment of the Filipino’s nutritional status, to include tracking progress towards country aspirations such as the Millennium Development Goals to Scaling-Up Nutrition and Sustainable Development Goals on the eradication of hunger, reduction of child
mortality, and improvement of maternal health. The NNS is among the DOST’s key services to the country which provides data and information for policies, program, and practice, in both the public and private sectors.

The result of the NNS is envisioned to serve as a source of information in preparing analyses and developing initiatives that stand to benefit our countrymen, especially poor people. The information contained therein will facilitate nutrition and health policies and programs that may need to be developed, revisited, revitalized or strengthened. The same data are a reflection of how well-nourished the Filipino population is and how far programs and policies have reached the people.

**Nutrition and Health Status of Filipinos**

The 2015 NNS [2] conducted by the Food and Nutrition Research Institute of the Department of Science and Technology affirms that the prevalence of underweight and stunting among children has not changed for the past 20 years. Figure 1 shows the prevalence of malnutrition among Filipino children 0–10 years old by single age group in 2015.

In addition, the food intake of Filipino households was inadequate in terms of quality and quantity, as revealed in the 2015 Food Consumption Survey component of the NNS (Fig. 2).
A greater percentage of school-age children have inadequate energy intake (Table 1), with only 20.5% meeting the energy recommendation. The average daily protein intake amounted to 41.1 g with about three-fourth (76.1%) of school-age children being able to meet the estimated average requirements (EAR) while 20% being able to meet the EAR for iron. A smaller proportion of school-age children met the EAR for calcium (11.4%) and less than half of children met the EAR for vitamin A (33.6%), vitamin C (27.6%), thiamin (44.4%), and riboflavin (31.6%).

### The Philippine Plan of Action on Nutrition as Blueprint for Action

Given these situations, government policies at the national and local levels are central to the promotion, protection, and implementation of sound food and nutrition concepts in the Philippines. Government policy and activities that shape dietary guidance, nutrition education, food labeling, regulation of food marketing, food services, and food production and distribution, are all important determinants of the nutritional environments of Filipinos.

With cognizance of the malnutrition problem, an integrated plan of action for nutrition was formulated by the national multi-sectoral nutrition community, consistent with the global call to eradicate malnutrition. Commonly known as the Philippine Plan of Action for Nutrition 2017–2022, the plan is an integral part of the Philippine Development Plan 2017–2022 [5]. It is consistent with the Duterte Administration 10-point Economic Agenda, the Philippine Health Agenda, and the development pillars of *malasakit* (protective concern), *pagba-...
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The framework of the Philippine Plan of Action for Nutrition 2017–2022 is shown in Figure 3.

**Table 1.** Mean 1-day energy and nutrient intake and proportion of school-age children, 6–12 years old, meeting the recommendation for energy and EAR for nutrients, by single age: Philippines, 2013

<table>
<thead>
<tr>
<th>Energy and nutrients</th>
<th>Age, years</th>
<th>all</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Intake, kcal</td>
<td>1,338</td>
<td>1,137</td>
<td>1,191</td>
<td>1,276</td>
<td>1,337</td>
<td>1,427</td>
<td>1,469</td>
<td>1,549</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting REI</td>
<td>20.5</td>
<td>17.1</td>
<td>19.7</td>
<td>23.0</td>
<td>31.7</td>
<td>16.2</td>
<td>15.7</td>
<td>19.2</td>
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<tr>
<td>Protein Intake, g</td>
<td>41.1</td>
<td>34.9</td>
<td>36.4</td>
<td>39.4</td>
<td>41.2</td>
<td>44.2</td>
<td>45.3</td>
<td>46.9</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting EAR</td>
<td>76.1</td>
<td>75.4</td>
<td>80.4</td>
<td>84.3</td>
<td>84.7</td>
<td>63.7</td>
<td>71.6</td>
<td>72.0</td>
<td></td>
</tr>
<tr>
<td>Iron Intake, mg</td>
<td>7.1</td>
<td>6.5</td>
<td>6.4</td>
<td>6.7</td>
<td>7.0</td>
<td>7.5</td>
<td>7.7</td>
<td>7.8</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting EAR</td>
<td>20.3</td>
<td>24.7</td>
<td>22.4</td>
<td>24.2</td>
<td>31.7</td>
<td>13.3</td>
<td>11.6</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>Calcium Intake, mg</td>
<td>0.27</td>
<td>0.27</td>
<td>0.26</td>
<td>0.27</td>
<td>0.26</td>
<td>0.29</td>
<td>0.28</td>
<td>0.29</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting EAR</td>
<td>11.4</td>
<td>14.8</td>
<td>8.8</td>
<td>10.0</td>
<td>10.1</td>
<td>14.2</td>
<td>9.5</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>Vitamin A Intake, mcg RE</td>
<td>349.7</td>
<td>374.2</td>
<td>342.8</td>
<td>306.1</td>
<td>322.7</td>
<td>353.1</td>
<td>376.8</td>
<td>375.1</td>
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<tr>
<td>Proportion meeting EAR</td>
<td>33.6</td>
<td>40.6</td>
<td>37.3</td>
<td>39.4</td>
<td>39.9</td>
<td>26.7</td>
<td>26.7</td>
<td>23.0</td>
<td></td>
</tr>
<tr>
<td>Vitamin C Intake, mg</td>
<td>22.6</td>
<td>18.9</td>
<td>19.9</td>
<td>21.6</td>
<td>24.4</td>
<td>22.0</td>
<td>26.1</td>
<td>25.9</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting EAR</td>
<td>27.6</td>
<td>28.3</td>
<td>30.4</td>
<td>32.8</td>
<td>35.1</td>
<td>17.6</td>
<td>24.2</td>
<td>24.4</td>
<td></td>
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<tr>
<td>Thiamin Intake, mg</td>
<td>0.67</td>
<td>0.64</td>
<td>0.61</td>
<td>0.62</td>
<td>0.67</td>
<td>0.71</td>
<td>0.71</td>
<td>0.73</td>
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<tr>
<td>Proportion meeting EAR</td>
<td>44.4</td>
<td>48.6</td>
<td>47.6</td>
<td>50.3</td>
<td>51.7</td>
<td>36.0</td>
<td>36.6</td>
<td>39.0</td>
<td></td>
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<tr>
<td>Riboflavin Intake, mg</td>
<td>0.58</td>
<td>0.57</td>
<td>0.55</td>
<td>0.54</td>
<td>0.58</td>
<td>0.59</td>
<td>0.59</td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting EAR</td>
<td>31.6</td>
<td>43.2</td>
<td>39.6</td>
<td>38.2</td>
<td>40.8</td>
<td>18.4</td>
<td>18.5</td>
<td>20.6</td>
<td></td>
</tr>
<tr>
<td>Niacin Intake, mg</td>
<td>12.5</td>
<td>10.4</td>
<td>10.8</td>
<td>11.8</td>
<td>12.5</td>
<td>13.5</td>
<td>14.1</td>
<td>14.6</td>
<td></td>
</tr>
<tr>
<td>Proportion meeting EAR</td>
<td>79.6</td>
<td>77.4</td>
<td>78.1</td>
<td>84.4</td>
<td>87.1</td>
<td>72.1</td>
<td>76.6</td>
<td>81.4</td>
<td></td>
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<tr>
<td>Carbohydrates, g</td>
<td>230</td>
<td>192</td>
<td>201</td>
<td>217</td>
<td>229</td>
<td>247</td>
<td>256</td>
<td>275</td>
<td></td>
</tr>
<tr>
<td>Fats, g</td>
<td>28</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>28</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

EAR, Estimated Average Requirements; REI, Recommended Energy Intake.

bago (change or transformation), and kaunlaran (development), and the vision of Ambisyon 2040. It factors in and considers country commitments to the global community as embodied in the 2030 Sustainable Development Goals, the 2025 Global Targets for Maternal, Infant and Young Child Nutrition, and the 2014 International Conference on Nutrition. The plan consists of 8 nutrition-specific programs, an initial list of 10 nutrition-sensitive programs, and 3 enabling programs.

The framework of the Philippine Plan of Action for Nutrition 2017–2022 is shown in Figure 3.
Government Policies in Support of the Nutrition Program

Major changes in our food system and food and eating environments over the past decades have been driven by technological advances, food and agricultural policies, and economic, social, and lifestyle changes. Food is now readily available and accessible in multiple settings throughout the day [6]. More processed and convenience foods are available in larger portion sizes and at relatively low prices. Parents are working longer hours, there are fewer family meals, and more meals are eaten away from home [2, 7].

Thus, policies and programs are extremely important to help make the healthful choices the easy ones. They enable changes in systems and social structures to facilitate the enactment of healthful food and activity behaviors. Policy complements education and environmental change [8].

In the Philippines, Republic Act No. 11037 [9] otherwise known as the Masustansyang Pagkain para sa Batang Pilipino, aims to combat hunger and undernutrition among Filipino children. Under the law, the Department of Social Welfare and Development will implement a supplemental feeding program for daycare
children while the Department of Education (DepEd) will enforce the school-based feeding program. The program involves the provision of one fortified meal to undernourished kids for not <120 days in a year. The law also provides for the establishment of a milk feeding program, provision of micronutrient supplements, health examination and vaccination, vegetable gardening in schools, water and sanitation facilities, promote good hygiene, and nutrition education.

On the contrary, the rising obesity rates among Filipino children and adults have motivated policy makers to implement policies that can improve access to affordable, healthy foods and increase opportunities for physical activity in schools and communities across the country. One example is the DepEd Order 13, S. 2017 on Policy and Guidelines on Healthy Food and Beverage Choices in Schools and in DepEd Offices for the promotion and development of healthy eating habits among the youth and its employees [10]. The Department Order aims to: (1) make available healthier food and beverage choices among the learners and DepEd personnel and their stakeholders; (2) introduce a system of categorizing locally available foods and drinks in accordance with geographical, cultural, and religious orientations; (3) provide guidance in evaluating and categorizing foods and drinks; and (4) provide guidance in the selling and marketing of foods and beverages in schools and DepEd offices, including the purchasing of foods for school feeding.

This Department Order from DepEd led to a subsequent issuance of a local ordinance in some cities (Pasig and Quezon City).

Excise tax on sweetened beverages (SBs) is one of the new taxes imposed under Republic Act No. 10963 or Tax Reform for Acceleration and Inclusion Law which took effect on January 1, 2018 [11]. The Department of Finance along with the Department of Health support this as part of a comprehensive health measure to curb the consumption of SBs and address the worsening number of diabetes and obesity cases in the country, while raising revenue for complementary health programs that address these problems.

What must be considered here is that the cost of food is the second most important factor affecting food decisions, behind taste [12]. Government regulations that affect price have been consistently influencing the purchase of fresh fruits, vegetables, and meats [13]. Drewnowski [14] has hypothesized that the observed links between food supply trends and rising obesity rates are mediated by the economics of food choices. The current structure of food prices is that high-sugar and high-fat foods provide calories at the lowest cost [15]. Thus, individuals and families with limited resources may select energy-dense foods high in refined grains, added sugars, and fats as a way to save money. Fresh fruits and vegetables are more expensive on a per calorie basis than fats and sugars. Little is known as to whether variations in food prices account for differences in diet quality or weight status.

While many states in other countries currently tax SBs, limited recent research suggests that these modest taxes have little impact on weight [16]. However, emerging research suggests that significant differences in the relative prices of healthier foods and beverages compared with those that are less healthy could help reduce the BMI and the prevalence of overweight and obesity, particularly for the young and lower-income populations that are mostly at risk for obesity [17]. This suggests that raising SB taxes to levels that would result in substantially higher SB prices, either through an excise tax or increased sales taxes, could be a potent policy tool for curbing obesity rates by leading consumers to reduce their SB consumption.

**Nutrition Education Activities in the Philippines**

The Philippines has its own experience to share in nutrition education. One of these is the Barangay Integrated Development Approach for Nutrition Improvement of rural poor. This program suggested that development programs should be oriented to satisfy nutritional objectives. Program activities were directed at causal factors such as low income, unemployment, ignorance, etc. Activities integrated in the project included training indigenous workers in extension and communication methods involving village members in problem identification and solution development [18].

Several non-government/non-profit organizations also provided school feeding programs. The Pondo ng Pinoy Community Foundation, then headed by Cardinal Gaudencio B. Rosales and 13 other bishops launched the HAPAG-ASA Integrated Nutrition Program in July 2005 in partnership with Assisi Development Foundation and Feed the Children Philippines. HAPAG-ASA feeds 6-months- to 12-year-old undernourished children, underweight pregnant and lactating women in the community once a day, 5 days a week for 6 months [19]. Each meal is enriched with nutrients through the provision of food supplements complete with vitamins and minerals. These are Vitameal from FTC and MannaPack Food Supplements from FMSC through RSM. Vitameal is a mixture of rice and lentil, MannaPack Fortified Rice is made of rice, soya, and dehydrated vegetables while MannaPack Fortified Potato is made of potatoes with sweet potato flavor. Apart from supplemental feeding, education classes and livelihood and skills training for parents, aimed at sustaining the improved nutritional condition of the children, are conducted simultaneously.

To combat the problem on malnutrition, the DOST-FNRI developed low-cost complementary foods made from local ingredients to address the nutritional problem among infants and young children and had this tested among these groups of children. The technology is being rolled-out nationwide, and
several local government units and non-government organizations have partnered with the Institute to produce the products, either at community or commercial level, for use in feeding programs among undernourished children.

Print and broadcast media were also utilized by the DOST-FNRI for nutrition education promotion. In the mid 1970s, the Institute embarked on the Nutrition School-on-the-Air intended for homemakers through a partnership with the broadcast and print media. Basic nutrition lessons were aired in a regular radio program of Radio ng Bayan, a government radio station. The Liwayway Magazine, a popular print medium in the vernacular, served as a partner by publishing the questions and quizzes for the nutrition lessons which the listeners mailed to DOST-FNRI for credits to receive a certificate for passing the school. In 1997, the DOST-FNRI, pursuant to its third mandate of disseminating and promoting food and nutrition research and development information and technologies, has worked together with mass media practitioners and information officers of government and private institutions in the regions and provinces through the Nutrition Communication Network. In 1999, the Institute came up with the Manual for the Nutrition School-on-the-Air. The manual was intended as a ready reference for radio broadcasters for airing nutrition information that cater to the needs of homemakers. In October 25, 2007, a nutrition school-on-the-web dubbed as the “NutritionSchool.ph” was launched as a partnership between the FNRI and a multinational company (Nestle Philippines, Inc.). The school was a milestone accomplishment having been able to produce >5,000 online graduates.

The most recent nutrition education tool developed by DOST-FNRI is the Pinggang Pinoy, which aims to guide Filipinos in consuming the right amount of food in every meal. The visual guide called Pinggang Pinoy answers the question of how much you should eat in one meal to be healthy. It serves as a quick and easy guide for determining how much to eat per meal time. The tool uses a familiar food plate model to convey the right food group proportions on a per-meal basis to meet the body’s energy and nutrient needs of children and adults.

In the period 2012–2015, the International Institute for Rural Reconstruction in collaboration with DepEd Division of Cavite and DOST-FNRI implemented an Integrated Nutrition Model in the school feeding program, gardening and nutrition education in public schools to ensure school children’s health and nutrition. Integrated Nutrition Model covers 3 sentinel research schools in Cavite province, namely Julugan Elementary School in Tanza, Sunnybrooke ES in General Trias City, and Tinabunan ES in Imus City. The data collection also yielded results where the extended feeding program, through the additional 80 days, showed significant increase of weight among students during the research period. Due to significant increase in the mean weight of student from
baseline to end-line during the extended/longer feeding period, IIRR has recom-
mended the extension of SBFP from 120 to 180 days and institutionalize the
use of iron-fortified rice to help address prevalence of anemia among school
children.

The Industry sector contributes to various nutrition education campaigns in
the country. To address the problem of child undernutrition, as well as misin-
formation, the United for Healthier Kids was launched in October 2014. The
campaign was initiated by Nestlé Philippines, in partnership with the DOST-
FNRI, Facebook, ABS-CBN, alongside other media partners. United for Health-
tier Kids is a health initiative movement that aims to help raise healthier kids by
encouraging healthy eating, drinking and changes in everyday routines for chil-
dren aged 4–12 years. Four behaviors identified and focused upon to improve
children’s health include more water, more fruits and vegetables, more man-
aged portions, and more movement. Other initiatives also include promotion
of fortified milk drinking among school children through Laki sa Tibay School
Nutrition Education and Pamilyang Laki sa Tibay Community Nutrition Edu-
cation.

Other nutrition education campaigns and tools initiated together with pri-
ivate sector were menu guide calendars, cooking contests, urban gardening
among others.

### Summary and Lessons Learned

Eliminating hunger and malnutrition is technically feasible. The challenge lies
in generating the requisite political will, developing realistic policies, and taking
concerted actions nationally and internationally.

The development and implementation of effective nutrition policies by gov-
ernments have been hindered in the past by several factors, including insuffi-
cient knowledge, capacity, and will. Action and advocacy by many stakeholders
are needed to overcome these barriers. To be successful, broad alliances are often
required to maintain pressure, provide sound data, and bring about the desire
for progress. Strong government policy is crucial to achieve a healthy, profitable,
equitable, and sustainable food system that benefits all.

### Disclosure Statement

The authors declare that they have no competing interests.
References


