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Meeting the Challenge for Official Statistics on Hunger in the Philippines¹

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Romulo A. Virola and Lina V. Castro²

ABSTRACT

The Millennium Development Goal (MDG) under Goal 1, Target 2 declares to halve between 1990 and 2015, the proportion of people who suffer from hunger. In line with this, the Philippine Government, through its Accelerated Hunger Mitigation Program (AHMP), has stepped up efforts to implement focused interventions to address hunger.

Towards effective monitoring of the MDGs, therefore, there is a need to assess the impact of these interventions and the current situation of the country in terms of hunger and food insecurity. While poverty statistics and food poverty statistics are being generated officially by the National Statistical Coordination Board (NSCB), statistics on hunger in the Philippines are limited to perception-oriented household surveys.

Amidst calls for the Philippine Statistical System (PSS) to generate statistics on hunger, this paper presents a framework for measuring hunger. It evaluates current approaches and related issues, particularly on the need to standardize concepts and definitions as well as the need for appropriately-disaggregated data.

Keywords: MDG, hunger, Accelerated Hunger Mitigation Program, perception-oriented surveys, official statistics

I. Introduction

The Millennium Development Goal (MDG) under Goal 1, Target 2 declares to halve between 1990 and 2015, the proportion of people who suffer from hunger. In line with this, the Philippine Government is addressing hunger in the nation's development agenda through its Accelerated Hunger Mitigation Program (AHMP), which has stepped up efforts to implement focused interventions to address hunger.

To be able to monitor the impact of the programs to fight hunger, statistics are needed. How bad is the current situation? Is hunger rampant throughout the country or is it clustered in certain areas nationwide? Where do we stand in comparison with other countries? How do we identify and target the hungry? These are challenges now facing the Philippine Statistical System (PSS).

The following are some of the existing efforts to generate statistics on hunger, malnutrition and food insecurity in the Philippines:

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² Secretary General and Director IV, respectively, of the National Statistical Coordination Board.

National Statistical Coordination Board (NSCB)

Under the System of Designated Statistics³, official poverty statistics including food poverty statistics are generated by the NSCB. The NSCB releases every three years provincial estimates of the proportion of those with income insufficient to meet food requirements, also called subsistence incidence or food poverty incidence or the proportion of food poor⁴ individuals/families. Every year, the NSCB also releases food poverty thresholds.

In addition, the NSCB compiles the Food Balance Sheet of the Philippines which has hunger-related information, mainly on the food supply and utilization.

National Statistics Office (NSO)

With support from the UNICEF, the NSO has been conducting the Multiple Indicators Cluster Survey (MICS). In the MICS conducted from February 12 to March 2, 2007 with 2006 as the reference period, one of the modules was on hunger. The survey covered 54,720 individuals in 45,600 households in selected 19 provinces and 5 cities (sampling error margins of $\pm 3\%$ at the provincial level for selected key indicators), which are pilot areas for the Sixth Country Programme for Children of the UNICEF. The respondents for the hunger module were women aged 15-49 years in the sample household. The basic questions asked were: (1) "Have you experienced not having any meal (breakfast, lunch, and dinner) in a day in the past week?" (2) If yes, what is your reason? (No money; on diet; sick; poor appetite; fasting; others (specify). Data to be generated are the incidence of hunger for the pilot provinces and NCR. The results are expected to be released, by the NSO this month.

Food and Nutrition Research Institute (FNRI)

The FNRI, thru the National Nutrition Survey (NNS)⁵ generates percentage of underweight children 0-5 years old, percentage of underweight adults, prevalence of thinness among 0-5 year-old children and percentage of stunted children.

³ Per Executive Order No. 352, Series of 1996.

⁴ Food poor as used here refers to families/individuals with income below the food poverty line, i.e. with income insufficient to buy the basic food requirements; thus, food poor does not necessarily refer to those whose food consumption is below the requirement.

⁵ The NNS is a designated statistical activity programmed to be conducted by FNRI every 5 years. Unfortunately, it has not always been given top priority by the DOST and the DBM. The NNS was conducted in 1993 and 2003.

In addition, the FNRI administered a module on food security in the 2001 and 2003 NNS to households with 0 to 10-year old children by asking whether the respondent and/or the respondent's children have experienced the following situations during the past 6 months, answerable by: (1) never, (2) yes, once during the past 6 months or (3) yes, more than once during the past 6 months: (a) Knowledge of Self– In the last 6 months, (1) Did you skip eating or miss meals/food because there was no food or money to buy food? How frequently did this happen?; (2) Did you ever not eat for a whole day, because there was no food or money to buy food? How frequently did this happen?; and (3) Were you ever hungry but did not eat because there was no food or money to buy food? How frequently did this happen?. (b) Knowledge of Child/Children – In the last 6 months, (1) Did your child/children skip eating or miss meals/food, because there was no food or money to buy food? How frequently did this happen? (2) Did your child/children ever not eat for a whole day, because there was no food or money to buy food? How frequently did this happen? (3) Was/Were your child/children ever hungry but did not eat because there was no food or money to buy food? And (c) Knowledge of Situation– In the last 6 months, (1) “I worried that our food would run out before we got money to buy more”. How frequently was this true?(2) “The food we bought just did not last and we did not have enough money to get more”. How frequently was this true? (3) “The children were not eating enough because we did not have enough food and we could not afford to buy more”. How frequently was this true? (4) “We could not feed the children nutritionally adequate meals because we do not have enough food and enough money to buy more”. How frequently was this true? Choices of response for (c) are: (1) Not true, (2) True, often, and (3) True, sometimes. Although the results were presented during the seminar series/dissemination forum of the NNS in July and December 2004, the figures were not published.

Department of Agriculture/Bureau of Agriculture Statistics (DA/BAS)

The Bureau of Agricultural Statistics conducted the Survey of Hunger Incidence in the Philippines in August 2006, with April to June 2006 as the reference period, covering a total of 13,400 sample households in 1,340 sample barangays in 78 provinces, two chartered cities and NCR. The respondent was any responsible adult member of the sample household. The questions asked were: (1) “During April to June 2006, did it happen even once that your household experienced hunger and have nothing to eat?” (2) “If yes, how often? (Once; a few times; often; and always). (3) What was the main reason why your household experienced hunger? (food available but cannot afford to buy; food not available although can afford to buy; food not available and cannot afford to buy; residence far from

the source of food; and others (specify). Data generated from the survey include: proportions of households that experienced moderate and severe hunger by region and province; and percentage distribution of households that experienced hunger by reason by region and province. The questions are obviously patterned after and duplicative of the SWS survey to be described later, but unlike the SWS or the FNRI surveys, the BAS survey produces provincial level estimates.

National Nutrition Council

The NNC has the following frameworks/indicator systems on malnutrition, food insecurity and hunger:

- ◆ Operation Timbang (OPT) - The OPT is an annual activity of the NNC in order to assess undernutrition at the local level. It involves weighing of all preschoolers 0–71 months old or below six years old in a community to identify and locate the malnourished children. It uses weight-for-age as indicator in assessing protein-energy malnutrition among preschool children. From the processed OPT results, a list of nutritionally depressed cities/municipalities is generated for dissemination to government and non-government organizations for prioritization in nutrition programming and interventions.
- ◆ Local Nutrition Early Warning System (LNEWS) - The LNEWS provides information on sudden or impending deterioration of the nutrition situation in the community. It was pilot tested by the NNC in selected municipalities in Iloilo and Ifugao and included seven indicators as follows: price of staple food and fish; frequency of consumption of staple food; frequency of consumption of vitamin A-rich foods by children < 7 years old; prevalence of underweight preschool children; incidence of low birth weight; morbidity incidence; and occurrence of weather and environmental disturbance.

Social Weather Station (SWS)

The private sector in the Philippines has been very active in generating statistics in addition to those coming from government agencies. The SWS generates statistics on hunger based on perception-oriented household surveys. The SWS survey on hunger is conducted every quarter with a sample size of 1,200 households divided into samples of 300 each in the National Capital Region (NCR); balance of Luzon; Visayas; and Mindanao (sampling error margins of $\pm 3\%$ for national percentages and $\pm 6\%$ for area percentages). The respondents are the household heads and different sets of respondents are selected

per quarter. The questions asked are: "In the last three (3) months, did it happen even once that your family experienced hunger and did not have anything to eat?". "If yes, did it happen only once, a few times, often or always?" Data generated every quarter are the incidence of hunger by location and degree of hunger.

Food and Agriculture Organization (FAO)

- At the international level, the FAO has developed the Food Insecurity and Vulnerability Information and Mapping System (FIVIMS) which aims to identify and characterize people who are at risk to food insecurity and vulnerable to malnutrition. The NNC serves as the Philippine focal agency for FIVIMS. As implemented by the NNC, FIVIMS comprises 12 core indicators, which are measures of either the cause or effect of food insecurity and vulnerability as follows: percent of food expenditure/total expenditure; percent of cereal expenditure/total food expenditure; poverty incidence; median family income; ratio of per capita expenditure/per capita income; percent of households with access to safe water; percent of agricultural lands under tenancy; percent of underweight children 0-5 years old; percent of underweight adults with BMI < 18.5 kg/m²; percent of families with working children 5 –17 years old; cohort survival rate for elementary level; and unemployment rate. These core indicators, which are sourced from various government surveys and reports, are used to compute a composite index of food insecurity and vulnerability. The country's provinces were then grouped into 5 clusters based on the composite index as follows: (1) Not Vulnerable; (2) Less Vulnerable; (3) Vulnerable; (4) Very Vulnerable; and (5) Very Very Vulnerable.
- A number of food security statistics are also available on the FAO website at <http://www.fao.org> such as (1) food supply measured in kilocalories/person/day, (2) number of undernourished and (3) proportion of undernourishment. The FAO measure of food deprivation, referred as the prevalence of undernourishment, is based on a comparison of usual food consumption expressed in terms of dietary energy (Kcal) with minimum energy requirement norms. The part of the population with food consumption below the minimum energy requirement is considered underfed (FAO 2003).

International Food Policy Research Institute (IFPRI)

In addition to the FIVIMS index of the FAO, the IFPRI compiles the Global Hunger Index (GHI) based on three equally weighted indicators: the proportion of undernourished as

a percentage of the population (reflecting the share of the population with insufficient dietary energy intake); the prevalence of underweight in children under the age of five (indicating the proportion of children suffering from weight loss and/or reduced growth); and the under-five mortality rate (partially reflecting the fatal synergy between inadequate dietary intake and unhealthy environments). By combining the proportion of undernourished in the population with the two indicators relating to children under five, the IFPRI hopes to ensure that both the food supply situation of the population and the effects of inadequate nutrition on a physiologically very vulnerable group are captured.

Now, what do the statistics from these various sources tell us? Do they validate or contradict each other?

- Latest NSCB (2006a) official estimates show that in 2003, about 10 out of 100 families and 14 out of 100 individuals were food poor.
- On the other hand, official data from the FNRI (2006) estimate that out of 100 children 0-5 years old, about 25 are underweight (suffering from current malnutrition), 26 are stunted (chronic malnutrition) and 5 are wasted (acute malnutrition); moreover, 56.9% of households did not meet the recommended nutrient energy intake/ requirement in 2003.
- Findings from the same nutrition surveys of the FNRI cite that 84.4% of the households with 0-10 year old children experienced food insecurity in 2001 and 77% in 2003.
- The latest perception-oriented survey of the SWS (2007) with the second quarter of 2006 as reference period estimates the proportion⁶ of overall hunger at 19.2%, moderate hunger at 15.2% and severe hunger at 4.0%.
- The latest list of 100 nutritionally depressed municipalities based on the OPT for 2004, as released by the NNC, included 34 municipalities in the Bicol Region, 19 municipalities in Eastern Visayas, 17 municipalities in Western Visayas, 8 municipalities in Central Visayas, 5 municipalities both in Caraga and CALABARZON, 4 municipalities in SOCCSKSARGEN, 3 municipalities in Davao region, 2 municipalities both in Cagayan Valley and MIMAROPA, and 1 municipality in Northern Mindanao. Note that municipalities in ARMM were excluded because their OPT coverage were less than 80% or results were not submitted at all.
- Results of the BAS one time survey conducted in August 2006 estimate that from April to June 2006⁷, about 18.6 percent of the households in the country,

⁶ Having experienced hunger during the past three months once is overall hunger, a few times is moderate hunger and many times/frequently is severe hunger.

experienced hunger. Of this, 15.0 percent experienced moderate hunger and 3.6 percent, severe hunger.

- Latest results of the Philippine FIVIMS as implemented by the NNC, estimate that food insecurity in the Philippines is prevalent in 49 provinces in varying degrees as follows: (1) 38 provinces as Vulnerable; (2) 8 provinces as Very Vulnerable; and (5) 3 provinces as Very- Very Vulnerable.
- The resulting Global Hunger Index (GHI) as computed by the IFRI was expressed as a percentage, varying between 0 and 100, where low scores indicate less hunger and high scores indicate severe hunger with 4 categories as follows: (1) Low to Moderate, (2) Serious, (3) Alarming, and (4) Extremely Alarming. The GHI for the Philippines at 17.6 for 2003, placed the country in a serious hunger situation together with Indonesia, Thailand and Vietnam at 12.5, 12.4 and 18.4 respectively. Malaysia at 7.2 is considered in a low to moderate hunger situation, while Bangladesh, India and Pakistan at 28.3, 25.8 and 21.8 respectively, are placed at alarming situations.
- From a table culled from the FAO website on food security (Virola, 2006) the following findings are shown: (1) In terms of food availability, in 1990-92, the Philippines 2260 kcal/person/day, was ahead of Thailand, Vietnam, Lao PDR and Cambodia at 2250, 2180, 2110 and 1870 kcal/person/day, respectively. By 2000-02, Vietnam and Thailand at 2530 and 2450 kcal/person/day respectively, had caught up with the Philippines at 2380 kcal/person/day and Lao PDR at 2290 kcal/person/day is getting close. (2) In 1990-92, there were more undernourished Pinoys (16.2 million), than other Southeast Asians except the Vietnamese (20.6 M) and the Indonesians (16.4M). By 2000-02, undernourished Pinoys (17.2M) were the biggest group of undernourished Southeast Asians. (3) In all three periods, the incidence of undernourishment is higher in the Philippines than for Southeast Asia as a whole and for all Asia and the Pacific. In 1990-92, the proportion of undernourishment in the Philippines at 10% was lower than in Cambodia, Vietnam, Lao PDR and Thailand at 43%, 31%, 29% and 28%, respectively. By 2000-02, only Cambodia at 33% had a higher proportion of the undernourished than the Philippines at 22%.

A summary of these statistics as presented in Table 1 point to the fact that there are a number of measurement activities or data systems that exist at the local, regional, national

⁷ The BAS and SWS surveys cited have the same reference period: 2nd quarter of 2006.

and even at the global levels, with each one providing different estimates based on various concepts, varying target population and various methods at different levels of disaggregation. The figures do not seem to validate each other. For example, the following are estimates from three different sources (survey-based): (1) in 2003, 77.0 % of households (with 0-10 children) experienced food insecurity (FNRI, 2003 NNS); (2) BAS reports that 13.9% of households experienced hunger in the second quarter of 2006 (BAS, 2006 SHIP); and (3) SWS reports an overall hunger of 18.6% for the second quarter 2006. We should examine and assess whether the fluctuations between the 2003 and 2006 estimates are “acceptable” results of valid measures of hunger. Is the difference of 5 percentage points in hunger at the national level (BAS vs. SWS) “acceptable” as results of valid, reliable, measures of hunger? One thing is certain, there remains no coordinated plan for an overall monitoring of the hunger situation at the national, regional and provincial levels, and even down to the municipal level. At this point, it is important to consider the broader goals of the Accelerated Hunger Mitigation Program of the government that should address hunger in a holistic manner that should provide what dimensions and what degrees of severity of “food insecurity” or hunger are most relevant to measure and monitor not only at the provincial level, but at the municipal level as well. On the supply side, measures could be along producing more food and efficient delivery of foods to whom and where it is needed. On the demand side, measures could be along putting more money in people’s pockets and in promoting good nutrition among others. Within this perspective, should the measures then be limited to the unique individual experience in the direct sense of the uneasy or painful sensation of not having enough to eat? Or to a notion of hunger that arises in the context of inadequate access of individuals to sufficient, and nutritious food both in quantity and quality to meet their dietary requirements for a healthy and productive life? In other words, measuring the “causes” and “effects” of hunger as well?

Obviously, it is desirable to come up with a statistical development program for an improved and rational measurement of hunger. Given the limited resources of government and of the PSS, given the hunger-related statistics that already exist in the country, is it necessary to propose/conduct new statistical surveys/censuses/administrative-based record systems? Is it wise for government agencies like the BAS and the FNRI to be spending resources on basically the same survey on hunger? Is it prudent for government to duplicate what the private sector like the SWS is doing? True, these different sets of statistics may be serving different and valid purposes but is the value added commensurate with the cost? No doubt, we need to prioritize and rationalize statistical activities on hunger in order to maximize the use of our very limited resources. However, there are some considerations in generating official statistics that we should address as well. In terms of relevance, we should

fully understand what our users really need. Are we responding to their needs? Do users translate into policies the statistics they say they need? Can the statistics help define policies and programs? Do the statistical offices have the resources needed, both manpower and financial? What are our obligations to our citizens – Is it something we should do? We should also consider the response burden in view of the similar surveys conducted on the same subject matter. What is the value added of new statistics generation initiatives? Will it not create an information overload?

Toward this end, the paper presents a proposed conceptual and operational framework in the following section. The third section discusses the preliminary results and feedback from stakeholders on the framework. In the last section, some concluding remarks and recommendations are presented.

II. Meeting New Challenges for Official Hunger Statistics: Proposed Hunger Index

Until 2001 with the FNRI module on food security in the NNS, the PSS was not addressing directly the measurement of hunger. Hunger data from the perception-oriented surveys of SWS, which report percentage of households having “experienced hunger, with nothing to eat, at least once in the past three months” are definitely much easier to collect than the usual economic and social data collected by the PSS. However, they are subject to issues of validity, objectivity and transparency. Do they capture sentiments and perceptions beyond hunger, such as for instance, dissatisfaction with the government and its leaders?

In early 2006, the President issued a series of Cabinet directives to hasten the implementation of government measures to alleviate poverty, specifically on the need to rationalize government programs and implement more focused interventions to address hunger. A Cabinet memorandum⁸ directed the “National Nutrition Council (NNC), National Economic and Development Authority (NEDA), NSCB, Bureau of Agricultural Statistics (BAS), and the FNRI” to establish benchmarks/index on hunger. In response, the NSCB (2006b) created an inter-agency Task Force on the Development of Hunger Index (TF) to generate quick proxy indicators on hunger; develop a methodology to generate hunger index and establish benchmark information on hunger. The NSCB (2006c) TF reviewed various conceptual frameworks and possible data sources on hunger, malnutrition and food insecurity and looked for alternative approaches. Subsequent activities however, required capacity building to include resources such as manpower and logistics for framework

⁸ Cabinet Memorandum dated 17 January 2006, “Implementation of Focused Interventions against Hunger”

development, conduct of validation and user-consultation workshops as well as technical expertise on the construction of the hunger index. Thru multi-agency initiatives, the FAO provided funds for the Project “Establishment of Benchmark Data and Index on Hunger” aimed: (1) to provide data support for more focused interventions to address hunger by (a) formulating a methodology for the construction of a hunger index based on existing data; and (b) establishing benchmark hunger index; and (2) identify and recommend statistical policies for the institutionalization of data generation for the hunger index.

Concepts and Definitions

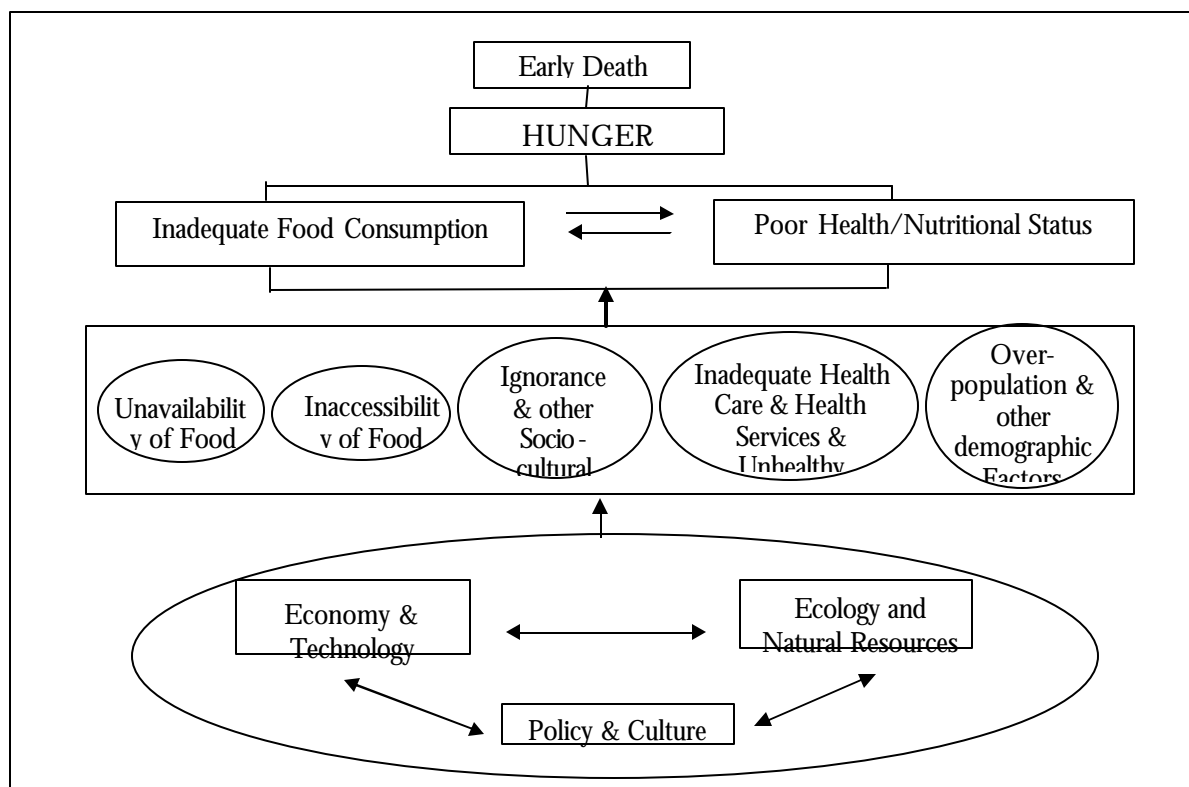
The FAO (2000) defines hunger as a condition in which people do not get enough food to provide the nutrients for fully productive, active, and healthy lives. Food insecurity, on the other hand, is a condition characterized by the lack or absence of available, adequate, accessible, affordable, safe, and nutritious foods that satisfy the dietary needs and food preferences of all people at all times for an active and healthy life. Related terms are malnutrition, undernutrition and undernourishment. How do we measure these observable facts? Statistically speaking, a social phenomenon like hunger is not as easy to measure as some economic variables like employment and prices. Hunger, like poverty, is multi-dimensional in nature; thus, capturing its many facets would require a sound framework scientifically grounded on quality statistics.

The Proposed Conceptual Framework of the NSCB FAO-funded Project

Inadequate food consumption and poor health/nutritional status are two obvious correlates of hunger that may lead to the most tragic consequence of hunger, which is early death. These are caused by intermediate factors, namely, unavailability and inaccessibility of food, ignorance and other socio-economic factors, inadequate health care and health services, and demographic factors such as overpopulation, all operating independently and interactively. According to the United Nations (UN) MDG Report (2005), “Malnutrition in children contributes to over half of child deaths. It is caused not only by food deprivation, but also by the debilitating effects of infectious diseases and lack of care. Strategies to combat child malnutrition include exclusive breastfeeding for the first six months, increasing the use of micronutrient supplements, reducing infectious diseases, and improving access to clean water and sanitation.” These may be caused by improper economic policies and political infrastructure, low level of technology, negative cultural and demographic forces, and underdeveloped natural resources.

The NSCB TF decided to adopt the FAO definition of hunger. Using this definition, Florentino (2007), proposed a framework (Figure 1) encompassing the essential dimensions of hunger – its immediate, intermediate and basic causes/correlates and its ultimate result. Thus, the proposed framework recognizes the multi-dimensional nature of hunger that goes beyond the physical sensation associated with lack of food intake. It also takes into pragmatic consideration the limited manpower and financial resources of government and of the PSS to undertake new primary data collection activities to measure hunger.

Figure 1. Conceptual Framework of Hunger



Source: Proposed Hunger Index for the Philippines, Conceptual Framework and Indicators, Report of Consultancy.RF Florentino, 2007

Components of the Proposed Hunger Index

Based on the proposed framework on hunger index, inadequate food consumption and poor health/nutritional status are identified as the immediate causes of hunger. Accordingly, the following are the proxy indicators identified to come up with the hunger index: (a) proportion of households with per capita energy consumption less than per capita energy requirement for inadequate food consumption, and (b) proportion of underweight children under 5 years old, and (c) mortality rate of children under 5 years old for poor health/nutritional status. Data were assessed in terms of the possible sources, availability starting 1990 and onwards, and level of disaggregation:

1. Proportion of households with per capita energy consumption less than the requirement - mainly sourced from the Food Consumption Survey (FCS) module of the NNS conducted by the FNRI every five years. The FCS obtains actual amounts of food consumed in the household and outside the home for one day using the food weighing technique. The adequacy of the energy and nutrient intakes is assessed against the Recommended Energy

and Nutrient Intakes (RENI). The last NNS conducted was in 2003. Although the NNS is undertaken every five years, the FCS was included only in the years 1993 and 2003. Unfortunately, the 2003 NNS was designed to generate national and regional estimates only. In its efforts to enhance the relevance of the NNS, the FNRI provided provincial level estimates with corresponding coefficients of variation (CVs) as well as margin of errors (MEs) to guide the users on the reliability of the data. Data from the 1993 NNS are thus available at the national, regional and provincial levels.

2. Proportion of underweight children under 5 years old - mainly sourced from the module on Anthropometric Nutrition Survey of the NNS. This survey involves the measurement of height, weight, skinfold thickness, waist/hip and mid-upper arm circumferences of children aged 0 to 19. In between NNS years, the FNRI conducts the Updating of the Nutritional Status of Filipino Children, specifically for anthropometric data. Thus, the proportion of underweight children under 5 years old is available every two or three years. However, data for 2003 are available only at the national and regional levels. As in the data on energy consumption, the FNRI performed special runs to generate, for purposes of the FAO project, provincial data on underweight children with the corresponding coefficients of variation (CVs) as well as margin of errors (MEs).

Note that one possible source of data on underweight children down to the municipal level is the OPT of the NNC which is conducted in practically all municipalities in the country. However, the quality of data generated needs further study considering the various issues raised such as the use of a nonstandardized/noncalibrated weighing scales and the low coverage in some areas.

3. Mortality rate of children under 5 years old - The National Demographic and Health Survey (NDHS) of the NSO is the main source of data on mortality rate. The NDHS is conducted every five years with the latest in 2003. The NDHS contains the estimates on early childhood mortality rates by neonatal, postnatal, infant, child and under-five mortality rates, early childhood mortality rates by socio-economic characteristics and region, by demographic characteristics, and by women's status indicators. The data on the mortality rates are direct estimates from the questions in the reproductive history section of the Women's Questionnaire.

The data available for Under-5 Mortality Rate (U5MR) from the 2003 NDHS are only at the regional level. Although mortality data can also be sourced from the civil registration records of the NSO, there could be underestimation of deaths considering the under registration of deaths in civil registration systems. Nevertheless, the data from the civil

registration records were used to come up with provincial data for 2003. The data are adjusted for under registration and pro-rated using the structure of the Regional U5MR data from NDHS⁹. On the other hand, indirect estimates of U5MR from 1990– 1995 are available up to the provincial level, while the 1998 and 2003 data points are only available at the regional level owing to sampling variability or the smallness of the sample due to rarity of the event.

Chart 1 summarizes the availability of data for the proposed hunger index.

Chart 1. Summary of Hunger Components and Indicators

| Component | Indicator/ Data Items | Main Data Source | Years Available | Level of Disaggregation |
|---------------------------------|---|---|--|--|
| Inadequate food consumption | Proportion of households with per capita energy intake < RENI | National Nutrition Survey, FNRI | 1993, 2003 | Regional/ Provincial |
| Poor health/ nutritional status | Proportion of Underweight Children under 5 yrs | National Nutrition Survey, FNRI | 1990, 1992, 1993, 1996, 1998, 2001, 2003, 2005 | Regional/ Provincial |
| | Under 5 Mortality Rate | National Demographic and Health Survey NSO | 1990-1995, 1998, 2003 | 1990-95: Provincial 1998 & 2003: Regional |

Source: Data Assessment Report, NSCB, 2007

Proposed Estimation Methodology

From the framework, an index meant to capture the depth and extent of hunger is defined with the operational framework shown in Figure 2. The Hunger index (HI) is defined as a measure of severity of hunger in the population. It is computed using proxy indicators, namely, proportion of households with per capita energy consumption less than the requirement (E), proportion of underweight children under 5 years (U) and mortality rate of children under 5 years (M). The indicators are equally weighted to come up with the index. The Index is from 0 to 1, with higher scores depicting greater severity of hunger. Thus,

$$HI = (E + U + M)/3$$

The proposed hunger index gives the same weight to information given by its three component indicators. An alternative index developed by the Statistics Consultant¹⁰ is one

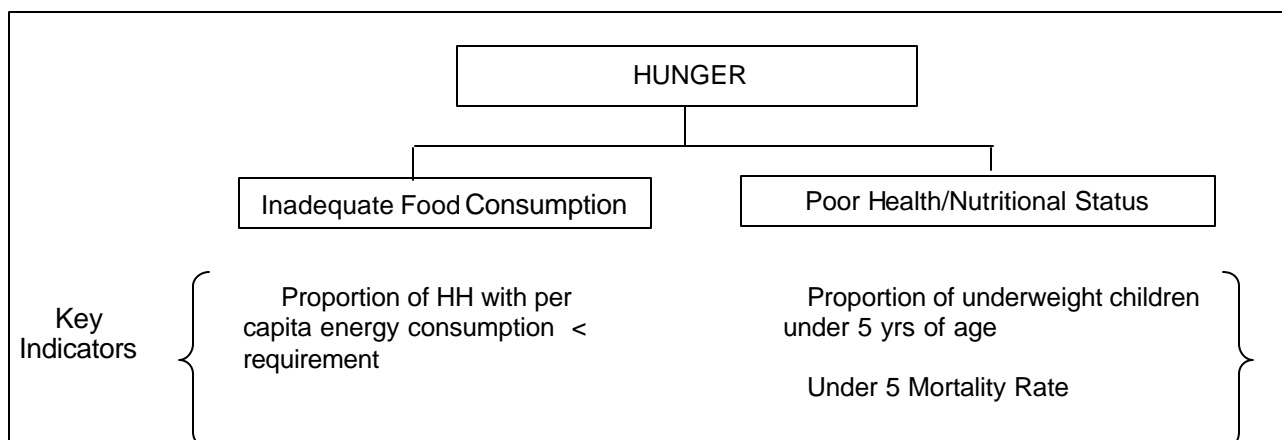
⁹ These figures were pro rated to be consistent with the Regional Under 5 Mortality Rate from NDHS using the following formula: $PA = \frac{PNSO}{RNSO} \times (RNDHS)$

Where: PNSO = Provincial U5MR from NSO, RNDHS = Regional U5MR from NDHS
RNSO = Regional U5MR from NSO, PA = Provincial Adjusted U5MR

¹⁰ Done by Dr. Lisa Grace S. Bersales using the conceptual framework developed by Dr. Rodolfo Florentino.

with unequal weights developed using factor analysis. Adjectival hunger ratings from the values of the hunger index; i.e., alarming, serious, moderate or low were also developed using the medium-term Philippine Development Plan targets for the three indicators as shown below. The correlation of the proposed HI with each of the following indicators was likewise computed and tested for significance: FIVIMS; subsistence incidence; and magnitude of the poor population.

Figure 2. Operational Framework of Hunger



Source: Proposed Hunger Index for the Philippines, Conceptual Framework and Indicators, Report of Consultancy, RF Florentino, 2007

Chart 2. Proposed Hunger Index Categories

| CATEGORY | LOWER VALUE | UPPER VALUE |
|----------|-------------|-------------|
| Low | 0.000 | 0.256 |
| Moderate | 0.257 | 0.291 |
| Serious | 0.292 | 0.326 |
| Alarming | 0.327 | 1.000 |

Source: The Development of a Hunger Index for the Philippines: Methodology and Results . LGBersales, (2007)

III. Preliminary Results: What Do the Stakeholders Say?

The NSCB (2007) in coordination with the Statistics Consultant, came up with preliminary estimates of the hunger index at the national level, by region and province for 2003, using as data sources the following: FNRI (2006) for E and U and NSO (2004) for M.

The proposed hunger index was estimated at 0.272 which indicates moderate hunger for the Philippines. Among regions, hunger is categorized serious in ARMM, Zamboanga Peninsula, Central Visayas and Eastern Visayas, while regions classified with low severity of hunger include CAR, NCR, Davao Region and Central Luzon. Note that no region is classified with an alarming hunger situation. Comparing the ranks of hunger index with poverty incidence, the most hungry regions, ARMM and Zamboanga Peninsula are ranked the 2nd and 3rd poorest, respectively.

Knowing that there is some degree of concordance¹¹ with the regional ranks in terms of poverty incidence, it is worthwhile to go down to the provincial level estimates.

Table 3 presents hunger index by region and province. Eighteen (18) provinces are tagged with alarming hunger conditions, 15 provinces - serious, 20 provinces – moderate, and 30 provinces - low hunger conditions. The 6 most alarming provinces include 2 provinces in ARMM and one each in Regions 8,10, 12 and MIMAROPA as follows: Cotabato City; Northern Samar; Sulu; Romblon; Misamis Occidental; and Tawi-tawi. The 6 provinces with the least hunger severity are found in Region 6, CAR, Region 3, MIMAROPA and Region 10: Guimaras; Ifugao; Bataan; Occidental Mindoro; Apayao; and Camiguin.

Table 4 shows the estimates of the hunger index by region and province with the corresponding component indicators. Additional correlation tests performed on the hunger index showed significant positive correlation between the proposed provincial HI and subsistence incidence ($r = 0.29$, $\alpha = 0.01$) as well as regional HI with the magnitude of the poor population ($r = 0.57$, $\alpha = 0.02$).

What do the stakeholders say?

A Users' Forum was conducted by the NSCB last July 31, 2007 to solicit comments and recommendations on the proposed conceptual framework and the preliminary

¹¹ Kendall's tau-b rank correlation coefficient of 0.426 is statistically significant at 5 % level.

estimates. The users welcomed the concerted effort in the establishment of a hunger index, for monitoring the country's overall goal of food and nutrition security for all Filipinos, but reservations and even opposition to the proposed hunger index were expressed. More specifically, the comments included the following:

- (1) From the local government units (LGUs) perspective – The resulting statistics are critical as basis for the LGUs in undertaking various development activities and ultimately enable them to update/revise existing policies and to formulate more strategic policies aimed at better utilization of resources and targeting of programs and project beneficiaries.
- (2) From the academe and other users – The need to perform specificity and sensitivity tests. The hunger measure should provide direct answers or information on: Who are the hungry? How can they best be identified and characterized? Where are the hungry? The requirement on the use of standardized method for identifying the hungry across population groups may not be appropriate as determinants of hunger may vary from one place to another and across socio-economic groups. The “proxy indicator”, proportion of households with per capita energy intake below the requirement, can be actually treated as a direct indicator, but could be subject to measurement errors. There is a need for more frequent monitoring of hunger because the country experiences disasters of different types and magnitude. The significant correlation of the hunger index with the existing official statistics like the subsistence index may mean that there is no need for another measure. Consider other approaches in formulating the hunger index.

These comments were surely made for the PSS to have a good and useful measure of hunger. In assessing the comments it would help if alternative approaches are offered or identified. The competing approaches could then be examined and compared in terms of cost and benefits.

Without doubt, the PSS, and the NSCB in particular, is interested in providing good measures of hunger in the Philippines on a regular basis. The wish list could include not only the prevalence of hunger among individuals/households/families living in different areas or even belonging to different socio-economic groups, but also the identification of the hungry.

However, as envisioned by the NSCB TF, the hunger index is meant to be a conceptually-valid but practical tool to assess the level or severity of the country's hunger problem and to measure progress over time in overcoming it. It was conceptualized to incorporate aspects that reflect the multidimensional nature of hunger, be they "causes" or "effects". It is based on a framework that examines the "availability and utilization of food" and the way food is "converted" into healthy bodies and healthy lives. Nobel-winning economist Amartya Sen (1983) argues for a "capability approach" to hunger that treats calories as a means to the more important ends of "being well-fed" and "being in good health". On the other hand, the proposed hunger index goes beyond the measurement of calories. In other words, in addressing the hunger problem, we should produce hunger statistics that reflect not only on how food is converted into human functioning and capability (good health) but also indicate measures of hunger beyond availability and access to utilization. Thus, a broader understanding of hunger entails more than simply looking at the calorie or energy supply. The broader perspective of hunger is trying to account how food is used and balanced to avoid malnutrition and promote well-being.

Moreover, the proposed HI was formulated with due consideration to resource constraints that may not allow new primary data collection activities; thus, the proposed HI uses only existing or available data.

The proposed HI can identify which areas (regions/provinces) are in alarming conditions and therefore need priority attention. Unlike other measures, HI has easy interpretation in the sense that HI scores moving towards 1 are indications of setbacks in the fight against hunger. By examining the components of the HI, policy-makers can identify aspects of hunger that need greater attention. Insights into the more specific causes of inadequate food consumption and poor health status in the alarming areas can be gained through a closer analysis of other socio-economic data in these communities. Finally, the HI can be used by the government for targeting purposes under its Accelerated Hunger Mitigation Program.

IV. Concluding Remarks and Recommendations

While the initial efforts of the PSS have made some progress towards a quantitative measurement of hunger, much remains to be done.

In addition to the comments raised by the stakeholders during the consultative forum, the validity of the index as well as the quality of the data sources, including timeliness and

use of standard concepts and definitions should be examined more thoroughly. Some administrative-based records like those on morbidity and mortality are unreliable because events are recorded where health facilities are located, generally in economic centers. This results in the overestimation of the severity of a problem in the economic centers. Also, survey-based indicators like E, U and M are not reliably generated below the regional level. It is unfortunate that the NSO surveys, which used to generate provincial level estimates no longer do so, because of concerns about unacceptable coefficients of variation¹². In addition, the importance of the timeliness¹³ of the release of the hunger index should be recognized and addressed.

A follow-up effort being proposed as Phase 2 of the FAO-assisted project is the development of a methodology for the construction of a hunger index based on existing and/or new household data. This would entail the design of a module on hunger in an existing household survey, e.g., through the Labor Force Survey of the NSO, which can provide direct estimates of hunger prevalence and count of the hungry.

Validation workshops and more consultation fora with stakeholders should be conducted further. Advocacy activities on the policy uses of the hunger index should likewise be undertaken. The proposed methodology and estimates are also scheduled for discussion at the NNC Technical Committee and NNC Governing Board which are the policy bodies that oversee the implementation of measures against hunger and which are expected to be the major users of hunger statistics. Subsequently, statistical policies will have to be formulated for approval by the NSCB Executive Board for the institutionalization of data support for the generation of the hunger index.

Towards enhanced policy relevance of the hunger index, it should be generated with the lowest possible geographical disaggregation, provincial at the minimum, but taking into consideration resource constraints. In this regard, the existing efforts of the PSS in the use of small area estimation techniques will be useful.

With the limited resources available, it is imperative that duplicative and overlapping statistics generation efforts be avoided. Finally, the institutionalization of the hunger index in the PSS may take some time, but present efforts should certainly pave the way for the generation of official statistics on hunger in the Philippines. For this to happen, government as well as the private sector must recognize and appreciate the need to invest in statistics.

¹² The Australian Bureau of Statistics releases information with CVs higher than 10%, with the necessary caveats.

¹³ For the computations done in the project, the most timely estimate possible using available data is for 2003.

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Table 1. Current Approaches in Measuring Hunger in the Philippines

| Agency | Methodology | Indicator | Latest Estimate/s | Reference Period | Frequency | Coverage/ Disaggregation |
|--------|---|---|--|--------------------|---|--|
| NNC | FIVIMS | Classification of provinces by vulnerability to food insecurity | 38 provinces - V; 8 provinces - VV and 3 provinces - VVV | 2003 | Not specified | Provincial |
| | OPT | percentage of preschoolers below six years old who are malnourished | no aggregation at national level | 2004 | Annual | Municipal |
| | | List of Nutritionally Depressed Cities/ Municipalities(NDM) | First 100 NDMs | 2004 | Annual | Municipal |
| SWS | Survey on Poverty and Hunger | percentage of reporting experience of hunger in the past 3 months | 19.0% - overall hunger 15% - moderate hunger 4% - severe hunger | First Quarter 2007 | Quarterly | National and by island groups |
| FNRI | NNS | Percentage of underweight, stunted, wasted - 0-5 children | underweight - 25.0%; underheight - 26.0%;wasted - 5.0 | 2006 | every 5 years, with updates every 2 - 3 years | National, Regional |
| | | Percent of HHs w/ less 100% energy adequacy | Phil. - 56.9% | 2003 | every 5 years, with updates every 2 - 3 years | National, Regional |
| | | Percent of HHs w/ 0-10 children that experienced food insecurity | 77.00% | 2003 | done only in 2001 1nd 2003 | National, regional |
| NSO | MICS | percentage of HHs reporting not having any meal in a day | no figures yet | 2006 | one time survey module | NCR and 19 selected provinces and 5 municipalities |
| FAO | FAO Methodology for the Measurement of food deprivation | proportion of undernourished | Phil. - 22% | 2002 -2003 | | covers 126 countries |
| IFPRI | Global Hunger Index | Hunger index | Phil.- 17.55 | 2003 | | covers 116 countries |
| NSCB | Poverty and related indicators | Subsistence incidence | 10% of families - food poor;14% of total population - food poor | 2003 | every 3 years | national, regional, provincial |
| BAS | SHIP | percentage of HHs reporting experience of hunger in | Phil.: experienced hunger - 18.6%; moderate hunger - 15%; severe hunger - 3.6% | 2nd Quarter 2006 | one time survey | national, regional, provincial |

Various Sources: NNC, SWS, FNRI, NSO, FAO, IFPRI, NSCB and BAS

Table 2. Hunger index estimates, degree of severity and ranks by region, 2003, with Poverty Incidence (PI), families

| Region | HI | Severity | Rank | PI | Rank |
|-------------------------------|--------------|-----------------|------|---------------|------|
| Philippines | 0.272 | Moderate | | 24.40% | |
| National Capital Region (NCR) | 0.233 | Low | 16 | 4.8 | 17 |
| CAR | 0.222 | Low | 17 | 25.8 | 11 |
| Ilocos | 0.273 | Moderate | 10 | 24.4 | 12 |
| Cagayan Valley | 0.264 | Moderate | 13 | 19.3 | 14 |
| Central Luzon | 0.247 | Low | 14 | 13.4 | 16 |
| CALABARZON | 0.275 | Moderate | 9 | 14.5 | 15 |
| MIMAROPA | 0.27 | Moderate | 12 | 39.9 | 5 |
| Bicol | 0.293 | Moderate | 6 | 40.6 | 4 |
| Western Visayas | 0.279 | Moderate | 8 | 31.4 | 9 |
| Central Visayas | 0.305 | Serious | 4 | 23.6 | 13 |
| Eastern Visayas | 0.305 | Serious | 3 | 35.3 | 7 |
| Zamboanga Peninsula | 0.318 | Serious | 2 | 44 | 3 |
| Northern Mindanao | 0.281 | Moderate | 7 | 37.7 | 6 |
| Davao Region | 0.236 | Low | 15 | 28.5 | 10 |
| SOCCKSARGEN | 0.299 | Moderate | 5 | 32.1 | 8 |
| Caraga | 0.271 | Moderate | 11 | 47.1 | 1 |
| ARMM | 0.323 | Serious | 1 | 45.4 | 2 |

Source: The development of a Hunger Index for the Philippines: Methodology and Results

Table 3. Hunger Index by Region and Province and by category, 2003

| Region/ Province | Hunger Index | HI Rank | Severity | HI Rank | Severity |
|--------------------|--------------|-----------|-----------------|-----------|-----------------|
| PHILIPPINES | 0.272 | | Moderate | | Low |
| Region I | 0.273 | 10 | Moderate | 10 | Low |
| Ilocos Norte | 0.269 | 45 | Moderate | 42 | Low |
| Ilocos Sur | 0.283 | 36 | Moderate | 38 | Low |
| La Union | 0.295 | 31 | Serious | 31 | Low |
| Pangasinan | 0.265 | 49 | Moderate | 47 | Low |
| Region II | 0.264 | 13 | Moderate | 13 | Low |
| Batanes* | - | - | - | - | - |
| Cagayan | 0.281 | 38 | Moderate | 33 | Low |
| Isabela | 0.251 | 58 | Low | 57 | Low |
| N. Vizcaya | 0.282 | 37 | Moderate | 37 | Low |
| Quirino | 0.231 | 67 | Low | 70 | Low |
| Region III | 0.247 | 14 | Low | 14 | Low |
| Bataan | 0.178 | 81 | Low | 81 | Low |
| Bulacan | 0.236 | 65 | Low | 66 | Low |
| N. Ecija | 0.251 | 57 | Low | 60 | Low |
| Pampanga | 0.267 | 47 | Moderate | 49 | Low |
| Tarlac | 0.227 | 68 | Low | 67 | Low |
| Zambales | 0.279 | 40 | Moderate | 39 | Low |
| Aurora | 0.279 | 39 | Moderate | 51 | Low |
| CALABARZON | 0.275 | 9 | Moderate | 12 | Low |
| Batangas | 0.316 | 21 | Serious | 26 | Moderate |
| Cavite | 0.252 | 56 | Low | 59 | Low |
| Laguna | 0.295 | 32 | Serious | 32 | Low |
| Quezon | 0.255 | 54 | Low | 54 | Low |
| Rizal | 0.257 | 53 | Low | 56 | Low |
| MIMAROPA | 0.27 | 12 | Moderate | 8 | Low |
| Marinduque | 0.329 | 17 | Alarming | 13 | Serious |
| Occ. Mindoro | 0.181 | 80 | Low | 76 | Low |
| Or. Mindoro | 0.334 | 12 | Alarming | 10 | Serious |
| Palawan | 0.193 | 77 | Low | 74 | Low |
| Romblon | 0.395 | 4 | Alarming | 3 | Alarming |
| Region V | 0.293 | 6 | Moderate | 6 | Moderate |
| Albay | 0.266 | 48 | Moderate | 50 | Low |
| Cam. Norte | 0.345 | 8 | Serious | 9 | Serious |
| Cam. Sur | 0.273 | 43 | Moderate | 44 | Low |
| Catanduanes | 0.212 | 70 | Low | 68 | Low |
| Masbate | 0.332 | 13 | Serious | 15 | Moderate |
| Sorsogon | 0.331 | 14 | Serious | 18 | Moderate |
| Region VI | 0.279 | 8 | Moderate | 7 | Low |
| Aklan | 0.202 | 72 | Low | 73 | Low |
| Antique | 0.33 | 15 | Serious | 11 | Serious |
| Capiz | 0.299 | 29 | Serious | 29 | Moderate |
| Iloilo | 0.259 | 52 | Moderate | 53 | Low |
| Negros Occ. | 0.299 | 30 | Serious | 28 | Moderate |
| Guimaras | 0.147 | 83 | Low | 83 | Low |

| | | | | | |
|--------------------|--------------|-----------|-----------------|-----------|-----------------|
| Region VII | 0.305 | 4 | Serious | 4 | Moderate |
| Bohol | 0.323 | 19 | Serious | 19 | Moderate |
| Cebu | 0.288 | 34 | Moderate | 36 | Low |
| Negros Or. | 0.33 | 16 | Serious | 16 | Moderate |
| Siquijor | 0.371 | 7 | Alarming | 7 | Serious |
| Region VIII | 0.305 | 3 | Serious | 3 | Moderate |
| E. Samar | 0.249 | 59 | Low | 58 | Low |
| Leyte | 0.315 | 22 | Serious | 23 | Moderate |
| N. Samar | 0.411 | 2 | Alarming | 2 | Alarming |
| W. Samar | 0.284 | 35 | Moderate | 35 | Low |
| So. Leyte | 0.201 | 74 | Low | 71 | Low |
| Biliran | 0.339 | 10 | Serious | 8 | Serious |
| Region IX | 0.318 | 2 | Serious | 2 | Moderate |
| Zambo del Norte | 0.306 | 25 | Serious | 20 | Moderate |
| Zambo del Sur | 0.314 | 23 | Serious | 24 | Moderate |
| Zambo Sibugay | 0.301 | 27 | Serious | 27 | Moderate |
| Isabela City* | - | - | - | - | - |
| Region X | 0.281 | 7 | Moderate | 9 | Low |
| Bukidnon | 0.237 | 64 | Low | 65 | Low |
| Camiguin | 0.187 | 78 | Low | 80 | Low |
| Lanao del Norte | 0.293 | 33 | Serious | 34 | Low |
| Misamis Occ. | 0.381 | 5 | Alarming | 5 | Serious |
| Misamis Or. | 0.272 | 44 | Moderate | 43 | Low |
| Region XI | 0.236 | 15 | Low | 15 | Low |
| Davao del Norte | 0.202 | 73 | Low | 72 | Low |
| Davao del Sur | 0.242 | 62 | Low | 61 | Low |
| Davao Oriental | 0.328 | 18 | Serious | 17 | Moderate |
| Compostela | 0.194 | 76 | Low | 79 | Low |
| Region XII | 0.299 | 5 | Moderate | 5 | Moderate |
| N. Cotabato | 0.31 | 24 | Serious | 25 | Moderate |
| S. Cotabato | 0.265 | 50 | Moderate | 48 | Low |
| Sultan Kudarat | 0.334 | 11 | Alarming | 14 | Moderate |
| Sarangani | 0.275 | 42 | Moderate | 41 | Low |
| Cotabato City | 0.439 | 1 | Alarming | 1 | Alarming |
| NCR | 0.233 | 16 | Low | 16 | Low |
| District 1 | 0.238 | 63 | Low | 64 | Low |
| District 2 | 0.204 | 71 | Low | 75 | Low |
| District 3 | 0.248 | 60 | Low | 62 | Low |
| District 4 | 0.268 | 46 | Moderate | 45 | Low |
| CAR | 0.222 | 17 | Low | 17 | Low |
| Abra | 0.3 | 28 | Serious | 30 | Moderate |
| Benguet | 0.2 | 75 | Low | 77 | Low |
| Ifugao | 0.152 | 82 | Low | 82 | Low |
| Kalinga | 0.317 | 20 | Serious | 22 | Moderate |
| Mt. Province | 0.22 | 69 | Low | 69 | Low |
| Apayao | 0.184 | 79 | Low | 78 | Low |
| ARMM | 0.323 | 1 | Serious | 1 | Moderate |
| Basilan | 0.261 | 51 | Moderate | 46 | Low |
| Lanao del Sur | 0.252 | 55 | Low | 52 | Low |
| Maguindanao | 0.305 | 26 | Serious | 21 | Moderate |
| Sulu | 0.395 | 3 | Alarming | 4 | Alarming |
| Tawi-tawi | 0.381 | 6 | Alarming | 6 | Serious |
| Caraga | 0.271 | 11 | Moderate | 11 | Low |
| Agusan del Norte | 0.277 | 41 | Moderate | 40 | Low |
| Agusan del Sur | 0.235 | 66 | Low | 63 | Low |
| Surigao del Norte | 0.345 | 9 | Alarming | 12 | Serious |
| Surigao del Sur | 0.242 | 61 | Low | 55 | Low |

Note: * incomplete data

| Category | Values |
|----------|---------------|
| Low | 0.000 – 0.256 |
| Moderate | 0.257 – 0.291 |
| Serious | 0.292 – 0.326 |
| Alarming | 0.327 – 1.000 |

Source: The Development of a Hunger Index for the Philippines: Methodology and Results, LGBersales,2007

Table 4. Hunger Index by Component Indicators by Region and Province, 2003

| Region | Province | Proportion of HH with less 100% energy adequacy | Proportion of underweight children under 5 years | U5 MR (expressed in proportion) | Hunger Index (equal weights) | Hunger Index (unequal weights) |
|--------------------|-------------------|---|--|---------------------------------|------------------------------|--------------------------------|
| PHILIPPINES | | 0.569 | 0.2077 | 0.04 | 0.2722 | 0.235 |
| Region XII | Cotabato City | 0.8 | 0.5001 | 0.0171 | 0.4391 | 0.383 |
| Region VIII | N. Samar | 0.647 | 0.4075 | 0.178 | 0.4108 | 0.377 |
| MIMAROPA | Romblon | 0.765 | 0.3337 | 0.0867 | 0.3951 | 0.347 |
| ARMM | Sulu | 0.863 | 0.2583 | 0.0648 | 0.3953 | 0.339 |
| Region X | Misamis Occ. | 0.818 | 0.2562 | 0.0698 | 0.3814 | 0.329 |
| ARMM | Tawi-tawi | 0.875 | 0.2223 | 0.0448 | 0.3807 | 0.323 |
| Region VII | Siquior | 0.75 | 0.3333 | 0.0306 | 0.3713 | 0.32 |
| Region VIII | Biliran | 0.625 | 0.3332 | 0.0588 | 0.339 | 0.299 |
| Region V | Cam. Norte | 0.75 | 0.2223 | 0.0635 | 0.3453 | 0.297 |
| MIMAROPA | Or. Mindoro | 0.6 | 0.333 | 0.0688 | 0.334 | 0.296 |
| Region VI | Antique | 0.538 | 0.4002 | 0.0531 | 0.3304 | 0.296 |
| Caraga | Surigao del Norte | 0.808 | 0.1689 | 0.0579 | 0.3449 | 0.293 |
| MIMAROPA | Marinduque | 0.616 | 0.2859 | 0.0863 | 0.3294 | 0.292 |
| Region XII | Sultan Kudarat | 0.657 | 0.2979 | 0.0471 | 0.334 | 0.291 |
| Region V | Masbate | 0.646 | 0.3044 | 0.0444 | 0.3316 | 0.289 |
| Region VII | Negros Or. | 0.665 | 0.2898 | 0.0349 | 0.3299 | 0.285 |
| Region XI | Davao Oriental | 0.65 | 0.2941 | 0.041 | 0.3284 | 0.285 |
| Region V | Sorsogon | 0.708 | 0.2389 | 0.0458 | 0.3309 | 0.284 |
| Region VII | Bohol | 0.583 | 0.3429 | 0.042 | 0.3226 | 0.284 |
| Region IX | Zambo del Norte | 0.542 | 0.3334 | 0.0428 | 0.3061 | 0.27 |
| ARMM | Maguindanao | 0.565 | 0.2882 | 0.0603 | 0.3045 | 0.269 |
| CAR | Kalinga | 0.692 | 0.2503 | 0.0079 | 0.3167 | 0.268 |
| Region VIII | Leyte | 0.718 | 0.1818 | 0.0456 | 0.3151 | 0.268 |
| Region IX | Zambo del Sur | 0.703 | 0.193 | 0.0458 | 0.3139 | 0.268 |
| Region XII | N. Cotabato | 0.623 | 0.2876 | 0.0194 | 0.31 | 0.267 |
| CALABARZON | Batangas | 0.724 | 0.2003 | 0.0238 | 0.316 | 0.267 |
| Region IX | Zambo Sibugay | 0.564 | 0.3078 | 0.0327 | 0.3015 | 0.264 |
| Region VI | Negros Occ. | 0.557 | 0.2962 | 0.0431 | 0.2988 | 0.262 |
| Region VI | Capiz | 0.625 | 0.2165 | 0.0551 | 0.2989 | 0.259 |
| CAR | Abra | 0.643 | 0.214 | 0.0443 | 0.3005 | 0.258 |
| Region I | La Union | 0.578 | 0.2679 | 0.0398 | 0.2952 | 0.257 |
| CALABARZON | Laguna | 0.67 | 0.1863 | 0.0291 | 0.2951 | 0.25 |
| Region II | Cagayan | 0.473 | 0.3271 | 0.0423 | 0.2808 | 0.25 |
| Region X | Lanao del Norte | 0.696 | 0.1255 | 0.0577 | 0.2931 | 0.249 |
| Region VIII | W. Samar | 0.583 | 0.2342 | 0.0336 | 0.2836 | 0.245 |
| Region VII | Cebu | 0.654 | 0.1698 | 0.0392 | 0.2877 | 0.245 |
| Region II | N. Vizcaya | 0.562 | 0.2542 | 0.03 | 0.2821 | 0.244 |
| Region I | Ilocos Sui | 0.583 | 0.2351 | 0.0308 | 0.283 | 0.244 |
| Region III | Zambales | 0.529 | 0.2728 | 0.0346 | 0.2788 | 0.244 |
| Caraga | Agusan del Norte | 0.548 | 0.2182 | 0.065 | 0.2771 | 0.243 |
| Region XII | Sarangani | 0.5 | 0.2964 | 0.0277 | 0.2747 | 0.241 |
| Region I | Ilocos Norte | 0.458 | 0.3073 | 0.0416 | 0.269 | 0.239 |
| Region X | Misamis Or. | 0.583 | 0.1791 | 0.0536 | 0.2719 | 0.235 |
| Region V | Cam. Sur | 0.59 | 0.1922 | 0.0359 | 0.2727 | 0.234 |
| NCR | District 4 | 0.536 | 0.2362 | 0.0304 | 0.2675 | 0.232 |
| ARMM | Basilan | 0.572 | 0.0624 | 0.1484 | 0.2609 | 0.232 |
| Region I | Pangasinan | 0.521 | 0.2343 | 0.0401 | 0.2651 | 0.231 |
| Region XII | S. Cotabato | 0.564 | 0.1763 | 0.0548 | 0.265 | 0.229 |
| Region III | Pampanga | 0.587 | 0.1974 | 0.0173 | 0.2672 | 0.227 |
| Region V | Albay | 0.605 | 0.1511 | 0.0411 | 0.2658 | 0.226 |
| Region III | Aurora | 0.8 | 0 | 0.0365 | 0.2788 | 0.226 |
| ARMM | Lanao del Sur | 0.428 | 0.2797 | 0.0478 | 0.2518 | 0.225 |
| Region VI | Iloilo | 0.561 | 0.1581 | 0.0582 | 0.2591 | 0.224 |
| CALABARZON | Quezon | 0.5 | 0.2273 | 0.0385 | 0.2553 | 0.223 |

| | | | | | | |
|-------------|-----------------|-------|--------|--------|--------|-------|
| Caraga | Surigao del Sur | 0.353 | 0.3216 | 0.0512 | 0.2419 | 0.22 |
| CALABARZON | Rizal | 0.572 | 0.1689 | 0.0315 | 0.2575 | 0.22 |
| Region II | Isabela | 0.486 | 0.2343 | 0.0315 | 0.2506 | 0.218 |
| Region VIII | E. Samar | 0.471 | 0.263 | 0.0126 | 0.2489 | 0.216 |
| CALABARZON | Cavite | 0.554 | 0.1673 | 0.0339 | 0.2517 | 0.215 |
| Region III | N. Ecija | 0.569 | 0.1552 | 0.03 | 0.2514 | 0.214 |
| Region XI | Davao del Sur | 0.472 | 0.2039 | 0.0486 | 0.2415 | 0.212 |
| NCR | District 3 | 0.551 | 0.1605 | 0.0318 | 0.2478 | 0.211 |
| Caraga | Agusan del Sur | 0.408 | 0.2769 | 0.0202 | 0.235 | 0.207 |
| NCR | District 1 | 0.515 | 0.1589 | 0.0386 | 0.2375 | 0.204 |
| Region X | Bukidnon | 0.513 | 0.1729 | 0.0264 | 0.2374 | 0.203 |
| Region III | Bulacan | 0.574 | 0.0898 | 0.0428 | 0.2355 | 0.198 |
| Region III | Tarlac | 0.46 | 0.1883 | 0.0334 | 0.2272 | 0.197 |
| Region V | Catanduanes | 0.294 | 0.2858 | 0.0555 | 0.2118 | 0.194 |
| CAR | Mt. Province | 0.453 | 0.167 | 0.0407 | 0.2202 | 0.191 |
| Region II | Quirino | 0.666 | 0 | 0.0262 | 0.2307 | 0.186 |
| Region VIII | So. Leyte | 0.399 | 0.148 | 0.0568 | 0.2013 | 0.177 |
| Region XI | Davao del Norte | 0.406 | 0.147 | 0.0527 | 0.2019 | 0.177 |
| Region VI | Aklan | 0.461 | 0.1001 | 0.0451 | 0.2021 | 0.173 |
| MIMAROPA | Palawan | 0.332 | 0.1931 | 0.0531 | 0.1927 | 0.173 |
| NCR | District 2 | 0.518 | 0.0658 | 0.0269 | 0.2036 | 0.169 |
| MIMAROPA | Occ. Mindoro | 0.25 | 0.2272 | 0.0652 | 0.1808 | 0.167 |
| CAR | Benguet | 0.527 | 0.0392 | 0.0327 | 0.1997 | 0.165 |
| CAR | Apayao | 0.333 | 0.1821 | 0.0363 | 0.1838 | 0.163 |
| Region XI | Compostela | 0.5 | 0.0466 | 0.036 | 0.1942 | 0.162 |
| Region X | Camiguin | 0.5 | 0 | 0.0619 | 0.1873 | 0.157 |
| Region III | Bataan | 0.4 | 0.1053 | 0.0278 | 0.1777 | 0.152 |
| CAR | Ifugao | 0.308 | 0.1051 | 0.0414 | 0.1515 | 0.133 |
| Region VI | Guimaras | 0.4 | 0 | 0.0397 | 0.1466 | 0.122 |
| Region IX | Isabela City* | 0.8 | 0.5 | - | - | - |
| Region II | Batanes* | - | - | 0.0785 | - | - |

Source: The Development of a Hunger Index for the Philippines: Methodology and Results, LGBersales,2007