APPENDIXES

FORMULA FOR CALCULATION OF GLOBAL HUNGER INDEX SCORES

GHI scores are calculated using a three-step process:

First, values for the four component indicators are determined from the available data for each country. The indicators are

→ the percentage of the population that is undernourished,

→ the percentage of children under five years old who suffer from wasting (low weight for height),

→ the percentage of children under five years old who suffer from stunting (low height for age), and

→ the percentage of children who die before the age of five (child mortality).

STEP 1 Determine values for each of the component indicators:

PUN: proportion of the population that is undernourished (in %)

CWA: prevalence of wasting in children under five years old (in %)

CST: prevalence of stunting in children under five years old (in %)

CM: proportion of children dying before the age of five (in %)

Second, each of the four component indicators is given a standardized score based on thresholds set slightly above the highest country-level values observed worldwide for that indicator between 1988 and 2013.[1] For example, the highest value for undernourishment estimated in this period is 76.5 percent, so the threshold for standardization was set a bit higher, at 80 percent.[2] In a given year, if a country has an undernourishment prevalence of 40 percent, its *standardized* undernourishment score for that year is 50. In other words, that country is approximately halfway between having no undernourishment and reaching the maximum observed levels.

STEP 2 Standardize component indicators:

$$\text{Standardized PUN} = \frac{PUN}{80} \times 100$$

$$\text{Standardized CWA} = \frac{CWA}{30} \times 100$$

$$\text{Standardized CST} = \frac{CST}{70} \times 100$$

$$\text{Standardized CM} = \frac{CM}{35} \times 100$$

Third, the standardized scores are aggregated to calculate the GHI score for each country. Undernourishment and child mortality each contribute one-third of the GHI score, while the child undernutrition indicators—child wasting and child stunting—each contribute one-sixth of the score.

STEP 3 Aggregate component indicators:

$$\frac{1}{3} \times \text{Standardized PUN}$$
$$+ \quad \frac{1}{6} \times \text{Standardized CWA}$$
$$+ \quad \frac{1}{6} \times \text{Standardized CST}$$
$$+ \quad \frac{1}{3} \times \text{Standardized CM}$$
$$= \quad \text{GHI score}$$

This calculation results in GHI scores on a 100-point scale, where 0 is the best score (no hunger) and 100 is the worst. In practice, neither of these extremes is reached. A value of 100 would signify that a country's undernourishment, child wasting, child stunting, and child mortality levels each exactly meets the thresholds set slightly above the highest levels observed worldwide in recent decades. A value of 0 would mean that a country had no undernourished people in the population, no children younger than five who were wasted or stunted, and no children who died before their fifth birthday.

[1] The thresholds for standardization are set slightly above the highest observed values to allow for the possibility that these values could be exceeded in the future.

[2] The threshold for undernourishment is 80, based on the observed maximum of 76.5 percent; the threshold for child wasting is 30, based on the observed maximum of 26.0 percent; the threshold for child stunting is 70, based on the observed maximum of 68.2 percent; and the threshold for child mortality is 35, based on the observed maximum of 32.6 percent.