THE CONCEPT OF THE GLOBAL HUNGER INDEX

The Global Hunger Index (GHI) is a tool designed to comprehensively measure and track hunger at global, regional, and national levels.¹ GHI scores are calculated each year to assess progress and setbacks in combating hunger. The GHI is designed to raise awareness and understanding of the struggle against hunger, provide a way to compare levels of hunger between countries and regions, and call attention to those areas of the world where hunger levels are highest and where the need for additional efforts to eliminate hunger is greatest.

Measuring hunger is complicated. To use the GHI information most effectively, it helps to understand how the GHI scores are calculated and what they can and cannot tell us.

Assembling the GHI

How are GHI scores calculated?

GHI scores are calculated using a three-step process that draws on available data from various sources to capture the multidimensional nature of hunger (Figure A.1).

First, for each country, values are determined for four indicators:

1. **Undernourishment**: the share of the population that is undernourished (that is, whose caloric intake is insufficient)
2. **Child Wasting**: the share of children under the age of five who are wasted (that is, who have low weight for their height, reflecting acute undernutrition)
3. **Child Stunting**: the share of children under the age of five who are stunted (that is, who have low height for their age, reflecting chronic undernutrition)
4. **Child Mortality**: the mortality rate of children under the age of five (in part, a reflection of the fatal mix of inadequate nutrition and unhealthy environments)²

Second, each of the four component indicators is given a standardized score on a 100-point scale based on the highest observed level for the indicator on a global scale in recent decades.

Third, standardized scores are aggregated to calculate the GHI score for each country, with each of the three dimensions (inadequate food supply; child mortality; and child undernutrition, which is composed equally of child stunting and child wasting) given equal weight (the formula for calculating GHI scores is provided in Appendix B).

Box A.1 WHAT IS MEANT BY “HUNGER”?  

The problem of hunger is complex, and different terms are used to describe its various forms.  

**Hunger** is usually understood to refer to the distress associated with a lack of sufficient calories. The Food and Agriculture Organization of the United Nations (FAO) defines food deprivation, or undernourishment, as the habitual consumption of too few calories to provide the minimum dietary energy an individual requires to live a healthy and productive life, given that person’s sex, age, stature, and physical activity level.³  

**Undernutrition** goes beyond calories and signifies deficiencies in any or all of the following: energy, protein, and/or essential vitamins and minerals. Undernutrition is the result of inadequate intake of food in terms of either quantity or quality, poor utilization of nutrients due to infections or other illnesses, or a combination of these immediate causes. These, in turn, result from a range of underlying factors, including household food insecurity; inadequate maternal health or childcare practices; or inadequate access to health services, safe water, and sanitation.

**Malnutrition** refers more broadly to both undernutrition (problems caused by deficiencies) and overnutrition (problems caused by unbalanced diets that involve consuming too many calories in relation to requirements, with or without low intake of micronutrient-rich foods). Overnutrition, resulting in overweight, obesity, and noncommunicable diseases, is increasingly common throughout the world, with implications for human health, government expenditures, and food systems development. While overnutrition is an important concern, the GHI focuses specifically on issues relating to undernutrition.

In this report, “hunger” refers to the index based on the four component indicators. Taken together, the component indicators reflect deficiencies in calories as well as in micronutrients.

¹ For further background on the GHI concept, see Wiesmann (2006) and Wiesmann et al. (2015).
² According to Black et al. (2013), undernutrition is responsible for 45 percent of deaths among children under the age of five.
³ The average minimum dietary energy requirement varies by country—from about 1,650 to more than 2,000 kilocalories (commonly, albeit incorrectly, referred to as calories) per person per day for all countries with available data in 2019 (FAO 2020g).
Understanding the GHI

Why is a certain country’s GHI score so high (or so low)?

The key to understanding a country’s GHI score lies in that country’s indicator values, especially when compared with the indicator values for other countries in the report (see Appendix D for these values). For some countries, high scores are driven by high rates of undernourishment, reflecting a lack of calories for large swathes of the population. For others, high scores result from high levels of child wasting, reflecting acute undernutrition; child stunting, reflecting chronic undernutrition; and/or child mortality, reflecting children’s hunger and nutrition levels, in addition to other extreme challenges facing the population. Broadly speaking, then, a high GHI score can be evidence of a lack of food, a poor-quality diet, inadequate child caregiving practices, an unhealthy environment, or all of these factors.

While it is beyond the scope of this report to provide a detailed explanation of the circumstances facing each country with a GHI score, Chapters 1 and 3 describe the situation in select countries. Furthermore, this report offers other avenues for examining a country’s hunger and nutrition situation: country rankings based on 2020 GHI scores appear in Table 1.1; GHI scores for selected years for each country appear in Appendix E; and regional comparisons appear in Appendix F.

Does the 2020 GHI reflect the situation in 2020?

The GHI uses the most up-to-date data available for each of the GHI indicators, meaning the scores are only as current as the data. For the calculation of the 2020 GHI scores, undernourishment data are from 2017–2019; child stunting and child wasting data are from 2015–2019, with the most current data from that range used for each country; and child mortality data are from 2018. In 2020, owing to the COVID-19 pandemic, the values of some of the GHI component indicators, and in turn the GHI scores, are likely to worsen, but any changes that occur in 2020 are not yet reflected in the data and scores in this year’s report.

How can I compare GHI results over time?
Each report includes GHI scores and indicator data for three reference years in addition to the focus year. In this report, the 2020 GHI scores can be directly compared with the GHI scores given for three reference years—2000, 2006, and 2012 (Appendix E). The reference years are selected to provide an assessment of progress over time while also ensuring there is no overlap in the range of years from which the data are drawn.

Can I compare the GHI scores and indicator values in this report with results from previous reports?
No—GHI scores are comparable within each year’s report, but not between different years’ reports. The current and historical data on which the GHI scores are based are continually being revised and improved by the United Nations agencies that compile them, and each year’s GHI report reflects these changes. Comparing scores between reports may create the impression that hunger has changed positively or negatively in a specific country from year to year, whereas in some cases the change may partly or fully reflect a data revision.

Moreover, the methodology for calculating GHI scores has been revised in the past and may be revised again in the future. In 2015, for example, the GHI methodology was changed to include data on child stunting and wasting and to standardize the values (see Wiesmann et al. 2015). This change caused a major shift in the GHI scores, and the GHI Severity Scale was modified to reflect this shift. Since 2015, almost all countries have had much higher GHI scores compared with their scores from 2014 and earlier. This does not necessarily mean their hunger levels rose in 2015—the higher scores merely reflect the revision of the methodology.

Can I compare the GHI rankings in this report to those in previous reports to understand how the situation in a country has changed over time relative to other countries?
No—like the GHI scores and indicator values, the rankings from one year’s report cannot be compared to those from another. In addition to the data and methodology revisions described above, different countries are included in the ranking every year. This is due in part to data availability—the set of countries for which sufficient data are available to calculate GHI scores varies from year to year. If a country’s ranking changes from one year to the next, this may be, in part, because it is being compared with a different group of countries.

Furthermore, the ranking system was changed in 2016 to include all of the countries in the report rather than only those with a GHI score of 5 or above. This added many countries with low scores to the ranking that had not been previously included.

Why do some countries not have a GHI score?
Because data for all four indicators in the GHI formula are not available for every country, GHI scores could not be calculated for some.

However, where possible, countries with incomplete data are provisionally categorized according to the GHI Severity Scale based on existing data and complementary reports (see Box 1.3 in Chapter 1). Several of these countries are experiencing unrest or violent conflict, which affects the availability of data as well as the food and nutrition situation in the country. It is quite possible that one or more of these countries would have a higher GHI score than Chad—the country with the highest 2020 GHI score—if sufficient data were available.

Likewise, GHI scores are not calculated for some high-income countries where the prevalence of hunger is very low. Even though food insecurity is a serious concern for segments of the population in certain high-income countries, nationally representative data for child stunting and child wasting are not regularly collected in most high-income countries. In addition, although data on child mortality are usually available for these countries, child mortality does not reflect undernutrition in high-income countries to the same extent it does in low- and middle-income countries.

Finally, GHI scores are not calculated for certain countries with small populations (such as Belize) or for non-independent entities or territories (such as Western Sahara).

How are provisional severity designations for countries with incomplete data determined?
For each country with up-to-date child stunting, child wasting, and child mortality values, these data were used to determine the range in which the country’s undernourishment value would need to fall for each GHI severity category. The country’s last known prevalence of undernourishment and the prevalence of undernourishment of the subregion in which it is located were used to determine the most plausible range of undernourishment values for the 2017–2019 period and therefore to determine its provisional severity designation. Each country’s last known GHI severity classification was also used as a point of reference in the evaluation. In ambiguous cases, the authors designated the country’s hunger level in the lower category.

In some cases it was not possible to even determine a provisional severity designation, such as if the country had never previously had a prevalence of undernourishment value, GHI score, or GHI designation since the first GHI report was published in 2006. Also, in one case, Libya, it was determined that the situation in country had changed to such an extent since its last inclusion in a GHI report in 2014 that it did not provide a sufficient benchmark for classification. In the case of three countries—Somalia, South Sudan, and the Syrian Arab Republic—data were unavailable for three out of four GHI indicators. However, a review of the relevant information in the 2018, 2019, and 2020 issues of the Global Report on Food Crises and consultations with experts on food and nutrition insecurity in these countries made clear that designations of alarming were justified.