* According to the National Education Association, missing meals and experiencing hunger impair children’s development and achievement. The children cannot concentrate on their studies when they are hungry and worried about where to get the next meal. The solution is to initiate a project to provide the village with an aquaponics system.

The aquaponics project aims to promote an agricultural technique, which combines conventional aquaculture – farming fish and cultivating plants on water. Enhance A Village envisions the project to be a sustainable solution for many marginalized communities, which would be able to grow their food and eventually use the system to cultivate products that they can sell.

The aquaponics project will fulfill two elements - food security and education. Growing food directly in the village provides access to nutritious food, creating jobs and eliminating the vast carbon footprint associated with food transportation mile. Additionally, the income generated by aquaponics can be used to funding the construction, maintenance, and operation of a library for the region and its surround villages.

Moreover, aquaponics is an excellent learning tool. While performing aquaponics tasks, students can learn general subjects such as math, biology, chemistry, and engineering. Also, the study of fish, plants, and bacteria interacting in a living ecosystem can be learned along with economics, marketing, and nutrition.

# LOCAL FOOD SECURITY IN THE PHILIPPINES

# Food security for the poor

Food security is elusive for the poor, especially in the Philippines. From 2013 to 2015, our underweight percentage worsened from 19 percent to 25 percent. For stunting (a consequence of severe malnutrition), we went from 30 percent to 34 percent.

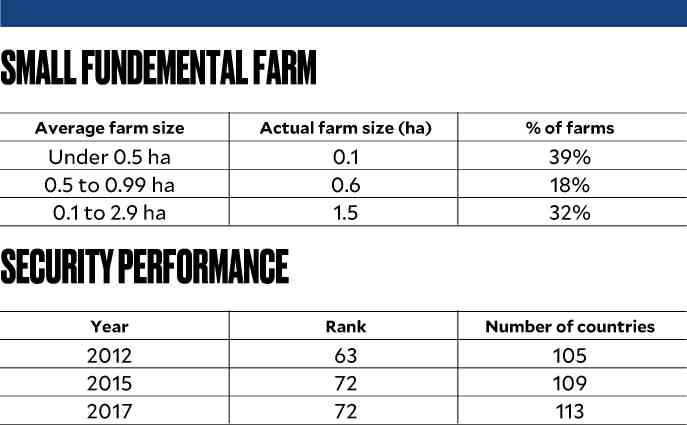
The latest Social Weather Station Survey showed that in 2018, 19 million (or 19 percent of our people) experienced hunger, with 10 million experiencing severe hunger. Because of this dire situation, the government and private sector should join hands to address this very unfortunate food security situation, especially because it has disastrous consequences for the poor.

On Jan. 8, at the Management Association of the Philippines-AgriBusiness and Countryside Development (MAP-ABCD) weekly meeting, the guest speaker was professor Domingo Angeles. As chair of the University of the Philippines Los Baños food and nutrition security center, he argued that hunger, poverty and food security are closely related. This is because 89 percent of our farms are fragmented, averaging 1.9 hectare each. He presented the tables below.

Our food security ranking can improve if we increase productivity. That can be done if the small farms were consolidated to achieve economies of scale. This will improve the critical aspects of production, technology transfer, marketing and financing.

In view of the new challenges of climate change and a liberalized agriculture trade regime, economies of scale should be supplemented with well formulated agriculture road maps. While the Department of Trade and Industry submitted more than 30 industry commodity road maps to the Philippine Institute for Development Studies (National Economic and Development Authority’s think tank), the Department of Agriculture did not submit any.

In line with addressing food security, a MAP-ABCD member reported that his group volunteered to collect the unused food from several food chain restaurants for delivery to poor undernourished communities. His offer was turned down by the restaurants because they feared they might be charged maliciously for giving unhealthy food. As Angeles stated, it is unfortunate that so much unfinished food goes to the trash bin instead of our hungry citizens.



Several countries are addressing this problem successfully. In 2016, France passed a law requiring supermarkets to give all their unused food to groups who would bring this food to the malnourished. The Italian parliament  passed a similar law with an overwhelming vote of 180 for, two against and 16 abstained. Other countries followed.

In the Philippines, Sen. Bam Aquino proposed a similar Food Waste Act that was still awaiting Congress approval.

Meanwhile, the private sector should act even without this law. MAP-ABCD member Vicky Weineke said she was in contact with the Department of Social Welfare and Development (DSWD) to supervise a project getting unused food delivered to poor communities. With DSWD taking responsibility for this effort, any unjustified court suit from a recipient will be discouraged because DSWD will be the respondent. Other alternatives are to consolidate the different contributions from the various sources so that the possibly malicious complainant will not know exactly whom to charge.

In conclusion, the real solution to our food security problem is better management such as consolidating small farms, implementing effective commodity road maps and improving public-private sector governance. In the meantime, projects can be undertaken following the example of other countries in delivering large amounts of unused food to poor communities.

[**British Medical Journal**](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7362232/) and the report [**Bending the Curve: The Restorative Power of Planet-Based Diets**](https://drive.google.com/file/d/1pVpYTNQKAE_izp8tsVK3tQ4fNWPgoQIz/view)

To assess the human and environmental health impacts of current diets, on a nation-by-nation basis, this research project analysed 147 countries. Data on current food consumption was based on the Food Balance Sheets (FBS) of the Food and Agriculture Organization of the United Nations (FAO). Countries excluded from the analysis were those where data was unavailable due to adverse political conditions, as well as small island developing states and countries with very small populations.

## **DIETARY SHIFTS**

* Flexitarian

A flexitarian diet is plant-based but allowing for moderate animal-source food consumption, including meat. We used the EAT-Lancet reference diet.

* Pescatarian

A pescatarian diet is defined as replacing meat with two-thirds fish and seafood and one-third fruit and vegetables.

* Vegetarian

A vegetarian diet is defined as replacing meat with two-thirds legumes and one-third fruit and vegetables, per recent literary definition.

* Vegan

A vegan diet is defined as replacing all animal-sourced foods with two-thirds legumes and one-third fruit and vegetables.

* National Dietary Guidelines

The analysis of NDGs was conducted in a subset of 75 countries. To create consistency across NDGs, recommendations were grouped into food groups which are relevant for health and environmental reasons (fruits, vegetables, red meat, poultry, fish, milk, eggs, legumes, nuts and seeds, and sugar).

Where recommendations were provided in units of weight, they were recorded directly. If a range was provided, the average of that range was taken. Where different recommendations were provided for men and women, the average was also taken. If recommendations were made in servings, but no serving size was included, portion sizes from the epidemiological literature were used. For general statements such as "eat daily" this was taken to be one serving per day.

Finally, recommendations to "increase/decrease intake" were coded as a 20% increase/decrease of current intake.

We took [**data**](https://pubmed.ncbi.nlm.nih.gov/30318102/) on health-outcome-optimized pescatarian, vegetarian and vegan diets, consistent with the EAT-Lancet definition of these diets and falling within the EAT-Lancet range of intake. The EAT-Lancet Reference diet provides maximum and minimum food intake recommendations for different products, but the data we used had translated it to the country level by changing the current consumption of each food as little as possible to ensure it falls within the EAT-Lancet recommended range of consumption.

We then went through a process of updating this dietary data to:

* Use FAO data rather than IMPACT model data as the input source, and ensured that current food availability reconciled with Food Balance Sheet data;
* Explicitly model the consumption of alcohols and stimulants (which remain constant in the alternative diets);
* Better disaggregate the product groups into smaller groups (for example by splitting vegetables into specific vegetable types based on current consumption);
* Split fish and shellfish into capture and aquaculture;
* Split beef into beef from dedicated beef herds and beef from dairy herds.

## Socio-economic profile of the Philippines

In 2014, the Philippines was the 13th most populated country in the world, with a population of about 107 million. Its Gross Domestic Product (GDP) growth rate for the last quarter of 2014 was 6.9%, more than the 6.3% of the same period in 2013, but less than the 7.2% of 2012. The full-year GDP growth for 2014 was pegged at 6.1%. However, despite significant economic growth (Philippines ranked 27th country in the world in 2013), 24.9% of Filipinos – 1 in 4 – lived below the poverty line.

## Hunger profile

There are several statistics that provide a quick glimpse of the country’s hunger profile and all of them point to a reality that the country has a serious hunger problem. In addition, the growing population and a steady decline of agricultural productivity and food production in the last three years contribute to the persistent hunger and food insecurity problems in the country.

#### Severe and persistent hunger situation

In 2014, the Philippines’ Global Hunger Index (GHI) was 13.1. This index is based on three indicators: undernourishment, child underweight and child mortality. It uses a scale of 0 (no hunger) to 100 (hunger). The ideal score is less than 5, which indicates low hunger. The country is therefore ranked 29th in the world, with its situation categorized as a “serious problem”. In the past 15 years (1999-2014), the number of Filipino families who rated themselves as hungry (based on the Social Weather Station’s self-rated hunger survey) rose from 8.3% to 18.3%.

#### Women and children’s faces

The people suffering from hunger in the Philippines are mainly children and women. There was a minimal decrease in the number of underweight children— from 20.7% in 2003 to 20.2% in 2011. Further, alarmingly 33.6% of children under 5 years old are suffering from stunted growth in the same year, which placed the country 9th in the world rankings of stunted children. Pregnant women in the Philippines also count amongst the people suffering the most from hunger. According to the Food Nutrition Research Institute (FNRI), one-fourth of pregnant women with children aged below 5 years are nutritionally at risk, while close to 12% of lactating mothers are underweight. According to a 2013 UNICEF report, the Philippines ranked 5th among the countries with the most cases of low birth-weight babies.

#### Exacerbating hunger: conflicts, extreme weather events and disasters

The regions that are the most affected by hunger and food insecurity are rural. This is the case especially in conflict-affected areas of Central Mindanao and disaster-affected communities, mostly in the Visayas. These are also areas where poverty incidence is much higher than the national average.

#### Structural causes vs. hunger and food insecurity

Hunger in the Philippines is caused by various factors. One culprit is inflation. High retail food prices makes food items unaffordable and hinders the ability of poor households to meet their daily food and dietary needs.  
  
People working in the agriculture sector are more prone to hunger, because of low rural incomes (whether as farmers or farm workers), lack of access to productive resources such as land and capital, and the vulnerability of the sector to various shocks such as climate change, extreme weather events, pests, and disease.  
  
Beyond the numbers and macroeconomic indicators, liberalization has become the backbone not just of Philippine food and agriculture policies but of development policy as a whole. This is despite implementing social justice measures such as the Comprehensive Agrarian Reform Program, Indigenous Peoples’ Reform Act and Fisheries Reform Code. Since 1981, the Philippines has been pursuing a comprehensive and radical program of trade liberalization. The impacts of this policy have been devastating to the agriculture sector, especially to food producers. This brings to the fore numerous policy questions in food and agriculture over last three decades. Have these policies improved the capability of people to produce food and have access to a safe, adequate, and affordable food supply? Have these policies and programs empowered millions of Filipino food producers who rely on agricultural productivity for their food and income?

#### The centrality of access, control of land and security of tenure to a hunger-free Philippines

The absence of an effective land redistribution program spells doom for Filipinos relying on agriculture for livelihood and undermines their capacity to feed the nation.  
  
Current statistics on the country’s rural conditions illustrate the farmers’ bleak situation. Farmers, the majority of whom are women, comprise four out of ten poor Filipinos. Poverty incidence is particularly high among landless agricultural workers and farmers cultivating small plots of lands and in areas where the concentration of land ownership remains with a few prominent clans.  
  
In 2013, the rural income of those employed in agriculture is way below the required food threshold or the required minimum income/expenditure to meet the basic food needs and nutritional requirements for socio-economic and physical activities for a family of five.

# Improving food and nutrition security in the Philippines

The Operation Timbang (OPT) Plus is an example of an existing information system at the barangay level, native Filipino term for a village, district or ward,

 that provides data on the status of food utilization in a community. More specifically, it provides information on the level of food insecurity in a community and the prevalence of malnutrition among vulnerable young children.

The OPT Plus is the annual weight-and-height-taking activity conducted by the National Nutrition Council (NNC) through its network of Barangay Nutrition Scholars (BNS). The BNSs are volunteer health workers who serve at the frontline of nutrition service delivery nationwide. Since the 1970s, data from this annual activity has been collected from each barangay, usually within the first quarter of the year, and  aggregated at the municipal, provincial and regional levels. Upon collection at the barangay and municipal levels, data from the OPT Plus is transmitted immediately to local chief executives and nutrition councils so that it can be used for planning and response.

**Data collection method**A key step in data collection for OPT Plus is the determination of each child’s age in months, calculated manually by the BNS from the child’s birthdate and the date of the visit. After weight and height measurements are taken, the nutritional status is also determined manually – one child at a time - using reference tables based on the World Health Organization’s Child Growth Standards. Information from each child is then recorded on standard paper forms.

Given the large number of children who are included in the survey, the process is tedious, time consuming and susceptible to computational errors. Consequently, there have been criticisms on the overall quality of malnutrition prevalence rates derived from the OPT Plus.

In 2010, the National Nutrition Council developed a prototype of an Excel-based electronic tool, known as the ‘BNS Tool’ that aimed to address the difficulties in manual calculation, recording and reporting. However, the original version had some limitations. Despite this, FAO recognized the electronic tool’s potential to improve the efficiency of the OPT Plus process.

**Improving OPT Plus**Through its UNICEF-funded Early Warning System for Food and Nutrition Security (EWS-FNS) project in the provinces of Capiz and Aklan, FAO saw an opportunity to field-test the electronic tool. Over a period of 18 months, the tool was tested and valuable feedback elicited from local partners as well as from the National Nutrition Council.

The electronic tool acquired a number of new features that automated calculations, nutritional classification and reporting functions. For example, thanks to the tool, it is now easy to prepare segregated lists of children who are severely malnourished, thereby facilitating their follow up care.

Now dubbed as the *e-OPT Plus* tool, the electronic system has become an important component of FAO’s broader EWS-FNS project in other regions of the Philippines. To enhance data quality, the tool also includes a number of error-checking features, such as checks for double-counts and out-of-range values due to data entry errors. Perhaps the most appreciated feature among its current users is the tool’s ability to consolidate OPT Plus data at the municipal and provincial levels in a relatively short period of time. This makes reports much easier to prepare, and more timely and accurate. It now also includes pre-formatted and ready-to-print reports and formats for different users, designed to encourage greater use of data at the local level.

“Improving the reliability of the OPT will also boost its use for planning and decision-making. In the broader context, greater awareness and appreciation for these types of data, especially at the barangay level, will allow local governments to make early forecasts, plan accordingly, and provide timely interventions so that communities can improve their chances for better food and nutrition security” said FAO Food and Nutrition Security Monitoring Systems Specialist, Dr Celestino Habito, Jr.

**Mainstreaming OPT Plus**To further mainstream the use of the *e-OPT plus* tool, FAO provided technical assistance to NNC in drafting a reader friendly manual that contains step-by-step guidance in using the tool. In recent months, more and more municipalities have started to use the e-OPT Tool. In Capiz and Aklan, for example, provincial health officials have started to disseminate the e-OPT tool province-wide. FAO has also been providing trainings to local government staff in preparation for next year’s OPT Plus survey. Hand-in-hand with NNC, FAO envisions to eventually see this tool adopted nationwide.

COVID 19

AYUDA

A can of soda

Description automatically generatedA close up of food

Description automatically generated

A can of food

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