SIZING UP
THE STUNTING AND CHILD MALNUTRITION
PROBLEM IN THE PHILIPPINES

Save the Children
LAHAT DAPAT
Note: This report focuses on the impacts of malnutrition in the Philippines. This also involves discussions on the issues of unequal access to quality food, effects of malnutrition on the shortness of Filipinos, and both regional and socio-economic disparities with stunting and wasting rates in the Philippines and vis-à-vis other countries.

_Lahat Dapat_ is Save the Children’s biggest campaign to date against hunger and malnutrition.

Save the Children believes that all children have the right to fair and equal access to nutritious food. Our new study suggests that shortness is not a racial or genetic trait.

We know that the rate of stunting of 33% is largely due to inequality of access to nutritious food, long period of hunger, and a lack of nutrition during the first 1,000 days of life.

With the nearing end of MDGs and the upcoming national elections, we need strong political will and public awareness to ensure no child dies or suffers from hunger and malnutrition.
Executive Summary

This report aims to cull relevant findings of research studies on nutrition and stunting in order to provide background information about child malnutrition in the country, most especially in impoverished communities.

The review covers journal articles, recent studies, statistical analysis of trends and patterns and news reports on malnutrition and its determinants, both in the Philippines and other countries in the world.

A salient theme found in studies and materials reviewed is the recognition of the importance of addressing malnutrition. There is consensus that investments on programs that address chronic malnutrition for instance yield high economic returns and a potent means to achieve economic growth and reduce poverty. In recent years, substantial number of interventions and programs on nutrition and health have been implemented both at the national and international levels. However, whilst there have been significant gains from previous efforts, malnutrition remains an important public health concern. Globally, an estimated 165 million children under 5 years old were suffering from stunting; 101 million were underweight, and 52 million were wasted. In the Philippines, 30 percent of children under the age of 5 were stunted, while around 8 percent were wasted. Improvement in the nutrition status of children in the Philippines has been modest despite considerable investments to improve children’s health and nutrition over the years.

The results of national nutrition surveys also showed that there are areas in the country that are more vulnerable to malnutrition. Provinces in the Autonomous Region of Muslim Mindanao (ARMM) have consistently exhibited critical levels of stunting and wasting. The volatile peace and order situation adds to the vulnerability brought about by less than ideal socio-economic situation that characterized the region. Furthermore, socio-economic disparity in levels of stunting and wasting is apparent. Poorer households face greater risk of child malnutrition than non-poor households.

Apart from the inability to earn regular income necessary to ensure food security, malnutrition is also caused by factors such as maternal health, infant and child feeding pattern, and sanitation and hygiene.

The first 1,000 days, from the time of conception up to the child’s first two years of life, is considered a “window of opportunity” which is a critical period of growth and development. Poor nutritional status of mother and child during this period is the primary cause of stunting; thus, common nutrition-specific interventions focus on maternal and child health. However, these interventions are not enough to address the issue. There is a need to scale up efforts to maximize the benefits from improved maternal health, especially in the context of rising teenage pregnancy.

In summary, while there are already existing nutrition-specific and nutrition-sensitive programs, there is a need to make nutrition a top development priority alongside issues such as poverty, climate change, and national security.
Introduction: Malnutrition and hunger remain as pressing issues

Despite the economic growth and unprecedented technological advancement in the past decades, malnutrition and hunger remain as two of the most pressing global social issues. Governments worldwide have recognized that improvement on the nutritional status of the population is necessary to achieve other socio-economic development goals. Thus, the first Millennium Development Goal (MDG) focuses on the eradication of extreme poverty and hunger. The goal was to curb by half the proportion of people whose income is less than USD 1 a day and the proportion of people who suffer from hunger as measured by the percentage of children under 5 years old who are underweight.

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The figures are staggering. In 2011, roughly 165 million children under 5 years old worldwide were found to be too short for their age or stunted, and 101 million and 52 million children were assessed to be underweight and wasted, respectively. Stunting is indicative of the level of chronic malnutrition. Wasting, on the other hand, captures the extent of acute malnutrition.

Numerous studies and empirical evidences have stressed the adverse effects of malnutrition on children, family, and society...
in general. In particular, results of studies have underscored how malnutrition can undermine the capacity of individuals, families, and nations to break out from the vicious cycle of poverty, illness, poor health and nutrition. Stunted and underweight mothers are found to have higher risks of giving birth to underweight offsprings; wasting and stunting prevalence are also higher among poor households, an indication that malnutrition persists through generational transfer alongside intergenerational transmission of poverty. Studies have shown that children who were not able to achieve optimum growth within their first 1,000 days from conception are at higher risk of impaired cognitive development which have adverse effects on their schooling performance, labor force participation, and productivity in later life.

At the societal level, child malnutrition contributes to low and slow economic growth which could further perpetuate poverty through “direct losses in productivity from poor physical status, indirect losses from poor cognitive function and deficits in schooling and losses owing to increased health care costs.”

"I am only able to feed him rice porridge twice a day. We cannot afford to buy him medicine."

- Abdul’s mother Fatima, 35 years old

Read more about Abdul’s story on page 32.
Understanding chronic and acute malnutrition

Child malnutrition can manifest in different ways, although it is commonly assessed through anthropometric measures, particularly through weight and height. In some cases, biochemical and clinical assessments are also conducted to assess cases of malnutrition.

The World Health Organization (WHO) has developed the Child Growth Standards which were based on an intensive study conducted in 1997. The results of this study have confirmed that children anywhere in the world will experience the same growth potential when given the same optimum care.

At every age, there is a corresponding average height that a healthy child should attain. Based on the Growth Standards, median height for boys at age 5 is 110 cm, while for girls, 109.4 cm. Linear growth failure, or stunting, is defined as the percentage of children aged 0 to 59 months (under 5 years old) whose height for age is below -2 standard deviation (moderate and severe stunting) and -3 standard deviations (severe stunting) from the median. There is moderate to severe stunting for girls at age 5 when their height is between 99.9 cm to 95.2 cm. Severe stunting occurs if the height is below 95.2 cm. For boys, moderate stunting occurs when their height is below 100.7 cm to 96.1 cm. Height less than 96.1 cm indicates severe stunting for boys.

Wasting, on the other hand, is defined as the percentage of children under 5 years old whose weight for height is below -2 standard deviation (moderate and severe wasting) and -3 standard deviation (severe wasting) from the median. The average weight for girls at age 5 is 18.2 kg, while for boys, 18.3 kg. Moderate wasting occurs for boys aged 5 when their weight falls between 12.3 to 14.1 kg. This is equivalent to -2 standard deviation from the median weight at age 5. There is severe wasting when weight of boys is below 12.3 kg. While the median age for girls at age 5 is almost similar to that of the boys, moderate wasting for girls occur when their weight is between 12.1 to 13.7 kg. While severe wasting happens when the girls weigh below 12.1 kg, or -3 standard deviation from the median weight of 18.2 kg.

Other anthropometric measures such as severe acute malnutrition is defined as the percentage of children aged 6 to 59 months whose weight for height is below -3 standard deviations from the median, or a mid-upper-arm circumference of less than 115mm, with or without nutritional oedema.

Of these measures, stunting is considered the most common indicator of childhood malnutrition found in nearly all low and middle income countries. This reflects chronic undernutrition and thought to begin prior to birth. The nutritional status of the mother, along with

A mother reads the description on a Plumpy Nut wrapper, a high protein supplement for young children. / Save the Children
maternal stunting, poor health care could lead to intrauterine growth restrictions. Although the first 1,000 days are considered critical for linear growth development, studies have also found that complementary feeding period (between 6 to 24 months) is a significant contributory factor to stunting. Meanwhile, wasting is caused by acute malnutrition and is a strong predictor of mortality among children under 5 years old. Wasting in children occurs as a result of severe food shortage or diseases.

Both chronic and acute malnutrition are important public health issues, although in recent years, and in the aftermath of the Horn of Africa crisis in 2011, the spotlight has been directed mainly to acute malnutrition. Chronic malnutrition, on the other hand, continues to affect millions of children and accounts for 14 percent of child mortality, three times higher than deaths due to acute malnutrition.

There is consensus among human biologists, nutritionists and scientists that physical growth is a function of genetic characteristics, diet and nutrition, morbidity, and environment. Yet, reduction in stunting and wasting depends on the optimum fetal and child growth and development which starts from conception until the first 1,000 days of life.

The Lancet in its series on maternal and child nutrition studies came up with a framework that outlines different factors that contribute to the attainment of optimum fetal and child growth and development. It also identifies nutrition-specific and nutrition-sensitive interventions that can affect the influence of various determinants on fetal and child growth and development.

Failure to achieve optimum fetal and child growth and development is attributed to the interplay of dietary, behavioral, and health determinants at the immediate level. These determinants are in turn dependent on underlying factors such as food security, caregiving practices, and environmental condition. Macro-level factors such as economic and social conditions, national and global contexts,
capacity, resources, and governance shape how underlying factors interact with each other and with immediate causes of diet, behavior, and health practices on growth and development.¹⁵

The framework also identifies approaches on how determinants can be changed to enhance growth and development, specifically nutrition-specific and nutrition-sensitive interventions.

Nutrition-specific interventions are actions targeted towards the prevention and treatment of undernutrition particularly in the first 1,000 days from pregnancy up to the first two years of life. This includes maternal nutrition and prevention of low birthweight, infant and child feeding, prevention and treatment of micronutrient deficiencies, prevention and treatment of severe acute malnutrition, promotion of good sanitation and access to clean drinking water and promotion of healthy practices, and appropriate use of health services. To be effective however, nutrition-specific interventions should be complemented by a broader nutrition-sensitive approaches.¹⁶⁻¹⁷

As nutrition-sensitive approaches have indirect impact on nutrition, the involvement of other sectors in addressing the underlying causes of undernutrition is important. For example, policy programs that will promote social protection or targeted cash transfer programs and food access-based intervention could help avert starvation and reduce nutrition among the most vulnerable sectors. Ensuring food security through agriculture productivity is also one way to address limited access to adequate and the right combination of food to ensure health and nutrition. Moreover, both nutrition-sensitive and nutrition-specific interventions work best in an enabling environment where social, political, cultural, and environmental contexts provide opportunities for coordination, resource mobilization, advocacy, and efficient use of resources.
The global malnutrition crisis

More than a quarter of the world’s children under 5 years old are stunted. Of this, 80 percent live in only 14 countries, mostly in South Asia and sub-Saharan Africa. Estimates of UNICEF (2013) in 2011 states that the countries that have the most number of stunted children include India, Nigeria, Pakistan, China, Indonesia, Bangladesh, Ethiopia, Democratic Republic of Congo, Philippines, Tanzania, Egypt, Kenya, Uganda and Sudan.\(^{18}\)

However, while incidence of stunting remains substantial worldwide, the general trend shows a declining pattern, from 40 percent in 1990 to 26 percent in 2011, or an average of 2.1 percent annual reduction in stunting prevalence. But the decline, albeit slow, does not mask the reality of persistent disparity in stunting prevalence, especially between urban and rural areas, and between poorer and richer households. Across countries, data show that rural children, as well as those from poorer households face higher risks of stunting. Of the 21 countries that have stunting prevalence of more than 40 percent, 16 are either from sub-Saharan Africa or South Asia, also the regions considered most disadvantaged in terms of economic growth and development. The countries with very high stunting prevalence are: Timor-Leste, Burundi, Niger, Madagascar, India, Guatemala, Malawi, Zambia, Ethiopia, Sierra Leone, Rwanda, Pakistan, Congo, Mozambique, Tanzania, Liberia, Bangladesh, Central African Republic, Nigeria, Nepal and Guinea.

The prevalence of underweight children is highest in South Asia (33 percent), followed by sub-Saharan Africa (21 percent). Similar to stunting, there has been a decline in the percentage of underweight children worldwide, from 25 percent in 1990 to 16 percent in 2011.

The rate of decline, however, is not enough to assure the achievement of MDG 1 by 2015.

Moderate and severe wasting, an indicator of acute malnutrition, affects 52 million children worldwide. This represents an 11 percent decrease from an estimated figure of 58 million in 1990. South Asia tops the list with the highest prevalence of wasting, with India alone contributing to 25 million wasted children, almost half of the total number of wasted children worldwide.

Underweight children is highest in South Asia (33 percent)

Countries with high stunting prevalence such as Timor Leste, India and Bangladesh also registered high prevalence of wasting, which is above 15 percent. In addition, Chad, Sudan and South Sudan have wasting prevalence of more than 15 percent.

\begin{table}[h]
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\begin{tabular}{|c|c|c|}
\hline
Ranking & Country & Number of stunted children (moderate or severe, thousands) \\
\hline
1 & India & 61,723 \\
2 & Nigeria & 11,049 \\
3 & Pakistan & 9,663 \\
4 & China & 8,059 \\
5 & Indonesia & 7,547 \\
6 & Bangladesh & 5,958 \\
7 & Ethiopia & 5,291 \\
8 & Democratic Republic of Congo & 5,228 \\
9 & Philippines & 3,602 \\
10 & United Republic of Tanzania & 3,475 \\
11 & Egypt & 2,628 \\
12 & Kenya & 2,403 \\
13 & Uganda & 2,219 \\
14 & Sudan & 1,744 \\
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The Philippines and the global burden of malnutrition

The Philippines is one of the countries in the world that account for most of the global burden of malnutrition. The country has 3.6 million stunted children which made it rank 9th in terms of countries with the highest burden of stunting. It ranked 10th among the countries with the highest burden of wasting.

Moderate or severe wasting in the Philippines was estimated at 8 percent in 2013. This translates to about 769,000 children suffering from either moderate or severe wasting. Among its neighboring countries in the South East Asian region, only the Philippines recorded significant level of wasted children, while together with Indonesia, it belongs to the 14 countries where 80 percent of the world’s stunted children reside. Overall, while level of undernutrition in the country is declining, the Philippines registered higher rates of stunting than many of its neighbors in the Asian region.

Thus, the Philippine government committed itself to the achievement of the Millennium Development Goals by 2015. Notwithstanding government programs to address both the problems of poverty and malnutrition, trends over the past twenty years show very moderate improvement in nutrition status of children. The national nutrition surveys show that prevalence of stunting among children under 5 declined gradually, from 39 percent in 1993 to 30 percent in 2013, while the percentage of underweight children in the same age group was reduced from 24 percent to 20 percent over the same 20-year period. The reduction in the proportion of underweight children is one of the indicators for achieving MDG 1 which was targeted to reach a prevalence level of 13.6 percent by 2015. An assessment by the Philippine government of its efforts towards the achievement of MDGs however recognized that it might not be able to achieve its target of halving poverty and hunger by 2015. On the other hand, incidence of wasting among children rose slightly, from 7.7 percent in 2003 to 7.9 percent in 2013.

What could account for this slow progress in improvement of child nutrition in the Philippines?
Chronic poverty, chronic malnutrition

In most economic and health research studies, evidence points to the two-way relationship between nutrition and economic development. Higher income improves access to food and leads to better nutrition status in the long term. More importantly, a healthy population contributes to economic productivity and stronger economic growth.\(^{22}\)

While conceptually, the relationship between nutrition and economic development may appear straightforward, it eschews on an important concept of poverty as an underlying cause of malnutrition. Economic gains, therefore, should be translated to considerable poverty reduction in order to have a substantial effect on household’s capacity to access basic needs for food and nutrition.

Official statistics and reports on the economic situation of the Philippines portray it to have grown by leaps and bounds in the past three decades. However, the reported gains in economic development did not manifest in substantial decline in the number of poor households. The Asian Development Bank (2009) characterized poverty reduction in the Philippines as slow and uneven, especially when compared with neighboring countries in Asia.\(^{23}\) In fact, the most recent poverty statistics based on the Annual Poverty Indicator Survey (APIS) showed an increase in poverty incidence from 24.6 percent during the first semester of 2013 to 25.8 percent in the first semester of 2014.\(^{24}\)

Similarly, subsistence incidence, or the proportion of families whose income is below the food threshold is at 7.6 percent. This means that almost 1 in 10 Filipino families is living in extreme poverty, a figure that hardly changed from 2013.\(^{25}\)

APIS also calculated that the a family of five members would need at least Php6,125 on the average every month in order to meet the family’s basic food needs. On the other hand, it would need Php8,778 per month on the average to meet its basic food and non-food needs such as clothing, bedding, and other household items.\(^{26}\) With the total number of households in the country reaching 20 million (PSA, 2013), and assuming that one household represents one family, the subsistence incidence of 7.6 percent translates to approximately 1.5 million families that are incapable of providing food for their family members.

“I wish to eat a whole bilao (woven tray) full of bihon (glass noodles) with bits of chicken and cold water to drink.”

-Melcha, 12 years old

Read more about Melcha’s story on page 34.
Food insecurity experience of households and children

The role of poverty in influencing health and nutrition outcomes has been highlighted in a number of research studies.\textsuperscript{27,29} Chronic poverty presents constraints in attaining substantial improvement in health and nutrition of the population and overall development of the country. Empirical evidence tends to show that a disadvantaged socio-economic conditions hinder one’s capacity to earn a regular income, limits access to quality education and health services for their children, and limits their ability to provide food on the table. At the other end of the spectrum, however, there are also instances where families are able to transcend their adverse economic situation and provide for their children’s basic needs. This goes to show that malnutrition cannot be solely attributed to food insecurity as there are also children from food-secure households that experience growth faltering due to factors such as inappropriate feeding practices, poor access to health services, and poor sanitation.

Based on the Social Weather Station Survey (SWS) conducted in the first quarter of 2015,\textsuperscript{31} a significant proportion (36 percent) of the Filipino population is “food poor.” This finding reinforces the results of the 2011 Updating of Nutritional Status of Filipino Children and Other Population Groups by the Food and Nutrition Research Institute (2012) on the incidence of food insecure households in the country.\textsuperscript{32} Using the Radimer-Cornell food insecurity measures, of the 21,484 households covered in the survey, 69.3 percent reported that their household have experienced at least one of the household food insecurity items once during the past three months prior to interview:

- Close to 70 percent of households reported that they “worry that food would run out before their household could get money to buy food.”
- Slightly more than half, on the other hand, said that “the food just bought did not last and they do not have enough money to get more.”

The situation is not any different among households with children less than 10 years old. Four in 10 households in the Philippines reported inability to provide their children nutritionally adequate meals because of lack of money to buy enough food.

As a consequence, a significant proportion (23 percent) of children under 10 years old are found to be food insecure. Skipping meals is the most common food insecurity experienced by Filipino children (21.5 percent).\textsuperscript{33-34} Thirteen percent, meanwhile, or about 2.7 million, have experienced hunger but did not eat in a day while 1.5 million (or 7.3 percent of all 0-10 years old) have gone through the day without eating because there was no food or money to buy food. What is more worrisome is the fact that these experiences did not happen once, but occurred to children more than once. Of children aged 0-10 who reported to have gone through different measures of food insecurity, half of them experienced it more than once in
RANK 9
In terms of countries with the highest number of stunted children (3.6 million)

RANK 10
Among countries with highest burden of wasting

PERCENT 8
Moderate or severe wasting in the Philippines in year 2013

This translates to about 769,000 children suffering from either moderate or severe wasting.
the past three months prior to the conduct of the survey.

As with measures of undernutrition, there is a regional gradient in experience of food insecurity, especially in children. The Autonomous Region of Muslim Mindanao registered the highest prevalence (64.3 percent), followed by the Central Mindanao region (also called SOCCSKSARGEN, which stands for South Cotabato, Cotabato, Sultan Kudarat, Sarangani, and General Santos City) which has a prevalence level almost half that of ARMM (35.8 percent). The high level of food insecurity in Mindanao, to a large degree can be attributed to the recurrent armed conflict which often results to displacement and dislocation of families.35 Among ARMM provinces, more than 40 percent of food insecure children are found in Sulu, Tawi-Tawi, Maguindanao and Lanao del Sur. The province of Sultan Kudarat and South Cotabato in the SOCCSKSARGEN region also registered high proportion of food insecure children.

On the other hand, low percentage of food insecure children is found in Cavite-Laguna-Batangas-Rizal-Quezon provinces or CALABARZON (16.2 percent), Central Luzon (15.4 percent) and Cordillera Administrative Region (7.1 percent).

Albeit moderate, incidence of household food insecurity declined, from 79 percent in 2008 to 69 percent in 2011. But the percentage of food insecure children slightly rose from 20 percent in 2008 to 23 percent in 2011. Except for the experience of not eating anything the whole day, all measures of food insecurity for children showed an increase from the 2008 level.

Food security, based on the definition of the 1996 World Food Summit, exists “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”.31 This is measured through several indicators, one of which is the food availability index or the availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports. At a macro-level, there has been a favorable food security situation in the country. Although there were periods of slight decline particularly in the early 90s, the situation has improved since 1995 primarily due to the increase in availability of major food items from 1995 to 2000. The Philippine Food Security Information System (2015) also cited the positive

“I know how to cook because my mother told me I should know how to cook so I could do it where ever I would be.”

-Rubilyn, 13 years old

Read more about Rubilyn and her family’s story about fleeing from the armed conflict in Mindanao on page 35.
Almost 1 out of 10 Filipino families is living in extreme poverty, a figure that hardly changed since 2006.

- Have experienced hunger but did not eat: 2.7 MILLION
- Have gone through the day without eating: 1.5 MILLION

PHP8,778/month

The average cost for basic food and non-food needs such as clothing, bedding and other household items for a family of five.
contribution of increased budget allocation in agriculture from 2011 to 2013 on improved food security situation. While the overall food security outlook is positive, the fact remains that a significant proportion of Filipino households are “food insecure.”

Filipino households spend, on the average, 42.8 percent of their monthly income on food. At the current minimum monthly wage of Php10,582 for Metro Manila, Php4,529 is allotted for food, which is roughly Php151 a day to feed family a family of five. The Food and Nutrition Research Institute proposed that a healthy meal should include one cup of rice, one cup of vegetables, one portion of meat and one fruit. Dubbed as “Pinggang Pinoy”, this ideal plate tries to convey the right combination and proportion of food that ensures adequate caloric and nutrient intake for a Filipino. If one is to follow this food guide and based on current food prices, approximately Php459 a day should be set aside to cover for three meals that will ensure a balanced diet. A minimum wage earner however can only afford almost a third of the required budget.

With less money to buy food, one strategy employed by most households is to rely on rice alone just to fill their stomachs. However, the 2012 Survey of Food Demand for Agricultural Commodities of the Bureau of Agricultural Statistics noted a decline in rice consumption of Filipinos. In 2008, average rice consumption per year per person is 128 kilograms. By 2012, rice consumption was down to 114 kilos per person annually. This pattern was in contrast to the upward trend in rice consumption found in a recent study conducted by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). Rice remains the staple food of most Filipino households.

Lower income households in particular, tend to prioritize rice over other goods. An earlier study conducted by SWS for the World Bank found that 91 percent of poor households eat rice three times a day compared to 79 percent of the rich households and 81 percent of the middle income households. A small proportion of the poorest households would subsist on eating only rice for the day. Inadequate food intake within a social and economic context of poverty has ramifications on children’s nutritional status and the risks of linear growth failure.
Approximately PHP459 a day is needed to cover three daily meals that will ensure a balanced diet. A minimum wage earner can only afford a third of this budget.

The percentage of food insecure children slightly rose from 2008 to 2011.

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<th>Year</th>
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<td>2008</td>
<td>20%</td>
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<td>2011</td>
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Minimum wage earners in Metro Manila spend PHP151 a day to feed a family of five.

Data from the Bureau of Agricultural Statistics showed that Filipinos' rice consumption has gone down, from an average of 128 kilograms per person (per year) in 2008 to 114 kilograms in 2012.
Current nutrition status of children in the Philippines

That malnutrition is a persistent public health concern in the country is borne out of study results and official statistics. Among Filipino children, this involves both undernutrition (wasting, stunting, and underweight) and over-nutrition. In addition, there are also four major deficiency disorders, namely protein-energy malnutrition (PEM), Vitamin A Deficiency (VAD), Iron Deficiency Anemia (IDA) and Iodine Deficiency Disorder (IDD). Protein-energy malnutrition or PEM ranges from Kwashiorkor to Marasmus. Kwashiorkor occurs when the child is weaned from breastfeeding early because of the birth of the next child and this occurs in regions where rice, corn, cassava, and yams are staple foods. Marasmus, on the other hand, is another form of starvation and could occur at any age. Premature birth, early discontinuation of breastfeeding, vomiting, mental deficiency, tuberculosis, and infectious and parasitic diseases are some of its main causes. Unfortunately, no official statistics on the prevalence of either Kwashiorkor or Marasmus are available, although, cases of malnutrition reported in the country may well fall within these two types.

The latest round of National Nutrition Survey conducted in 2013 found that 2 out of 10 children aged 0-5 are underweight. Similarly, 3 out of 10 are found short for their age, while about 1 out of 10 are too thin for their age. Overweight children on the other hand are also on the rise, as 5 percent of all children aged 0-5 years old are considered overweight for their height. Prevalence of wasting, being underweight, and stunting increase as children age, while obesity seems to decline slightly in adolescence. In absolute terms, there are two million underweight Filipino children aged 0-5 years old; 3.1 million are too short for their age and around 778,000 are wasted.
In general, there has been very little change on the prevalence of underweight and stunted children. In 2003, 33.9 percent were found to be underweight and this declined very minimally to 33.6 percent in 2011. The same pattern is found in the level of stunting from 2003 to 2011. In contrast, prevalence of wasting and overweight was on the rise as evident by the 1.3 and 1.9 percentage-point increase in the number of children who were wasted and overweight between 2003 and 2011, respectively.

The link between poverty and malnutrition is evident in the results of the 2013 National Nutrition Survey. More underweight, stunted, and wasted children were found among the poorest households. This pattern holds true in both rural and urban areas. Overweight children on the other hand are more common among the richest households.

Prevalence of malnutrition varies by region. There is higher prevalence of underweight, stunted, and wasted children in Mindoro-Marinduque-Romblon-Palawan provinces (MIMAROPA), Bicol, ARMM, Zamboanga Peninsula, Ilocos Region, and Western Visayas. Meanwhile, overweight children are dominant in Luzon, particularly in National Capital Region (NCR) and its neighboring regions, CALABARZON and Central Luzon.

At the provincial level, a high level of stunting (40 percent and above) among children 0-5 was found in Kalinga, Aurora, Camarines Norte, Catanduanes, Marinduque, Romblon and Masbate in Luzon. In the Visayas region, Aklan, Antique, Capiz, Guimaras, Samar Provinces have high percentage of stunted children while most of the provinces in Mindanao registered stunted prevalence greater than 40 percent.

Critical levels of wasted children are found in four provinces: Siquijor, Basilan, Sulu and Tawi-Tawi.
Although the data may suggest an association between levels of economic development of a region and province and nutrition status of children, no analysis has been done so far to explore this relationship. What is evident, however, is that critical level of stunting is found in both disadvantaged provinces and moderately-developed and resource-rich areas in the country, although most of the provinces in Luzon with high stunting prevalence happen to be disaster-prone provinces. The provinces of Basilan, Sulu and Tawi-tawi where critical level of wasting among children is found belong to the ARMM. The region also ranked low in most socio-economic indicators such as enrollment rate, employment rate, and economic growth. The recurrent armed conflicts and unstable peace and order situation contribute to the vulnerabilities faced by its residents.
Factors affecting health and nutrition status

A holistic approach to understanding nutrition problem entails an understanding of the interplay of genetic and biological characteristics, environmental influences, and socio-cultural factors. Furthermore, as outlined in the framework on optimum growth and development, underlying factors and the social, political and economic contexts that provide an enabling environment for both nutrition-specific interventions and nutrition-sensitive approaches are critical elements in understanding why malnutrition occurs. The first 1,000 days, or from conception through the first two years of life, are recognized as critical window of opportunity for growth and human development.46 While catching up in physical growth occurs after two years, missing out on this period in terms of providing adequate nutrition to mother and the child will have irreversible effects later on. An implication of this finding is the importance of ensuring the nutrition status of mothers, even before pre-conception. This is of particular relevance considering the increasing incidence of teenage pregnancy in the country. Based on the 2013 Young Adult Fertility and Sexuality Study conducted by the Demographic Research and Development Foundation and the UP Population Institute (2015), over the last 10 years, the proportion of teenage childbearing has doubled, from 6.3 percent in 2000 to 13.6 percent in 2013.47

This section highlights results of studies that look at maternal health, breastfeeding, and infant feeding practices that may impact on child nutrition and health. The role of poverty as an underlying cause of malnutrition is also explored.

Worldwide, as high as 20 million babies with low birth weight are born every year. This is either because they are born too early, or they are born full term but are small because of poor growth in utero.48 The State of the World’s Mother report by Save the Children (2012) argues that the low nutritional status of most mothers in developing countries is the result of the “cumulative and synergistic effects” of many factors such as limited access to food and health care, power relation in the...
household, the traditions and customs that relegates women’s needs as secondary to men, nutritional demands of early and frequent pregnancies and breastfeeding and the heavy demand of physical labor, among others. In most cases, undernourished mothers are more likely to give birth to undernourished children.

The 2011 Updating Nutritional Survey (FNRI-DOST, 2012) found that 1 in 4 mothers is at risk of delivering low birth weight babies and face pregnancy complications because they themselves are underweight, or are not gaining the required gestational weight relative to their age. Teenage mothers, in particular are of higher risk of delivering low birth weight babies. From the same study, 2 of 10 babies (16 percent) were born with low birth weight (less than 2,500 grams) and this is higher among females. If at all, the findings seem to point to the inadequacy of food, nutrition and health care services as experienced by mothers which in turn are likely to be passed on to their children.

Among pregnant mothers covered by the survey, 36 percent of those identified as nutritionally at risk are less than 20 years old, compared to 24 percent among the older age group. Almost a similar percentage of nutritionally at-risk pregnant women are in their first trimester. Fourteen percent of mothers gave birth to underweight babies, and of this number, 24 percent were assessed to have chronic energy deficiency (CED). Among women who were lactating at the time of the survey, 1 in 10 are found to be underweight.

A longitudinal study of children in Cebu Province found strong evidence that link adequate nutrition in utero and in the first two years of life as essential in the physical and mental development of children. Evidence found so far tend to link low birth weight with stunting in early childhood, which when left unarrested, could lead to poorer cognitive development.
Breastfeeding and infant feeding practices

Aside from maternal health before and during pregnancy, empirical evidence also identified childcare and feeding practices as contributory factors in ensuring optimal growth and development of children. The World Health Organization recommends that babies should be exclusively breastfed in the first six months and from six months on, they should be given a diverse range of food as supplement to breastfeeding. Studies have shown that child mortality is reduced with early initiation of breastfeeding, exclusive breastfeeding for six months, appropriate and right timing of complementary feeding and sustained breastfeeding for up to two years.

Higher prevalence of stunting is found among children who have never been breastfed, had been breastfed for less than a year, or had been fed with semi-solid food of poor quality.

The World Health Organization recommends that babies should be exclusively breastfed in the first six months.

Among Filipino mothers, more than half initiated breastfeeding within an hour after delivery, 32 percent less than a day after delivery and 15 percent after more than one day. Almost half of Filipino mothers (48 percent) exclusively breastfed their babies for six months. Seven in 10 are exclusively breastfeeding in the first month, but the percentage goes down in succeeding months such that on the fifth month, only 2 in 10 are breastfeeding their babies exclusively. Only 29 percent of mothers continue with breastfeeding up to two years.

Several reasons were cited why mothers were not practicing breastfeeding, among them: “mothers cannot produce enough milk,” “mothers were working” and “mothers had nipple or breast problem.”

While much attention is given on the first 1,000 days, the period of complementary feeding is also critical in child growth and development. The introduction of additional food to the diet of breastfed children is intended to supplement the energy and nutrient requirement of children, which on the sixth month starts to exceed what is provided by breast milk. Delayed or inappropriate complementary feeding can have consequences on the child’s growth and development. In addition to timing, complementary feeding practice should also take into account the choice and dietary diversity of food, method of...
preparation, quantity and frequency of feeding, responsiveness to infant cues, and safe preparation and storage of foods.\textsuperscript{61}

While mothers are found to be aware of nutrition and health-related disorders like anemia, iodine deficiency, hypertension, and diabetes, there is a low proportion of mothers who exhibit knowledge regarding appropriate feeding practices for infants and children in order to achieve the optimum nutrition early in life. Only 3 in 10 know of the importance of exclusive breastfeeding on the first six months, while 26 percent know that complementary food should be introduced on the sixth month.

In the same survey, results also point to problems in meeting the recommended minimum dietary diversity requirement for babies. The minimum dietary diversity score refers to the proportion of children 6-23 months of age who receive food from at least four groups, such as grains, roots and tubers, dairy products, vitamin A rich fruits and vegetables, other fruits and vegetables, eggs, flesh meat and legumes and nuts. Generally, food given to children 6-23 months old was deemed not diverse. Only 22 percent of children 6-23 months meet the minimum dietary diversity score (DDS), 26 percent among the 12-17 months and 33 percent among 18-23 months.

The analysis of the 2003 Family Income and Expenditure Survey reveals that almost half of families with a young child, and a third of families who subsist on less than USD 2 a day, purchase infant formula.\textsuperscript{62} When compared with their expenditure on education, health care and infant formula, poorer families were spending more on infant formula than the education and medical needs and care of their children.

A study on the knowledge, attitudes, and practices on complementary feeding of mothers and the nutritional status of their children aged 6 to 24 months in a relocation site in Laguna, Philippines found that a large proportion of children (45 percent) was already provided complementary foods before six months of age. This is earlier than the recommended timing of WHO which is at 6 months. Malnutrition is prevalent among children and mothers in the relocation site.\textsuperscript{63}
Underlying causes of malnutrition: Poverty as both an outcome and cause of poor human development

As earlier mentioned, a consistent finding in most studies is the strong contribution of poverty on health and nutritional status of its population. In the same token, poverty is also identified as an outcome of poor nutritional status. Thus, governments around the world had recognized that the cycle of intergenerational transmission of poor health must be broken by improving socio-economic conditions of the population.\(^{64}\)

Results of national surveys on nutrition conducted in the country have established that cases of malnutrition are more common among the poorest households where there is also high incidence of food insecurity. Based on the 2011 National Nutrition Survey, the provinces with the highest proportion of food insecure children are also the same provinces that registered above average stunting and wasting prevalence.\(^{65}\)

In the 2013 National Nutrition Survey, a higher percentage of underweight children was found among those who said that they are “squatting” in their current dwelling unit. Similarly, families who are living in makeshift dwelling units reported higher prevalence of underweight children compared to those whose dwelling units are sturdier.\(^{66}\)

A study conducted by Rohner, et. al., (2013) on the effects of infant and child feeding practices on stunting, anemia, and iron and Vitamin deficiency in selected urban areas in the Philippines (Manila, Cebu, Zamboanga, Naga, and Iloilo) found that household economic status, type of fuel used in the household, and sanitation facilities were all significantly associated with incidence of malnutrition among children, with children from the disadvantaged households facing greater risk of malnutrition.\(^{67}\) Poor urban households are likely to have suboptimal feeding patterns and practices for children, which results from lack of stable employment of parents which in turn affects their capacity to provide adequate food.

The Cebu Longitudinal Health and Nutrition Study, a three decades research undertaking of the Office of Population Studies in San Carlos University and the University of North Carolina has looked at the level of child malnutrition in Cebu Province as well as its consequences in adulthood. Results have established that stunting at age 2 for instance has adverse negative effects on schooling, i.e., delayed school entry, greater grade repetition and dropout, decreased graduation rates from elementary and secondary schools.\(^{68-69}\)

“\(\text{It is really hard for me to see that my children force themselves to sleep so that they could forget about their hungry stomachs. But I could not do anything}\)\(\)

- Renalyn’s mother Anacleta, 43 years old

Read more about Renalyn’s story on page 33.
Nutrition-specific and nutrition-sensitive interventions to address malnutrition

The development of nutrition-specific interventions, with a nutrition-sensitive development approach became the centerpiece of the Philippine government’s response in tackling the persistent problem of child malnutrition.

One of the initiatives of the government to address malnutrition is to strengthen maternal and child health. The Philippine government, through the Department of Health, formulated the National Plan of Action for Infant and Young Child Feeding (IYCF) for 2011-2016. The 2011-2016 National Plan of Action for IYCF picks up from the gains and lessons of the first National Plan of Action for IYCF in 2004. The goal of the IYCF Strategic Plan of Action is to reduce child mortality and morbidity through optimal feeding of infants and young children. In particular, it aims to achieve high compliance of early initiation of breastfeeding and exclusive breastfeeding practices. These nutrition specific interventions were implemented together with programs that focus on reproductive health of mothers, before conception, during pregnancy, after delivery and the first two years of life (DOH, 2011). The IYCF strategies were aligned with the Philippine Plan of Action for Nutrition 2011-2016 which identified six priority areas of concern, namely, 1) high levels of hunger 2) children undernutrition (stunting and wasting) 3) vitamin A deficiency 4) anemia 5) iodine deficiency and 6) overweight and obesity.

RA 7600, or the Rooming in and Breastfeeding Act of 1992, made rooming-in as national policy and encourage the practice of breastfeeding in both private and public health institutions. This was expanded in 2010 through RA 10028 which extends breastfeeding practice to the workplace.

The promotion of breastfeeding was undertaken through the formulation of laws and programs. RA 7600, or the Rooming-in and Breastfeeding Act of 1992 made rooming-in as national policy and encouraged the practice of breastfeeding in both private and public health institutions. This was expanded in 2010 through RA 10028 which extends breastfeeding practice to the workplace. Through the Department of Health, it issued guidelines for physicians in promoting, protecting, and supporting breastfeeding practices. The Philippines is also one of the first countries to adopt the International Code of Marketing of Breastmilk Substitutes. Other nutrition-specific interventions include the distribution of micronutrient power packs and other vitamins and food supplement, fortification of staple foods and educational and advocacy programs on the use of available food and resource. It is however too early to assess whether breastfeeding policies have an impact on breastfeeding practices of Filipino mothers although the 2013 National Demographic and
Health Survey noted an increase in median duration of breastfeeding, from 14.3 months in 2008 to 16.7 months in 2013.72

The Department of Science and Technology implemented the “Malnutrition Reduction Program” which aims to reduce the prevalence of undernutrition among 5 months to 35 months old children. The program includes the production and technology transfer of complementary food blends and snack food and the DOST Pinoy (Package for the Improvement of Nutrition for Young Children), a customized package of nutrition modules for barangay health workers and barangay nutrition scholars intended to educate mothers on breastfeeding and appropriate complementary feeding (FNRI-DOST Malnutrition Reduction Program Primer).73

Since 2008, conditional cash transfer scheme has been adopted by the Philippine government to provide assistance to poor households, emphasizing on the need to prioritize investments on child health and nutrition as well as maternal health services. This has been expanded in 2010, and by 2012 the Department of Social Welfare and Development reported that the Pantawid Pamilyang Pilipino Program (4Ps) has reached 3 million households.

An impact evaluation of the program conducted by the World Bank (2014) found that the program was meeting its objectives, particularly in keeping poor children healthy.74 A 10 percentage point reduction in severe stunting was observed among children from areas that are covered by 4Ps compared to areas where households did not receive the program. Through 4Ps, parents were able to better care for their children and provide more protein-rich food such as eggs and fish.75
Summary and conclusions

Based on existing literature on nutrition, every country in the world is grappling with malnutrition, either in the form of undernutrition or overnutrition. The Lancet medical journal estimates that 45 percent of deaths among children below 5 years old globally is due to malnutrition. Aside from the cost in human lives, it has lifelong economic consequences at the individual, household, and community level. Studies have shown that failure of children to attain optimal growth between conception and the age of 2 is associated with high risk for impaired cognitive development, poor school performance, and lower earnings in adulthood. The World Bank estimates that a 1 percent loss in adult height due to stunting leads to a 1.4 percent loss in economic productivity. Optimum fetal and child growth and development is a result of the confluence of causal and contextual factors.

In recent years, there have been substantial initiatives both at the global and national levels to address the problem of malnutrition. There is consensus among countries around the world that malnutrition is a pressing concern and has to be addressed in a concerted manner. For instance, the Copenhagen Consensus in 2012 concluded that investments on programs that address chronic undernutrition yield high economic return and translate to economic growth and poverty reduction. For instance, the UNICEF (n.d.) estimated that for every $1 investment in programs that ensure maternal and child health in the first 1,000 days will result to an economic gain equivalent to $30.

However, while there have been substantial gains, the challenge remains. Malnutrition, in all its forms, continues to affect millions of children, particularly in the developing countries. The Philippines has been identified as one of the countries that account for most of the global burden of malnutrition.
Although the level of child malnutrition in the country is declining, the Philippines still lags behind its neighboring South East Asian countries in terms of child nutrition. For example, the Philippines is next to Indonesia in terms of high prevalence of stunted children (30.3 percent), while it tops the countries in the South East Asian region on the prevalence of wasted children.

The 2013 National Nutrition Survey showed that child undernutrition varies by region. Higher prevalence of underweight, stunted and wasted children is found in MIMAROPA, Bicol, ARMM, Zamboanga Peninsula, Ilocos and Western Visayas. At the provincial level, some provinces exhibited higher level of stunting among children under 5 years old (40 percent and higher). These are Kalinga, Aurora, Camarines Norte, Catanduanes, Marinduque, Romblon and Masbate in Luzon; Aklan, Antique, Capiz, Guimaras and Samar in the Visayas; and almost all provinces in Mindanao. Wasted children on the other hand are predominant in the provinces of Siquijor in the Visayas, and in Basilan, Sulu and Tawi-tawi in Mindanao.

Some regions and provinces appear to be more vulnerable to child malnutrition than the others. The fact that ARMM figures as a region with critical level of stunting and wasting implies the need to intensify programs and interventions in the region particularly towards improving the socio-economic condition of the population. However, one cannot isolate the unfavorable child nutrition and socio-economic development in ARMM from the volatile peace and order situation in the region. Similarly, based on the findings on provinces with critical level of stunting, it appears that disaster-prone provinces face greater risk of child malnutrition. These findings suggest that population who are more vulnerable to any kind of disaster may be more hard up in ensuring food security and better nutritional status. The World Food Program has taken up this challenge by starting a program that aims to build the resilience of communities in regions affected by disaster and conflict through market sensitive food assistance and nutrition interventions for pregnant and lactating mothers and children aged 6-23 months.

Aside from the regional and provincial disparity in the levels of stunting and wasting, socio-economic disparity persists. Poorer households face greater risk of child malnutrition than non-poor households. Poverty limits household’s capacity to earn a regular income, access to education and health services. Empirical evidence has shown that it increases nutritional vulnerability. Except for Basilan, all provinces in ARMM were found to have high incidence of food insecurity especially on children.
The findings of research studies are consistent in establishing that optimum health and nutrition begins in pregnancy and the child’s second birthday. Interventions that promotes maternal and child health therefore provides the best way to address the persistent problem of malnutrition and the cycle of poverty and inequality that it perpetuates.

In the Philippines, much work is needed to maximize the benefits from improved maternal health, more so in the context of rising teenage pregnancy.

Results of the National Nutrition Survey show that almost 4 in 10 pregnant women identified as nutritionally-at-risk are teenagers. These mothers are likely give birth to underweight children and they also have elevated risk of experiencing complications during childbirth. Current adolescent reproductive health programs and interventions should emphasize the medical and biological implications of early pregnancy to the teenage mother and her child.

While there have been many initiatives to promote breastfeeding, exclusive breastfeeding for six months, the ideal duration recommended by WHO, is practiced only by 48 percent of mothers in the Philippines and only 3 in 10 know the importance of exclusive breastfeeding the first 6 months of life.

There are a number of reasons cited by mothers themselves on why they have to cease breastfeeding. Foremost is their perceived “inability to produce enough milk” which is another indication of poor nutritional status.

In summary, notwithstanding the considerable investments of the Philippine government, as well as international organizations in programs that address the perennial problem of nutrition and health, results of national nutrition surveys only show modest improvement. A significant number of Filipino children remains malnourished and are unable to attain their growth potential, this despite years of sustained economic growth. There is a need to make nutrition a top development priority, alongside issues such as poverty, climate change, and national security.
Case Stories
ABDUL

3 YEARS OLD
Taguig City, Metro Manila, Philippines

“I am only able to feed him rice porridge twice a day. We cannot afford to buy him medicine.”

-Abdul’s mother Fatima, 35 years old

Being born with cerebral palsy, a condition which affects movement and motor skills, three-year-old Abdul, unlike most children his age, is unable to run around and play with others. This, however, is not the only challenge he has to face every day, as he is also suffering from severe malnutrition. He only weighs 3.6 kilograms.

Abdul’s family is originally from the province of Cotabato in Mindanao, with farming as their main source of livelihood. But Abdul’s family moved to Taguig City in Metro Manila 15 years ago with hopes of a better future.

Abdul’s father is the sole breadwinner of the family. Currently, he works as a service crew for a local fast food chain and earns only PhP 9,000 a month to support a family of five. The family spends most of its earnings on house rental, utilities, and daily school expenses of Abdul’s older siblings. On the average, they only spend PhP200 for food, which is only enough to prepare rice porridge for the whole family.
Renalyn’s family lives in a town that was devastated by Typhoon Yolanda in November 2013. Her family’s house was destroyed and both her parents lost their jobs.

Rice, instant noodles and sardines are the common food items found on their table. Often, there is not enough food to feed a family of nine. There are times when Renalyn’s parents and older siblings are forced to share their portion of food to the younger children in their family.

Hunger is not an unfamiliar experience for Renalyn and her siblings. Her mother even shared that there were times when the family could not provide food for their children. At times, lack of food forces their children to skip their classes.

Renalyn’s mother explained, “When they (the children) feel very hungry in the morning, they do not to attend their classes. They said they would rather stay at home than to attend classes with empty stomachs.”

According to Renalyn’s mother, she had noticed that most of her children are susceptible to colds, coughs, and even fever. She suspects that this is due to their lack of proper nutrition.
Melcha, 12, and her family live in a remote area in Concepcion, Iloilo. Their community is too far from the main town which is why they do not have access to the province’s electrical power lines.

Every night, they rely on the bonfire to light the house. They usually eat their food as quickly as they can to avoid eating in the dark after the bonfire burns out.

A usual meal for Melcha’s family includes vegetable soup, smoked fish and rice. They only get to eat fresh fish on a good day, when Melcha’s father gets to earn extra from his job as a coconut farmer. Melcha’s mother is aware that her children are tired of their usual dishes, but she can’t do anything about it because they can’t afford to buy anything else.

At times, Melcha’s mother would add vetsin (monosodium glutamate or MSG) to add more taste to the dish. “I know this is unhealthy, but what else can I do? The children won’t eat. We have no money for meat.”

“I am aware that they get sick because they are not well-nourished. I can’t buy vitamins for them as we don’t have enough money. Our biggest concern is not having enough food to eat,” she added.
Rubilyn
13 Years Old
T’boli, South Cotabato, Philippines

“I know how to cook because my mother told me I should know how to cook so I could do it wherever I would be.”

Thirteen-year-old Rubilyn’s family used to live in the war-torn area of Matalam, North Cotabato in Mindanao. This year, they relocated to T’boli, South Cotabato for their own safety. They weren’t able to go back to their old house because it was severely damaged by the exchange of gun shots between the warring parties in their locale.

Since they moved to T’boli, Rubilyn’s family has been seeking refuge in her uncle’s house. They simply rely on whatever food is available in her uncle’s backyard garden. Rubilyn’s uncle works as a banana plantation worker, and given his meager income, he rarely gets enough money to buy meat that can be paired with their usual rice and vegetable dish on the table.

For her lunch, it is not unusual for Rubilyn to bring nothing more than a pack of rice to school. As observed by one of her teachers, Rubilyn only gets to pair some vegetables with her rice twice in a week. Most of the time, plain rice serves as her complete meal.

Although Rubilyn’s mother would like to feed them more than just the usual rice and vegetables from their backyard, i.e. beans, tomatoes and onions, she is unable to provide them with other nutritious food because she is yet to find a job in the banana plantation near their new home. On good days, Rubilyn’s mother said she tries her best to make their meals more interesting by adding soy sauce and cooking oil to their food.