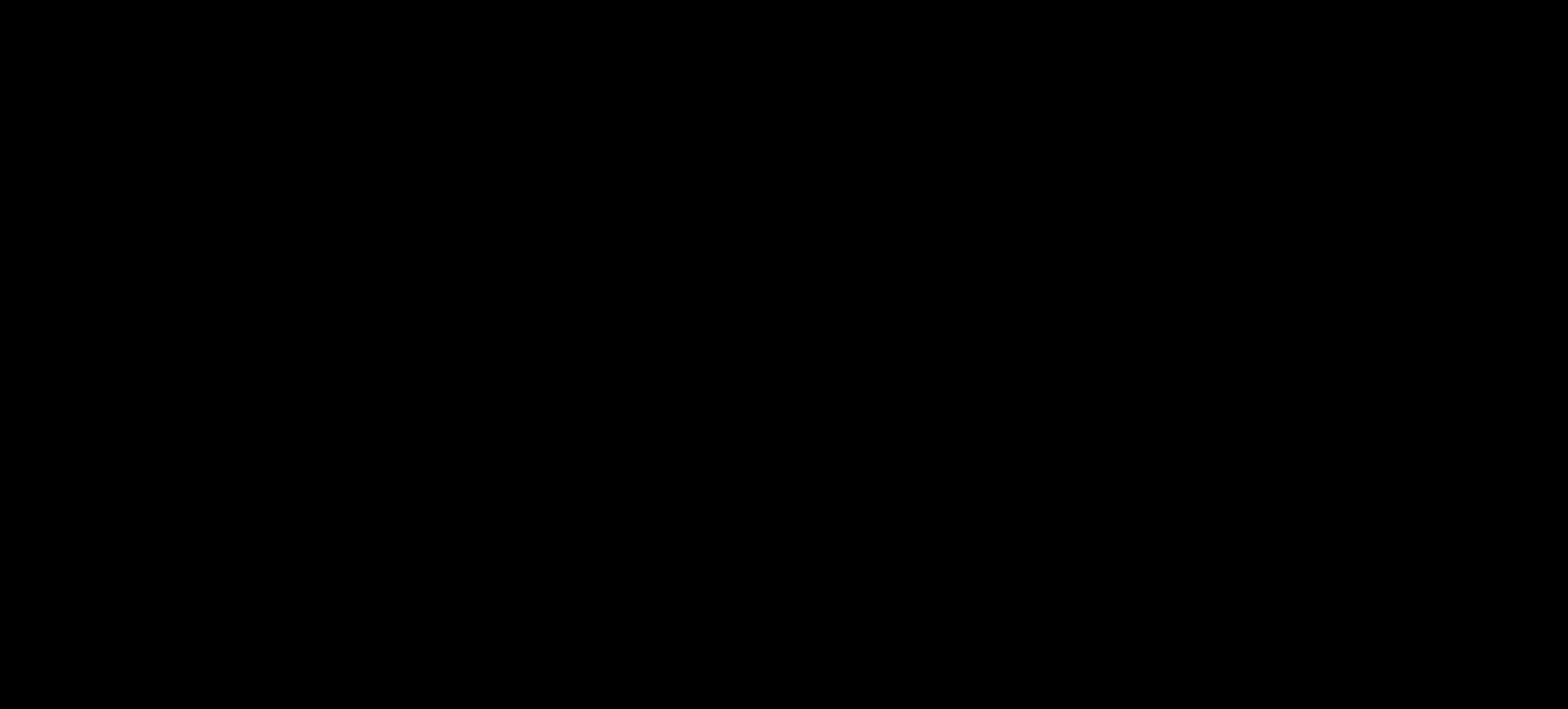# 2020

GLOBAL HUNGER INDEX

ONE DECADE TO ZERO HUNGER
LINKING HEALTH AND SUSTAINABLE FOOD SYSTEMS

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hunger
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CONCERN
worldwide

ENDING
EXTREME POVERTY
WHATEVER
IT TAKES

2020

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ONE DECADE TO ZERO HUNGER
LINKING HEALTH AND SUSTAINABLE FOOD SYSTEMS

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CHATHAM HOUSE

A Peer-Reviewed Publication

welt hunger hilfe

CONCERN worldwide

ENDING EXTREME POVERTY WHATEVER IT TAKES

A woman and child wait as a local NGO in Delhi, India, distributes food to migrant workers. Because of COVID-19 and the associated curfews, thousands of migrant workers have lost their livelihoods and depend on food from NGOs. In India, as in many other countries, the pandemic is aggravating an already serious hunger situation.

FOREWORD

There is an immense mountain that needs to be climbed in order to achieve Zero Hunger by 2030, and that mountain has grown far steeper in 2020. Even before the impact of COVID-19, global progress on reducing hunger was far too slow to reach this goal. The 2020 GHI shows that based on their recent trajectories, 37 countries appear unlikely to achieve even *low* hunger status by 2030. In multiple countries, hunger is now at even higher rates than it was in 2012, driven by conflict, poverty, inequality, poor health, and climate change. At the end of last year nearly 690 million people were suffering from chronic hunger, and 135 million people were experiencing crisis levels, or worse, of acute food insecurity.

Then came the disastrous year of 2020—a global pandemic, a devastating outbreak of locusts, and an economic downturn affecting every corner of the world. The phenomenal impact of these multiple crises is rapidly escalating food and nutrition insecurity for millions of people, but especially for those who are already most vulnerable. According to initial predictions, the pandemic and its economic fallout could double the number of people facing acute food crises. If we do not take significant action now, these acute crises might set the stage for increasing levels of chronic hunger and related health problems in the long run. While the 2020 GHI does not yet reflect the impacts of COVID-19, it shows that the situation is already worrying in many contexts and is likely to worsen in the years to come.

Taken as a whole, the world has a *moderate* level of hunger, but in 31 countries hunger is still *serious*, and an additional 9 countries are provisionally categorized as *serious*. In 3 countries hunger is *alarming*, and 8 more countries are provisionally categorized as *alarming*. Not only do these categories reflect human suffering and diminished life chances on an immense scale, but they also show the highly vulnerable settings within which the extreme crises of 2020 are playing out. To complicate our understanding of hunger and the accuracy of our response, timely data on exactly where hunger exists and who is affected are becoming increasingly scarce. Without sound data, it is impossible to tackle hunger and undernutrition head on, so this shortcoming must be urgently addressed.

This year's report takes a closer look at hunger and undernutrition in the Democratic Republic of the Congo (DRC) and Nepal. DRC faces a tremendously challenging situation of widespread extreme poverty, ongoing armed conflict and political instability, and multiple health emergencies. In DRC, hunger levels are provisionally classified as *alarming*. By all accounts the situation is dire, with over 15 million people suffering from severe food insecurity. Given the size of DRC—84 million people—achieving real progress against hunger there would have a tremendous effect on hunger in the region and the world. In Nepal, where hunger levels are classified as *moderate*, significant progress in combating hunger has been made by directing health interventions toward children and reducing poverty. However, inequities still hold back women and other marginalized groups, and more remains to be done. Both Concern Worldwide and Welthungerhilfe are working in DRC to assist people in humanitarian crises and support their longer-term development efforts, and Welthungerhilfe is working with civil society in Nepal to strengthen the right to adequate food and nutrition for all groups and within all regions in the country.

COVID-19 has made it clearer than ever that our food systems, as they stand, are inadequate to the task of achieving Zero Hunger. The unprecedented disruptive force of the pandemic has once again laid bare the fragility and inequities of our current globalized food systems, the threat to global health and food security posed by increasing human impacts on the environment and wildlife, and the need to address these challenges in a holistic, ambitious way. The focus of this year's special essay by Robyn Alders, Osman Dar, Richard Kock, and Francesco Rampa is on how to make our food systems more resilient to shocks, protect the most vulnerable, and transform the post–COVID-19 world of food and nutrition. They suggest reshaping food systems to align them with comprehensive health and social protection approaches in a way that will eliminate hunger sustainably.
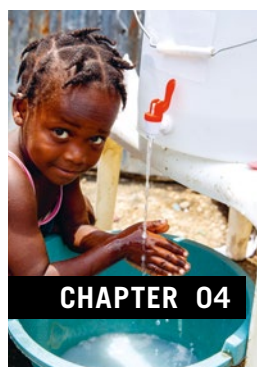
In support of their shared mission to eradicate hunger, Welthungerhilfe and Concern Worldwide produce the GHI every year to track hunger levels around the world, understand progress, and spotlight areas for action. Now, with only 10 years remaining until 2030—when the promise of Zero Hunger is due to be fulfilled—it is more urgent than ever to double down on our commitment and actions to realize the right to adequate and nutritious food for all. The current crises must serve as a turning point not only to transform our food systems but to end the daily scourge of hunger, the greatest moral and ethical failure of our generation.

Mathias Mogge
Secretary General
Welthungerhilfe

Dominic MacSorley
Chief Executive Officer
Concern Worldwide

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SUMMARY

The 2020 Global Hunger Index (GHI) shows that although hunger worldwide has gradually declined since 2000, in many places progress is too slow and hunger remains severe. These areas are highly vulnerable to a worsening of food and nutrition insecurity exacerbated by the health, economic, and environmental crises of 2020.

Progress Is Too Slow, or Even Being Reversed, in Many Countries

Alarming levels of hunger have been identified in 3 countries—Chad, Timor-Leste, and Madagascar—based on GHI scores. Based on other known data, *alarming* hunger has also been provisionally identified in another 8 countries—Burundi, Central African Republic, Comoros, Democratic Republic of the Congo, Somalia, South Sudan, Syria, and Yemen. Hunger is at *serious* levels in 31 countries and provisionally categorized as *serious* in another 9 countries. In many countries the situation is progressing too slowly or even worsening. The latest projections show that 37 countries will fail to achieve even *low* hunger by 2030. For 46 countries in the *moderate, serious*, or *alarming* categories, GHI scores have improved since 2012, but for 14 countries in those categories, GHI scores show that hunger and undernutrition have worsened. Even in some countries without hunger crises at the national level, marginalized groups and selected regions face tragically high levels of hunger and undernutrition. For some countries, data for calculating GHI scores are not available. It is crucial to strengthen data collection to gain a clearer picture of food and nutrition security in every country so that actions designed to eliminate hunger can be adapted to conditions on the ground.

Hunger Is *Moderate* on a Global Scale but Varies Widely by Region

Hunger worldwide, represented by a GHI score of 18.2, is at a *moderate* level, down from a 2000 GHI score of 28.2, classified as *serious.* In both Africa South of the Sahara and South Asia, hunger is classified as *serious*, owing partly to large shares of people who are undernourished and high rates of child stunting. Moreover, Africa South of the Sahara has the world's highest rate of child mortality, while South Asia has the world's highest rate of child wasting. In contrast, hunger levels in Europe and Central Asia, Latin America and the Caribbean, East and Southeast Asia, and West Asia and North Africa are characterized as *low* or *moderate,* although hunger is high among certain groups within these regions.

Many Countries Are at Risk from the Current Crises

The COVID-19 pandemic and the resulting economic downturn, as well as a massive outbreak of desert locusts in the Horn of Africa, are exacerbating food and nutrition insecurity for millions of people, as these crises come on top of existing hunger caused by conflict and climate extremes. The GHI scores presented in this report do not yet reflect the impact of the overlapping disasters of 2020, but they point to areas where hunger and undernutrition are already severe, putting their populations at greater risk of acute food crises and chronic hunger in the future.

Policies on Food and Health Are Dangerously Fragmented

A One Health lens reveals how our current challenges are interconnected and makes it clear that human, animal, and environmental health and fair trade relations must be considered holistically. It brings into focus the ecosystem impact of our food system, the fragility of global and local food supply chains, the way emergency responses can undermine local food systems, the inadequacy of many social protection systems, the injustice underlying some global trade and aid relationships, and the impacts of these conditions on the health of people and the planet.

Achieving Zero Hunger Means Reshaping Food Systems

An integrated approach to health and food and nutrition security is needed to ensure the right to adequate and nutritious food for all and to end hunger. Some actions must be taken immediately, such as treating the production and supply of food as essential services and involving community organizations to extend the reach of social protection programs. Others must be tackled over the coming decade and beyond, such as eliminating inequitable trade and investment arrangements that hold back low- and middle-income countries and working toward a circular food economy that recycles resources and materials, regenerates natural systems, and eliminates waste and pollution. At this crucial moment, we must act to reshape our food systems as fair, healthy, and environmentally friendly in order to address the current crises, prevent other health and food crises from occurring, and chart a path to Zero Hunger by 2030.

01

A member of a women's saving group distributes a loan to a fellow group member in Kalimati Kalche, Nepal. Women make up a growing share of agricultural labor in Nepal. Improving their access to credit and power over decision making is essential for female empowerment and fostering the country's agricultural sector.

GLOBAL, REGIONAL, AND NATIONAL TRENDS

Key Messages

→ Far too many individuals are suffering from hunger and under-nutrition: nearly 690 million people are undernourished; 144 million children suffer from stunting, a sign of chronic under-nutrition; 47 million children suffer from wasting, a sign of acute undernutrition; and in 2018, 5.3 million children died before their fifth birthdays, in many cases as a result of undernutrition.

→ Worldwide hunger is at a *moderate* level, according to the 2020 Global Hunger Index. Underlying this average are major challenges in particular regions, countries, and communities.

→ Africa South of the Sahara and South Asia have the highest hunger and undernutrition levels among world regions, with 2020 GHI scores of 27.8 and 26.0, respectively—both considered *serious*.

→ According to 2020 GHI scores, 3 countries have *alarming* levels of hunger—Chad, Timor-Leste, and Madagascar. Hunger is also considered to be *alarming* in 8 countries—Burundi, Central African Republic, Comoros, Democratic Republic of the Congo, Somalia, South Sudan, Syria, and Yemen—based on provisional categorizations (see Box 1.3).

→ The world is not on track to achieve the second Sustainable Development Goal—known as Zero Hunger for short—by 2030. At the current pace, approximately 37 countries will fail even to reach *low* hunger, as defined by the GHI Severity Scale, by 2030.

→ Additional countries for which data were insufficient to calculate 2030 projections may also fall short of this goal. Furthermore, these projections do not account for the impacts of the COVID-19 pandemic, which may worsen hunger and undernutrition in the near term and affect countries' trajectories into the future.

→ Within their borders, countries show wide disparities in a range of different indicators of hunger and along several lines such as wealth, location, ethnicity, and sex.

The World

Worldwide hunger and undernutrition, when calculated as a global average, can be classified as *moderate* (Figure 1.1).[1] Yet this average obscures the serious and persistent challenges facing many countries and regions, as well as the very real potential for the situation to worsen in the future. Three countries have *alarming* levels of hunger and 31 countries have *serious* levels of hunger based on the 2020
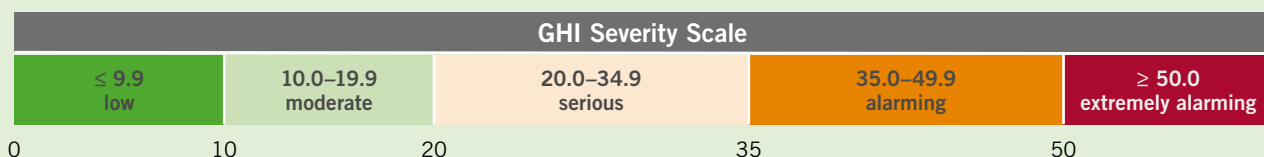
[1] The worldwide estimates in this paragraph include the 107 countries in this report with 2020 GHI scores plus 25 countries for which some but not all of the GHI indicator data or estimates were available.

BOX 1.1 ABOUT THE GLOBAL HUNGER INDEX SCORES

The Global Hunger Index (GHI) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. GHI scores are based on the values of four component indicators: undernourishment (share of the population with insufficient caloric intake), child wasting (share of children under age five who have low weight for their height, reflecting acute undernutrition), child stunting (share of children under age five who have low height for their age, reflecting chronic undernutrition), and child mortality (mortality rate of children under age five, partly reflecting the fatal mix of inadequate nutrition and unhealthy environments).

Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where 0 is the best possible score (no hunger) and 100 is the worst. Each country's GHI score is classified by severity, from *low* to *extremely alarming*.

GHI Severity Scale				
≤ 9.9 low	10.0–19.9 moderate	20.0–34.9 serious	35.0–49.9 alarming	≥ 50.0 extremely alarming

0   10   20   35   50

Note: GHI scores are comparable only within each year's report, not between different years' reports. To track a country or region's GHI performance over time, its 2020 GHI score can be compared with its GHI scores for 2000, 2006, and 2012, as shown in this report. For a detailed explanation of the concept of the GHI, the calculation of the scores, and the interpretation of results, see Appendixes A and B.

FIGURE 1.1 **GLOBAL AND REGIONAL 2000, 2006, 2012, AND 2020 GLOBAL HUNGER INDEX SCORES, WITH CONTRIBUTION OF COMPONENTS**
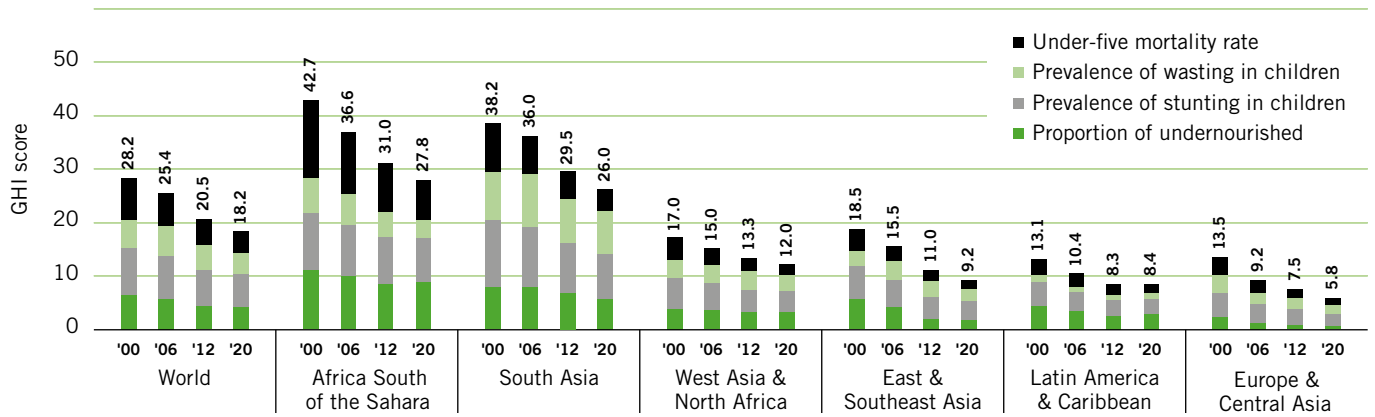
Source: Authors.

Note: See Appendix C for data sources. The regional and global GHI scores are calculated using regional and global aggregates for each indicator and the formula described in Appendix B. The regional and global aggregates for each indicator are calculated as population-weighted averages, using the indicator values reported in Appendix D. For countries lacking undernourishment data, provisional estimates provided by the Food and Agriculture Organization of the United Nations (FAO) were used in the calculation of aggregates only, but are not reported in Appendix D. Appendix F shows which countries are included in each region.

GHI scores (Table 1.1). An additional 8 countries are considered to fall into the *alarming* category and an additional 9 countries are considered to fall into the *serious* category based on provisional categorizations (Box 1.3). Moreover, country-level results tell only part of the story. Marginalized groups face tragically high levels of undernutrition even in many countries without crises at the national level (Figure 1.3). Data on the indicators underlying the calculation of GHI scores—the share of people who are undernourished, child wasting rate, child stunting rate, and child mortality rate—show that far too many people suffer from one or more elements of hunger.

The COVID-19 pandemic has undermined food and nutrition security for many, and its effects will likely ripple into the future. It is critical to understand that the GHI scores presented in this report do not yet reflect the impact of COVID-19 on hunger and undernutrition (see Box 1.2). Nonetheless, the GHI scores and indicator data point to the parts of the world that are already suffering from hunger and undernutrition, putting them in a precarious and vulnerable position to face the current crisis. It is clear that the measures taken throughout the world to contain the spread of COVID-19 have already increased food insecurity by limiting access to fields and markets in some areas, creating localized spikes in food prices, and reducing income-earning opportunities, thereby limiting the ability of vulnerable populations to purchase food (FAO 2020c). The pandemic is also affecting nutrition—for example, schools have been shuttered at various points in 2020, preventing access to nutritious meals for children in many cases. Furthermore, given the established connections between gross domestic product (GDP) growth and food security—and,

conversely, GDP contraction and food insecurity—the global economic recession resulting from the COVID-19 pandemic could leave up to 80 million additional people undernourished in net food-importing countries alone (FAO 2020b). For each percentage point drop in global GDP, 700,000 additional children are expected to suffer from stunting, a symptom of chronic undernutrition (UN 2020d; Haddad 2020). The economic contraction associated with the pandemic could increase the number of children who experience wasting, indicating acute undernutrition, in low- and middle-income countries by 6.7 million. Nearly 130,000 additional child deaths associated with this spike in child wasting and pandemic-induced reductions in nutrition and health services could also occur (Headey et al. 2020).

The world is not on track to achieve the second Sustainable Development Goal—known as Zero Hunger for short—by 2030 (FAO et al. 2020). At the current pace, approximately 37 countries will fail even to reach *low* hunger as defined by the GHI Severity Scale by 2030.[2] This buttresses recent projections that the world's prevalence of undernourishment will be 9.8 percent in 2030, leaving over 840 million people undernourished even before taking into account the COVID-19 pandemic (FAO et al. 2020). The pandemic may cause further setbacks, hampering some countries' ability to make progress toward meeting the Sustainable Development Goals, particularly in the short term (UN 2020a).

[2] The 2030 projections are linear projections based on the existing 2000, 2006, 2012, and 2020 GHI scores for each country, and only countries with sufficient data for the calculation of these scores were included in the analysis. These projections are not comparable to projections from previous reports owing to changes in data availability and revisions of existing data.

TABLE 1.1 GLOBAL HUNGER INDEX SCORES BY 2020 GHI RANK

Rank[a]	Country	2000	2006	2012	2020	Rank[a]	Country	2000	2006	2012	2020
	Belarus	<5	<5	<5	<5	67	Gambia	29.2	28.0	22.7	17.8
	Bosnia & Herzegovina	9.3	6.7	<5	<5	68	Gabon	21.1	20.4	18.8	18.2
	Brazil	11.3	6.3	<5	<5	69	Philippines	25.0	20.4	20.4	19.0
	Chile	<5	<5	<5	<5	70	Cameroon	36.4	31.0	23.2	19.1
	China	13.6	9.5	<5	<5	70	Indonesia	26.1	29.5	23.1	19.1
	Costa Rica	6.1	<5	<5	<5	70	Namibia	25.3	24.7	23.9	19.1
	Croatia	<5	<5	<5	<5	73	Nepal	37.4	31.0	22.8	19.5
	Cuba	<5	<5	<5	<5	74	Eswatini	26.1	24.1	17.8	20.3
	Estonia	5.9	<5	<5	<5	75	Bangladesh	34.1	29.0	27.8	20.4
	Kuwait	<5	<5	<5	<5	76	Cambodia	41.2	27.2	24.9	20.6
	Latvia	7.0	<5	<5	<5	77	Guatemala	28.5	24.6	22.2	20.7
	Lithuania	6.1	<5	<5	<5	78	Myanmar	39.8	31.8	23.3	20.9
	Montenegro	—	5.5	<5	<5	79	Benin	34.1	28.7	24.2	22.4
	Romania	8.0	5.5	<5	<5	80	Botswana	28.2	27.3	22.4	22.6
	Turkey	10.1	6.3	<5	<5	80	Malawi	43.2	33.8	27.1	22.6
	Ukraine	13.0	<5	<5	<5	82	Mali	41.9	37.0	31.3	22.9
	Uruguay	7.5	6.8	5.0	<5	83	Venezuela (Bolivarian Republic of)	14.7	11.2	7.6	23.5
18	North Macedonia	7.5	7.7	6.7	5.2	84	Kenya	37.4	31.4	23.2	23.7
18	Russian Federation	10.0	6.8	6.0	5.2	85	Mauritania	32.0	29.0	23.7	24.0
20	Argentina	6.3	5.6	5.2	5.3	86	Togo	39.3	36.7	26.6	24.1
21	Kazakhstan	11.4	12.3	8.1	5.4	87	Côte d'Ivoire	33.6	34.7	30.1	24.5
22	Bulgaria	8.2	7.3	7.8	5.5	88	Pakistan	37.2	33.5	32.8	24.6
23	Tunisia	10.3	7.8	7.0	5.7	89	Tanzania (United Republic of)	40.8	33.6	30.0	25.0
24	Albania	20.7	15.8	8.5	5.9	90	Burkina Faso	45.7	46.3	31.1	25.8
25	Azerbaijan	25.0	16.0	10.6	6.0	91	Congo (Republic of)	33.8	34.7	27.8	26.0
26	Georgia	12.3	8.9	<5	6.1	92	Ethiopia	53.7	43.6	35.5	26.2
27	Slovakia	6.5	5.9	<5	6.4	93	Angola	64.9	47.0	35.9	26.8
28	Serbia	—	6.1	5.3	6.6	94	India	38.9	37.5	29.3	27.2
28	Trinidad & Tobago	11.1	11.4	10.8	6.6	94	Sudan	—	—	32.5	27.2
30	Uzbekistan	24.4	16.9	12.7	6.7	96	Korea (DPR)	39.5	33.1	28.2	27.5
31	Armenia	19.4	13.4	10.4	6.9	97	Rwanda	49.7	38.1	26.0	28.3
32	Dominican Republic	15.2	13.9	10.3	7.1	98	Nigeria	40.6	34.1	32.0	29.2
33	Panama	18.5	15.0	9.8	7.2	99	Afghanistan	51.0	42.8	33.8	30.3
34	Peru	20.8	16.5	8.9	7.3	100	Lesotho	36.0	30.4	24.6	30.7
35	Colombia	10.9	11.5	9.1	7.5	101	Sierra Leone	58.3	53.3	42.4	30.9
35	Paraguay	12.1	11.6	9.6	7.5	102	Liberia	48.0	40.0	33.1	31.4
35	Saudi Arabia	11.1	12.2	8.2	7.5	103	Mozambique	48.1	38.4	31.4	33.1
38	Mexico	10.1	8.4	7.4	7.7	104	Haiti	41.9	43.6	35.9	33.5
39	Iran (Islamic Republic of)	13.5	8.9	7.6	7.9	*	Djibouti, Guinea, Guinea-Bissau, Lao PDR, Niger, Tajikistan, Uganda, Zambia, and Zimbabwe*	—	—	—	20–34.9*
40	Fiji	9.6	9.1	8.1	8.0						
41	Jamaica	8.6	9.0	9.2	8.1	105	Madagascar	42.7	41.4	34.6	36.0
42	Kyrgyzstan	18.4	13.9	11.7	8.4	106	Timor-Leste	—	46.1	36.2	37.6
43	Jordan	10.8	8.1	8.6	8.8	107	Chad	50.9	51.3	47.9	44.7
44	Lebanon	11.6	13.3	12.4	8.9	*	Burundi, Central African Republic, Comoros, Dem. Rep. of the Congo, Somalia, South Sudan, Syrian Arab Republic, and Yemen*	—	—	—	35–49.9*
44	Morocco	15.5	17.5	9.6	8.9						
46	Algeria	14.5	11.7	9.0	9.0						
47	Mauritius	15.0	13.6	12.3	9.3						
*	Moldova (Rep. of)*	—	—	—	0–9.9*						
48	Suriname	15.5	11.7	10.5	10.2						
48	Thailand	17.8	12.3	12.7	10.2						
50	El Salvador	14.7	12.1	10.4	10.5						
51	Ecuador	19.7	19.0	16.3	11.0						
52	Guyana	17.3	15.8	12.2	11.1						
52	Turkmenistan	21.2	16.6	13.6	11.1						
54	Egypt	16.4	14.4	15.3	11.9						
55	Oman	14.8	16.0	11.6	12.2						
56	Honduras	21.9	19.7	16.9	13.1						
56	Mongolia	30.1	23.1	12.7	13.1						
58	Nicaragua	22.3	17.1	14.6	13.2						
59	Malaysia	15.5	13.3	11.8	13.3						
60	South Africa	18.4	19.4	15.3	13.5						
61	Viet Nam	26.3	21.9	16.5	13.6						
62	Bolivia (Plurinational State of)	27.6	23.2	16.8	14.0						
63	Ghana	28.5	22.2	17.9	15.2						
64	Sri Lanka	21.9	19.5	20.1	16.3						
65	Iraq	24.0	24.0	21.1	17.1						
65	Senegal	34.3	24.4	18.0	17.1						

Note for left-column rows without rank: *2020 GHI scores less than 5, collectively ranked 1–17.[b]*

— = Data are not available or not presented. Some countries did not exist in their present borders in the given year or reference period.

Note: As always, rankings and index scores from this table cannot be accurately compared with rankings and index scores from previous reports (see Appendix A).

For the 2020 GHI report, data were assessed for 132 countries. Out of these, there were sufficient data to calculate 2020 GHI scores for and rank 107 countries (by way of comparison, data availability allowed for the ranking of 117 countries in the 2019 report).

* For 25 countries, individual scores could not be calculated and ranks could not be determinded owing to lack of data. Where possible, these countries were provisionally designated by severity: 1 country is designated as *low*, 9 as *serious*, and 8 as *alarming*. For 7 countries, no provisional designations could be established (see Box 1.3).

[a] Ranked according to 2020 GHI scores. Countries that have identical 2020 scores are given the same ranking (for example, North Macedonia and the Russian Federation are both ranked 18th).

[b] The 17 countries with 2020 GHI scores of less than 5 are not assigned individual ranks, but rather are collectively ranked 1–17. Differences between their scores are minimal.

□ = low, □ = moderate, □ = serious, □ = alarming, □ = extremely alarming.

AN ARRAY OF TOOLS FOR MEASURING HUNGER

The COVID-19 pandemic, the ensuing economic pain, and the plagues of locusts devastating crops in East Africa bring into sharp focus the rapidly changing landscape of food insecurity facing the world. It is critical to understand these dynamics in real time and to have data that shed light on the resulting humanitarian needs. It is also critical to understand longer-term trends in hunger and to evaluate its enduring impacts

Real-time assessments and short-term projections of acute hunger are available from multiple sources. Notable examples include the Famine Early Warning Systems Network (FEWS NET), the FAO's Global Information and Early Warning System (GIEWS), and the Integrated Food Security Phase Classification (IPC).
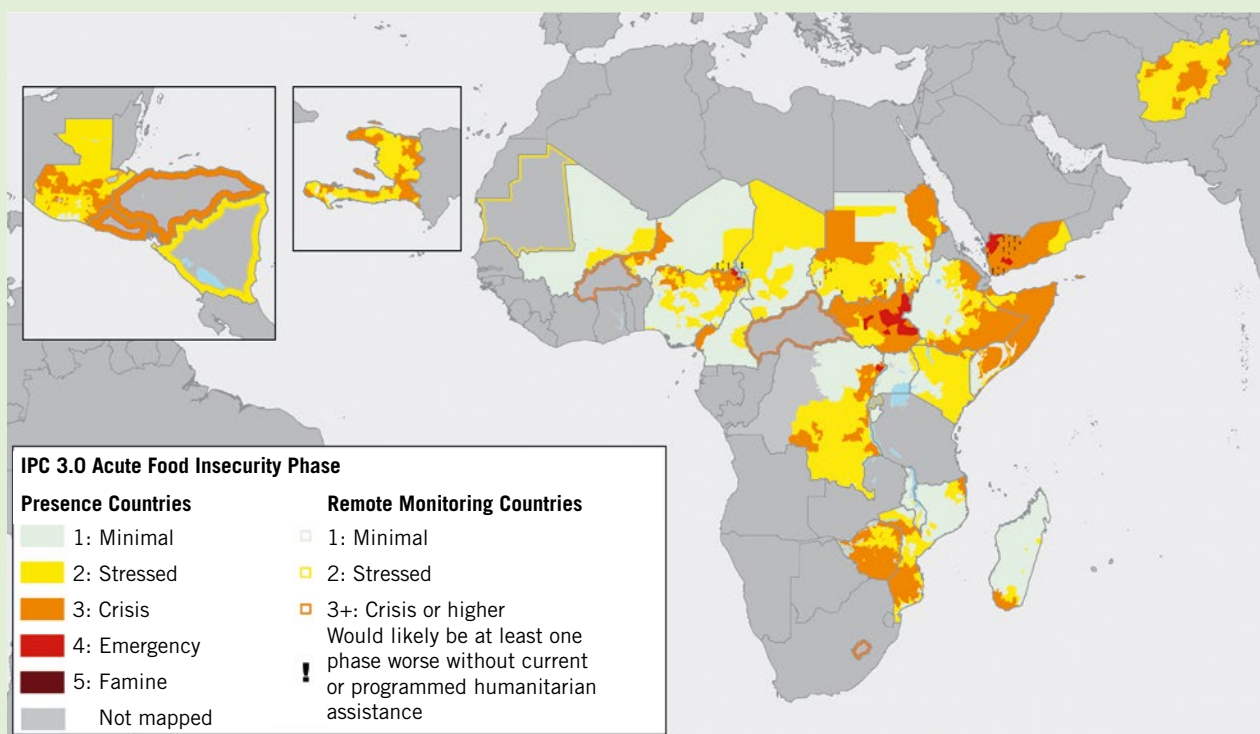
In comparison, because of the nature and availability of its underlying data, the GHI is a tool best suited for measuring hunger and tracking progress over recent years and decades. The 2020 GHI scores are based on the most up-to-date data available for the underlying indicators—from 2015 through 2019 with an emphasis on data from the latter end of that range.[3] This GHI report also includes GHI scores from 2000, 2006, and

2012, to allow for a comparison of trends over time. The GHI reveals the parts of the world where there are vulnerabilities to crises such as those occurring in 2020. The countries where GHI scores are high—indicating that calories are chronically insufficient and/or children's growth and well-being have been hampered by undernutrition—are particularly vulnerable when crises occur. The GHI may also reflect the impact of these crises down the road if the depth, breadth, and duration of these events unfortunately affect people's lives to such an extent that they are reflected in the national-level indicators used to calculate the GHI in the future.

Given that the world currently faces multiple threats to food security in the short term, we provide the latest available FEWS NET map here as a complement to the GHI data. This gives a snapshot of the latest projections available at the time the GHI report was finalized.

[3] See Appendixes A, B, and C for more information on the calculation of GHI scores and data sources.

ACUTE FOOD INSECURITY: MEDIUM TERM (OCTOBER 2020–JANUARY 2021)

IPC 3.0 Acute Food Insecurity Phase

Presence Countries
- 1: Minimal
- 2: Stressed
- 3: Crisis
- 4: Emergency
- 5: Famine
- Not mapped

Remote Monitoring Countries
- 1: Minimal
- 2: Stressed
- 3+: Crisis or higher
- ! Would likely be at least one phase worse without current or programmed humanitarian assistance

Source: FEWS NET (2020).

While the share of undernourished people—that is, people who consume too few calories—in the world has stagnated, the absolute number of undernourished people is on the rise. As of 2019, 8.9 percent of the world's population was undernourished, unchanged from 2018. This amounted to nearly 690 million undernourished people in 2019, up by 10 million people since 2018 and by nearly 60 million since 2014 (FAO et al. 2020).[4]

Too many children are suffering from undernutrition, which increases their vulnerability when crises occur. In 2019, 144 million children worldwide suffered from stunting (21.3 percent) and 47 million children suffered from wasting (6.9 percent) (UNICEF, WHO, and World Bank 2020b). In 2018, 5.3 million children died before the age of five, a rate of 3.9 percent. Disparities between regions reveal that this is not inevitable: in high-income countries, 1 in 199 children dies before his or her fifth birthday; in the world's least-developed countries the number is 1 in 16 (UN IGME 2019a). Undernutrition contributes to about 45 percent of deaths for children under age five (Black et al. 2013). When crises such as the current global pandemic occur, children who are already malnourished are particularly vulnerable.

The Regions

Hunger is highest in the regions of Africa South of the Sahara and South Asia, whose 2020 GHI scores are 27.8 and 26.0, respectively (Figure 1.1). According to the GHI Severity Scale, these scores indicate *serious* levels of hunger. In contrast, the 2020 GHI scores of Europe and Central Asia, Latin America and the Caribbean, East and Southeast Asia, and West Asia and North Africa range from 5.8 to 12.0, indicating *low* or *moderate* hunger levels.

The high GHI score in Africa South of the Sahara is driven up by the region's large share of people who are undernourished. In 2017–2019, more than one in five people—21.2 percent—in Africa South of the Sahara did not get enough calories. This rate, which has been rising gradually since 2014, is the highest of any region in the world, and represents 230 million people who are undernourished. The reasons for the recent increases vary from country to country. Some driving factors include economic slowdowns and downturns, armed conflicts, declines in crop yields due to climate variability, and droughts related to the El Niño–Southern Oscillation (FAO et al. 2020).

In both Africa South of the Sahara and South Asia, one in three children was stunted as of 2019. In other words, 32.7 percent of children in Africa South of the Sahara and 33.2 percent of children in South Asia were too short for their age, reflecting chronic undernutrition (UNICEF, WHO, and World Bank 2020b). It is difficult to identify the causes of child undernutrition, including child stunting, and to explain improvements when they occur, particularly for large groups of countries (Buisman et al. 2019). One recent analysis found that the leading cause of child stunting in Africa South of the Sahara was the lack of diversity in children's diets, the infrequency of their meals, or both, whereas the leading cause in South Asia was multiple episodes of diarrhea before the age of two (Mosites et al. 2017). The child stunting rate in Africa South of the Sahara has declined from 43.1 percent in 2000 (UNICEF, WHO, and World Bank 2020b). According to an analysis of seven countries in the region, the primary reason for the decline was an increase in care given to mothers before and during childbirth, which is strongly associated with increased iron supplementation for mothers and, to some extent, with increased coverage of child immunization and deworming medication (Buisman et al. 2019).

Child mortality in Africa South of the Sahara is exceptionally high. The region's under-five mortality rate, at 7.8 percent in 2018, is the highest of any world region (UN IGME 2019a). A recent analysis confirmed that poverty is a basic determinant of children's nutritional status in Africa South of the Sahara, which in turn influences child mortality in the region. Low birthweight, even more than child underweight or stunting, drives child mortality in the region (Ricci et al. 2018). Evidence from Africa suggests that armed conflict also increases child mortality risk through its effects on maternal health, infectious disease risk, and malnutrition, and the effects hold for children born up to 100 kilometers from the site of conflict and for children born up to eight years after the conflict's conclusion (Wagner et al. 2018). Though it is high, child mortality has declined in Africa South of the Sahara over recent decades thanks to improvements in the coverage of public health interventions (antenatal care, intermittent preventive treatment for malaria during pregnancy, and full vaccination for children) and increases in female education and economic development. Continued breastfeeding (breastfeeding up to the age of two years or beyond, along with consumption of nutritious complementary foods) has the potential to decrease child mortality, but the rates of continued breastfeeding have fallen in the region over time (Akachi, Steenland, and Fink 2018).

South Asia has the largest number of undernourished people in the world. South Asia's prevalence of undernourishment as of 2017–2019

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[4] The UN Food and Agriculture Organization (FAO), which produces undernourishment estimates each year, revised its methodology and updated the underlying data it uses to calculate undernourishment this year, resulting in a substantial change in the estimates relative to previous ones.

was 13.4 percent. While this rate is lower than that for Africa South of the Sahara, South Asia has the highest number of undernourished people in absolute terms, with 255 million people undernourished in the region. In recent decades, the prevalence of undernourishment in South Asia has declined, down from 20 percent in 2004–2006 (FAO et al. 2020). According to an analysis going back to 1990, the main factors that have driven down undernourishment rates in South Asia are increasing cereal production and yields and rising government spending as a share of GDP (Mughal and Fontan Sers 2020).

South Asia's child wasting rate is the highest of any world region. In 2019 the child wasting rate for South Asia was 14.8 percent, compared with 6.9 percent in Africa South of the Sahara (UNICEF, WHO, and World Bank 2020b). According to one study, in five of six South Asian countries a lower maternal body mass index was significantly associated with child wasting. In some countries inadequate access to sanitation and improved water sources and low family wealth were also associated with child wasting, albeit not systematically so. Because a reduction in poverty does not necessarily imply that households get adequate access to improved water sources and sanitation, poverty alleviation policies may not be sufficient to reduce child wasting (Harding, Aguayo, and Webb 2018).

The high child stunting rate in South Asia is driven by multiple factors. South Asia's child stunting rate as of 2019 was 33.2 percent, down from 51.3 percent in 2000 (UNICEF, WHO, and World Bank 2020b). The key factors that contribute to stunting in the region are poor infant and young child feeding practices, poor nutrition among women before and during pregnancy, and poor sanitation practices (Smith and Haddad 2015). Data from 1991 through 2014 for Bangladesh, India, Nepal, and Pakistan showed that stunting is concentrated among children from households facing multiple forms of deprivation, including poor dietary diversity, low levels of maternal education, and household poverty (Krishna et al. 2018).

Despite declines in recent years, child mortality in South Asia is still unacceptably high, with improvements in child nutrition needed. The mortality rate of children under age five in South Asia as of 2018 was 4.1 percent, compared with 9.2 percent in 2000 (UN IGME 2019a). India—the region's most populous country—experienced a decline in under-five mortality in this period, driven largely by decreases in deaths from birth asphyxia or trauma, neonatal infections, pneumonia, and diarrhea. However, child mortality caused by prematurity and low birthweight increased, particularly in poorer states and rural areas. Prevention of prematurity and low birthweight is identified as a key factor with the potential to reduce under-five mortality in India,

through actions such as better antenatal care, education, and nutrition as well as reductions in anemia and oral tobacco use (Million Death Study Collaborators 2017). Evidence from Pakistan also illustrates the connection between child mortality and nutrition: children who were stunted or severely wasted when they began treatment for acute malnutrition had lower odds of recovery and survival (Aguayo et al. 2018).

No region of the world is immune from hunger, as the COVID-19 pandemic makes clear. Latin America's 2020 GHI score, considered *low*, is 8.4, a very slight uptick from 8.3 in 2012. The region has been hit particularly hard by COVID-19, the effects of which are not yet reflected in GHI scores, and could experience a steep rise in hunger given the large proportion of the population employed in the informal sector, which has been adversely affected by lockdowns (Sadeque 2020). The West Asia and North Africa region has a 2020 GHI score of 12.0, considered *moderate*. The COVID-19 pandemic threatens to decrease food access as remittances and tourist income drop and unemployment and poverty rise throughout the region. Libya, Syria, and Yemen each face ongoing conflict, and the COVID-19 pandemic risks pushing vulnerable populations further into hunger and malnutrition (Karasapan 2020). Across Asia and the Pacific, the COVID-19 pandemic is having economic repercussions, resulting in less diversified and nutritious diets. Countries in Central Asia have also been affected by border closures and restrictions on seasonal migration (FAO and WFP 2020). GHI scores are not calculated for most high-income countries, yet in many food insecurity is still a pressing concern for significant portions of the population, particularly in the face of extraordinary crises such as the COVID-19 pandemic. In addition to the pandemic, an extraordinary outbreak of desert locusts is threatening food security in East Africa and Southwest Asia this year (Ogema 2020; FAO 2020e) (see Box 2.1).

The Countries

According to the 2020 GHI, of the 107 countries for which complete data are available for calculating GHI scores, 3 suffer from levels of hunger that are *alarming*—Chad, Timor-Leste, and Madagascar—and 31 countries have *serious* levels of hunger. Hunger is considered to be *alarming* in 8 additional countries—Burundi, Central African Republic, Comoros, Democratic Republic of the Congo, Somalia, South Sudan, Syria, and Yemen—and *serious* in 9 additional countries based on provisional categorizations (Box 1.3).

There are several resources within this report to assess how countries fare over time, relative to other countries, and according to multiple indicators. To understand how the countries included in the GHI

compare with each other, Table 1.1 shows the numerical ranking, from lowest to highest hunger levels, for each country with a 2020 GHI score. Appendix F shows the 2020 GHI scores, from highest to lowest, within each region, to allow for an assessment of countries' hunger status relative to nearby countries. Appendix D shows the values of the GHI indicators—the prevalence of undernourishment, child wasting, child stunting, and child mortality—for each country, including their historic values. An examination of the individual indicators provides a more nuanced picture of the nature of hunger and undernutrition in each country than is provided by GHI scores alone.

Multiple countries are experiencing increasing levels of hunger. For 14 countries with GHI scores in the *moderate, serious*, or *alarming* categories, their 2020 GHI scores are higher than their scores for 2012, the most recent historical reference period in this year's report. These 14 countries are Botswana, El Salvador, Eswatini, Kenya, Lesotho, Madagascar, Malaysia, Mauritania, Mongolia, Mozambique, Oman, Rwanda, Timor-Leste, and Venezuela.[5] The greatest increase in both absolute and relative terms occurred in Venezuela, whose score went from 7.6 in 2012, considered *low*, to 23.5 in 2020, considered *serious*. In recent years the country has experienced severe food crises driven by hyperinflation, a rapidly contracting GDP, overdependence on oil revenues coupled with falling oil production, and poor governance characterized by rampant corruption and growing autocracy (Labrador 2019). The next-largest increase in absolute terms was experienced by Lesotho, whose score increased within the *serious* category from 24.6 in 2012 to 30.7 in 2020. The increase in Lesotho's score is explained by its rising prevalence of undernourishment, which jumped from 11.9 percent in 2011–2013 to 32.6 percent in 2017–2019. Lesotho has experienced recurrent crop failures, low incomes, and high food prices in recent years (WFP 2020a).

Chad has the highest 2020 GHI score of the countries with sufficient data for calculating GHI scores in this report—44.7, which is considered *alarming*. Food and nutrition insecurity in Chad are driven by regional conflict, frequent drought, limited income-generating opportunities, and restricted access to social services (USAID 2020b). Chad's prevalence of undernourishment, at 39.6 percent, is the fourth highest in this report. Its child stunting rate, at 39.8, percent is considered very high, and its child wasting rate, at 13.3 percent, is considered high in terms of public health significance (de Onis et al. 2019). With an under-five mortality rate of 11.9 percent, it is one of the few countries in the world where more than 1 in 10 children dies before age five.

[5] Countries are not included in this trend analysis if their hunger level is still considered *low* even if it has increased since 2012.

At 37.6, Timor-Leste's 2020 GHI score is considered *alarming* and is the second highest in this year's report. A number of factors have contributed to chronic food insecurity in Timor-Leste. Agricultural productivity is low. People's food consumption is inadequate in both quality and quantity, and many people depend on single, low-value livelihood strategies. Basic infrastructure for sanitation, clean water, roads, irrigation, schools, and health is poor, and so is the country's level of financial and human capital. Climate hazards and risks are also having negative impacts (IPC 2019). Child malnutrition is also a major concern, with over half of children estimated to be stunted and nearly 15 percent of children estimated to suffer from wasting.

Madagascar's GHI score of 36.0, considered *alarming*, is the third highest according to this year's ranking. Madagascar has experienced a troubling uptick in its prevalence of undernourishment, from 30.0 percent in 2009–2011 to 41.7 percent in 2017–2019, and it holds the third-highest rate in this year's report. Its child stunting rate, at 41.6 percent, is also very high in terms of its public health significance and relative to most other countries in this report. Challenges facing the country include stagnation in per capita income; increasing poverty; and political instability, which undermines government institutional capacity, economic growth, development efforts, and people's access to basic services (WFP 2020b).

Many countries, though, show encouraging progress against hunger. This year's GHI includes 26 countries with GHI scores indicating *moderate* levels of hunger and 47 countries with *low* levels of hunger. Of the countries with *moderate* levels of hunger, two—Cameroon and Nepal—had *alarming* hunger levels as recently as 2000. Between 2000 and 2018 Cameroon's GDP per capita more than doubled from US$650 to US$1,534 (World Bank 2020a). The country's ranking according to the Human Development Index has also improved since 2000; in 2019 it was ranked 150th out of 189 countries, reaching what is considered a *medium* level of human development (UNDP 2019). Despite these improvements, conflict and flooding in parts of the country have threatened the food security of approximately 10 percent of Cameroon's population in 2020 (USAID 2020a). Nepal's improvements over time and continued challenges are described in detail in Chapter 3.

It is useful to consider the progress, or lack thereof, countries have made to arrive at their 2020 GHI scores. Figure 1.2 shows the progress countries have made since 2000, along with their 2020 GHI scores. Angola, Ethiopia, and Sierra Leone have experienced dramatic improvements since 2000, with GHI scores dropping by more than 25 points. These countries each had GHI scores in the *extremely*

BOX 1.3 ASSESSING THE SEVERITY OF HUNGER IN COUNTRIES WITH INCOMPLETE DATA

Each year, GHI scores cannot be calculated for some countries because data for one or more of the indicators used in the GHI formula are unavailable. In some cases, the data are missing because of violent conflict or political unrest (FAO et al. 2017; Martin-Shields and Stojetz 2019), which are strong predictors of hunger and undernutrition. The countries with missing data may often be the ones with citizens in the greatest distress due to hunger. In 2020, more countries than normal have incomplete data, owing in part to the challenges associated with the COVID-19 pandemic. In total, 25 countries that meet the criteria for inclusion in the GHI had insufficient data to allow for calculation of a 2020 GHI score.

To address this gap and give a preliminary picture of hunger in the countries with missing data, this year's report includes provisional designations of the severity of hunger. These designations are based on those GHI indicator values that are available, the country's last known GHI severity designation, the country's last known prevalence of undernourishment,[6] the prevalence of undernourishment for the subregion in which the country is located, and/or an examination of the 2018, 2019, and 2020 editions of the *Global Report on Food Crises* (FSIN 2018, 2019, 2020).[7] The table on page 15 provides a summary of this information for each country, as well as its provisional designation.

According to the provisional designations of the countries with incomplete data, 8 countries are designated as having *alarming* levels of hunger, 9 as *serious*, and 1 as *low* (see figure below).[8] For 7 countries, provisional designations could not be determined. Of the 8 countries provisionally designated as *alarming*—Burundi, Central African Republic, Comoros,

Democratic Republic of the Congo, Somalia, South Sudan, Syrian Arab Republic, and Yemen—it is possible that with complete data, one or more of them would fall into the *extremely alarming* category. However, without sufficient information to confirm that this is the case, we have conservatively categorized each of these countries as *alarming*.

More complete data collection is needed to enable timely assessment of countries' progress, or lack thereof, toward meeting Sustainable Development Goal 2 of Zero Hunger. This need applies not only to data on the prevalence of undernourishment, the indicator most commonly unavailable for the calculation of GHI scores, but also to child nutrition data, including child stunting and child wasting values. Estimates of these values are sometimes used in the GHI where necessary and possible, but empirical data from surveys would be greatly preferred. And of course the need for expanded data collection extends beyond the indicators used in the GHI and beyond indicators specific to hunger and undernutrition.

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[6] Previously published undernourishment values, GHI scores, and GHI severity classifications are not considered valid once superseding reports have been issued, but were used as benchmarks to consider the plausibility of a country falling into a broad range of undernourishment values and GHI scores.

[7] The *Global Reports on Food Crises* report on acute food insecurity, which is different from chronic hunger as measured by the prevalence of undernourishment. However, the *GRFCs* were used to confirm whether a country experienced an extraordinary situation that differed from the subregion in which it is located or whether a country experienced extreme hunger crises such as famine, threat of famine, and/or repeated hunger crises in 2017, 2018, and 2019 as covered in the 2018, 2019, and 2020 *GRFCs*.

[8] This is in addition to the countries that were categorized by severity according to GHI scores.

2020 GHI COUNTRIES BY HUNGER SEVERITY DESIGNATION

Legend:
- Alarming
- Provisionally alarming
- Serious
- Provisionally serious
- Moderate
- Low
- Provisionally low
- Not designated

Source: Authors.

PROVISIONAL HUNGER SEVERITY DESIGNATIONS AND EXISTING DATA FOR COUNTRIES WITH INCOMPLETE DATA

Country	Provisional 2020 GHI severity designation	Child stunting, 2015–2019 (%)	Child wasting, 2015–2019 (%)	Child mortality, 2018 (%)	Last GHI categorization	Last prevalence of undernourishment value (%)	Subregional prevalence of undernourishment (%)	Range of prevalence of undernourishment values for provisional designation (%)
Moldova (Rep. of)	Low	5.6*	2.8*	1.6	Low (2017)	8.5 (2017)	<2.5	0.0–13.4
Djibouti	Serious	26.7*	12.5*	5.9	Serious (2019)	19.8 (2019)	26.9	2.6–38.6
Guinea	Serious	30.3	9.2	10.1	Serious (2019)	16.5 (2019)	14.7	0.0–31.3
Guinea-Bissau	Serious	34.0*	7.3*	8.1	Serious (2019)	28.0 (2019)	14.7	0.3–36.3
Lao PDR	Serious	33.1	9.0	4.7	Serious (2019)	16.5 (2019)	9.8	6.3–42.3
Niger	Serious	48.5	14.1	8.4	Serious (2019)	16.5 (2019)	14.7	0.0–18.3
Tajikistan	Serious	17.5	5.6	3.5	Serious (2017)	30.1 (2017)	2.9	22.5–58.5
Uganda	Serious	28.9	3.5	4.6	Serious (2019)	41.0 (2019)	26.9	16.3–52.3
Zambia	Serious	34.6	4.2	5.8	Alarming (2019)	46.7 (2019)	26.9	9.4–45.4
Zimbabwe	Serious	23.5	2.9	4.6	Serious (2019)	51.3 (2019)	26.9	20.2–56.2
Burundi	Alarming	54.2	5.1	5.8	Extremely alarming (2014)	67.3 (2014)	26.9	33.0–69.0
Central African Republic	Alarming	37.5	6.5	11.6	Extremely alarming (2019)	59.6 (2019)	29.2	27.4–63.4
Comoros	Alarming	39.3*	8.9*	6.7	Alarming (2014)	65.3 (2014)	26.9	34.4–70.4
Dem. Rep. of the Congo	Alarming	41.8	6.5	8.8	Extremely alarming (2011)	69.0 (2011)	29.2	31.3–67.3
Somalia	Alarming	—	—	12.2	—	—	26.9	**
South Sudan	Alarming	—	—	9.9	—	—	26.9	**
Syrian Arab Republic	Alarming	—	—	1.7	Moderate (2014)	6.0 (2014)	11.2	**
Yemen	Alarming	53.2*	15.5*	5.5	Alarming (2019)	38.9 (2019)	11.2	20.4–56.4
Bahrain	Not designated	4.5*	1.3*	0.7	—	—	11.2	N/A
Bhutan	Not designated	25.0*	4.2*	3.0	—	—	13.4	N/A
Equatorial Guinea	Not designated	32.7*	4.4*	8.5	—	—	29.2	N/A
Eritrea	Not designated	—	—	4.2	Extremely alarming (2014)	61.3 (2014)	26.9	N/A
Libya	Not designated	26.1*	8.5*	1.2	Low (2014)	1.4 (2014)	6.5	N/A
Papua New Guinea	Not designated	40.1*	6.8*	4.8	—	—	9.8	N/A
Qatar	Not designated	4.2*	0.9*	0.7	—	—	11.2	N/A

Source: Authors, based on sources listed in Appendix C and previous GHI publications included in the bibliography.
Note: Years in parentheses show when the relevant information was published in the GHI report.
* Authors' estimate.
**Designation based on FSIN (2018, 2019, and 2020) and expert consultation.
N/A = not applicable.
— = not available.

alarming category in 2000, largely as a result of civil war, which is a strong driver of hunger and undernutrition. In contrast, the countries near the top right of the figure, including Chad, Madagascar, and Haiti, have made limited progress since 2000 and still have GHI scores at or near the *alarming* category. These countries are experiencing problematic stagnation, and they will need to make dramatic improvements to meet the second Sustainable Development Goal of Zero Hunger by 2030. Finally, Venezuela stands out for its increasing GHI score since 2000. Some countries without sufficient data for the calculation of GHI scores may have also experienced increases in hunger and undernutrition since 2000.

Countries' GHI scores and rankings depend on how well countries perform on individual GHI component indicators, so a closer examination of those indicators is useful (see Appendix D for the rates for each country):

→ **In 14 countries from a range of regions, the prevalence of undernourishment is between 25 and 50 percent, indicating that one-quarter to one-half of the population faces chronic hunger[9]:** Haiti (48.2 percent), Democratic People's Republic of Korea (47.6 percent), Madagascar (41.7 percent), Chad (39.6 percent), Liberia (37.5 percent), Rwanda (35.6 percent), Mozambique (32.6 percent), Lesotho (32.6 percent), Venezuela (31.4 percent), Timor-Leste (30.9 percent), Afghanistan (29.9 percent), Republic of the Congo (28.0 percent), Sierra Leone (26.0 percent), and Tanzania (25.0 percent).

→ **The child stunting rates in 35 countries exceed 30 percent, the threshold at which they are considered "very high" in terms of their public health significance** (de Onis et al. 2019). The 10 highest rates are in Burundi (54.2 percent), Yemen (53.2 percent), Timor-Leste (51.2 percent), Niger (48.5 percent), Guatemala (46.7 percent), Mozambique (42.3 percent), Democratic Republic of the Congo (41.8 percent), Madagascar (41.6 percent), Papua New Guinea (40.1 percent), and Chad (39.8 percent).

→ **In 11 countries, the public health significance of child wasting rates is considered "high" (10–<15 percent) or "very high" (≥15 percent)** (de Onis et al. 2019): India (17.3 percent), Yemen (15.5 percent), Sri Lanka (15.1 percent), Timor-Leste (14.6 percent), Sudan (14.3 percent), Niger (14.1 percent), Chad (13.3 percent), Djibouti (12.5 percent), Malaysia (11.5 percent), Mauritania (11.5 percent), and Indonesia (10.2 percent).

[9] Unlike child stunting, child wasting, and child mortality, for which all or almost all countries have data or estimates, data on the prevalence of undernourishment are unavailable for 25 countries. Many of these may have high levels of undernourishment.

→ **The countries with the highest under-five mortality rates are in Africa South of the Sahara, where six countries have rates exceeding 10 percent:** Somalia (12.2 percent), Nigeria (12.0 percent), Chad (11.9 percent), Central African Republic (11.6 percent), Sierra Leone (10.5 percent), and Guinea (10.1 percent).

Within Country Borders

Inequalities within country borders are pervasive, and it is crucial to understand which groups face the greatest challenges. For each country, national averages ought not obscure the very real hardships experienced by the most marginalized groups. Recognizing these disparities gives voice to those who so far have been left behind. Understanding which groups fare the worst according to specific indicators of hunger and undernutrition can also create a basis for action.

Inequality exists for multiple indicators of hunger and undernutrition, and different states or provinces can struggle with some aspects more than others. Nigeria—a large, populous, and diverse country—provides an interesting example. At the state level, the highest stunting rate is in Kebbi State, at 66 percent, while the lowest stunting rate is in Anambra State, at 14 percent. Wasting is highest in Sokoto State, at 18 percent, compared with a rate of just 1 percent in Bayelsa State. Twenty-five percent of children in Kebbi State do not live to their fifth birthday, while the under-five mortality rates in Lagos State and Bayelsa State are remarkably lower, at 3.1 and 3.0 percent, respectively (NPC and ICF 2019). The states with the greatest challenges are consistently in the north of the country, which has been plagued by violence in recent years. An analysis of the effects of conflict on child wasting has confirmed that children exposed to conflict in Nigeria are much more likely to suffer from acute malnutrition (Howell et al. 2020). The disparities between the best and worst performers for each indicator are striking, and while there is some overlap in terms of which states face the greatest struggles according to different indicators, it is also clear that the nature of the problem varies from state to state.

Disparities can fall along geographic, ethnic, racial, wealth, gender, or other lines. Interventions and policies may be targeted along different lines depending on the circumstances. For example, the average child stunting rate for Laos as a whole is 33 percent, but within Laos there are various ways to look at disparities in stunting. Geographically, stunting ranges from 54 percent in Phongsaly Province to 14 percent in the capital, Vientiane. In terms of wealth, 48 percent of children from the poorest wealth quintile are stunted compared with just 14 percent of children in the richest quintile. There

FIGURE 1.2 2020 GHI SCORES AND PROGRESS SINCE 2000
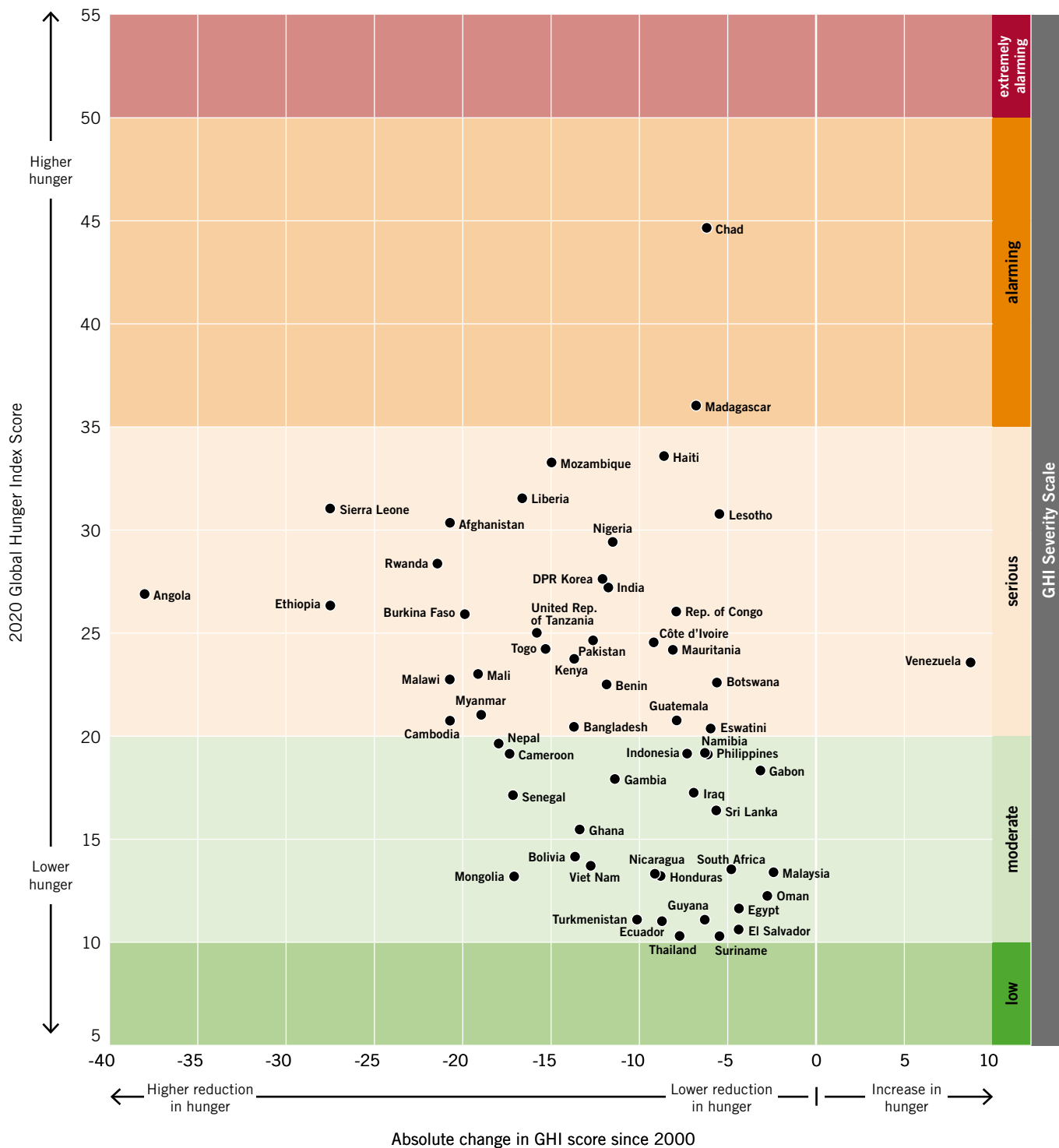
Source: Authors.

Note: **This figure illustrates the change in GHI scores since 2000 in absolute values.** It features countries where data are available to calculate 2000 and 2020 GHI scores and where 2020 GHI scores show *moderate, serious,* or *alarming* hunger levels. Some likely poor performers may not appear due to missing data.

is also a large disparity between ethno-linguistic groups: 50 percent of children in Hmong-Mien households are stunted compared with 23 percent of children in Lao-Tai households. In this case there are not major differences by sex; 34 percent of boys are stunted compared with 32 percent of girls (Lao Statistics Bureau 2018). Global averages show that stunting rates are slightly higher for boys than girls worldwide. The Food Insecurity Experience Scale, however, shows that globally and in every region, the prevalence of food insecurity is slightly higher among women than among men (FAO et al. 2020).

Because data on child stunting within countries are relatively widely available, such data serve as a valuable illustration of the inequality of nutrition. Unlike child wasting, child stunting is not subject to seasonal variation to a significant degree. Childhood stunting can result from multiple factors—not just inadequate consumption of calories, but insufficient intake of micronutrients, failure to absorb nutrients because of broader physical health problems, and recurrent diseases that affect child growth. Figure 1.3 illustrates the within-country disparities in child stunting for children under the age of five in 69 countries. For each country with available data, this figure shows the stunting rates for the states or areas with the highest and lowest stunting levels, as well as the national average—the longer the black line, the wider the disparity in stunting rates within the country. In addition to inequality in nutrition and health, the size of the within-country gap in stunting levels results from several other factors, such as the number of states or provinces into which a country is split for the sake of the survey, national population size and land area, and the average national stunting level.

Even in the regions of the world with the lowest GHI scores in this report, there are countries with states or provinces facing high levels of stunting.[10] For example, in Europe and Central Asia, the highest stunting rate in Albania is in Dibër County, at 26 percent. Dibër also has the highest anemia and overweight rates of children by county, at 44 and 26 percent, respectively (INSTAT, IPH, and ICF 2018).[11] In other words, it exhibits what is known as the triple burden of malnutrition—undernutrition, overnutrition, and micronutrient deficiencies. Dibër is in the north of the country, which is Albania's poorest and most agriculturally dependent region (*Tirana Times* 2016). The highest stunting rate in Tajikistan is 31.9 percent, in the Gorno-Badakhshan Autonomous Oblast (GBAO). GBAO also has the highest child anemia rate, at 62 percent, but its child overweight rate, at 6.7 percent, is not the country's highest, nor is it exceptionally high in absolute terms (SA, MOHSP, and ICF 2018).

[10] Twenty percent is the threshold above which stunting is considered "high" in terms of public health significance (de Onis et al. 2019).

[11] Children whose weight-for-height Z-score is more than 2 standard deviations above the median of the reference population are considered overweight.

In countries with extraordinarily high national stunting levels, states and provinces face even greater extremes. For example, Burundi's national stunting level, at 54.2 percent, is the highest stunting level in this report. The district with the highest stunting level is Ngozi Province at 63.1 percent—nearly two out of every three children are stunted. The difference between this and Bujumbura Mairie Province, with the lowest stunting rate, at 24.3 percent, shows a troubling depth of inequality. In Niger, with a national stunting level of 48.5 percent, regional levels range from 62.9 percent in Zinder to 18.6 percent in the capital region of Niamey (WHO 2020b).

Chapter 3 provides a more detailed look at two countries, Democratic Republic of the Congo and Nepal. The analysis provides an overview of the context for each country, a consideration of how hunger and undernutrition vary by region, and an examination of the factors that have influenced change over time.
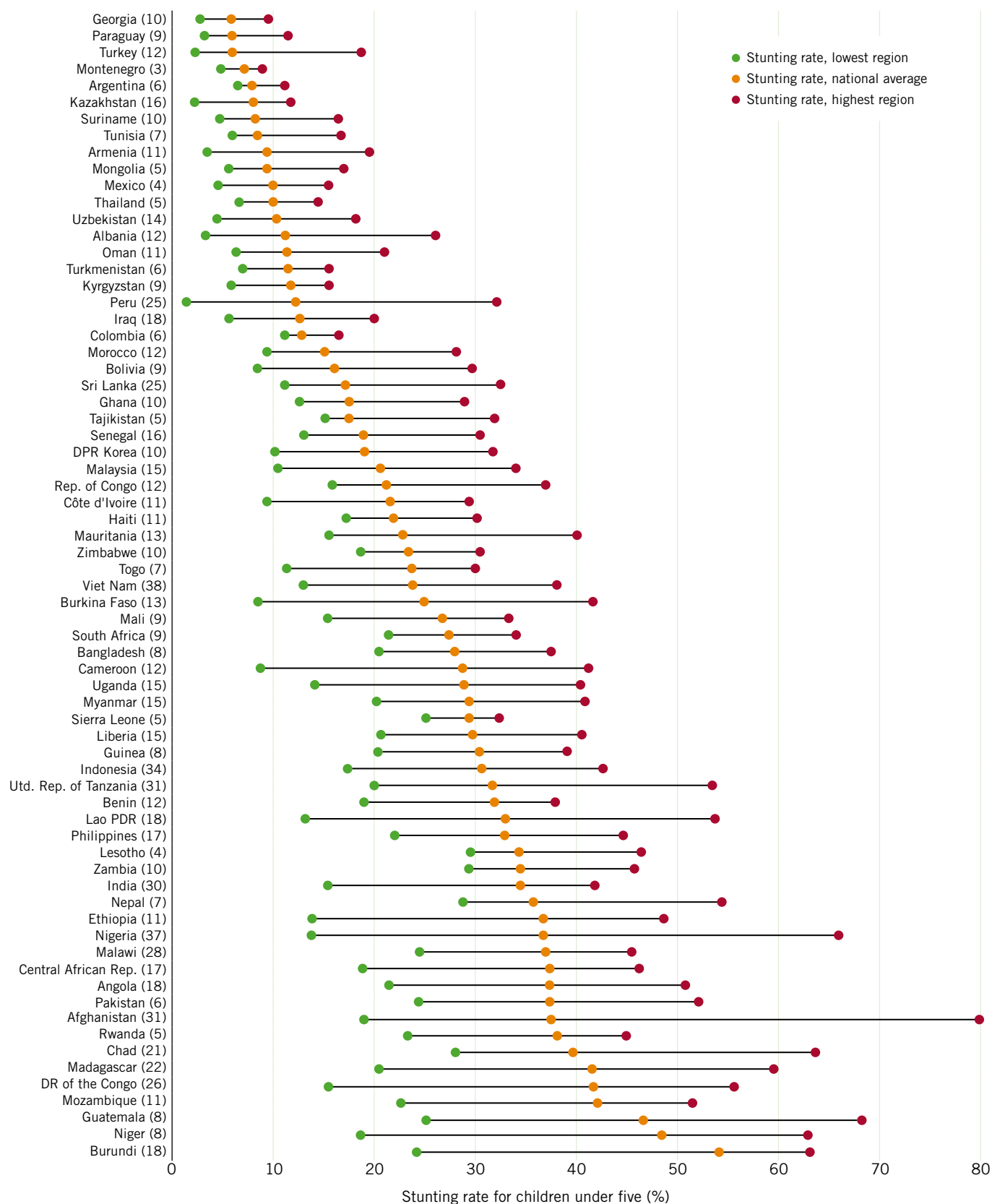
Conclusion

As demonstrated by the 2020 GHI, many parts of the world are suffering from unacceptable levels of hunger. At the regional, country, and subnational levels, the experience of living without adequate access to sufficient, nutritious food is all too common. This, combined with a range of factors that minimize absorption of nutrients, means that millions of children are unable to grow to their full potential, physically or developmentally. In the most severe cases this deprivation cuts short children's lives.

Given the current trajectory, the goal of achieving Zero Hunger by 2030 will not be fully achieved. This likelihood is evident even before factoring in the impact of the COVID-19 pandemic, which is already reducing food and nutrition security around the world, with additional effects expected into the future.

Yet progress has been made in the past in many parts of the world, providing hope for the future. Looking back at trends over the past 10 to 20 years, most countries have experienced improvements. Even in several countries where hunger and undernutrition were considered *extremely alarming* 20 years ago, the situation has improved dramatically. The near-term future will test the capacity of the world to respond to multiple crises simultaneously—health crises, environmental crises, economic crises, and food security crises among others. As has been the case in the past, with persistence, collective effort, and the dedication of sufficient resources, the world can overcome these crises. If done right, the response will build a stronger foundation upon which to move forward, leaving the world less vulnerable and better prepared for future challenges.

FIGURE 1.3 THE RANGE OF CHILD STUNTING RATES WITHIN COUNTRIES

- ● Stunting rate, lowest region
- ● Stunting rate, national average
- ● Stunting rate, highest region

Georgia (10)
Paraguay (9)
Turkey (12)
Montenegro (3)
Argentina (6)
Kazakhstan (16)
Suriname (10)
Tunisia (7)
Armenia (11)
Mongolia (5)
Mexico (4)
Thailand (5)
Uzbekistan (14)
Albania (12)
Oman (11)
Turkmenistan (6)
Kyrgyzstan (9)
Peru (25)
Iraq (18)
Colombia (6)
Morocco (12)
Bolivia (9)
Sri Lanka (25)
Ghana (10)
Tajikistan (5)
Senegal (16)
DPR Korea (10)
Malaysia (15)
Rep. of Congo (12)
Côte d'Ivoire (11)
Haiti (11)
Mauritania (13)
Zimbabwe (10)
Togo (7)
Viet Nam (38)
Burkina Faso (13)
Mali (9)
South Africa (9)
Bangladesh (8)
Cameroon (12)
Uganda (15)
Myanmar (15)
Sierra Leone (5)
Liberia (15)
Guinea (8)
Indonesia (34)
Utd. Rep. of Tanzania (31)
Benin (12)
Lao PDR (18)
Philippines (17)
Lesotho (4)
Zambia (10)
India (30)
Nepal (7)
Ethiopia (11)
Nigeria (37)
Malawi (28)
Central African Rep. (17)
Angola (18)
Pakistan (6)
Afghanistan (31)
Rwanda (5)
Chad (21)
Madagascar (22)
DR of the Congo (26)
Mozambique (11)
Guatemala (8)
Niger (8)
Burundi (18)

Stunting rate for children under five (%)

Source: Authors. Based on surveys included in UNICEF, WHO, and World Bank (2020a), WHO (2020b), UNICEF (2020a), and MEASURE DHS (2020) from 2015–2019. Countries included are those with subnational stunting data available for 2015–2019. If more than one survey has been completed for a country during this period, that with the most recent subnational values is used.

Note: The longer the black line, the greater the disparity in stunting rates among a country's regions. The number in parentheses following each country name indicates the number of subnational units into which the country was divided for the sake of the survey, which can influence the degree of disparity that is revealed. The national averages may vary slightly from those used for GHI calculations if the data included here were obtained from the original survey reports and the national values used for GHI calculations underwent additional analysis before inclusion in UNICEF, WHO, and World Bank (2020a) and WHO (2020b).

FIGURE 1.4   2020 GLOBAL HUNGER INDEX BY SEVERITY

Alarming 35.0–49.9

Serious 20.0–34.9

Moderate 10.0–19.9

Low ≤ 9.9

Not included or not designated (see Appendix A and Box 1.3 for details)

*Provisional severity designation; see Box 1.3 for details.

Russian Federation

Kazakhstan

Mongolia

DPR Korea

Georgia
Azerb.
Armenia
Uzbekistan
Turkmenistan
Kyrgyzstan
Tajikistan*

China

Rep. of Korea
Japan

Syrian Arab
Republic*
Iraq
Jordan
Iran
Afghanistan
Kuwait
Pakistan

Nepal
Bhutan

Taiwan

Bahrain
Qatar
U.A.E.
Saudi
Arabia

India
Bangladesh

Hong Kong

Myanmar
Lao
PDR*

Oman

Thailand

Philippines

Eritrea
Yemen*

Cambodia

Djibouti*
Somalia*

Viet Nam

Ethiopia

Sri Lanka

Brunei Darussalam
Malaysia

Kenya

Singapore
Indonesia

Papua
New
Guinea

United Rep.
of Tanzania

Comoros*
Mozambique

Timor-Leste

Vanuatu

Mauritius

Fiji

Madagascar

Australia

New Zealand

Julius Lahai checks a cocoa tree on his plantation in Talia, Sierra Leone. Even though the coffee and cocoa grown in this area are in high demand, many people in the rural communities are undernourished. Sustainable agroforestry systems help smallholder farmers revitalize overgrown plantations, improve their products for export, and diversify their crops for better nutrition.

ONE HEALTH, ZERO HUNGER

**Robyn Alders, Osman Dar, Richard Kock, and Francesco Rampa**
Chatham House

2020. It's been a year that none of us could have predicted. Yet in many ways it is a culmination of the predictions we have heard for decades. Warnings about the emergence of new viral pathogens are nothing new, but the failure to heed or act on those warnings has contributed to the scale of the COVID-19 pandemic and its effects. At the same time, as predicted, humans' impacts on the environment are leading to more frequent and severe extreme weather events, biodiversity loss, deforestation, and soil degradation. These impacts, when coupled with failure to invest in sound biosecurity practices, contribute to an increasing threat from emerging, boundary-crossing infectious diseases in humans, animals, and plants (Yadav, Singh, and Malik 2020; Royal Society and NAS 2020; Gray and Merzdorf 2019; Edwards 2017; Sundström et al. 2014; Seneviratne et al. 2012; Waage and Mumford 2008). Cyclones have caused widespread damage in many South Pacific island countries and in South Asia in 2020, and heavy rains in usually dry regions have given rise to massive swarms of locusts that threaten crops in East Africa, South Asia, and the Gulf countries. The fall armyworm is decimating staple crops across Africa South of the Sahara and Southeast Asia, and control efforts are complicated by COVID-19 restrictions in many countries (Bourke and Sar 2020; FAO 2020f). Unsurprisingly, the overlapping disasters of 2020 have led to economic and health-related hardships across the globe, hampering food security for millions by disrupting agricultural production, the availability of food, and people's ability to obtain and utilize food, disproportionately harming those living in poverty.

The world was off track to reach Zero Hunger by 2030 even before each of the 2020 disasters exacerbated hunger and undernutrition. Five years ago, the UN member states committed to 17 Sustainable Development Goals (SDGs), including SDG 2: "End hunger, achieve food security and improved nutrition, and promote sustainable agriculture" (see Figure 2.1). After a long, slow, progressive decline, the number of undernourished people started rising in 2015 and continues its upward trajectory. In 2019, even before the recent crises, nearly 690 million people suffered from chronic hunger, and 135 million people experienced acute food crisis.[1] Child stunting and wasting are falling but not fast enough to meet SDG 2 (FAO et al. 2020; FSIN 2020; UN 2019b). Now the health and economic crises generated by the COVID-19 pandemic have resulted in income losses, food and labor shortages, and health service disruptions that affect the most vulnerable, threatening to set back progress even further.

[1] "Food crisis" here refers to the crisis phase (phase 3), or worse, of the Integrated Food Security Phase Classification (IPC/CH) (FSIN 2020; IPC Global Partners 2019).

FIGURE 2.1 **SUSTAINABLE DEVELOPMENT GOAL 2 (ZERO HUNGER) AND THE EIGHT TARGETS FOR ASSESSING PROGRESS**
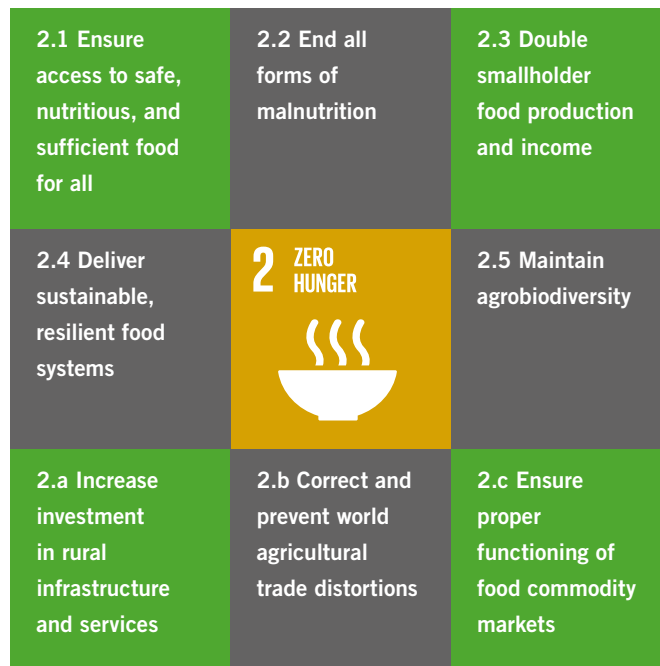
Source: Adapted by authors from UN (2020e).

The World Food Programme warns that an additional 130 million people could be pushed into acute food crisis by the end of 2020, bringing the total to 265 million people (UN 2020f).

In the decade leading up to 2030, how can we overcome these shocks and setbacks to achieve Zero Hunger for all? The events of 2020 are laying bare many of the vulnerabilities of the world's food system; they reveal that it is woefully inadequate for coping with the kinds of overlapping global and regional crises that we are currently experiencing and that we may expect more of by 2030 (FAO et al. 2020; Nguyen 2018). We have seen how the crises disrupt the food and agriculture sector, jeopardize the stability of human, animal, and environmental health, and have lasting implications on the global economy, livelihoods, and food security (FAO et al. 2020; OECD 2020). We argue in this essay that by taking an integrated approach to health and food and nutrition security, it is possible to achieve Zero Hunger by 2030. To do so, we must design responses to the current crises and their underlying causes and move forward in ways that support the transformation of the current food system to one that is more inclusive, sustainable, and resilient.

An important element of this endeavor will be to employ a holistic One Health approach. Sectoral responses alone rarely deliver sustained positive outcomes for complex problems such as climate change, chronic hunger, and unsustainable agricultural practices. One Health therefore works to achieve optimal health outcomes based on a recognition of the interconnections between humans, animals, plants, and their shared environment, as well as an understanding of the role of fair trade relations (CDC 2020; FAO 2020j). While the framing and use of the term "One Health" is relatively new, the concept is not: as far back as the 1800s scientists recognized the similarity in disease processes between animals and humans and coined the term "zoonoses" for diseases that can pass between animals and humans. More recently, it has become clear that human impacts on planetary health, including land use change, soil depletion, greenhouse gas emissions, and biodiversity loss, are inextricably linked to animal and human health.[2] To prevent, respond to, and recover from such challenges, cooperation among multidisciplinary teams is needed to safeguard agricultural production and public health from natural disasters and boundary-crossing diseases and to ensure that people have access to safe, nutritious, and healthy food. Currently, One Health tends to be implemented through consultation between sectors; it will become fully functional only when circular food, health, and economic systems—based on continual reuse of materials and products and elimination of waste—are implemented at local, national, and global levels (CHF 2020).

The One Health approach—with its focus on increasing sustainable practices in agriculture and improving the overall health and well-being of humans, animals, and the environment—has the potential to be transformative (Cleaveland et al. 2017; Garcia, Osburn, and Jay-Russell 2020; Alders et al. 2017; Lysaght et al. 2017). By highlighting the ways our current challenges are interconnected, One Health points to the need to tackle human, animal, and environmental health holistically in order to avert future health crises, restore a healthy planet, and sustainably end hunger.

Where the Cracks Are Showing: Weak Points in the World Food System

The COVID-19 pandemic has highlighted the fragility of globalized food systems, their inherent inequities, and their inadequacy to provide for healthy people and a healthy planet.

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[2] See, for example, FAO et al. (2008); One Health Joint European Program (2020); and FAO (2020o).

We are hitting planetary and social boundaries—that is, the ecological ceiling and the social foundation beyond which humans cannot safely and equitably thrive—and our food systems are part of the problem (Figure 2.2; Raworth 2017b). Globally, we are seeking to achieve Zero Hunger at the same time that all societies are grappling with the need to manage the impacts of climate change, emerging diseases, extinctions and loss of bio- and agrodiversity, overconsumption of freshwater, rising rates of malnutrition, soil depletion and degradation, land use change, and biological and chemical pollution, while also meeting their immediate needs within national budgets (Alders et al. 2018; Rampa et al. 2019; also see Box 2.1 on the overlapping crises in the Horn of Africa). One manifestation of the overshooting of planetary boundaries is the increasing frequency of the emergence of new infectious diseases and their rapid spread. As humans have encroached upon and destroyed natural habitats to establish, among other things, pastures for livestock, the result has been that wild animals live closer to areas where humans rear livestock and poultry, exposing domestic animals to a completely new range of pathogens and vectors to which they are highly susceptible. These diseases can spread rapidly, resulting in heavy morbidity and mortality among livestock, trade restrictions, and economic losses (Garcia, Osburn, and Jay-Russell 2020). Domesticated livestock and companion animals have been associated with increased risk of emerging infectious diseases (Johnson et al. 2020, Kock 2014), antimicrobial resistance (Graham et al. 2019), and introduction of disease into susceptible wildlife populations (Yadav, Singh, and Malik 2020). And the spread of COVID-19 shows the simultaneous vulnerability of public health, the economy, and food and nutrition security to emerging diseases.

Our food systems pose health hazards to humans and the environment and have a big part in the rise of emerging infectious diseases such as COVID-19. Through land use change, intensive agriculture, large-scale livestock production, and other practices, food systems have led to agroecological degradation, destroyed habitats, and contributed to climate change (IPES-Food 2017). Indeed, the food system contributes 21–37 percent of total net human-caused emissions of greenhouse gases and accounts for 70 percent of freshwater use. Agriculture—cropping and pasturage—occupies nearly 40 percent of global land (Willett et al. 2019; IPCC 2020). Overall, the huge increase in intensive livestock production has been the most significant cause of the huge loss of biodiversity in recent decades; the extinction rate is now estimated at between 100 and 1,000 times that of preindustrial levels (Ceballos, Ehrlich, and Raven 2020; Ceballos et al. 2015; Pimm et al. 2014; Barnosky et al. 2011). Changing

FIGURE 2.2 **PRESSURES ON PLANETARY AND SOCIAL BOUNDARIES**
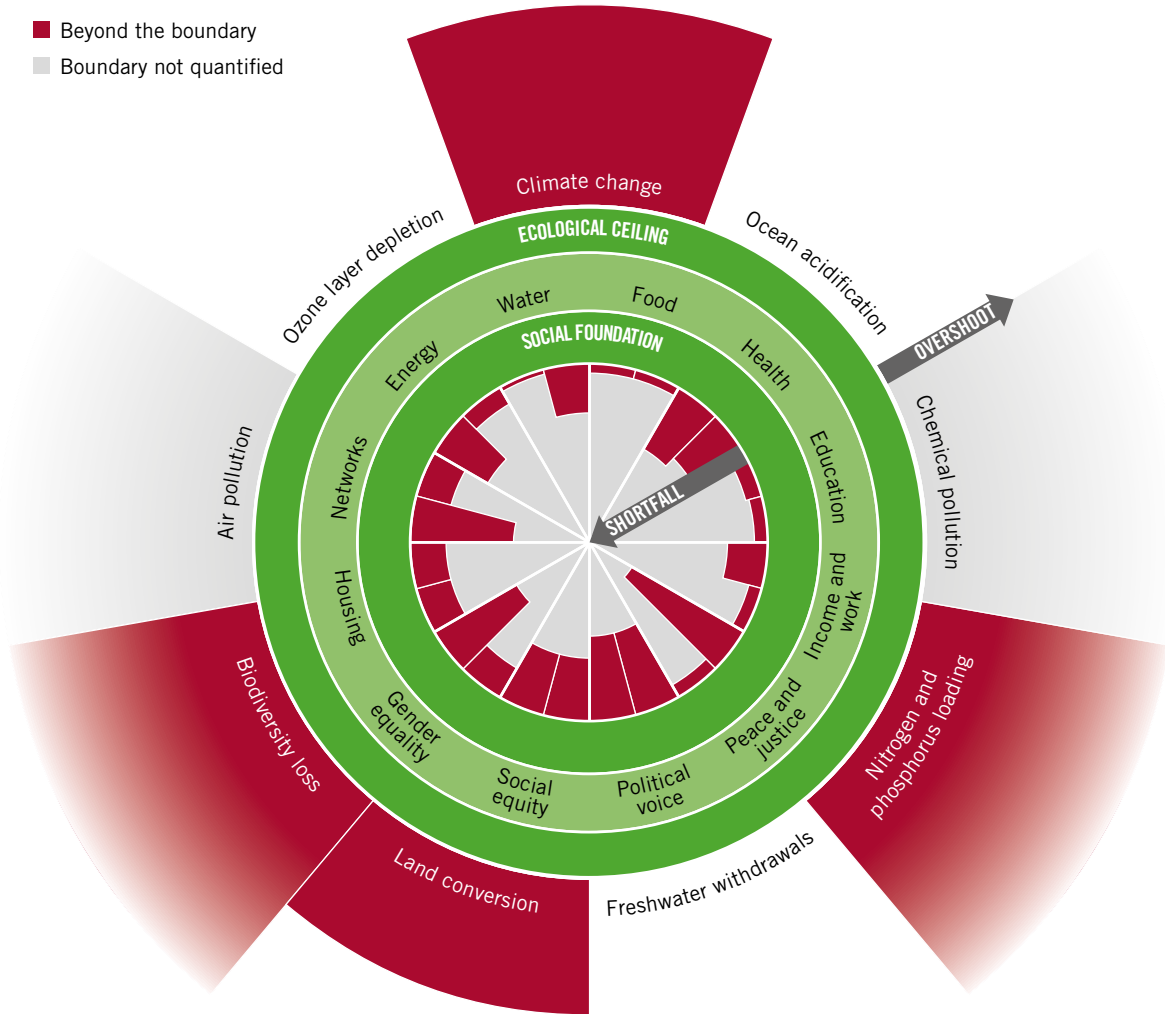
Source: Raworth (2017b).

Note: This schematic representation of social and planetary boundaries (also known as the Doughnut) illustrates the social foundation and ecological ceiling in the dark green circles, encompassing a safe and just space for humanity. The red wedges show overshoots of the ecological ceiling or shortfalls in the social foundation (some areas of the social foundation have more than one indicator, as shown by the red wedges; for a list, see Raworth 2017a). The extent of pressures on planetary boundaries that are not currently being overshot is not shown. The concept of planetary boundaries was first introduced by Rockström et al. (2009).

lifestyles and diets in recent decades have led to increased demand for animal-source foods such as eggs, meat, milk, and fish, resulting in higher rates of diet-related noncommunicable disease as well as in the intensification of production systems, overcrowding of animals, and increased risk of animal disease outbreaks and spillovers of disease from animals to humans (Yadav, Singh, and Malik 2020; FAO et al. 2020). Half of the emerging zoonotic diseases between 1940 and 2005 have been attributed to changes in land use, agricultural practices, and food production (IPES-Food 2017). As land in low- and middle-income countries is converted to grow feed crops

for cattle feedlots and intensively raised pigs and poultry in other parts of the world—sometimes as a result of land grabs by rich countries and corporations—the change in land use destroys forests and contributes to loss of carbon sinks (Blanco 2018). Similarly, a significant part of the animal-source foods imported into low- and middle-income countries come from intensive livestock production in the exporting countries, with adverse impacts on global ecosystems, pastoralists' livelihoods, and human health (Coordination SUD 2019). At the same time, domestic supply chains show weaknesses that threaten people's food and nutrition security, including inadequate

food preservation facilities for perishable foods such as fruits, vegetables, and animal-source foods (FAO 2017). Since the emergence of COVID-19, there has been an increasing focus on the human-animal-environment disease interface as encompassed in the One Health concept (Kock et al. 2020), with wet markets and their role in pathogen transmission from wildlife to people frequently cited (Restif 2020). However, wet markets have long played a key role in distributing fresh food in many societies and will continue to do so (Ribeiro et al. 2020). In a number of countries, consumers are concerned about a lack of access to affordable animal-source foods (owing to high animal mortality and market failure) and have little confidence in the safety of intensively produced food (Duggan 2015; World Bank 2016a); they worry, for example, about contamination of food with hormones, antibiotics, or pesticide residues. These concerns frequently underlie their preference for non-domesticated animals sold through informal markets (Alders 2020).

Our food systems are inherently unequal and further exacerbate inequities

Global food governance is tilted against low-income countries and smallholder farmers. The world's increasingly globalized food systems have been accompanied by increasing dependence on food imports by low- and middle-income countries as well as underinvestment in local farmers, farmer associations, and smallholder-oriented value chains (FAO 2014, 2017; Poole and de Frece 2010; McMichael 2013). In 2017 the trade gaps between low- and middle-income countries on the one hand and high-income countries on the other were reported to be widening, with low- and middle-income countries projected to be net importers of meat and dairy products by 2030 (FAO 2017). Most high-income countries provide international agricultural development assistance designed to help increase smallholder farmers' production and income in low- and middle-income countries, while at the same time retaining trade advantages through nontariff barriers to trade (Gourdon and Nicita 2012). Domestic production in low- and middle-income countries cannot compete with cheap imported goods (such as ultra-processed foods or powdered milk) that benefit from subsidized production in the country of origin (Blanco 2018). Furthermore, some food assistance from high-income countries to low-income countries still requires the recipient country to procure food from a restricted number of countries or award contracts to companies in donor countries, thus weakening local food systems in recipient countries. A considerable share of global food assistance therefore remains an export subsidy masquerading as charity (OECD 2018). While the United Nations food agencies work in pursuit of food and nutrition security and sustainable agriculture, trade regulations discount the health impacts of trade in food commodities and can constrain low-income countries' nutrition policies (Thow et al. 2017). At the same time, the globalization of food systems, along with persistent 19th-century approaches to food prices (that is, pricing based on weight or volume rather than nutrient composition and density) and the siloing of the agricultural, health, and environment sectors, places huge stresses on smallholder livestock keepers, small-scale aquaculture, and family farmers worldwide (Alders et al. 2016). Given that family farms represent more than 90 percent of all farms globally and produce 80 percent of the world's food in value terms, supporting these mostly smallholder farmers will be key to achieving SDG 2 (FAO and IFAD 2019).

Lack of secure land tenure and resulting food insecurity are a persistent issue for rural communities, indigenous people, women, and marginalized groups. Land grabs have a long history, from the colonial era to the present, and they continue to increase hunger and distort land management (Anderson et al. 2019). Displacement of smallholder farmers, pastoralists, and indigenous people is ongoing as international investors and corporations seize existing farmland and clear new land for agricultural endeavors across a range of countries (Twomey 2014). These land grabs are frequently driven by global capital and corporate agribusinesses that are responsible not to local land or people but to faraway shareholders (Deininger et al. 2011). A lack of enduring links to this land and its associated ecosystems contributes not only to a reluctance to employ sustainable practices requiring long-term investments in landscapes, including soil and water, but also to ecosystem damage resulting from the expansion of agricultural land into previously uncultivated landscapes, thereby increasing the risk of emergence of new pathogens (Anderson et al. 2019). Insecure land tenure is a major contributor to degraded land and inadequate diets, the impacts of which are frequently felt more by women and marginalized groups (Alders et al. 2016). Women and other marginalized groups are disproportionately harmed by cultural and legal proscriptions and norms, including unequal access to credit and information, that prevent them from participating fully and equally in agricultural and other livelihood activities and from reaping the benefits of these activities (Alders et al. 2016; Quisumbing et al. 2014). In Africa South of the Sahara, for example, women play a dominant role in the production, processing, and postharvest storage of food, yet they make up only 15 percent of landholders (Alders et al. 2016). When women have a lower income share within a household, that household spends less of its budget on food (Hopkins, Levin, and Haddad 1994). Widespread and ongoing iron deficiency in women of reproductive age, as well as a higher global malnutrition rate compared with men, reflects systemic discrimination, including within health and nutrition services (FAO et al. 2020; Alders 2018). The

poor nutritional status of women interferes with their daily activities and livelihoods and crosses generations because poorly nourished women are more likely to give birth to children with a low birth weight (FAO et al. 2020). The 2020 GHI also shows that rural and indigenous regions often present higher rates of child stunting (see Chapter 1).

Formal and informal education on agriculture and nutrition is insufficiently tailored to local conditions. Individuals' choices about their diets and farmers' decisions about their agricultural practices are influenced by factors besides education, but without appropriate educational opportunities it is almost impossible to achieve optimal results, especially in resource-limited circumstances. A series of avoidable barriers mean that too many children lack access to the education necessary to learn life skills and help them thrive (UNICEF 2020b). Vulnerable households often cannot afford the costs associated with schooling or need children to supply farm or household labor (ILO 2020). School curricula are often poorly adapted to local circumstances, including local agroecological zones and marketing systems (Epstein and Yuthas 2012), and insufficient attention is given to understanding sustainable agriculture, human nutrition, and how to meet nutrient requirements with locally available, nutritious food (Garcia, Osburn, and Jay-Russell 2020; CHF 2020).

Social protection remains insufficient or misdirected. Support for the most vulnerable—that is, programs to boost the well-being of poor people, children, the elderly, and others through cash transfers, food transfers, subsidies, and social insurance—is crucial for people's food security during crises, and the COVID-19 pandemic has highlighted the degree to which social protection is lacking. In many low- and middle-income countries, rural households increasingly rely on informal off-farm sources of income and are becoming net food consumers vulnerable to shocks (Rapsomanikis 2015). Even before COVID-19, 55 percent of the world's population was not covered by any social protection programs (Ortiz 2018). Carrying out such programs requires significant investment in avenues for connecting with individuals and households, especially those dependent on the informal sector (Razavi 2020). The lack of accurate data on the number of people involved in the informal sector and insufficient government and civil society links with informal networks increase the difficulty of organizing distribution programs. Furthermore, overseas remittances play a critical role in maintaining many households' incomes and food consumption. Now, as a consequence of COVID-19 control measures, countless migrant workers worldwide are losing their jobs, and remittances to low- and middle-income countries are projected to fall by 19.7 percent to US$445 billion (World Bank 2020d). As unemployed migrant workers return to their home villages, they will

place further strain on limited food stocks and social protection programs (Pancawati 2020). Finally, the agricultural and supply chain workers who feed the world receive low wages, have little to no job security (Martin 2016), and are frequently at high risk of contracting COVID-19.

Inadequate emergency responses are disrupting local food systems and fail to support local producers. COVID-19 containment measures, enforced without a clear declaration that agricultural and food services are essential, have endangered food security in many locations (Swinnen and McDermott 2020). Restricted labor mobility in areas dependent on seasonal or migrant laborers and the difficulties associated with accessing markets and transporting food both within and between countries are disrupting food supply chains and hampering people's access to essential goods and services (FAO et al. 2020). These restrictions not only cause short-term shocks to food supplies but also weaken local producers' ability to prepare for the next sowing or production cycle, further diminishing the likelihood of achieving Zero Hunger in the coming decade (UN 2020d). This situation highlights the costly result of failure to coordinate preparedness and response activities between different sectors, such as health, agriculture, and trade.

Building Food Systems for One Health and Zero Hunger

We need to build back better by achieving inclusive, sustainable, and resilient food systems and preserving biodiversity for the future we want (UN 2020b, c). Working to achieve SDG2—Zero Hunger— and its associated targets by 2030 will be a crucial part of this rebuild, but what steps are required? Many immediate needs must be addressed now, and many others must be tackled over the coming decade. If we are to build back better, we will also need to undertake some transformations so monumental they will extend across the next several decades, as food systems and economies are reimagined as part of a net-zero-carbon world. As we pursue the goal of Zero Hunger, a One Health approach points the way toward a future that maximizes the health of humans, animals, and the environment. The following actions constitute a road map for ending hunger and building sustainable food systems now, over the next 10 years, and in the decades to come.

Actions for multilaterals, governments, communities, and individuals to take now

Sustain current food production and distribution. To guarantee ongoing food availability, the production and supply of food must be classified as essential services, and safe working environments must be guaranteed (FAO 2020i). Governments and citizens must also prepare now to ensure all required inputs are available for the next and subsequent planting seasons. As they bolster food supply chains and correct value chain disruptions associated with COVID-19 control measures, governments must work toward reduced food loss and waste in postharvest management and throughout the value chain. Aligning support for agricultural production by smallholder farmers, reducing food dumping, using cash and voucher assistance whenever feasible, and promoting the effective use of perishable food will require intersectoral coordination among governments, nongovernmental organizations, and community-based entities working collaboratively under a One Health banner (World Bank 2020b). Food and nutrition security projects linked with human, animal, and environmental health, such as those implemented by Vétérinaires Sans Frontières International, exemplify the multiple benefits of One Health programs that achieve greater integration of management, farming, food, and disease control aligned with local ecosystems (VSF Europa 2014). Equitable access to new technologies and emergency countermeasures, including diagnostics, vaccines, and therapeutics for both human and animal disease crises, as well as essential agricultural inputs such as appropriate seeds, must be guaranteed. In addition, governments should fully integrate their national security, health security, and food security strategies to develop sufficient preparedness and response capacity to address a wider array of potential hazards and threats to society.

Ensure governments, donors, and NGOs work closely with community organizations so that social protection measures reach the most vulnerable. Given that so many people affected by COVID-19 are informal workers, the unemployed, and the elderly, community-based and civil society organizations must help reach those unable to gain access to the official social protections on offer. Organizations trusted by communities and authorities are vital to ensuring that cash transfers, essential health care, food transfers, small business grants, and public employment schemes function optimally and fairly. In some areas hit hard by the economic consequences of the pandemic, households' efforts to meet their food needs are threatening local ecosystems, biodiversity, and endangered species, so it is important to identify options for sustaining their food security in culturally acceptable ways that support human, animal, and planetary health (Poole 2020). In one past example in Chad, joint One

Health efforts to combine childhood vaccination programs with cattle vaccination in pastoralist communities demonstrated both increased vaccination coverage and savings of 15 percent compared with the routine practice of separate campaigns for animal and human vaccination (Schelling et al. 2007). These types of innovative and practical One Health solutions, tailored to local needs and circumstances, will be required in a future constrained by the economic fallout of the COVID-19 pandemic.

Improve the coordination and efficiency of regional and international efforts. Regional institutions—especially regional economic communities such as the African Union and the Association of Southeast Asian Nations (ASEAN)—must negotiate strongly with donors and groups such as the World Trade Organization on behalf of low- and middle-income countries to shore up their own regional food supply chains and ensure access to the technologies, countermeasures, and expertise needed to respond to acute shocks like COVID-19 and the locust crisis. Key international agricultural programs should address the immediate crises and be replenished in accordance with evaluation findings, such as IFAD's Scaling Up Evaluation Synthesis (IFAD 2017). Food assistance should also be designed to support local food systems in the recipient country. As part of this effort, all food assistance should be untied from the requirement to acquire donor-country commodities and from the continuing obligation to primarily use donor countries' logistics, storage, and distribution companies, as recommended by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD 2019). This would give recipient countries the flexibility to adopt best-value-for-money options for feeding their populations and implementing their food security strategies (Cardwell and Ghazalian 2020; Jaspars and Leather 2005). During the current crisis, governments and multilateral bodies must document and analyze the impacts of disruptions to international and national supply lines through a One Health and equity-sensitive lens to ensure efficient, equitable food production. The distribution of agricultural inputs, including credit and extension services, must not be subject to gender-based or other forms of discrimination. Finally, a number of key international summits are planned for 2021, including the Tokyo Nutrition for Growth Summit, the 26th United Nations Climate Change Conference (COP26), the 15th Conference of the Parties to the Convention on Biological Diversity, and the UN Food Systems Summit. The participants in these summits, as well as the global community, should ensure that the recommendations are well coordinated, coherent, and complementary; that they are actually implemented; and that they center on promoting the health of humans, animals, plants, and the planet. One example of what is possible

when sectors, disciplines, and countries work together for the common good is the launch of the ASEAN Centre for Biodiversity in 2005, which has advanced the conservation and sustainable use of biological diversity, guided by fair and equitable sharing of benefits.

Actions for multilaterals, governments, communities, and individuals to take by 2030

Use lessons learned during the COVID-19 pandemic and other crises to build safe, resilient food systems that can prevent complex emergencies and better respond to them. Global agreements and action on sustainable food systems must bring all stakeholders to the table (FAO et al. 2020). To improve transparency and accountability, it is important to remove the friction between multilateral agencies, government ministries, and NGOs generated by overlapping mandates and competition for increasingly scarce resources. Huge trade and investment disparities between low- and middle-income countries and high-income countries perpetuate food system inequity and inefficiency, and these must be addressed. In response to shocks to food systems, high-income countries and the international community must address short-term symptoms (such as by providing food and cash or vouchers to vulnerable individuals and households and improving wet market facilities and hygiene standards) without harming the livelihoods of local food producers. Stakeholders must commit to dealing with the issues underlying chronic food and nutrition insecurity, loss of faith in food safety, and inadequate remuneration of farmers, producers, and other key participants within a resilient food system. They must significantly increase investments in agricultural research and development, food quality and safety, and human health, and they must ensure that domestic and international policy making, implementation, monitoring, and impact assessments are inclusive.

Carry out a global, multisectoral review of food, health, and economic systems through a One Health lens to chart a sustainable and resilient pathway for governments and donors that paves the way for environmental recovery. This review should be convened and implemented by a neutral entity with representatives from the public, private, and civil society sectors across all geographical regions. Among other things, it must address the need to strengthen data collection in order to better monitor the management of agricultural and natural resources on which smallholder food systems rely and to support the surveillance of animal, zoonotic, and foodborne diseases. Biosecurity legislation will need to take into account findings on crises such as COVID-19, the locust plague, fall army worm infestations, and African swine fever to enable the transparent trade of safe, high-quality food commodities and agricultural inputs that adhere to agreed-upon standards. Evidence on the impact of crises on low- and middle-income countries and on vulnerabilities in high-income countries, including evidence on how malnutrition increases health risks from pandemics, provides lessons that should be used to accelerate ongoing reforms, such as universal health coverage, global health security, and disaster risk reduction commitments. A new global coordination mechanism is required to enable food and other allied international thematic institutions to align policies in support of resilience and sustainable food systems (United Nations General Assembly 2019; UN 1992; WHO 2005; UNDRR 2015). These efforts must be accompanied by enhanced investments in sustainable food systems at the territorial level—including, where feasible, through properly regulated mechanisms blending public and private finance, such as public guarantees and responsible and just governance of tenure of land, fisheries, and forests (FAO 2012)—to reduce the investment risk associated with the food and agriculture sector.

Take a One Health approach to invest in sustainable food production, distribution, and nutrient recycling. Smallholders and input supply services must be provided with the knowledge and inputs to make their production systems more resilient and sufficiently profitable so they can meet their nutrient requirements either directly through their own production or indirectly through fair farm-gate prices that allow them to purchase safe and nutritious food (CHF 2020). Given the importance of diversifying both food production and consumption to achieve more sustainable and resilient food systems and better nutritional outcomes through sustainable healthy diets (Alders et al. 2016; FAO and WHO 2019), nutritious but neglected food species amenable to sustainable harvesting should be integrated into smallholder household livelihood strategies. A One Health approach that engages various sectors and disciplines will help identify options that enable households to use the food resources available to them across the seasons of the year and work with them to identify optimal practices (Wong et al. 2018). The reintroduction of river prawns upstream from the Diama Dam along the Senegal River is an example of this type of One Health approach in action. The project provides a regionally tailored, sustainable approach to the control of schistosomiasis—a disease that affects some 240 million people across the world—while enabling the restoration of a previously established source of food and income for local fisheries (Sokolow et al. 2015; Shaikh, Rahman-Shepherd, and Dar 2018). Governments and donors need to promote effective smallholder production and marketing organizations; cost-efficient food preservation, marketing, and food safety systems, including improved postharvest management; better linkages between rural and urban areas to shorten supply chains (increasing the resilience of local food systems to international shocks); agroecological approaches

that match plant varieties, animal breeds, and farming systems with local conditions and tailored educational and vocational training (FAO 2020a); and efficient recycling of nutrient-rich organic waste (Alders et al. 2016). These activities must run in parallel with strengthened coordination across agriculture, education, finance, human health, and water, sanitation, and hygiene to generate synergistic outcomes, both horizontally and vertically. Evidence-based approaches to managing wet markets (including improved measures for preventing and controlling infection and disease surveillance systems) and options for effectively preserving animal-source foods, fruits, and vegetables are essential to support people's access to and use of safe, nutritious, diverse foods. Finally, significantly reducing industrial livestock production while ensuring access for those who need animal-source food the most—undernourished pregnant and lactating mothers and infants in the first 1,000 days of life in resource-poor settings (Grace et al. 2018)—would offer clear gains: more competitive pricing of local products in low- and middle-income countries, recovery of the environment and biodiversity, mitigation of climate change drivers (Jackson et al. 2020; Young 2018), reduced global risk of emerging and persistent zoonotic diseases (Alders et al. 2013), and reduction of malnutrition (Grace et al. 2018).

Implement formal and informal education programs that match people's circumstances. School curricula should be tailored to local conditions, including local agroecological zones and marketing systems. Students should be introduced to the One Health concept early on (Thomson 2020) and instructed in human nutrition and how to meet the nutrient requirements of girls, boys, women, and men with locally available, nutritious food to ensure good outcomes for human well-being, food and nutrition security, and natural resources (Garcia, Osburn, and Jay-Russell 2020; CHF 2020). In the Democratic Republic of the Congo, for example, farmer field schools and care group programs for women and children have been shown to be particularly effective (see Chapter 3).

Support regional trade initiatives that include social and environmental metrics. Trade agreements should do more than merely pursue short-term economic gains at the macro level. The 193 countries that signed the SDGs have committed to SDG 17.10: "a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization" (WTO 2020). These countries must push global agricultural, environmental, and trade institutions to deliver a harmonized policy framework that is good for food producers, consumers, the environment, and the economy.

Actions for multilaterals, governments, communities, and individuals to take beyond 2030

Globally and nationally affirm food and nutrition security as a key component of human health, as outlined in the 2019 United Nations Political Declaration on Universal Health Coverage.[3] Acknowledging the key role of food and nutrition security will require balancing multilateral and national budget allocations across food-related sectors and harmonizing policies related to emergency response, agriculture, education, and health.

Develop and implement circular economic systems that promote sustainable local agricultural production along with climate-friendly and fair global trade of agricultural products and food. A circular economy recycles resources and materials to keep them continually in use, regenerates natural systems, and eliminates waste and pollution (CHF 2020). In a food system, a circular economy requires producers, consumers, companies, and governments to reduce the amount of waste generated in the food system, safely reuse leftover food, make use of by-products and food waste, recycle nutrients, and implement systems to manage food waste and surpluses so they are not lost to the system (Jurgilevich et al. 2016; Figure 2.3). The provision of affordable, fresh, healthy food is vital to ending malnutrition and improving well-being, making it essential for food producers and consumers to have more information about the larger systems in which they operate. Internationally based, locally adapted frameworks—developed collaboratively by governments, the private sector, and specialist civil society organizations—can inform these producers and consumers whether the landscapes that produce food are healthy and whether the food itself is becoming more or less nutritious. The key is to balance healthy and equitable food environments with just and sustainable remuneration of family farmers, fishers, and producers, enabling them to care for both their households and their land and aquatic environments (Alders et al. 2016). To achieve sustainable and equitable food systems, food must be valued not only by its weight or volume, but also by its nutrient density and freedom from biological and chemical contamination.

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[3] This affirmation should be in alignment with the all-hazards approach promoted by the Sendai Framework for Disaster Risk Reduction and the global health security–focused International Health Regulations.

FIGURE 2.3 **A LINEAR AND A CIRCULAR FOOD ECONOMY**

LINEAR FOOD ECONOMY
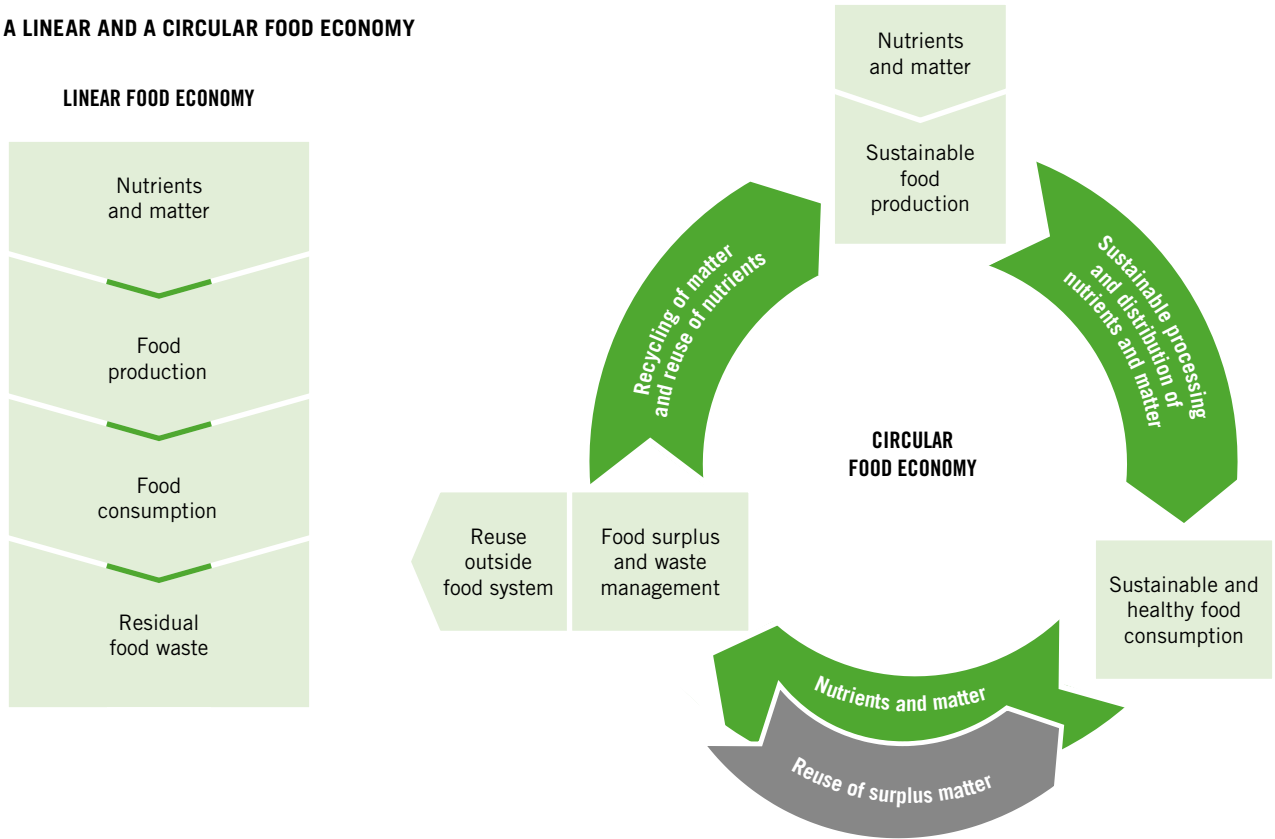
Source: Authors.

Note: A circular food economy focuses on reducing the amount of waste generated by the food system, safely reusing leftover food, using by-products and food waste, and recycling nutrients and other food matter from humans, animals, and plants.

Conclusion: International Solidarity and Sustainable Values

We are likely to face more shocks and challenges on our way to 2030, even as we work to build a food system that can sustainably support a healthy, food-secure, well-nourished human population with Zero Hunger. The 2020 GHI findings highlight the food insecurity challenges facing low-income countries as they battle multiple crises. Right now, low- and middle-income countries can make progress by including marginalized groups in policy making, working together more effectively at the regional level to increase their negotiating power on the global stage, and ensuring shorter food supply chains within their regions. Both now and moving forward, they can carry out policies and programs that promote the well-being of female and male smallholder farmers and engage communities with agricultural production and food systems that are economically, socially, and environmentally sustainable.

We must not forget, however, that low- and middle-income countries cannot achieve the SDG 2 targets by 2030 without the full engagement of high-income countries. If Zero Hunger and the associated SDG 2 targets are to be met, high-income countries must also be active, positive contributors to dialogue and change. Among other things, they will need to use trade policy tools to create market incentives for sustainable food economies, untie aid and design food assistance to strengthen local and regional food systems, and change how agricultural products and services are valued so that nutrient content and ecosystem services are appropriately integrated into pricing mechanisms. A global transformation to a set of circular economies that feed all people through more sustainable food systems will not be completed by 2030, but by acting together we can achieve Zero Hunger while laying a solid foundation for a healthier, more sustainable, and more equitable world.
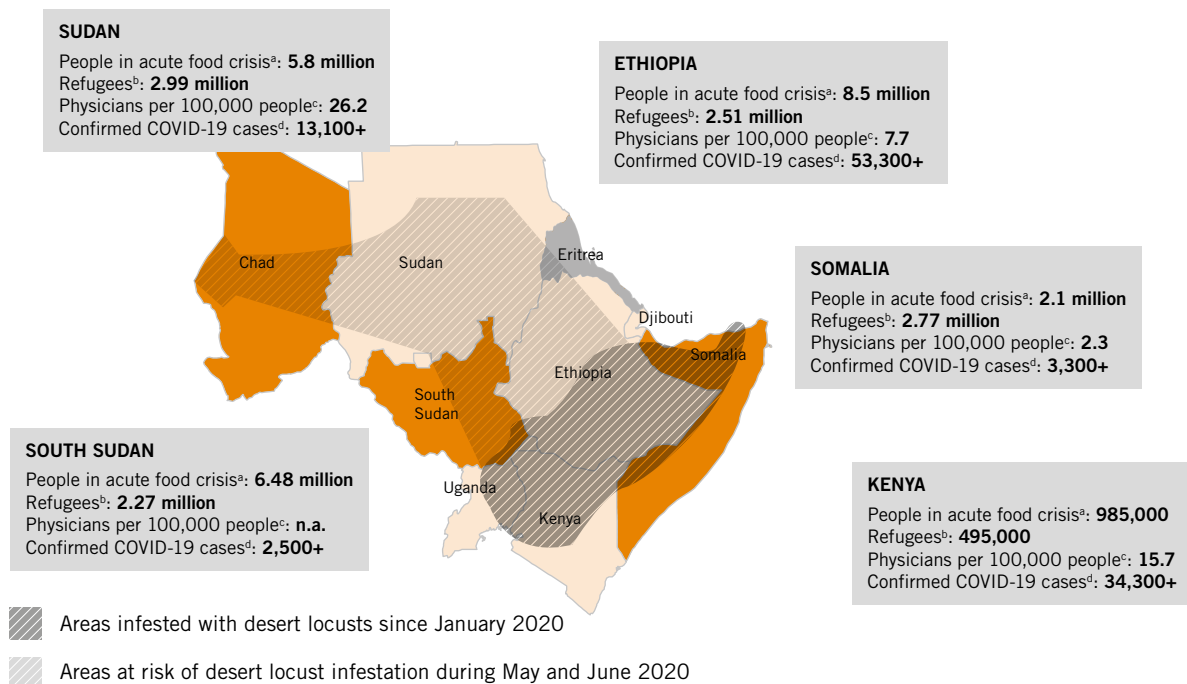
OVERLAPPING CRISES IN THE GREATER HORN OF AFRICA
Alliance2015

Many countries face overlapping health, hunger, and economic crises, but the challenges confronting the Greater Horn of Africa loom especially large. In a region already home to large numbers of people affected by chronic and acute hunger, the COVID-19 pandemic comes on top of a severe locust infestation, ongoing conflict and instability, a series of extreme weather events induced by climate change, and a history of

massive forced displacement (see figures below). Measures to contain the pandemic have created negative social and economic effects, complicated treatment of the locust infestation, and pose an unprecedented challenge to food security and nutrition. If the responses to the diverse challenges are not carefully coordinated, a food crisis will loom large in the region.

SIMULTANEOUS CHALLENGES IN THE GREATER HORN OF AFRICA

SUDAN
People in acute food crisis[a]: **5.8 million**
Refugees[b]: **2.99 million**
Physicians per 100,000 people[c]: **26.2**
Confirmed COVID-19 cases[d]: **13,100+**

ETHIOPIA
People in acute food crisis[a]: **8.5 million**
Refugees[b]: **2.51 million**
Physicians per 100,000 people[c]: **7.7**
Confirmed COVID-19 cases[d]: **53,300+**

SOMALIA
People in acute food crisis[a]: **2.1 million**
Refugees[b]: **2.77 million**
Physicians per 100,000 people[c]: **2.3**
Confirmed COVID-19 cases[d]: **3,300+**

SOUTH SUDAN
People in acute food crisis[a]: **6.48 million**
Refugees[b]: **2.27 million**
Physicians per 100,000 people[c]: **n.a.**
Confirmed COVID-19 cases[d]: **2,500+**

KENYA
People in acute food crisis[a]: **985,000**
Refugees[b]: **495,000**
Physicians per 100,000 people[c]: **15.7**
Confirmed COVID-19 cases[d]: **34,300+**

Areas infested with desert locusts since January 2020

Areas at risk of desert locust infestation during May and June 2020

Source: Authors, based on IPC (2020), UNHCR (2020b), World Bank (2020e), and Johns Hopkins University and Medicine (2020).

Note: Colors of countries correspond to the GHI Severity Scale.
[a] People categorized as being in food crisis, emergency, or famine by the Integrated Food Security Phase Classification (IPC). Ethiopia: Feb–June 2020 projection; Kenya: April–July 2020 projection, arid and semi-arid lands; Somalia: as of April–June 2020; South Sudan: May–July 2020 projection; Sudan: as of June–August 2019.
[b] Total number of refugees, asylum seekers, returnees, and internally displaced persons as of June 2020.
[c] For comparison, in 2017 the number of physicians per 100,000 averaged 80 in South Asia and 156.6 for the world as a whole.
[d] As of September 2, 2020.

Hunger is already widespread. For the past two decades, countries in the region have experienced *serious, alarming,* or *extremely alarming* GHI levels. In May 2020, more than 25.3 million people in the region faced acute food insecurity at crisis levels or worse. More than 11 million of these people live in areas infested by desert locusts, and their number is expected to grow as the locust swarm expands (IPC 2020).

The Horn of Africa commonly experiences severe droughts and floods, and extreme weather has contributed to the region's worst infestation of desert locusts in decades. For the past nine rainy seasons, farmers and pastoralists in East Africa have

experienced either severe flooding or scarce or failed rains, from which they are still recovering. All countries in the region are highly vulnerable to climate change but are ill prepared to deal with its effects (ND GAIN 2020; von Grebmer et al. 2019). As a result of two cyclones in 2018, heavy rains in the Arabian Peninsula generated a massive upsurge of desert locusts, exacerbated by another cyclone in late 2019. The swarms are destroying up to 100 percent of crops and fodder—a massive threat in a region where most of the population relies on agriculture. A swarm measuring one square kilometer can contain up to 80 million adult locusts, with the capacity to consume the same amount of food in one day as 35,000 people (FAO 2020k). As

of April 2020, 200,000 hectares of cropland had been damaged and 356,000 metric tons of cereals had been lost in Ethiopia alone (FAO 2020l). Given that swarms can travel up to 150 kilometers a day, the risk is high that the locusts will spread not only across neighboring countries, but across the Indian Ocean to join the swarms already spreading in India and Pakistan (FAO 2020k, n).

Armed conflict, turbulent political transformation, widespread forced displacement, and poor governance have left many countries ill equipped to respond to crises. In Ethiopia and Somalia, a fragile political context and mistrust in the state prevail, and acceptance of COVID-19 containment measures is dwindling. The health and social protection systems in the region are largely unable to treat widespread diseases, such as tuberculosis, let alone respond to COVID-19 (Weber 2020). The region is home to more than 11 million refugees, asylum seekers, returnees, and internally displaced people (UNHCR 2020b). The Dadaab refugee complex, one of the largest such complexes in the world, lies in Eastern Kenya, near neighboring Somalia. In densely populated refugee camps and marginalized urban settlements, inadequate housing conditions and poor water and sanitation make it challenging for people to take preventive measures like hand-washing and physical distancing (Rudloff and Weber 2020).

The COVID-19 pandemic and measures designed to contain it are having severe social and economic effects that are worsening hunger and undernutrition. Like economies in other world regions, the already weak economies in the Greater Horn of Africa are likely to slip into recession. With limited medical capacity, countries in the region have relied heavily on border closures, travel restrictions, and strict lockdowns to flatten the infection curve. These measures, however, have hindered supply chains in the region, disrupting the availability of food in the markets as well as people's ability to gain access to it. Restrictions have also hampered farmers' access to agricultural inputs and their ability to cultivate their land (FAO and WFP 2020; IPC 2020). Urban residents who rely on the informal economy have been particularly hard hit, with market closures and restrictions on transport and mobility leaving them unable to generate income, to build up food reserves, or to provide for their families. Even rural populations that rely largely on subsistence farming are affected because they often buy some foods from markets (Rudloff and Weber 2020). Food prices were already high in some countries in the region, and poor harvests due to droughts and floods and COVID-19 countermeasures are aggravating the situation (FAO 2020m). A survey conducted in Addis Ababa in April 2020 showed that many households were already consuming more staple foods and fewer fruits and vegetables because more nutritious and balanced diets were unavailable and unaffordable (Hirvonen, Abate, and de Brauw 2020). Projections already warn that in the region more people could die from the socioeconomic impact of COVID-19 than from the virus itself (WFP 2020c).

This complex situation—an already fragile context combined with a severe locust infestation and COVID-19—could lead to a massive humanitarian crisis, and measures to cope with it must be planned holistically. An approach that focuses only on one crisis at a time may inadvertently exacerbate the other crises, which are all interlinked. Cross-border events require multilateral cooperation (such as between governments and with the Regional Desert Locust Alliance, FAO, and OCHA). Because the overlapping crises have different dynamics in urban and rural areas, they require distinct responses, but realities in urban and rural areas also influence each other and must be considered together.

TIMELINE OF NATURAL HAZARDS IN THE GREATER HORN OF AFRICA, 2018–2020

Floods
Nearly 500 people were killed, and hundreds of thousands of people were displaced.

March–June 2018

June–September 2018

Rift Valley fever
Outbreaks occurred in Kenya and Uganda.

Prolonged drought
Up to 6 out of the past 7 seasons failed in parts of East Africa, affecting more than 20 million people.

October 2018–September 2019

Desert locusts
After an initial outbreak in July 2019, East Africa's worst locust upsurge in 25 years affects 9 countries in the region as well as Yemen.

October 2019–May 2020

Since October 2019

Floods and landslides
In two consecutive seasons rainfall measured 200% above average. The 2019 floods were the worst since 1997, with 2.8 million people affected.

COVID-19
Global pandemic has resulted in a severe economic slowdown and widespread disruptions to livelihoods, markets, and trade.

Since March 2020

Source: Adapted from FAO (2020k).

In the province of Nord-Kivu, Democratic Republic of the Congo, participants cook and eat together after a workshop on new methods of cultivating vegetables. Using enhanced cultivation methods, family farmers can increase their income and consume a more balanced and nutritious diet.

A CLOSER LOOK AT HUNGER AND UNDERNUTRITION

Democratic Republic of the Congo

Key Messages

→ The Democratic Republic of the Congo has no Global Hunger Index (GHI) score because data are incomplete, but its hunger level is provisionally designated as *alarming*. In 2019 the country experienced the second-worst food crisis in the world in terms of the number of people affected. Child mortality and child stunting are high. On the positive side, child wasting has fallen significantly since 2001.

→ Poverty in DRC is extraordinarily high: Recent projections suggest that 72 percent of the population is living in poverty.

→ Ongoing violence and insecurity, particularly in the east of the country, are contributing to persistent instability and high levels of displacement and undermining livelihoods and food security.

→ Multiple public health crises—including serious outbreaks of Ebola, measles, and cholera, and now the global COVID-19 pandemic—undermine people's health, food and nutrition security, and economic well-being. Access to clean water, sanitation, and hygiene facilities is extremely low.

→ Effective interventions have included farmer field schools; care groups providing nutrition education, skill building, and food rations for women and children; and nutrition supplementation.

→ Real progress and successes in food and nutrition security will depend on improving the security situation, building up government institutions and capacity, raising agricultural production and productivity, reforming the water, sanitation, and hygiene (WASH) sector, and strengthening nutrition education and family planning and reproductive health services.

FIGURE 3.1 **MAP OF DRC**

Note: DRC is divided into 26 provinces, including the city-province Kinshasa, the country's capital. Boundaries, names, and designations shown on maps in this report do not imply official endorsement or acceptance by Welthungerhilfe or Concern Worldwide.

Country Context

With a vast landmass, large population, and extensive natural resources, DRC has great economic potential, but its development has been hampered by war and recurring conflict in recent years. The country is the largest in Africa South of the Sahara, and its population of 84 million people is the third highest in that region (World Bank 2020a). It has considerable mineral resources, including cobalt, tantalum, tin, gold, and diamonds, particularly in the south and east of the country (Geenen and Marysse 2016). However, the country's history of brutal exploitation during colonialism and its later authoritarianism, political crises, and war have left the government extremely fragile, with a limited ability to provide social and economic services. Furthermore, the effectiveness of government services and investments is being hampered by widespread corruption (Bak et al. 2019). Although DRC experienced its first peaceful transition of presidential power in 2019, it still faces steep challenges in the path to development (IFAD 2019). More than 100 armed groups perpetuate violence, particularly in the east of the country, including in Nord-Kivu,

Sud-Kivu, and Ituri (ICG 2019). This violence has led to high levels of displacement: at the end of 2019, 5.5 million people were displaced within the country itself—the highest level in Africa—and as of February 2020 nearly 1 million refugees and asylum seekers had fled to neighboring countries. Furthermore, as of January 2020 more than half a million refugees and asylum seekers had been displaced to DRC from other countries (IDMC 2020; UNHCR 2020a).

Poverty is rampant. The most recent official poverty statistics show that as of 2012, 76.6 percent of the population lived in poverty, down from 94.1 percent in 2004 (World Bank 2020a).[1] World Bank projections suggest that by 2018 this rate had declined slightly to 72 percent—still extraordinarily high (World Bank 2019b). In 2018 GDP per capita was just $562 in current US dollars. This is the 10th-lowest GDP per capita of all countries in the world with available data. Poverty is more pronounced in the country's northwest and central provinces (World Bank 2017). Since 2010 GDP per capita has grown at an average annual rate of 3 percent (World Bank 2020a), although the COVID-19 pandemic and resulting economic fallout are likely to threaten this progress. According to the Human Development Index, DRC ranks 179th out of 189 countries (UNDP 2019).

Agriculture employs the majority of the population, but industry—led by mining—contributes the most to GDP. Agriculture accounted for 68 percent of employment in 2019, compared with 21 percent in services and 11 percent in industry. However, agriculture represents just 19 percent of GDP, whereas services contribute 33 percent and industry contributes 44 percent (World Bank 2020a). Conflict and instability pose challenges to the agriculture sector by displacing farming families from their land and reducing the financial resources available to invest in seeds, fertilizer, and other inputs. Flooding, landslides, and soil erosion also hamper agricultural production and are likely to increase owing to climate change and increased climate variability (FAO 2018a; USAID 2018b). Given farmers' limited access to modern techniques and inputs, agricultural productivity is low compared with the average for Africa South of the Sahara (World Bank 2019a). Availability of banking services is extremely limited, particularly in rural areas, and farmers rarely have land titles that can be used as collateral for loans (Marivoet et al. 2018).

Public health crises directly threaten the population's well-being, undermine economic growth, and in some cases exacerbate food and nutrition insecurity. DRC has experienced 11 Ebola virus disease

outbreaks since 1976. In June 2020 a new outbreak in Équateur province was detected, and its largest outbreak to date, centered in Nord-Kivu province, was declared over. Since May 2018 over 3,400 cases and more than 2,200 deaths have occurred in Nord-Kivu, Sud-Kivu, and Ituri provinces (WHO 2020a; MSF 2020). Fighting the Ebola outbreak has required considerable public health resources and created significant disruption to livelihoods and food security in the affected areas. The global COVID-19 pandemic has the potential to have more widespread effects on food security, either through the direct effects of the disease in the country or as a result of the ensuing economic contraction. A massive and ongoing measles outbreak that began in 2018 has infected more than 300,000 people and killed 6,045 in 2019, with children particularly hard hit. Measles puts children at increased risk of acute malnutrition, which, in turn, increases the severity and duration of measles (Ducomble and Gignoux 2020; Holzmann et al. 2016). Moreover, DRC faces a cholera epidemic across 23 of its 26 provinces, with over 30,000 cases and 500 deaths in 2019 alone (Solidarités International 2020).

FIGURE 3.2 **DRC'S GHI INDICATOR VALUES, 2000, 2006, 2012, AND 2020**
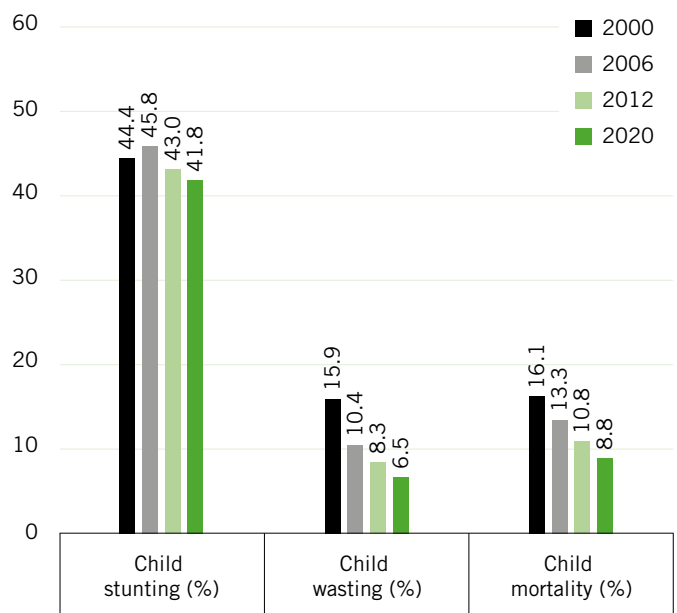
Source: Authors, based on data sources shown in Appendix C.

Note: Child stunting, child wasting, and child mortality refer to the rates for each indicator for children under the age of five. Data for child stunting and wasting are from 1998–2002 (2000), 2004–2008 (2006), 2010–2014 (2012), and 2015–2019 (2020). Data for child mortality are from 2000, 2006, 2012, and 2018 (2020). Data on the fourth GHI indicator, undernourishment, are not available.

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[1] The poverty rates expressed here are poverty headcount ratios at $1.90 per day (2011 purchasing power parity).

Hunger in DRC

Although DRC has no 2020 Global Hunger Index score owing to a lack of data, its hunger level is provisionally designated as *alarming* (see Box 1.3). Data for one of the four indicators used to calculate GHI scores—the prevalence of undernourishment—are unavailable. However, according to the *2020 Global Report on Food Crises,* DRC experienced the second-worst food crisis in the world in 2019 in terms of the number of people affected, with 15.6 million people facing crisis or emergency levels of acute food insecurity.[2] Factors driving food insecurity include conflict and insecurity, which trigger displacement and loss of livelihoods; weather extremes; crop pests; and economic shocks such as high maize flour prices (FSIN 2020).

Child stunting—an indicator of chronic undernutrition—remains high. At 41.8 percent in 2017–2018, child stunting at the national level has not declined substantially since 2001, when it was 44.4 percent (see Figure 3.2) (INS, USAID, and UNICEF 2019; UNICEF, WHO, and World Bank 2020a). At the provincial level the highest stunting rates are in Kwango, Kasaï-Central, and Sankuru, with more than half of children stunted in each province, compared with just 15.6 percent in Kinshasa (Table 3.1) (INS, USAID, and UNICEF 2019). Children in DRC with access to health services and adequate food and care have lower levels of stunting than other children, whereas lack of rainfall during the growing season increases the probability of child stunting (Skoufias, Vinha, and Sato 2019). Furthermore, children who are breastfed within the first hour of birth and children whose mothers were 20 years of age or older at the time of delivery are less likely to be stunted (Kismul et al. 2018).[3]

Child wasting—an indicator of acute undernutrition—has fallen significantly. The child wasting rate was 6.5 percent in 2017–2018, a considerable decline from 15.9 percent in 2001 (INS, USAID, and UNICEF 2019; UNICEF, WHO, and World Bank 2020a). The provinces with the highest wasting rates are Nord-Ubangi, at 13.5 percent, and Ituri, at 11.2 percent. Sud-Kivu has the lowest child wasting rate of any province, at 2.6 percent, and Nord-Kivu's rate is also relatively low, at 4.6 percent (INS, USAID, and UNICEF 2019).

The mortality rate for children under age five has fallen but still lags behind the average rate for the region. As of 2018 child mortality in DRC was 8.8 percent, down from 16.1 percent in 2000 but still

TABLE 3.1 **GHI INDICATOR VALUES BY PROVINCE, DRC**

Province	Child stunting (%)	Child wasting (%)	Child mortality (%)
Kinshasa	15.6	5.5	6.0
Kongo Central	35.2	9.7	7.7
Kwango	54.6	9.3	3.0
Kwilu	47.0	10.9	7.1
Mai-Ndombe	38.8	9.3	6.6
Équateur	35.0	7.6	4.3
Sud-Ubangi	44.9	4.6	10.1
Nord-Ubangi	42.4	13.5	5.3
Mongala	47.5	8.5	3.6
Tshuapa	45.3	10.6	10.1
Tshopo	43.9	4.3	6.0
Bas-Uélé	47.5	4.1	4.2
Haut-Uélé	35.2	10.0	5.4
Ituri	47.1	11.2	4.4
Nord-Kivu	49.6	4.6	2.6
Sud-Kivu	48.0	2.6	3.8
Maniema	44.2	4.0	9.1
Haut-Katanga	40.0	5.0	9.8
Lualaba	42.9	5.9	4.8
Haut-Lomami	48.6	6.2	13.1
Tanganyika	40.8	4.0	6.6
Lomami	45.3	6.0	7.8
Kasaï-Oriental	42.8	5.6	8.2
Sankuru	50.4	8.2	12.7
Kasaï-Central	53.7	6.0	10.0
Kasaï	47.4	6.9	16.9
Total DRC	**41.8**	**6.5**	**7.0**

Source: INS, USAID, and UNICEF (2019).

Note: All indicators are for children under five years of age. The national child mortality estimates here and in Figure 3.2 differ because INS, USAID, and UNICEF (2019), which contains subnational values, is cited here, while UN IGME (2019b), the source for Figure 3.2, is the source used for all countries in this report.

worse than the 7.8 percent average for Africa South of the Sahara. In 2018, about 296,000 children under the age of five died in DRC (UN IGME 2019b). One of the main causes of child mortality in DRC is malnutrition, along with malaria, acute respiratory infections, and diarrheal diseases (Kavle et al. 2019; MPSMRM, MSP, and ICF International 2014). The Congolese wars (1996–1997 and 1997–2003) increased infant mortality, mainly through higher death rates in the post-neonatal period (1 through 11 months of age) (Lindskog 2016). The provinces with the highest under-five mortality rates are

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[2] The prevalence of undernourishment measures chronic hunger, which is different from acute food insecurity. See Box 1.2 for further explanation.

[3] Additional analysis is needed to identify the determinants of stunting, wasting, and child mortality at the provincial level.

Kasaï at 16.9 percent, Haut-Lomami at 13.1 percent, and Sankuru at 12.7 percent. Interestingly, several provinces with high levels of ongoing conflict have relatively low child mortality rates, such as Nord-Kivu, at 2.6 percent, Sud-Kivu, at 3.8 percent, and Ituri, at 4.4 percent. A 2007 analysis also observed a low child mortality rate in Nord-Kivu, the center of ongoing conflict, and surmised that this low rate may have been due to the presence of several nongovernmental organizations working to reduce child mortality as well as the large proportion of children living in humanitarian camps (Kandala et al. 2014).

The diversity of people's diets and the frequency of their meals are insufficient. Cassava and maize are the most commonly consumed staple crops in DRC, followed by rice. Beans are also an important part of the diet, as is palm oil (FEWS NET 2019). Meat, fish, eggs, fruits, and vegetables are consumed occasionally, and dairy is rarely consumed (Kismul, Mapatano, and Banea 2017). Among children aged 6–23 months, just 8.0 percent receive a minimum acceptable diet according to the most recent data (INS, USAID, and UNICEF 2019).[4] It is important to note that up-to-date data on diets at the national level are limited (IPC 2016).

Water, sanitation, and hygiene (WASH) are inadequate, contributing to malnutrition and poor health. In households without clean running water, children are more likely to be stunted. Poor access to WASH is associated with higher rates of anemia (World Bank 2017). Just 33 percent of Congolese have access to improved sanitation, 59 percent have access to improved sources of drinking water, and 22 percent have handwashing facilities with water and soap in the home, which poses a challenge to effectively preventing the spread of COVID-19 (INS, USAID, and UNICEF 2019; UN Water 2020). Even water facilities considered to be improved have been found to be contaminated with harmful bacteria, including more than a third of piped water in Kinshasa, making clear that improved water quality is needed (World Bank 2017).

What Has Worked in Addressing Hunger

Various types of interventions have the potential to improve food and nutrition security in low- and lower-middle-income countries. Research has shown, however, that the effectiveness of a given approach depends on the context in which it is implemented, which can vary from country to country and even within country borders. A selection of the impact evaluation literature presents some of the available evidence on what has been effective in DRC.

Farmer field schools and a care group program for women and children have been particularly effective. The Jenga Jamaa II program, a US Agency for International Development program implemented by an NGO in Sud-Kivu, included a variety of measures to address food insecurity and child undernutrition, including farmer field schools, farmer-to-farmer training, and women's empowerment groups. It also included a care group program for pregnant women and children under two years of age that provided child health and nutrition education, promoted homestead gardens, and supplied monthly rations (corn-soya blend and vitamin A–fortified oil). The care groups, women's empowerment groups, and farmer field school programs significantly improved household dietary diversity and household food security, with the farmer field schools having the greatest impact (Doocy et al. 2018). The care group and farmer field school programs improved children's diets, with the care group program seeming to be most effective, suggesting that the nutrition education component may have been an important element for improving child nutrition (Doocy et al. 2019).[5]

Supplements provided to pregnant women improve newborn nutrition. In the Women First study, women in Équateur province were given a lipid-based micronutrient supplement at least three months before conception, as well as a protein-energy supplement if they had a low body mass index (BMI) or experienced suboptimal weight gain during pregnancy. Compared with the control group that did not receive a supplement, children born to women in the intervention group had greater length-for-age at birth (Hambidge et al. 2019).

Cash transfers and food vouchers have comparable impacts on recipients' food consumption, but cash transfers may be the less costly option. To determine whether cash transfers or vouchers are more effective at assisting households in humanitarian contexts, Concern Worldwide[6] conducted a randomized experiment at an informal camp in Masisi Territory in eastern DRC. The results showed no significant differences in terms of food consumption or other measures between the recipients of vouchers and cash transfers. However, the cash transfer program was less costly to administer on an ongoing basis and provided more flexibility and perhaps better safety for recipients, who were able to choose when and where to redeem their transfers (Aker 2017).

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[4] A "minimum acceptable diet" is a standard that combines minimum dietary diversity and minimum meal frequency. It provides different recommendations for breastfed and for non-breastfed children, who need to receive milk or milk products as a substitute for breast milk.

[5] The published impact evaluations of the program did not address its cost-effectiveness aspects, which have a bearing on considerations of scaling up.

[6] Concern Worldwide is one of the contributing partners to the Global Hunger Index report.

Existing Policies and Government Measures Affecting Food and Nutrition Security

The National Strategic Development Plan (PNSD, 2017–2050) provides the framework for DRC to become a developed nation by 2050. This plan includes three phases, the first of which focuses on agriculture and rural development from 2017 to 2021, with the goal of reaching middle-income status by 2021. The second phase focuses on industrialization between 2021 and 2030, with a goal of becoming an emerging economy by 2030. The third phase, 2030–2050, focuses on becoming a knowledge-based economy, with the goal of being a fully industrialized country by 2050 (Green Climate Fund 2018). One of the five subprograms of the first phase of PNSD is the improvement of the food and nutrition security of vulnerable segments of the population (ADF 2016).

DRC's second National Nutrition Policy, adopted in 2013, takes a multisectoral approach to nutrition. It aims to promote exclusive breastfeeding of children from birth to six months of age, home fortification of complementary foods for children aged 6–23 months, interventions to improve the nutrition of pregnant and lactating women, actions against micronutrient deficiencies (vitamin A, iron, iodine, and zinc), and early detection and management of childhood illnesses, including acute malnutrition. It also seeks to cut the prevalence of stunting in children aged 0–23 months by 50 percent and reduce the prevalence of overall acute malnutrition below 10 percent in all provinces by 2023 (Kasiwa and Muzabedi 2020; World Bank 2019a).

The objective of the National Food Security and Nutrition Policy (PNSAN, 2017–2030) is to prevent and manage agricultural, food, and nutrition crises (Kalala and Fyama 2019). The National Program for Food Security and Nutrition in Agriculture (PROSANA) was created in 2020 to coordinate the PNSAN. PROSANA is part of the Ministry of Agriculture and includes collaboration with other sectors relevant to nutrition (FAO 2020h).

The National Agricultural Investment Plan (PNIA, 2013–2020) is the planning framework for domestic and foreign investment in agriculture and rural development. The program has a total estimated cost of US$5.7 billion over the life of the program, with approximately 9 percent of this sum (about US$540 million) budgeted for food security management, nutrition improvement, and the development of strategic food reserves (UNDP, CAADP, and NEPAD 2013).

The National Health Development Plan (PNDS, 2016–2020) lays out the country's approach to addressing its health challenges. These challenges include poor access to high-quality health services, insufficient human resources, and lack of coordination across the health care system. The strategy includes expanding and strengthening the roles of community members and structures (Devlin, Egan, and Pandit-Rajani 2017). The PNDS recognizes malnutrition as a serious challenge facing DRC and includes targets for reducing child stunting and acute malnutrition among children. It also sets the goal of achieving universal health coverage for the population, which the government has reiterated in subsequent declarations since the passage of the PNDS (MoPH DRC 2016; WHO 2020c).

Recommendations for Moving Forward

Improving the security situation, particularly in eastern DRC, is essential for achieving food and nutrition security. The government's efforts toward disarming, demobilizing, and reintegrating former combatants are critical to this process (UN 2019c). Moreover, as recommended by a recent independent strategic review, when the government determines that it is prepared to independently meet the country's security needs and the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) may end its mission, a generous transition period and ample flexibility will be needed to respond to events as they unfold (UN 2019a).

Strengthening government institutions and their capacity is key to laying the groundwork for a robust response to food and nutrition insecurity. Creating an enabling environment for action requires strengthening the rule of law and building trust in institutions. The country's weak governance and limited government capacity at the local, provincial, and central levels are major constraints to scaling up nutrition programming. The National Nutrition Program (PRONANUT)—the agency responsible for nutrition within the Ministry of Health—is understaffed and underfunded and lacks the necessary expertise to fulfill its mandate (World Bank 2019a). PRONANUT requires more resources to bolster its capacity and enable the robust delivery of nutrition services.

Increased agricultural production and productivity are essential to improving food security and maintaining stability in DRC. To increase productivity, farmers need greater access to agricultural inputs (FAO 2018a). Technologies such as short-cycle seeds may be particularly useful in areas still prone to conflict (FAO 2018b). DRC's agricultural extension system, while relatively well staffed, does not successfully deliver knowledge and technology to farmers. Additional training, funding, and incentives for extension agents are needed, as are improved coordination and a clear, unified policy and mandate for

the extension system (Ragasa et al. 2016). Reform of the land tenure system is needed to help secure land rights for farmers, particularly in eastern DRC (International Land Coalition 2020). Improvements to the country's transportation infrastructure—currently characterized by low-density, poor-quality roads in many parts of the country—are necessary to enable farmers to reach input and output markets (Marivoet et al. 2018).

More emphasis is needed on nutrition education, including proper infant and young child feeding (IYCF) practices. DRC has a system of volunteer community health providers *(relais communautaires)* who provide households with integrated community case management for malaria, diarrhea, and respiratory diseases as well as guidance on nutrition; reproductive, maternal, newborn, and child health, including family planning; WASH; HIV and AIDS; and disease prevention (Devlin, Egan, and Pandit-Rajani 2017). There is evidence, however, that community health workers provide only limited nutrition counseling on IYCF practices, so added emphasis on nutrition and IYCF is needed (Locks et al. 2019; Kavle et al. 2019). Community health workers face challenges related to reaching communities, including poor roads and a lack of security. Increased government support, including more funding, training, capacity building, and access to supplies, is needed (Community Health Roadmap 2019).

Adolescents need greater access to family planning and reproductive health services, which could lead to nutritional gains for children. Children born to young mothers have an increased risk of being stunted in Africa South of the Sahara, including in DRC (Kismul et al. 2018; Fink et al. 2014). In DRC, 23.4 percent of adolescent girls aged 15–19 years are pregnant or have had their first child, and just 9.5 percent of adolescent girls who are married or partnered use a modern method of contraception (INS, USAID, and UNICEF 2019). Adolescents' knowledge of contraception methods is limited, and barriers such as fear of judgment and social stigma impede access (Muanda et al. 2018). While support for sexual and reproductive health services for adolescents has grown in recent years, more funding and expanded service availability are sorely needed (Kwete et al. 2018). Moreover, adolescent girls and women are too often subjected to gender-based violence and rape as a weapon of war, which must be addressed by challenging social norms and strengthening the judicial system to better enable prosecution of such acts (UNFPA 2019).

The WASH sector is in need of capacity building and institutional reform to address the multiple challenges in this domain. The Water Law and Policy of 2015–2016 encouraged decentralizing the provision of WASH services to local governments; however, provincial and local agencies need more resources and capacity to carry out their mandates. Furthermore, responsibility for policy-making and regulation of the WASH sector must be consolidated—rather than split between multiple ministries, as has historically been the case—to ensure efficiency and coherence at the national level. In urban areas improved sanitation is desperately needed, and water quality, even from improved sources, should be monitored and enhanced. People in rural areas need much better access to improved sanitation and water sources (World Bank 2017).

Given DRC's immense size and the variability of regional conditions, food and nutrition security interventions must take into account local conditions and contexts. While data for DRC are scarce in many regards, a recently developed typology identifies several high-priority intervention zones within the country and describes their most pressing bottlenecks. This tool can be used to geographically target food and nutrition security interventions, particularly if complemented by other types of data (Marivoet, Ulimwengu, and Sedano 2019).

Humanitarian and development organizations must help address the root causes of hunger and poverty and uphold the highest ethical standards to contribute to long-term solutions. In cases of protracted crisis such as in DRC, it is essential for the international aid community to support long-term development in addition to responding to emergency needs (Mosello, Chambers, and Mason 2016). Also, according to a recent report, fraud and corruption are rampant among humanitarian organizations in DRC (Kleinfeld and Dodds 2020). These organizations must immediately undertake reforms and become models of anti-corruption rather than contributing to the problem.

BOX 3.1 PARTNER SPOTLIGHT: CONCERN WORLDWIDE AND WELTHUNGERHILFE IN DEMOCRATIC REPUBLIC OF THE CONGO

Together with their local partners, Concern Worldwide and Welthungerhilfe offer interventions in DRC designed to link humanitarian action with longer-term development programs. Populations in DRC often face recurrent shocks and long-term displacement, and bridging the gap between emergency response and longer-term development programs has been a challenge. Here is where Concern Worldwide and Welthungerhilfe, with their decades of experience in DRC, have developed significant expertise.

Through its resilience-building programs, Concern Worldwide takes a holistic approach to increasing households' capacity to recover from shocks and start rebuilding their livelihoods. It combines its expertise in emergency cash response and gender programming with the longer-term Graduation model—a big-push intervention designed to move people out of poverty through a sequence of five building blocks: comprehensive targeting, consumption support, savings, asset transfer, and skills training and regular coaching. By strengthening the humanitarian-development nexus and addressing gender inequality, Concern works to help the affected population take the first steps out of extreme poverty. Concern undertakes a wide range of interventions specifically related to water, sanitation, and hygiene (WASH). These interventions include construction and rehabilitation of water points, wells, latrines, and washing stations, as well as campaigns to improve hygiene practices, including those related to menstrual hygiene. Concern's WASH interventions also integrate elements of protection, gender equality, and prevention of sexual and gender-based violence and abuse across all their programs and strategies, and reinforce local ownership to ensure projects are sustainable.

Welthungerhilfe's work is designed to support vulnerable groups such as women, internally displaced people, returnees, and host communities by responding to acute crisis situations and promoting long-term development. It integrates nutrition, WASH, sustainable food production, rehabilitation of infrastructure, and market linkages. To sustain and multiply its impact, Welthungerhilfe supports smallholders by organizing farmer field schools and training-for-trainers on agriculture and nutrition. In Nord-Kivu, Welthungerhilfe has facilitated community-based trainings targeting women and mothers for several years with noticeable success. Female "multipliers" spread the acquired farming techniques and nutrition practices within their communities. Women use the new knowledge about how to prepare neglected foods, like legumes, to diversify household diets. The improved farming techniques allow the women to sell a greater variety and quantity of their produce, increasing their income. This new source of income not only helps them pay for their children's tuition, among other things, but has also enhanced women's autonomy and participation in household decision making.

Together with their partners, Concern and Welthungerhilfe work to increase gender equity also by actively engaging men. These efforts encourage men to challenge stereotypes and adopt more gender-equitable behaviors, and they raise awareness of the relationship between family planning, maternal health, and household food and nutrition security.

Recently, Concern and Welthungerhilfe launched a joint project to strengthen resilience and improve food security in the Masisi Territory, a key destination for internally displaced people and returnees, where the food system is under pressure. The 42-month project aims to improve participants' agricultural production and nutritional knowledge, access to water resources, livelihood diversification, and economic empowerment. It will help communities identify and prepare for potential disasters and prevent environmental hazards. It will also support smallholder households by providing seeds, tools, and training; promoting land use planning to protect soils and conserve natural resources; and helping to improve marketing strategies. Assistance in setting up microenterprises or looking for work will be targeted to women and young people. The project's approach is based on working in close collaboration with local organizations, farmer groups, rural families, and state institutions to build communities' long-term capacity to manage resources and increase social empowerment.

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Nepal

Key Messages

→ Though Nepal's Global Hunger Index score has improved in the past two decades, its 2020 score is 19.5, considered *moderate.* The current score reflects significant progress on reducing under-nourishment, a declining—though still high—rate of child stunting, modest improvement in child wasting, and a substantial decline in child mortality.

→ Poverty has fallen over time but remains a challenge, together with social and income inequalities.

→ Interventions to improve children's health have done a great deal to reduce child mortality and raise children's nutritional status. In particular, Nepal has carried out a highly successful program of vitamin A supplementation.

→ Most Nepalis are employed in agriculture, but small landholdings and low productivity keep many farmers at subsistence levels. Although some agricultural interventions have helped improve Nepalis' food security and nutrition, more support and resources for farmers are needed.

→ Nepal's efforts to combat hunger would benefit from social sector investments that aim to improve the diets of young children, eliminate child marriage, promote gender equality, empower marginalized and excluded groups, establish a high-quality comprehensive health care system, and provide better-quality education for all.

Country Context

Nepal is an ethnically diverse South Asian country with a population of 28 million people experiencing multiple demographic changes. Situated between China and India, Nepal has three major geographic regions: the mountains, hills, and Terai (plains). According to the latest national census conducted in 2011, Nepal has over 125 ethnic/caste groups, and each of its seven provinces is home to a unique combination of groups. Fertility and mortality rates have both decreased rapidly in recent decades, and life expectancy is increasing. The share of the population in the mountain and hill regions of the country is declining, while the proportion of the population in the Terai is increasing (UNFPA Nepal 2017). Though Nepal is predominantly rural, it is undergoing rapid urbanization. Migration, both within Nepal and internationally, plays an important role in the lives of Nepalis, contributing

to urbanization, poverty reduction, and improved economic well-being (Brøgger and Agergaard 2019; Wagle and Devkota 2018). Remittances constituted 29 percent of GDP in 2018 (World Bank 2020a).

Nepal is experiencing a period of relative political stability and restructuring of political institutions after facing major upheaval in the recent past. The country was ruled by a king under what is known as the Panchayat system from 1960 until 1990, when, in response to large-scale protests, it transitioned to a constitutional monarchy (Nightingale et al. 2018). The early years of the new government were unstable. From 1996 through 2006, the country experienced a civil war characterized by a Maoist insurgency (Do and Iyer 2010). In the aftermath of the civil war, the country transitioned to a democratic regime and attempted to formulate a new constitution while still experiencing considerable civil strife. In 2015 a massive earthquake struck the country, killing approximately 9,000 people, injuring 23,000, and causing nearly US$7 billion in economic damage, equivalent to roughly one-third of Nepal's GDP (Nightingale et al. 2018; Gauchan et al. 2017). The constitution, finalized later that same year, guarantees 31 fundamental rights to the Nepalese people. Since the passage of the constitution, Nepal has been solidifying its government structures and institutions, although political tensions still run high (World Bank 2019c; Strasheim 2019). Among the government's key tasks are decentralization and the establishment of a federal system.

Poverty and inequality are major challenges for Nepal, although the situation has improved over time. GDP per capita was just $1,034 in current US dollars as of 2018, the third-lowest level in Asia (World Bank 2020a). As of 2019, 39 percent of the population lived in poverty at or below $3.20 per person per day, while 8 percent of Nepal's population was estimated to live in extreme poverty at or below $1.90 per person per day, down from 50 percent living in extreme poverty in 2003 (World Bank 2020a, c). This reduction can largely be attributed to the increase in international migration, which has driven up wages for the remaining working population in Nepal; the dramatic increase in remittances sent to the country since the late 1990s; and decreases in the fertility rate and average household size (World Bank 2016b). The more holistic Multidimensional Poverty Index (MPI) likewise shows a decline, from 59.4 percent in 2006 to 28.6 percent in 2014 (GoN and OPHI 2018). The lowest multidimensional poverty rates are in Bagmati Pradesh and Gandaki Pradesh, while the highest rates are in Province 2 and Karnali Pradesh (GoN and OPHI 2018). There is inequality in employment opportunities and wages along multiple lines, including geography, ethnicity, caste, and gender (Mainali, Jafarey, and Montes-Rojas 2017; Yamamoto et al. 2019).

FIGURE 3.3 Children on their way to school in Salyan district, West Nepal.

Agriculture is crucial to the economy, but farmers suffer from small landholdings and low productivity. Seventy percent of employment is in agriculture, while 13 percent is in industry and 17 percent is in services. Twenty-five percent of GDP comes from agriculture, 13 percent from industry, and 51 percent from services (World Bank 2020a). Nepal's farmers grow mainly rice, maize, wheat, millet, barley, pulses, oilseeds, and sugarcane (CCAFS 2020). Overall productivity of rice and cereals has increased in recent decades, yet yields in Nepal continue to lag behind the average in South Asia, including in neighboring India (FAO 2020d). The provision of agricultural extension and advisory services in the country is limited, and the effectiveness of extension agents is often hampered by inadequate motivation and limited locality-specific knowledge and skills (Kyle and Resnick 2019). Mechanization of farming has increased over time, particularly in terms of tractor use, which is associated with increased yields of staple crops. However, these improvements have occurred mainly in the Terai, the most agriculturally productive region, and the benefits for resource-poor smallholders have been minimal (Takeshima 2017).[7] Just over half of Nepal's agricultural land is irrigated, leaving a large proportion of farmers reliant on rainfed agriculture and particularly vulnerable to the effects of climate change (Pradhan and Belbase 2018). The average farm size is just 0.7 hectare, and over half of Nepali farm households have less than 0.5 hectare of land, which limits the possibilities for farming above subsistence levels (GoN 2015a).

Nepal is extremely vulnerable in the face of the COVID-19 pandemic. The country has limited resources with which to respond to the pandemic, given its tight budgetary position, its still-developing governmental structures, and its lack of a robust health care system, particularly in terms of critical resources such as ventilators, hospital isolation units, and personal protective equipment (Bhattarai 2020). While the situation is rapidly evolving, food and nutrition security is jeopardized by both the global health crisis and the economic fallout, including a decline in remittances and lower GDP growth (Budhathoki 2020).

[7] Province 2, which is in the Terai, has high agricultural potential but also has the second-highest multidimensional poverty rate in the country (GoN and OPHI 2018). Its agricultural success has been hampered by poor irrigation and flooding during the monsoon season, as well as competition from inexpensive food imports from India (Development Vision Nepal 2018).

Hunger in Nepal

Nepal's 2020 Global Hunger Index score is 19.5, considered *moderate,* down from 37.4 in 2000, showing that despite improvements, food and nutrition insecurity is still cause for concern. The prevalence of undernourishment—the percentage of the population with insufficient access to calories on a regular basis—fell from 23.6 percent in 2000–2002 to 6.1 percent in 2017–2019 (Figure 3.4). Food access is more limited in the mountains than in the Terai. Micronutrient deficiencies, low dietary diversity, and a high reliance on staple foods are common, reflecting that 75 percent of Nepal's cultivated land is occupied by cereal crops (GoN NPC 2018). At the same time, obesity and overweight are increasing as people's diets shift toward processed foods with higher energy, fat, and sugar (Subedi, Marais, and Newslands 2017). The diets of Nepali children aged 6–23 months are largely suboptimal: just 36 percent receive a minimum acceptable diet (MoH, New Era, and ICF 2017).[8] Challenges to achieving food and nutrition security include natural disasters such as flooding, landslides, and earthquakes; climate change; poverty; poor infrastructure, particularly in remote and mountainous areas; urbanization and outmigration, leading to the feminization of agriculture; and volatile food prices (GoN NPC 2018; Tamang, Paudel, and Shrestha 2014).

Nepal's under-five mortality rate declined from 20.8 percent in 1980 and 8.1 percent in 2000 to 3.2 percent in 2018.[9] Data from 2001–2016 suggest that child mortality in Nepal is associated with mothers who reported the previous death of a child, did not receive tetanus toxoid vaccines during pregnancy, did not use contraceptives, were younger than 20 years old, reported having a first birth, or did not use antenatal iron and folic acid supplements (Ghimire et al. 2019).

Nepal's rate of child stunting, an indicator of chronic undernutrition, declined significantly from 57.1 percent in 2001 to 36.0 percent in 2016, which is still unacceptably high. Child malnutrition rates vary widely by region, with 46.8 percent of children stunted in the mountains compared with 36.7 percent in the Terai and 32.3 percent in the hills (MoH, New Era, and ICF 2017). In the mountains, poor access to nutrient-dense foods and low dietary diversity correspond with higher rates of child stunting (GoN NPC 2018). Women's empowerment in agriculture—specifically their access to and decision making regarding credit, satisfaction with leisure time, and autonomy in production decisions—is also associated with greater children's height for their age (Cunningham et al. 2015).

Nepal's child wasting rate, indicating acute undernutrition, has declined modestly, from 11.3 percent in 2001 to 9.6 percent in 2016. The ecological zone with the highest wasting rate is the Terai, at 12.2 percent, compared with 6.1 percent in the mountains and 6.4 percent in the hills (MoH, New Era, and ICF 2017). The high wasting rate in the Terai may be related to poor sanitation and hygiene (GoN NPC 2018). Furthermore, the proportion of children aged 6–23 months receiving the minimum acceptable diet is lowest in the Terai, even though that is the country's most agriculturally productive region. At the provincial level, Province 2 has the highest wasting rate, at 14.4 percent (Table 3.2). This province also faces related social issues, such as the earliest age of first marriage for

FIGURE 3.4 **NEPAL'S GLOBAL HUNGER INDEX SCORES AND INDICATOR VALUES, 2000, 2006, 2012, AND 2020**
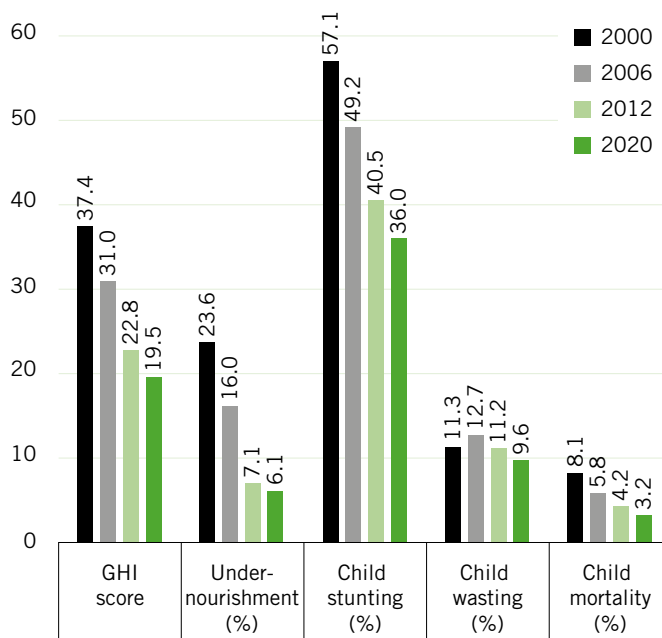
Source: Authors.

Note: Undernourishment values refer to the prevalence of undernourishment for the country's population as a whole; child stunting, child wasting, and child mortality refer to the rates for each indicator for children under the age of five. Data for GHI scores, child stunting, and child wasting are from 1998–2002 (2000), 2004–2008 (2006), 2010–2014 (2012), and 2015–2019 (2020). Data for undernourishment are from 2000–2002 (2000), 2005–2007 (2006), 2011–2013 (2012), and 2017–2019 (2020). Data for child mortality are from 2000, 2006, 2012, and 2018 (2020). See Appendix B for the formula for calculating GHI scores and Appendix C for the sources from which the data are compiled.

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[8] A "minimum acceptable diet" is a standard that combines minimum dietary diversity and minimum meal frequency. It has different recommendations for breastfed and for non-breastfed children, who need to receive milk or milk products as a substitute for breast milk.

[9] Globally, undernutrition is responsible for 45 percent of deaths among children under age five (Black et al. 2013). For a detailed explanation of child mortality's inclusion in the GHI, see Wiesmann et al. (2015).

women and the lowest education levels in the country (MoH, New Era, and ICF 2017). A study of child nutrition in the eastern Terai found that caste played an important role, with Dalit (the most marginalized ethnic/caste group) children facing higher rates of both stunting and wasting than non-Dalit children (Kafle et al. 2017).

Gender inequality and the challenges facing girls, including young motherhood, increase food and nutrition insecurity. Within households, foods and nutrients are allocated inequitably, with women, including pregnant women, at a clear disadvantage relative to men (Harris-Fry et al. 2018). Although child marriage was banned in Nepal in 1963, the practice is still all too common. This reality has important implications for nutrition, given that the children of young mothers are less likely to receive proper diets (Na et al. 2018).

Adequate health care services are critical for nutrition, but the current system is insufficient. While Nepal has effectively instituted disease-centric and issue-specific health care programs, it still lacks a high-quality comprehensive health care system (Sharma, Aryal, and

Thapa 2018). More than half of Nepali women report having problems accessing health care because they cannot get money for treatment or because the health care facility is too far away. About two-thirds of women report a reluctance to go alone to a health facility or a lack of female health service providers (MoH, New Era, and ICF 2017).

What Has Worked in Addressing Hunger

Improved food security—including decreasing undernourishment—in South Asia over the past 25 years is due mainly to rising cereal production and yields, declining population growth rates, and greater government spending as a share of GDP. Nepal has seen an increase in cereal yields from about 1,900 kg/ha in 1990 to about 2,800 kg/ha in 2017—a significant improvement—yet the level is still lower than the average for South Asia as a whole (Mughal and Fontan Sers 2020). An analysis of data from Nepal from 1995–1996 and 2003–2004 found that increased agricultural productivity did indeed lead to an increase in household food security, particularly for lower-income households (Morioka and Kondo 2017).

Increases in wealth and improvements in health and nutrition programs, sanitation, and education largely account for recent improvements in child and maternal nutrition. Nepal's reduction in child stunting from 57 percent in 2001 to 41 percent in 2011 is associated with, and likely attributable to, increased household assets (a proxy for household wealth), increased maternal education, improved sanitation, and implementation and use of health and nutrition programs, including antenatal and neonatal care (UNICEF, WHO, and World Bank 2020a; Headey and Hoddinott 2015). A related study found that these same factors led to improvements in child height-for-age, child weight-for-height, and maternal body mass index (BMI). In particular, toilet use at the community level—which reduces open defecation—was found to be a predominant source of improvement in children's weight-for-height and maternal BMI (Cunningham et al. 2017).

Nepal has achieved its impressive reduction in child mortality largely by implementing a wide range of child health interventions. In the 1980s and 1990s Nepal scaled up interventions related to child survival: recognition and treatment of acute respiratory infection, vitamin A supplementation, routine immunization, control of diarrheal diseases, malaria control, and family planning (BASICS II, The MOST Project, and USAID 2004). Between 1991 and 2011, the reduction in child mortality was due, in part, to the high coverage of semiannual vitamin A supplementation and deworming, community-based integrated management of childhood illness, high rates of full child immunization, and increased coverage of interventions to

Province	Child stunting (%)	Child wasting (%)	Child mortality (%)
Province 1	32.6	11.8	3.6
Province 2	37.0	14.4	5.2
Bagmati Pradesh	29.4	4.2	3.6
Gandaki Pradesh	28.9	5.8	2.7
Province 5	38.5	7.6	4.5
Karnali Pradesh	54.5	7.5	5.8
Sudurpashchim Pradesh	35.9	9.3	6.9
Ecological zone			
Mountains	46.8	6.1	6.3
Hills	32.3	6.4	3.8
Terai	36.7	12.2	4.9
Total	**35.8**	**9.7**	**4.6**

TABLE 3.2 **GHI INDICATOR VALUES BY PROVINCE AND ECOLOGICAL ZONE, NEPAL**

Source: MoH, New Era, and ICF (2017).

Note: All indicators are for children under five years of age. Undernourishment values at the subnational level are not currently available for Nepal. The national estimates shown here differ from those in Figure 3.4 because they come from different sources. This table draws on MoH, New Era, and ICF (2017), which contains provincial values. The stunting and wasting values in Figure 3.4 are from UNICEF, WHO, and World Bank (2020a) and reflect additional analysis beyond MoH, New Era, and ICF (2017). The child mortality estimates here are for the 10 years preceding the 2016 survey and were used to calculate the national total. Figure 3.4 relies on UN IGME (2019b), which includes estimates for individual calendar years and was used to calculate the GHI scores.

promote exclusive breastfeeding of children under six months of age. Additional factors include improvements in nutrition, education, and infrastructure, such as health care facilities, paved roads, mobile phone networks, and WASH services (MoHP et al. 2014).

Agricultural programs, including home and school gardening programs, have shown beneficial outcomes. An intervention that promoted the planting of improved varieties of maize in the Nepali hills increased the number of months of food security for participating farm families by 1.6 months relative to when they used unimproved, local varieties of maize (Tiwari et al. 2010). An enhanced homestead food production program that included home gardening, poultry raising, and nutrition education in Baitadi District, Sudurpashchim Pradesh, lowered anemia among children aged 12–48 months and their mothers, and reduced underweight among the women, although it did not improve child growth (Osei et al. 2017). A multisectoral intervention in Dolakha and Ramechhap Districts, Bagmati Pradesh, that included school gardening; water, sanitation, and hygiene components; and nutrition and health promotion activities increased children's fruit and vegetable consumption, decreased intestinal parasitic infections, and improved hygiene behaviors (Shrestha et al. 2020).

Livestock promotion interventions can also boost children's nutrition. Children in households that participated in a livestock training and community development intervention run by Heifer International in the Terai and the hills exhibited greater improvements in height-for-age and weight-for-age than children in control households (Miller et al. 2014). A follow-up intervention showed the greatest improvements in child growth and nutrition for households that received a combination of community development activities along with nutrition education and livestock training (Miller et al. 2020).

Existing Policies and Government Measures Affecting Food and Nutrition Security

Nepal's Multisector Nutrition Plan II (MSNP II, 2018–2022), a follow-up to the original Multisector Nutrition Plan (2013–2017), engages seven sectors in collaborating to address malnutrition: education; health; agriculture; livestock; drinking water and sanitation; women, children, and social welfare; and local governance. This plan aims to reduce child stunting from 36 percent in 2016 to 24 percent by 2025 and 14 percent by 2030 (SUN 2017).

The goals of the Agricultural Development Strategy (ADS, 2015–2035) are to commercialize and diversify agriculture and to achieve sustainable agricultural growth and poverty reduction (GoN NPC 2018). Among other things, the ADS seeks to develop the private and cooperative sectors and increase public-private partnerships (MOAD 2015; Gairhe, Shrestha, and Timsina 2018). Implementation of the ADS, however, has been slow, owing in part to a lack of coordination between governing bodies (Subedi 2020; GoN NPC 2018).

The Food and Nutrition Security Plan (FNSP, 2013–2023) complements the ADS by targeting the poorest households to ensure they benefit from the national-level programs and policies of the ADS. The objective of the FNSP is to reduce hunger, malnutrition, and poverty among the poorest households by promoting sustainable agriculture-based livelihoods (MOAD 2013).

The Right to Food and Food Sovereignty Act (2018) establishes the rights of all citizens to food and food security. It stipulates, "The Government of Nepal, Provincial Government and Local Level shall make necessary arrangements, with mutual coordination, for the respect, protection and fulfillment" of these rights (GoN 2018; GoN NPC 2018).

Article 38 of Nepal's Constitution (2015) lists the rights of women. These include the right to safe motherhood and reproductive health, and the right not to be subjected to physical, mental, sexual, psychological, or other forms of violence or exploitation on grounds of religious, social, or cultural tradition or practice, or on any other grounds (GoN 2015b). Moreover, the Government of Nepal includes gender equality and social inclusion (GESI) practices and principles at various levels, including multiple sectoral ministries that have committed to GESI (GESI Working Group 2017; GoN NPC 2018).

The Nepal Health Sector Strategy (NHSS, 2015–2020) guarantees access to basic health services as a fundamental right of every citizen and articulates the nation's commitment to achieving universal health coverage. The NHSS acknowledges nutrition as a cross-cutting issue and emphasizes better implementation of the Ministry of Health and Population's existing plans, policies, and strategies (MoHP 2015).

The Ministry of Water Supply and Sanitation's Sectoral Development Plan (SDP) identifies priorities aimed at meeting the country's Sustainable Development Goal (SDG) targets regarding WASH and serves as a framework for planning, implementing, coordinating, and monitoring all activities in the sector. The government's SDG targets include ensuring basic water supply coverage for 99 percent of households, providing a piped water supply and improved sanitation to 90 percent of households, and eliminating open defecation by 2030 (Budhathoki 2019).

Nepal's Right to Free and Compulsory Education Act of 2018 establishes that every child aged 5–13 has the right to free and compulsory education in a neighborhood school until the completion of basic education (Jha 2019). Likewise, children have the right to free secondary education. The National Education Policy (2019) seeks to make education competitive, technology-friendly, employment-oriented, and productive at all levels (Maharjan 2019).

Policy Recommendations for Moving Forward

Governance and policy implementation should reflect the multidimensional nature of food and nutrition security. Improved institutional capacity and governance are needed to synergize the work on nutrition-sensitive priorities, such as agriculture, health, and women's development. The central government should establish coordination and monitoring mechanisms with different levels of government and other stakeholders to help align subnational development plans with SDG2. Nepal already has several ambitious policies in place, and these now require full funding and implementation at federal, provincial, and local levels. Furthermore, GESI practices and principles should be mainstreamed across programs and sectors.

To bolster the agricultural sector, the government needs to increase farmers' access to technologies, extension services, inputs, credit, and markets. Nepal's agricultural research and extension systems are in need of more, better-managed and motivated staff and resources, as well as improved coordination between the federal, provincial, and local levels (Kyle and Resnick 2019; Babu and Sah 2019). Policies that support inclusive agricultural value chain development can also reduce poverty, improve food and nutrition security, and improve household resilience (Kafle, Songsermsawas, and Winters 2019). Generating employment opportunities in agriculture for youth, including returnee migrant workers, can help ensure they have gainful employment and access to food. The disproportionate constraints facing women farmers must also be addressed, particularly as agriculture in Nepal is becoming increasingly feminized due to male migration and employment in other sectors (Aryal and Kattel 2019).

Increased emphasis and education on infant and young child feeding (IYCF) practices are needed. IYCF, particularly complementary feeding of children aged 6–23 months, has improved slowly in recent years, but complementary feeding practices still need further improvement. More emphasis should be placed on the importance of introducing complementary foods at six months, particularly for girls, who tend to receive complementary foods later than boys. Education programs on feeding practices should be targeted at demographic groups, such as young mothers, and geographic regions, such as the Terai, where IYCF practices are poorest (Na et al. 2018). Increased support for mothers is also needed to support breastfeeding, such as maternity leave for working mothers and interventions to address gaps in breastfeeding knowledge and practices (UNICEF and WHO 2017; Dharel et al. 2020).

Improvements in the quality of, and access to, education are necessary to meet broad societal goals. Nepal should improve the quality of education in its public schools and promote equal access to education for all genders, castes, ethnicities, and other groups (Kharel 2017). Given the evidence linking maternal education and child nutrition outcomes, it is imperative that the government address the factors that push girls to drop out of school, including issues within schools such as inadequate restroom facilities, a lack of female teachers, and harassment of girls (Dahal, Topping, and Levy 2019), as well as underlying factors such as early marriage (Sekine and Hodgkin 2017). Addressing gaps in the education system also has the potential to contribute to meeting the country's human resources needs, including in health care, agricultural research and extension, and education.

More action must be taken to prevent child marriage. Such action should include educating girls, boys, and community members about the legal rights of girls and the advantages of waiting until adulthood to marry; increasing sexual and reproductive health education, particularly for adolescents; and targeting campaigns on child marriage to the ethnic, caste, geographic, and socioeconomic groups with the highest rates of child marriage (HRW 2017).

Expanded access to WASH services is necessary to address existing inequities. In particular, people in rural areas need better access to piped water within their homes, and poor people need better access to improved water sources. It is also essential to improve the maintenance and repair of existing water supply systems, an effort for which water users' committees will require more financial and technical capacity (Budhathoki 2019).

Prioritize measures to strengthen and improve access to health care. Strengthening Nepal's health care system is necessary to prevent and treat malnutrition, weather the COVID-19 crisis, and prepare for future outbreaks of infectious diseases. This will require an expansion in the government's regulatory role and an increase in collaboration between public, civil society, cooperative, community, and private organizations to provide much-needed services (Sharma, Aryal, and Thapa 2018). The barriers that women face in accessing health care must be given special consideration.

Create efficient and effective working conditions for civil society organizations (CSOs). CSOs, including many national and international nongovernmental organizations (NGOs), help promote democratic values, strengthen good governance practices, and serve as a voice for poor and marginalized groups (USAID 2018a). In recent years, however, they have faced increased scrutiny and regulation. CSOs should be given the freedom to operate without undue governmental interference (HRW 2019). CSOs' experiences tackling challenges such as hunger, undernutrition, gender discrimination, and inequality can serve as valuable resources for local, provincial, and national governments if there is a favorable environment for collaboration.

Welthungerhilfe works hand in hand with civil society in Nepal to empower socially marginalized and economically poor citizens, reinforce their resilience, and ensure their right to adequate food and nutrition. Nepal is an agrarian society—more than 60 percent of families live in rural areas where they farm small plots of land—and its people face significant regional and social inequalities. Welthungerhilfe and its partners operate programs that link disaster risk reduction; water, sanitation, and hygiene (WASH); agriculture; and nutrition while promoting a rights-based approach that incorporates social inclusion, gender equity, and citizen empowerment across all sectors.

One such program was a home-gardening project in Dhading District initiated in the wake of the devastating 2015 earthquake. The project promoted home gardens using sustainable integrated farming systems,[10] offered participants cash and food transfers for creating agricultural infrastructure, and provided nutrition education. It not only boosted food availability and transferred knowledge and skills to participants, but significantly increased the share of households with diverse diets. This approach to addressing food availability, access, and utilization proved successful as a post-crisis coping strategy and a way to sustainably strengthen livelihoods and resilience (Ghimire 2020).

In another example, a group of women in Salyan district came together to launch a commercial farming enterprise, with support from Welthungerhilfe and its partners. The 20 women founded a farmers' group and leased land, which allowed them to officially register and gain access to agricultural inputs and support from the local government and other organizations. Besides obtaining seeds and manure, the women developed their farming and marketing skills. The project increased productivity and sales by building critical agricultural infrastructure and establishing a collection center. Here, too, surveys have shown that the project raised participants' income, increased the availability of more diverse foods, and improved nutrition practices, thereby enhancing participating households' diets—all while tackling gender- and caste-based discrimination (Chaudhary, Shyam, and Gurung 2019).

Welthungerhilfe also seeks to strengthen civil society to promote Nepalis' active participation in local governance. By facilitating consultations between community-based organizations and local authorities, it helps communities participate in assessing and prioritizing their needs. This effort has had concrete successes in translating communities' input into development and nutrition plans and budgets. Citizen-state engagement and the use of accountability tools have also improved people's access to government services and the quality of those services (such as health service delivery and the provision of maternity and social security allowances).

Currently, Welthungerhilfe is working to support the prevention of COVID-19. Operating closely with its partners and local, provincial, and federal governments, it provides health and sanitation equipment to local health posts and municipality governments, as well as supplying food rations and hygiene kits to poor households affected by the pandemic.

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[10] A sustainable integrated farming system is a participatory farmer-based approach aiming to promote diversified farming methods and increase productivity through better integration of various ecological subsystems, postharvest management, value creation, and marketing (Welthungerhilfe 2014).

04

Two-year-old Cherica practices proper hand washing in front of her grandmother's home in Cité Soleil, a marginalized commune of Port-au-Prince, Haiti, as part of preventive measures against COVID-19. Access to water, sanitation, and hygiene services is crucial for protecting children and adults from infections.

POLICY RECOMMENDATIONS

To ensure the right to adequate and nutritious food for all and to end hunger by 2030, we must not only reshape our food systems to become fair, healthy, resilient, and environmentally friendly but also integrate them into a broader political effort to maximize the health of humans, animals, and our planet.

Make food systems work better for people and the planet

→ To **support smallholder farmers in becoming sustainable and diversified producers**, governments, donors, the private sector, and NGOs must seek to improve those farmers' access to agricultural inputs and extension services, coupling local and indigenous agricultural knowledge with new technologies.

→ **Local and regional food markets should be strengthened**, especially through support for farmers to organize themselves, fair farm-gate prices, and better links between rural and urban areas.

→ **Food should be priced not only by its weight or volume** but also by its nutrient density, its freedom from contamination, and its contribution to ecosystem services and social justice. To achieve this, governments and stakeholders should educate the public about the importance of these attributes and require appropriate labeling. To curb the spread of agricultural pests and diseases, governments must promote **sound biosecurity practices** throughout value chains.

→ All countries must promote, develop, and implement **circular food economies**—that is, economies that recycle resources and materials, regenerate natural systems, and eliminate waste and pollution.

Improve how food systems are governed

→ Governments must hold food system actors **legally accountable for respecting human rights and protecting the environment** throughout their value chains as outlined in the UN Guiding Principles on Business and Human Rights.

→ Governments and investors must adopt integrated land-use planning and **ensure security of land tenure**, especially for marginalized groups, in line with the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security.

→ Governments must strengthen and incentivize **local and participatory governance** that incorporates marginalized groups, including peasants, indigenous groups, youth, and women.

Expand social investments for resilience

→ Governments must **build up social protection systems**, including universal health coverage and social security, and provide job training, especially for rural youth and the urban poor. They should expand access to maternal and child health care, as well as education on healthy diets and child feeding practices.

→ Governments should prepare and implement **holistic plans** to ensure accessible local and national water, sanitation, and hygiene (WASH) systems, which are crucial to people's health.

→ Governments, donors, and NGOs must work with **organizations trusted and monitored by communities** to ensure social protection programs function optimally and fairly and promote **gender equity and social cohesion**.

Make emergency and long-term development interventions more equitable and sustainable

→ Governments, donors, private actors, and NGOs should carefully **prepare and coordinate their responses** to overlapping food and health crises and work with community organizations to make sure interventions are culturally acceptable, reach the most vulnerable, and preserve local ecosystems.

→ Governments must treat the production and supply of food as **essential services** and guarantee safe working environments in those sectors. They must ensure **equitable access to emergency assistance for both human and animal diseases,** including new technologies such as medical supplies.

→ To support local food supply chains, donors must continue to **untie food aid** from the requirement that recipient authorities acquire donor-country goods and services. Furthermore, and whenever feasible, humanitarian and development actors should provide assistance in the form of **cash and voucher assistance**.

→ To track and address hunger, governments must **produce data that are timely**, comprehensive, and disaggregated by income, subnational location, and gender.

Strengthen international cooperation and regulations

→ **Trade inequities**, such as high-income countries' nontariff trade barriers, must be reduced. Governments' trade policies should align with development goals and create market incentives for sustainable food economies.

→ Existing **human rights-based multilateral mechanisms and international standards**, such as the Committee on World Food Security, must be strengthened to support inclusive policy making and sustainable food systems.

→ Governments must use **upcoming opportunities**, including the UN Food Systems Summit, to reinforce their commitments to equitable and sustainable development.

Sori Gollo grows a variety of vegetables and fruits in her kitchen garden in Kalacha, Marsabit County, Kenya. In Kenya's drought-stricken north, home gardens can help to ensure households' food and nutrition security and provide alternative livelihoods for people in remote rural areas.

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.

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[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).

FIGURE A.1 **COMPOSITION OF THE GLOBAL HUNGER INDEX**
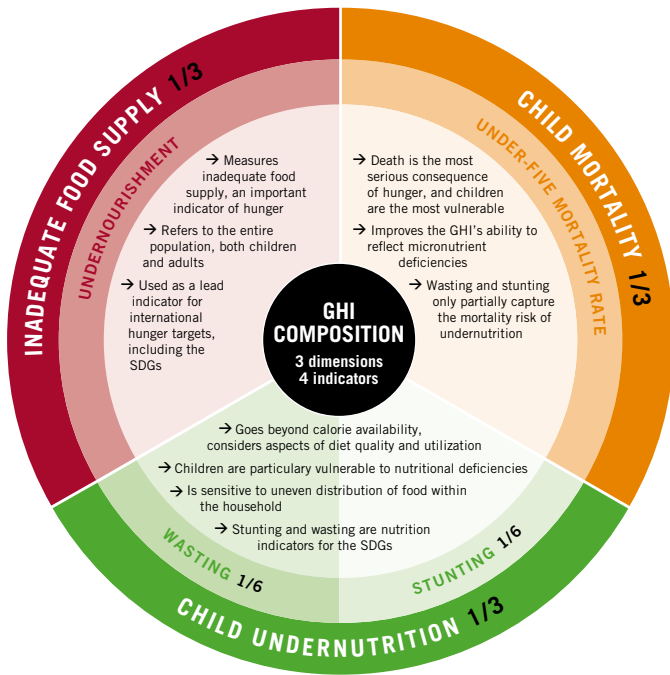
Source: Wiesmann et al. (2015).

Note: The values of each of the four component indicators are standardized.
See Appendix B for the complete GHI formula and Appendix C for the data sources.
SDGs = Sustainable Development Goals.

This three-step process results in GHI scores on a 100-point GHI Severity 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 0 would mean a country had no undernourished people in the population, no children under the age of five who were wasted or stunted, and no children who died before their fifth birthday. A value of 100 would signify that a country's undernourishment, child wasting, child stunting, and child mortality levels were each at approximately the highest levels observed worldwide in recent decades. The GHI Severity Scale on p. 55 shows the severity of hunger—from *low* to *extremely alarming*—associated with the range of possible GHI scores.

Why does the GHI incorporate four different indicators?

Using this combination of indicators to measure hunger offers several advantages. The indicators included in the GHI formula reflect caloric deficiencies as well as poor nutrition. The undernourishment indicator captures the hunger situation of the population as a whole, while the indicators specific to children reflect the nutrition status within a particularly vulnerable subset of the population for whom a lack of dietary energy, protein, and/or micronutrients (essential vitamins and minerals) leads to a high risk of illness, poor physical and cognitive development, and death. The inclusion of both child wasting and child stunting allows the GHI to document both acute and chronic undernutrition. By combining multiple indicators, the index minimizes the effects of random measurement errors.

Where do the source data for the four indicators come from?

Data used in the calculation of GHI scores come from various UN and other multilateral agencies. Undernourishment data are provided by the Food and Agriculture Organization of the United Nations (FAO). Child mortality data are sourced from the United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). Child wasting and child stunting data are drawn from the joint database of UNICEF, the World Health Organization (WHO), and the World Bank, as well as from WHO's continually updated Global Database on Child Growth and Malnutrition, the most recent reports of the Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), and statistical tables from UNICEF.

The GHI scores presented here reflect the latest revised data available for the four indicators.[4] Where original source data were unavailable, estimates for the GHI component indicators were made based on the most recent available data. (Appendix C provides more detailed background information on the data sources for the 2000, 2006, 2012, and 2020 GHI scores.)

Understanding the GHI

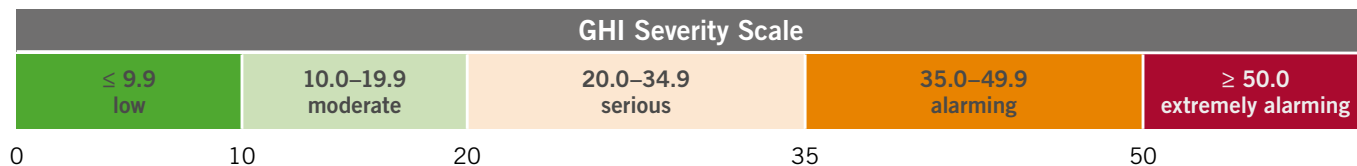### Why is a certain country's GHI score so high (or so low)?

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.

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[4] For previous GHI calculations, see von Grebmer et al. (2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008); IFPRI, WHH, and Concern Worldwide (2007); and Wiesmann, Weingärtner, and Schöninger (2006).

GHI Severity Scale				
≤ 9.9 **low**	10.0–19.9 **moderate**	20.0–34.9 **serious**	35.0–49.9 **alarming**	≥ 50.0 **extremely alarming**

0   10   20   35   50

Source: Authors.

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.

B

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:

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

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

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

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

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:

$$\frac{1}{3} \times \text{Standardized PUN}$$

$$+ \frac{1}{6} \times \text{Standardized CWA}$$

$$+ \frac{1}{6} \times \text{Standardized CST}$$

$$+ \frac{1}{3} \times \text{Standardized CM}$$

$$= \text{GHI score}$$

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. While the thresholds were originally established based on the maximum values observed between 1988 and 2013, covering 25 years' worth of available data prior to the methodological review process, these values have not been exceeded since then.

DATA SOURCES FOR THE GLOBAL HUNGER INDEX COMPONENTS, 2000, 2006, 2012, AND 2020

GHI	Number of countries with GHI scores	Indicators	Reference years	Data sources
2000	103	Percentage of undernourished in the population[a]	2000–2002[b]	FAO 2020g
		Percentage of wasting in children under five	1998–2002[c]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Percentage of stunting in children under five	1998–2002[c]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Under-five mortality	2000	UN IGME 2019b
2006	106	Percentage of undernourished in the population[a]	2005–2007[b]	FAO 2020g
		Percentage of wasting in children under five	2004–2008[e]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Percentage of stunting in children under five	2004–2008[e]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Under-five mortality	2006	UN IGME 2019b
2012	107	Percentage of undernourished in the population[a]	2011–2013[b]	FAO 2020g
		Percentage of wasting in children under five	2010–2014[f]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Percentage of stunting in children under five	2010–2014[f]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Under-five mortality	2012	UN IGME 2019b
2020	107	Percentage of undernourished in the population[a]	2017–2019[b]	FAO 2020g
		Percentage of wasting in children under five	2015–2019[g]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Percentage of stunting in children under five	2015–2019[g]	UNICEF, WHO, and World Bank 2020a; WHO 2020b;[d] and authors' estimates
		Under-five mortality	2018	UN IGME 2019b

[a] Proportion of the population with chronic calorie deficiency.
[b] Average over a three-year period.
[c] Data collected from the years closest to 2000; where data from 1998 and 2002 or 1999 and 2001 were available, an average was used.
[d] WHO 2020b is the primary data source, and UNICEF, WHO, and World Bank 2020a; UNICEF 2020a, 2013, and 2009; and MEASURE DHS 2020 are complementary data sources.
[e] Data collected from the years closest to 2006; where data from 2004 and 2008 or 2005 and 2007 were available, an average was used.
[f] Data collected from the years closest to 2012; where data from 2010 and 2014 or 2011 and 2013 were available, an average was used.
[g] The latest data gathered in this period.

DATA UNDERLYING THE CALCULATION OF THE 2000, 2006, 2012, AND 2020 GLOBAL HUNGER INDEX SCORES
Guide to the colors shown in Appendix D

The colors shown in the table represent the following categories:
■ = Very low, □ = Low, □ = Medium, ■ = High, ■ = Very High.

They are based on thresholds for the different indicator values, as follows:

Category	Undernourishment	Stunting	Wasting	Under-five mortality
Very low	<5%	<2.5%	<2.5%	<1%
Low	5–<15%	2.5–<10%	2.5–<5%	1–<4%
Medium	15–<25%	10–<20%	5–<10%	4–<7%
High	25–<35%	20–<30%	10–<15%	7–<10%
Very high	≥35%	≥30%	≥15%	≥10%

Threshold values for the prevalence of undernourishment are adapted from FAO (2015). Threshold values for stunting and wasting are from de Onis et al. (2019). Threshold values for under-five mortality are adapted from those shown in UN IGME (2019a) but condensed to the five categories shown.

DATA UNDERLYING THE CALCULATION OF THE 2000, 2006, 2012, AND 2020 GLOBAL HUNGER INDEX SCORES

Country	Proportion of undernourished in the population (%)				Prevalence of wasting in children under five years (%)				Prevalence of stunting in children under five years (%)				Under-five mortality rate (%)			
	'00–'02	'05–'07	'11–'13	'17–'19	'98–'02	'04–'08	'10–'14	'15–'19	'98–'02	'04–'08	'10–'14	'15–'19	2000	2006	2012	2018
Afghanistan	47.8	33.5	27.2	29.9	11.9 *	8.6	9.5	5.1	51.3 *	59.3	40.4	38.2	12.9	10.4	8.0	6.2
Albania	5.0	8.8	3.5	3.6	12.2	7.3	3.5 *	1.6	39.2	26.7	17.0 *	11.3	2.6	1.8	1.1	0.9
Algeria	8.0	6.4	3.5	2.8	3.1	4.1	4.1	4.3 *	23.6	15.4	11.7	13.8 *	4.0	3.2	2.6	2.3
Angola	67.5	49.4	35.4	18.6	11.2 *	8.2	5.9 *	4.9	46.1 *	29.2	33.0 *	37.6	20.6	15.7	10.5	7.7
Argentina	3.1	3.4	3.2	3.8	1.6 *	1.2	1.6 *	1.6	9.2 *	8.2	7.5 *	7.9	2.0	1.6	1.3	1.0
Armenia	26.2	9.4	3.6	2.6	2.5	5.4	4.1	4.4	17.3	17.9	20.9	9.4	3.1	2.3	1.7	1.2
Azerbaijan	17.1	2.9	<2.5	<2.5	9.0	6.8	4.9	2.6 *	24.2	26.5	17.1	8.1 *	7.5	4.9	3.3	2.2
Bahrain	—	—	—	—	9.7 *	7.4 *	6.2 *	1.3 *	6.7 *	5.5 *	4.9 *	4.5 *	1.3	1.0	0.8	0.7
Bangladesh	16.0	13.9	13.8	13.0	12.5	11.9	14.8	9.8	51.1	45.1	40.8	28.0	8.7	6.2	4.3	3.0
Belarus	<2.5	<2.5	<2.5	<2.5	2.0 *	2.2	1.7 *	1.5 *	5.8 *	4.5	3.4 *	2.4 *	1.3	0.8	0.5	0.3
Benin	17.4	11.1	8.1	7.4	9.0	7.2 *	4.5	5.0	36.2	36.2 *	34.0	32.2	13.9	12.0	10.7	9.3
Bhutan	—	—	—	—	2.5	4.5	5.9	4.2 *	47.7	34.9	33.5	25.0 *	7.8	5.4	3.8	3.0
Bolivia (Plurinat. State of)	27.9	24.3	19.7	15.5	1.6	1.6	1.5	2.0	33.2	29.8	18.2	16.1	7.5	5.3	3.6	2.7
Bosnia & Herzegovina	3.2	<2.5	<2.5	<2.5	7.4	4.0	2.3	2.8 *	12.1	11.8	8.9	8.1 *	1.0	0.9	0.7	0.6
Botswana	23.2	24.3	23.3	24.1	5.9	7.3	5.6 *	5.9 *	29.1	28.9	22.0 *	24.7 *	8.7	6.6	4.6	3.6
Brazil	10.1	3.5	<2.5	<2.5	2.5 *	1.8	1.5 *	1.8 *	10.0 *	7.0	6.6 *	7.2 *	3.5	2.3	1.7	1.4
Bulgaria	4.0	5.1	4.1	3.0	4.6 *	4.5	6.3	4.1 *	9.6 *	6.6	7.0	5.3 *	1.8	1.2	1.0	0.7
Burkina Faso	24.5	22.7	18.5	19.2	15.5	24.4	10.7	8.4	41.4	40.0	32.8	24.9	17.9	14.5	10.1	7.6
Burundi	—	—	—	—	8.1	9.0	6.0	5.1	64.0	57.7	57.6	54.2	15.6	11.8	8.0	5.8
Cambodia	23.7	15.8	13.6	14.5	17.1	8.5	11.0	9.0 *	49.0	42.8	39.8	28.9 *	10.7	6.0	3.8	2.8
Cameroon	23.1	14.3	7.1	6.3	6.2	7.6	5.7	4.3	38.2	37.6	32.6	28.9	14.9	12.5	9.8	7.6
Central African Republic	—	—	—	—	10.4	12.1	7.4	6.5	44.4	43.6	39.7	37.5	17.2	16.3	14.2	11.6
Chad	39.0	38.5	38.6	39.6	13.9	16.2	16.3	13.3	38.9	44.4	38.7	39.8	18.6	16.5	14.2	11.9
Chile	3.5	3.2	3.3	3.5	0.5	0.5	0.3	0.4 *	3.0	2.2	1.8	1.8 *	1.1	0.9	0.8	0.7
China	10.6	7.1	<2.5	<2.5	2.5	2.9	1.9	2.0 *	17.8	11.7	8.1	5.5 *	3.7	2.2	1.4	0.9
Colombia	8.8	11.5	9.6	5.5	1.0	1.6	0.9	1.6	18.2	16.0	12.6	12.7	2.5	2.1	1.7	1.4
Comoros	—	—	—	—	13.3	9.6	11.2	8.9 *	46.9	49.8	31.1	39.3 *	10.2	9.7	8.2	6.7
Congo (Republic of)	27.1	36.7	31.2	28.0	9.1 *	8.0	6.0	8.2	27.5 *	31.2	24.4	21.2	11.4	7.9	5.9	5.0
Costa Rica	4.8	4.0	3.8	3.2	1.7 *	1.3 *	1.1 *	1.3 *	8.1 *	5.7 *	4.1 *	4.6 *	1.3	1.0	1.0	0.9
Côte d'Ivoire	20.5	20.3	22.1	19.9	6.9	8.4	7.6	6.1	31.2	41.3	29.9	21.6	14.5	12.3	10.0	8.1
Croatia	6.9	<2.5	<2.5	<2.5	1.3 *	1.1 *	1.1 *	1.0 *	1.3 *	1.0 *	1.0 *	0.9 *	0.8	0.6	0.5	0.5
Cuba	<2.5	<2.5	<2.5	<2.5	2.4	2.7	2.1 *	2.0 *	7.0	7.5	5.3 *	4.5 *	0.9	0.7	0.6	0.5
Dem. Rep. of the Congo	—	—	—	—	15.9	10.4	8.3	6.5	44.4	45.8	43.0	41.8	16.1	13.3	10.8	8.8
Djibouti	—	—	—	—	19.4	17.0	21.5	12.5 *	27.1	33.0	33.5	26.7 *	10.1	8.6	7.2	5.9
Dominican Republic	20.6	16.5	9.8	5.5	1.5	1.9	2.4	1.3 *	7.7	10.5	7.1	5.4 *	4.1	3.6	3.3	2.9
Ecuador	21.2	22.9	17.6	8.8	2.7	2.1	2.4	1.7 *	27.9	25.9	25.4	21.2 *	2.9	2.2	1.7	1.4
Egypt	5.3	6.1	5.2	4.7	7.0	5.3	9.5	5.3 *	24.4	23.9	22.3	21.0 *	4.7	3.4	2.7	2.1
El Salvador	7.3	9.5	10.6	8.9	1.5	1.6	2.1	1.4 *	32.3	20.8	13.6	19.7 *	3.3	2.4	1.7	1.4
Equatorial Guinea	—	—	—	—	9.2	2.8	3.1	4.4 *	42.7	35.0	26.2	32.7 *	15.7	13.0	10.4	8.5
Eritrea	—	—	—	—	15.0	—	14.6	—	43.0	—	52.5	—	8.6	6.5	5.2	4.2
Estonia	3.6	<2.5	<2.5	<2.5	5.1 *	4.7 *	4.5 *	2.1 *	2.3 *	1.9 *	1.9 *	3.7 *	1.1	0.6	0.4	0.3
Eswatini	10.7	10.3	8.1	16.9	1.7	2.9	1.4	1.4 *	36.5	29.2	28.2	30.8 *	12.6	11.8	7.3	5.4
Ethiopia	47.1	35.8	29.9	19.7	12.4	12.4	9.8	7.2	57.4	50.0	44.4	36.8	14.2	10.4	7.4	5.5
Fiji	4.0	3.8	3.5	3.9	7.9 *	6.3	6.2 *	5.6 *	5.7 *	7.5	3.8 *	3.3 *	2.3	2.3	2.4	2.6
Gabon	10.8	14.9	17.5	16.6	4.2	3.9 *	3.4	3.7 *	25.9	21.1 *	17.0	20.8 *	8.5	7.3	5.8	4.5
Gambia	18.0	20.9	13.2	11.9	9.1	7.4	9.5	6.1	24.1	27.7	21.1	16.3	11.5	9.0	7.2	5.8
Georgia	7.8	4.1	4.3	8.2	3.1	3.0	0.4 *	0.6	16.1	14.6	5.9 *	5.8	3.7	2.1	1.2	1.0
Ghana	15.0	10.7	7.3	6.5	9.9	6.0	6.2	6.8	30.6	27.9	22.8	17.5	9.9	8.2	6.3	4.8
Guatemala	22.4	17.9	18.0	16.1	3.7	2.0 *	1.6 *	0.8	51.0	50.8 *	45.4 *	46.7	5.2	4.1	3.2	2.6
Guinea	—	—	—	—	10.3	11.0	7.6	9.2	46.9	39.3	32.8	30.3	16.6	13.0	11.3	10.1
Guinea-Bissau	—	—	—	—	11.8	8.8	5.9	7.3 *	33.8	47.7	29.8	34.0 *	17.5	13.9	10.3	8.1
Guyana	6.7	7.2	6.0	5.7	12.1	8.3	6.4	6.2 *	13.9	17.9	11.3	10.3 *	4.7	4.1	3.6	3.0
Haiti	53.2	54.2	49.4	48.2	5.5	10.2	5.1	3.7	28.8	29.6	22.0	21.9	10.3	8.7	7.6	6.5
Honduras	22.0	21.9	20.8	13.8	1.3	1.4	1.4	1.3 *	35.5	29.8	22.6	20.7 *	3.7	2.8	2.2	1.8
India	18.6	19.8	16.3	14.0	17.1	20.0	15.1	17.3	54.2	47.8	38.7	34.7	9.2	7.1	5.2	3.7
Indonesia	19.3	19.1	9.3	9.0	5.5	14.8	13.5	10.2	42.4	40.1	36.4	30.8	5.2	4.0	3.2	2.5
Iran (Islamic Republic of)	4.8	5.5	4.8	4.7	6.1	4.8	4.0	5.1 *	20.4	7.1	6.8	7.3 *	3.4	2.4	1.8	1.4
Iraq	22.6	25.2	21.8	23.7	6.6	5.8	6.5	3.0	28.1	27.5	22.1	12.6	4.4	3.9	3.3	2.7
Jamaica	7.5	7.8	10.2	8.7	3.0	3.7	3.0	3.1 *	7.2	7.5	6.8	6.1 *	2.2	2.0	1.7	1.4
Jordan	9.8	5.8	8.6	8.5	2.5	2.2 *	2.4	2.3 *	11.7	9.6 *	7.8	10.2 *	2.7	2.3	1.9	1.6
Kazakhstan	6.6	6.4	2.8	<2.5	2.5	4.9	4.1	3.1	13.2	17.5	13.1	8.0	4.3	2.9	1.6	1.0
Kenya	32.4	26.3	23.2	23.0	7.4	6.9	4.2	4.9 *	40.8	40.3	26.2	31.3 *	10.6	7.4	5.2	4.1
Korea (DPR)	35.7	36.2	40.5	47.6	12.2	8.5	4.0	2.5	51.0	43.1	27.9	19.1	6.0	3.2	2.6	1.8
Kuwait	2.7	<2.5	<2.5	<2.5	2.2	2.8	2.4	2.5	4.0	4.6	4.3	6.4	1.2	1.1	1.0	0.8
Kyrgyzstan	15.3	9.8	8.2	6.4	3.5 *	3.4	2.8	2.0	22.8 *	18.1	17.9	11.8	4.9	3.8	2.6	1.9
Lao PDR	—	—	—	—	17.5	7.4	5.9	9.0	47.5	47.7	44.2	33.1	10.7	8.3	6.2	4.7
Latvia	4.6	<2.5	<2.5	<2.5	5.6 *	4.2 *	4.1 *	2.2 *	2.8 *	2.0 *	1.9 *	4.3 *	1.4	1.0	0.7	0.4

DATA UNDERLYING THE CALCULATION OF THE 2000, 2006, 2012, AND 2020 GLOBAL HUNGER INDEX SCORES

Country	Proportion of undernourished in the population (%)				Prevalence of wasting in children under five years (%)				Prevalence of stunting in children under five years (%)				Under-five mortality rate (%)			
	'00–'02	'05–'07	'11–'13	'17–'19	'98–'02	'04–'08	'10–'14	'15–'19	'98–'02	'04–'08	'10–'14	'15–'19	2000	2006	2012	2018
Lebanon	7.9	10.6	15.0	5.7	4.8 *	6.6	4.1 *	4.4 *	15.9 *	16.5	12.6 *	14.4 *	2.0	1.3	0.9	0.7
Lesotho	20.2	12.9	11.9	32.6	6.8	5.6	3.3	2.1	52.7	43.3	36.4	34.6	11.8	12.2	9.6	8.1
Liberia	36.7	35.3	33.3	37.5	7.4	7.9	5.6	3.4	45.3	39.6	32.1	30.1	18.7	12.0	8.9	7.1
Libya	—	—	—	—	9.4 *	6.5	10.2	8.5 *	34.7 *	21.0	38.1	26.1 *	2.8	2.2	1.5	1.2
Lithuania	<2.5	<2.5	<2.5	<2.5	6.5 *	3.7 *	3.5 *	1.8 *	3.6 *	2.3 *	1.9 *	1.4 *	1.1	0.9	0.5	0.4
Madagascar	33.9	31.1	30.7	41.7	9.7 *	15.1	7.5	6.4	54.7 *	52.7	48.9	41.6	10.7	7.9	6.3	5.4
Malawi	23.8	20.6	17.0	18.8	6.8	4.2	3.9	1.3	54.7	53.1	44.8	39.0	17.3	10.7	7.5	5.0
Malaysia	2.6	3.5	2.9	3.0	15.3	12.5 *	10.5 *	11.5	20.7	17.2	16.8 *	20.7	1.0	0.8	0.8	0.8
Mali	16.4	12.0	8.0	5.1	12.6	15.4	13.1	9.0	42.5	37.6	38.1	26.9	18.8	15.2	12.2	9.8
Mauritania	8.4	8.9	7.1	11.9	15.3	13.6	11.7	11.5	38.6	31.5	23.0	22.8	11.4	10.8	9.2	7.6
Mauritius	5.8	5.0	5.7	5.3	14.2 *	13.5 *	11.6 *	7.1 *	12.1 *	10.6 *	8.7 *	6.9 *	1.9	1.6	1.5	1.6
Mexico	3.3	4.1	4.3	7.1	2.0	2.0	1.6	2.0	21.4	15.5	13.6	10.0	2.6	2.0	1.6	1.3
Moldova (Republic of)	—	—	—	—	4.2 *	5.8	1.9	2.8 *	13.4 *	10.7	6.4	5.6 *	3.1	1.9	1.7	1.6
Mongolia	31.2	27.5	18.0	21.3	7.1	2.7	1.0	0.9	29.8	27.5	10.8	9.4	6.4	3.8	2.2	1.6
Montenegro	—	<2.5	<2.5	<2.5	—	4.2	2.8	2.2	—	7.9	9.4	7.2	—	1.0	0.5	0.3
Morocco	6.4	5.7	4.9	4.3	4.1 *	10.8	2.3	2.6	24.8 *	23.1	14.9	15.1	4.9	3.8	2.9	2.2
Mozambique	36.6	32.5	21.1	32.6	8.1	4.2	6.1	4.4	50.7	43.5	42.9	42.3	17.1	12.8	9.5	7.3
Myanmar	37.7	24.9	12.1	14.1	10.7	9.2 *	7.9	6.6	40.8	39.0 *	35.1	29.4	8.9	7.4	5.8	4.6
Namibia	13.1	17.1	24.0	14.7	10.0	7.6	7.1	6.4 *	29.3	29.2	22.7	23.4 *	7.7	6.7	4.8	4.0
Nepal	23.6	16.0	7.1	6.1	11.3	12.7	11.2	9.6	57.1	49.2	40.5	36.0	8.1	5.8	4.2	3.2
Nicaragua	27.6	22.3	17.9	17.2	2.3	0.9	2.2	1.1 *	25.1	20.9	17.3	15.6 *	3.7	2.5	1.9	1.8
Niger	—	—	—	—	16.2	12.5	15.8	14.1	53.5	54.8	41.7	48.5	22.6	16.1	10.9	8.4
Nigeria	9.1	7.0	7.6	12.6	17.6	13.4	14.1	6.8	39.7	39.2	36.2	36.8	18.5	15.1	13.0	12.0
North Macedonia	7.6	4.5	3.7	3.1	1.7	3.4	4.3	3.4	8.0	11.3	7.7	4.3	1.6	1.3	1.0	1.0
Oman	12.4	9.7	7.3	7.8	7.8	12.3 *	7.5	9.3	15.8	16.7 *	14.1	11.4	1.6	1.2	1.1	1.1
Pakistan	21.2	16.5	17.7	12.3	14.1	12.7 *	12.6	7.1	41.4	43.5 *	44.0	37.6	11.2	9.7	8.3	6.9
Panama	24.6	18.6	9.2	6.9	1.5 *	1.2	1.1 *	0.9 *	20.7 *	19.0	14.9 *	10.1 *	2.6	2.2	1.9	1.5
Papua New Guinea	—	—	—	—	8.1 *	4.4	14.1	6.8 *	48.0 *	43.9	49.5	40.1 *	7.2	6.4	5.6	4.8
Paraguay	10.6	9.8	7.9	8.8	2.0 *	1.1	2.6	1.0	14.0 *	17.5	10.7	5.6	3.4	2.9	2.4	2.0
Peru	21.6	15.8	5.9	6.7	1.1	1.0	0.6	0.5	31.3	29.2	18.4	12.2	3.9	2.5	1.8	1.4
Philippines	18.8	14.1	13.4	14.5	8.0	6.6	7.0	5.6	38.3	32.0	33.4	30.3	3.8	3.4	3.1	2.8
Qatar	—	—	—	—	1.9 *	5.7 *	4.5 *	0.9 *	7.7 *	2.7 *	2.1 *	4.2 *	1.2	1.0	0.9	0.7
Romania	<2.5	<2.5	<2.5	<2.5	4.3	2.4 *	2.4 *	2.5 *	12.8	10.2 *	9.4 *	5.9 *	2.2	1.6	1.1	0.7
Russian Federation	4.1	<2.5	<2.5	<2.5	4.5 *	3.4 *	3.2 *	3.5 *	16.7 *	12.8 *	12.0 *	9.5 *	1.9	1.3	1.0	0.7
Rwanda	38.5	33.1	22.2	35.6	8.7	4.9	2.4	2.1	47.9	51.4	43.8	37.6	18.3	9.8	5.2	3.5
Saudi Arabia	5.0	4.6	5.5	4.8	7.7 *	11.8	5.7 *	5.2 *	11.2 *	9.3	7.1 *	8.1 *	2.2	1.6	1.1	0.7
Senegal	24.2	15.8	9.2	9.4	10.0	8.7	8.7	8.1	26.0	19.9	15.5	18.8	13.1	8.7	5.9	4.4
Serbia	—	<2.5	2.7	4.6	—	4.5	3.7	3.7 *	—	8.1	6.3	8.6 *	—	0.8	0.7	0.6
Sierra Leone	50.7	43.8	34.6	26.0	11.6	10.2	9.4	5.4	35.5	45.0	37.8	29.5	23.4	19.6	14.5	10.5
Slovakia	6.2	5.7	3.5	6.1	3.9 *	3.7 *	3.5 *	3.8 *	3.4 *	2.9 *	2.5 *	5.0 *	1.0	0.8	0.7	0.6
Somalia	—	—	—	—	19.3	13.3	—	—	29.2	42.0	—	—	17.2	17.2	14.7	12.2
South Africa	4.0	3.5	3.8	5.7	4.5	6.3	5.6	2.5	30.1	30.2	27.2	27.4	7.4	7.6	4.3	3.4
South Sudan	—	—	—	—	—	—	22.7	—	—	—	31.3	—	—	—	10.1	9.9
Sri Lanka	17.0	14.2	8.9	7.6	15.9	14.7	21.3	15.1	18.3	17.3	14.6	17.3	1.7	1.4	1.1	0.7
Sudan	—	—	19.9	12.4	—	—	15.8	14.3 *	—	—	36.2	35.3 *	—	—	7.2	6.0
Suriname	12.0	9.0	8.3	8.1	7.0	4.9	5.0	5.5	14.1	10.6	8.8	8.3	3.4	2.8	2.3	1.9
Syrian Arab Republic	—	—	—	—	4.9	10.3	11.5	—	24.3	28.7	27.9	—	2.3	1.8	1.8	1.7
Tajikistan	—	—	—	—	9.4	7.8	9.9	5.6	42.1	36.2	26.9	17.5	8.4	5.2	4.1	3.5
Tanzania (United Rep. of)	33.1	30.3	29.1	25.0	5.6	3.5	5.3	3.5	48.3	44.4	36.2	31.8	13.0	8.9	6.6	5.3
Thailand	17.4	10.7	9.4	9.3	6.5 *	4.7	6.7	5.4	20.3 *	15.7	16.4	10.5	2.2	1.6	1.2	0.9
Timor-Leste	41.6	32.0	31.1	30.9	13.7	21.3	9.9	14.6 *	55.7	57.2	51.7	51.2 *	—	7.7	5.7	4.6
Togo	31.4	27.3	22.3	20.7	12.4	15.5	5.5	5.7	33.2	29.9	26.2	23.8	12.0	10.1	8.4	7.0
Trinidad & Tobago	10.1	10.6	7.2	5.5	5.2	5.4 *	6.4	2.5 *	5.3	6.2 *	9.2	4.9 *	2.9	2.6	2.2	1.8
Tunisia	4.4	4.3	3.2	<2.5	2.9	3.4	2.8	2.1	16.8	9.0	10.1	8.4	3.0	2.1	1.8	1.7
Turkey	<2.5	<2.5	<2.5	<2.5	3.0	1.0	1.9	1.7	18.8	13.9	10.0	6.0	3.8	2.3	1.5	1.1
Turkmenistan	6.9	4.0	5.1	4.0	7.1	7.2	5.2 *	4.2	28.1	18.9	13.7 *	11.5	8.1	6.8	5.6	4.6
Uganda	—	—	—	—	5.0	6.2	4.2	3.5	44.9	38.4	33.7	28.9	14.8	10.2	6.7	4.6
Ukraine	3.0	<2.5	<2.5	3.5	8.2	1.3 *	1.4 *	1.4 *	22.9	7.4 *	7.1 *	6.2 *	1.8	1.4	1.1	0.9
Uruguay	3.7	3.7	<2.5	<2.5	2.3	2.5	1.3	1.8 *	12.8	10.8	10.7	8.4 *	1.7	1.4	1.0	0.8
Uzbekistan	18.0	12.7	8.7	2.6	9.0	4.4	4.2 *	1.8	24.9	19.6	15.4 *	10.8	6.3	4.7	3.2	2.1
Venezuela (Boliv. Rep. of)	15.1	7.2	3.3	31.4	3.9	4.8	3.4 *	5.0 *	17.4	16.2	11.3 *	21.9 *	2.2	1.8	1.7	2.5
Viet Nam	19.8	15.4	10.1	6.4	9.0	9.1	6.7	5.8	42.9	33.8	26.7	23.8	3.0	2.5	2.3	2.1
Yemen	—	—	—	—	15.9 *	13.8	14.8	15.5 *	55.3 *	57.0	46.5	53.2 *	9.5	6.8	5.5	5.5
Zambia	—	—	—	—	5.0	5.6	6.2	4.2	59.2	45.8	40.0	34.6	16.2	10.1	7.4	5.8
Zimbabwe	—	—	—	—	8.3	7.2	3.2	2.9	33.8	35.3	32.2	23.5	10.5	10.1	7.0	4.6

Note: The colors shown in the table represent the following categories: = Very low, = Low, = Medium, = High, = Very high. For more information, see page 57.
— = Data not available or not presented. Some countries did not exist in their present borders in the given year or reference period. *GHI estimates.
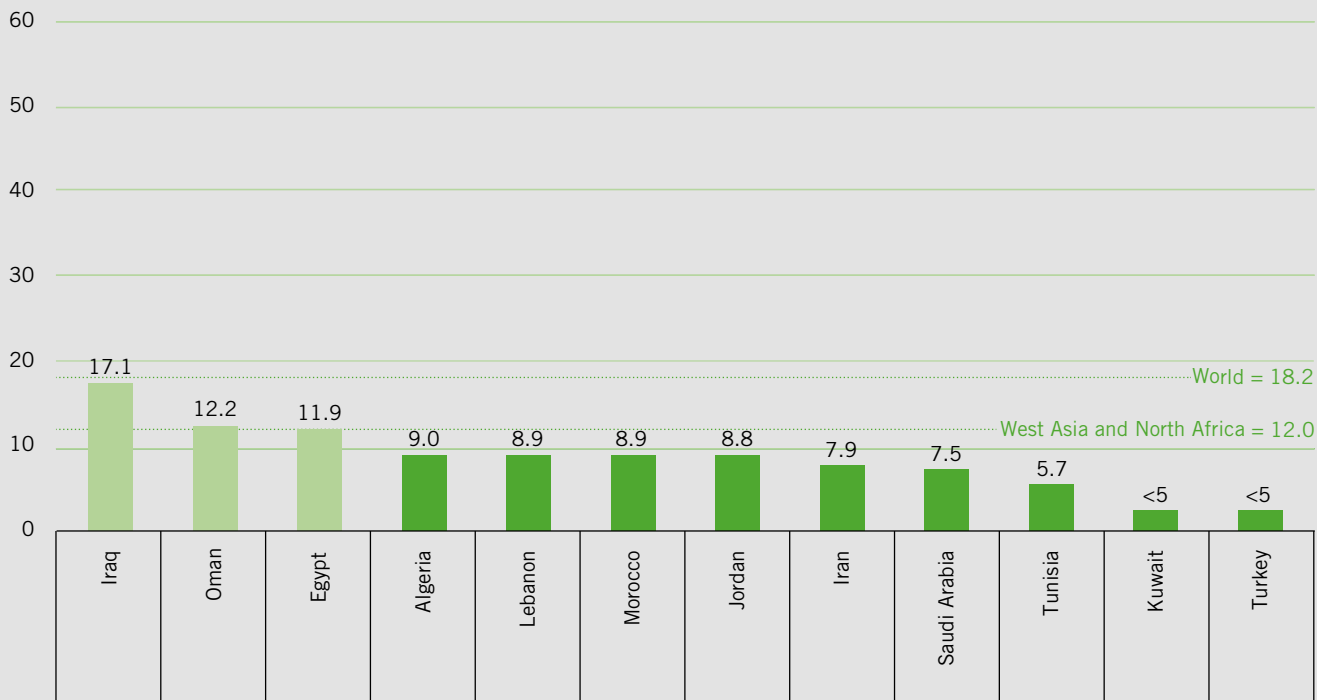
2000, 2006, 2012, AND 2020 GLOBAL HUNGER INDEX SCORES, AND CHANGE SINCE 2000

Country with data from	2000 '98–'02	2006 '04–'08	2012 '10–'14	2020 '15–'19	Absolute change since 2000	% change since 2000	Country with data from	2000 '98–'02	2006 '04–'08	2012 '10–'14	2020 '15–'19	Absolute change since 2000	% change since 2000
Afghanistan	51.0	42.8	33.8	30.3	-20.7	-40.6	Latvia	7.0	<5	<5	<5	—	—
Albania	20.7	15.8	8.5	5.9	-14.8	-71.5	Lebanon	11.6	13.3	12.4	8.9	-2.7	-23.3
Algeria	14.5	11.7	9.0	9.0	-5.5	-37.9	Lesotho	36.0	30.4	24.6	30.7	-5.3	-14.7
Angola	64.9	47.0	35.9	26.8	-38.1	-58.7	Liberia	48.0	40.0	33.1	31.4	-16.6	-34.6
Argentina	6.3	5.6	5.2	5.3	-1.0	-15.9	Libya	—	—	—	—	—	—
Armenia	19.4	13.4	10.4	6.9	-12.5	-64.4	Lithuania	6.1	<5	<5	<5	—	—
Azerbaijan	25.0	16.0	10.6	6.0	-19.0	-76.0	Madagascar	42.7	41.4	34.6	36.0	-6.7	-15.7
Bahrain	—	—	—	—	—	—	Malawi	43.2	33.8	27.1	22.6	-20.6	-47.7
Bangladesh	34.1	29.0	27.8	20.4	-13.7	-40.2	Malaysia	15.5	13.3	11.8	13.3	-2.2	-14.2
Belarus	<5	<5	<5	<5	—	—	Mali	41.9	37.0	31.3	22.9	-19.0	-45.3
Benin	34.1	28.7	24.2	22.4	-11.7	-34.3	Mauritania	32.0	29.0	23.7	24.0	-8.0	-25.0
Bhutan	—	—	—	—	—	—	Mauritius	15.0	13.6	12.3	9.3	-5.7	-38.0
Bolivia (Plurinat. State of)	27.6	23.2	16.8	14.0	-13.6	-49.3	Mexico	10.1	8.4	7.4	7.7	-2.4	-23.8
Bosnia & Herzegovina	9.3	6.7	<5	<5	—	—	Moldova (Rep. of)	—	—	—	—	—	—
Botswana	28.2	27.3	22.4	22.6	-5.6	-19.9	Mongolia	30.1	23.1	12.7	13.1	-17.0	-56.5
Brazil	11.3	6.3	<5	<5	—	—	Montenegro	—	5.5	<5	<5	—	—
Bulgaria	8.2	7.3	7.8	5.5	-2.7	-32.9	Morocco	15.5	17.5	9.6	8.9	-6.6	-42.6
Burkina Faso	45.7	46.3	31.1	25.8	-19.9	-43.5	Mozambique	48.1	38.4	31.4	33.1	-15.0	-31.2
Burundi	—	—	—	—	—	—	Myanmar	39.8	31.8	23.3	20.9	-18.9	-47.5
Cambodia	41.2	27.2	24.9	20.6	-20.6	-50.0	Namibia	25.3	24.7	23.9	19.1	-6.2	-24.5
Cameroon	36.4	31.0	23.2	19.1	-17.3	-47.5	Nepal	37.4	31.0	22.8	19.5	-17.9	-47.9
Central African Republic	—	—	—	—	—	—	Nicaragua	22.3	17.1	14.6	13.2	-9.1	-40.8
Chad	50.9	51.3	47.9	44.7	-6.2	-12.2	Niger	—	—	—	—	—	—
Chile	<5	<5	<5	<5	—	—	Nigeria	40.6	34.1	32.0	29.2	-11.4	-28.1
China	13.6	9.5	<5	<5	—	—	North Macedonia	7.5	7.7	6.7	5.2	-2.3	-30.7
Colombia	10.9	11.5	9.1	7.5	-3.4	-31.2	Oman	14.8	16.0	11.6	12.2	-2.6	-17.6
Comoros	—	—	—	—	—	—	Pakistan	37.2	33.5	32.8	24.6	-12.6	-33.9
Congo (Republic of)	33.8	34.7	27.8	26.0	-7.8	-23.1	Panama	18.5	15.0	9.8	7.2	-11.3	-61.1
Costa Rica	6.1	<5	<5	<5	—	—	Papua New Guinea	—	—	—	—	—	—
Côte d'Ivoire	33.6	34.7	30.1	24.5	-9.1	-27.1	Paraguay	12.1	11.6	9.6	7.5	-4.6	-38.0
Croatia	<5	<5	<5	<5	—	—	Peru	20.8	16.5	8.9	7.3	-13.5	-64.9
Cuba	<5	<5	<5	<5	—	—	Philippines	25.0	20.4	20.4	19.0	-6.0	-24.0
Dem. Rep. of the Congo	—	—	—	—	—	—	Qatar	—	—	—	—	—	—
Djibouti	—	—	—	—	—	—	Romania	8.0	5.5	<5	<5	—	—
Dominican Republic	15.2	13.9	10.3	7.1	-8.1	-53.3	Russian Federation	10.0	6.8	6.0	5.2	-4.8	-48.0
Ecuador	19.7	19.0	16.3	11.0	-8.7	-44.2	Rwanda	49.7	38.1	26.0	28.3	-21.4	-43.1
Egypt	16.4	14.4	15.3	11.9	-4.5	-27.4	Saudi Arabia	11.1	12.2	8.2	7.5	-3.6	-32.4
El Salvador	14.7	12.1	10.4	10.5	-4.2	-28.6	Senegal	34.3	24.4	18.0	17.1	-17.2	-50.1
Equatorial Guinea	—	—	—	—	—	—	Serbia	—	6.1	5.3	6.6	—	—
Eritrea	—	—	—	—	—	—	Sierra Leone	58.3	53.3	42.4	30.9	-27.4	-47.0
Estonia	5.9	<5	<5	<5	—	—	Slovakia	6.5	5.9	<5	6.4	-0.1	-1.5
Eswatini	26.1	24.1	17.8	20.3	-5.8	-22.2	Somalia	—	—	—	—	—	—
Ethiopia	53.7	43.6	35.5	26.2	-27.5	-51.2	South Africa	18.4	19.4	15.3	13.5	-4.9	-26.6
Fiji	9.6	9.1	8.1	8.0	-1.6	-16.7	South Sudan	—	—	—	—	—	—
Gabon	21.1	20.4	18.8	18.2	-2.9	-13.7	Sri Lanka	21.9	19.5	20.1	16.3	-5.6	-25.6
Gambia	29.2	28.0	22.7	17.8	-11.4	-39.0	Sudan	—	—	32.5	27.2	—	—
Georgia	12.3	8.9	<5	6.1	-6.2	-50.4	Suriname	15.5	11.7	10.5	10.2	-5.3	-34.2
Ghana	28.5	22.2	17.9	15.2	-13.3	-46.7	Syrian Arab Republic	—	—	—	—	—	—
Guatemala	28.5	24.6	22.2	20.7	-7.8	-27.4	Tajikistan	—	—	—	—	—	—
Guinea	—	—	—	—	—	—	Tanzania (United Rep. of)	40.8	33.6	30.0	25.0	-15.8	-38.7
Guinea-Bissau	—	—	—	—	—	—	Thailand	17.8	12.3	12.7	10.2	-7.6	-42.7
Guyana	17.3	15.8	12.2	11.1	-6.2	-35.8	Timor-Leste	—	46.1	36.2	37.6	—	—
Haiti	41.9	43.6	35.9	33.5	-8.4	-20.0	Togo	39.3	36.7	26.6	24.1	-15.2	-38.7
Honduras	21.9	19.7	16.9	13.1	-8.8	-40.2	Trinidad & Tobago	11.1	11.4	10.8	6.6	-4.5	-40.5
India	38.9	37.5	29.3	27.2	-11.7	-30.1	Tunisia	10.3	7.8	7.0	5.7	-4.6	-44.7
Indonesia	26.1	29.5	23.1	19.1	-7.0	-26.8	Turkey	10.1	6.3	<5	<5	—	—
Iran (Islamic Republic of)	13.5	8.9	7.6	7.9	-5.6	-41.5	Turkmenistan	21.2	16.6	13.6	11.1	-10.1	-47.6
Iraq	24.0	24.0	21.1	17.1	-6.9	-28.8	Uganda	—	—	—	—	—	—
Jamaica	8.6	9.0	9.2	8.1	-0.5	-5.8	Ukraine	13.0	<5	<5	<5	—	—
Jordan	10.8	8.1	8.6	8.8	-2.0	-18.5	Uruguay	7.5	6.8	5.0	<5	—	—
Kazakhstan	11.4	12.3	8.1	5.4	-6.0	-52.6	Uzbekistan	24.4	16.9	12.7	6.7	-17.7	-72.5
Kenya	37.4	31.4	23.2	23.7	-13.7	-36.6	Venezuela (Boliv. Rep. of)	14.7	11.2	7.6	23.5	8.8	59.9
Korea (DPR)	39.5	33.1	28.2	27.5	-12.0	-30.4	Viet Nam	26.3	21.9	16.5	13.6	-12.7	-48.3
Kuwait	<5	<5	<5	<5	—	—	Yemen	—	—	—	—	—	—
Kyrgyzstan	18.4	13.9	11.7	8.4	-10.0	-54.3	Zambia	—	—	—	—	—	—
Lao PDR	—	—	—	—	—	—	Zimbabwe	—	—	—	—	—	—

Note: — = Data are not available or not presented. See Box 1.3 for provisional designations of the severity of hunger for some countries with incomplete data. Some countries did not exist in their present borders in the given year or reference period. ■ = low, □ = moderate, □ = serious, ■ = alarming, ■ = extremely alarming.

COUNTRIES' 2020 GHI SCORES BY REGION

WEST ASIA AND NORTH AFRICA

World = 18.2

West Asia and North Africa = 12.0

Country	Score
Iraq	17.1
Oman	12.2
Egypt	11.9
Algeria	9.0
Lebanon	8.9
Morocco	8.9
Jordan	8.8
Iran	7.9
Saudi Arabia	7.5
Tunisia	5.7
Kuwait	<5
Turkey	<5

Note: Bahrain, Libya, Qatar, Syrian Arab Republic, and Yemen are in the West Asia and North Africa region but are not shown, owing to insufficient data for the calculation of GHI scores. Existing data and provisional indicator values for these countries were included in the calculation of regional and global GHI scores. See Box 1.3 regarding provisional designations of hunger severity for countries with incomplete data. Countries with GHI scores less than 5 are presented in alphabetical order.

WEST AFRICA

Africa South of the Sahara = 27.8

World = 18.2

Country	Score
Liberia	31.4
Sierra Leone	30.9
Nigeria	29.2
Burkina Faso	25.8
Côte d'Ivoire	24.5
Togo	24.1
Mauritania	24.0
Mali	22.9
Benin	22.4
Gambia	17.8
Senegal	17.1
Ghana	15.2
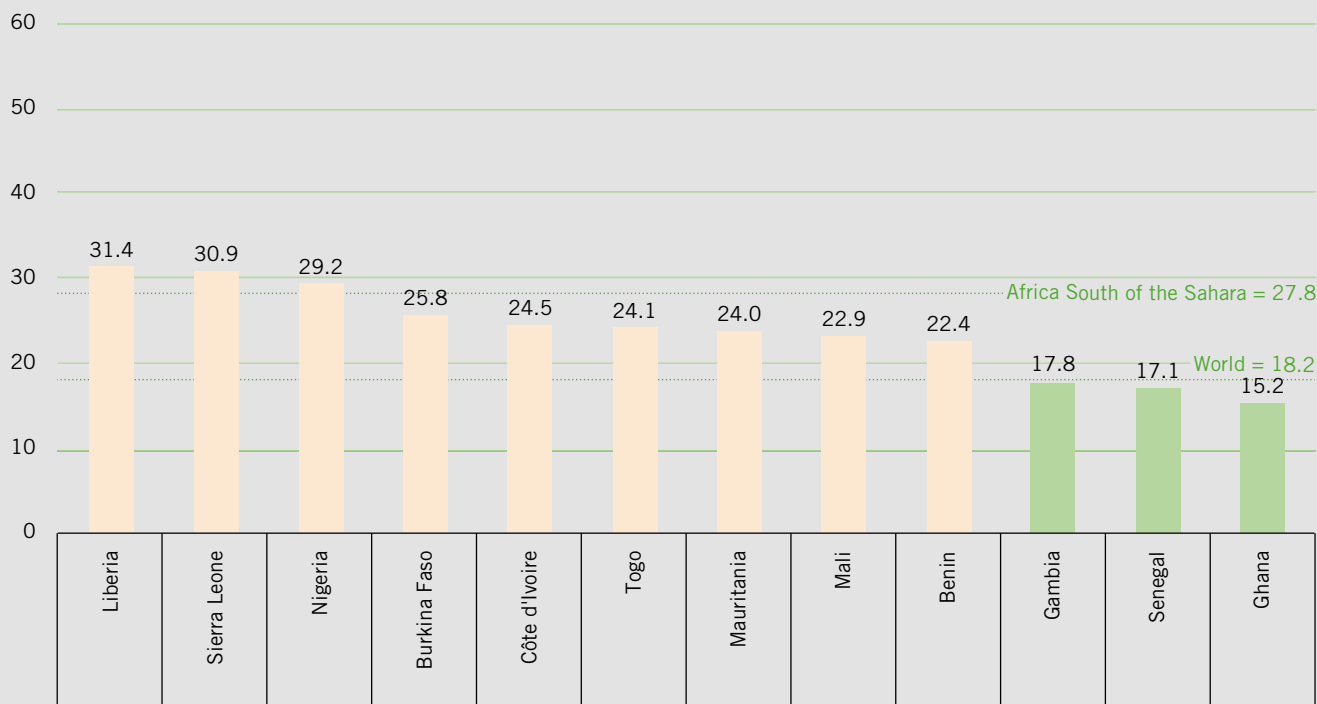
Note: Guinea, Guinea-Bissau, and Niger are in the West Africa subregion but are not shown, owing to insufficient data for the calculation of GHI scores. Existing data and provisional indicator values for these countries were included in the calculation of regional and global GHI scores. See Box 1.3 regarding provisional designations of hunger severity for countries with incomplete data.

CENTRAL AND SOUTHERN AFRICA

Africa South of the Sahara = 27.8

World = 18.2

Chad	Lesotho	Angola	Rep. of Congo	Botswana	Eswatini	Namibia	Cameroon	Gabon	South Africa
44.7	30.7	26.8	26.0	22.6	20.3	19.1	19.1	18.2	13.5
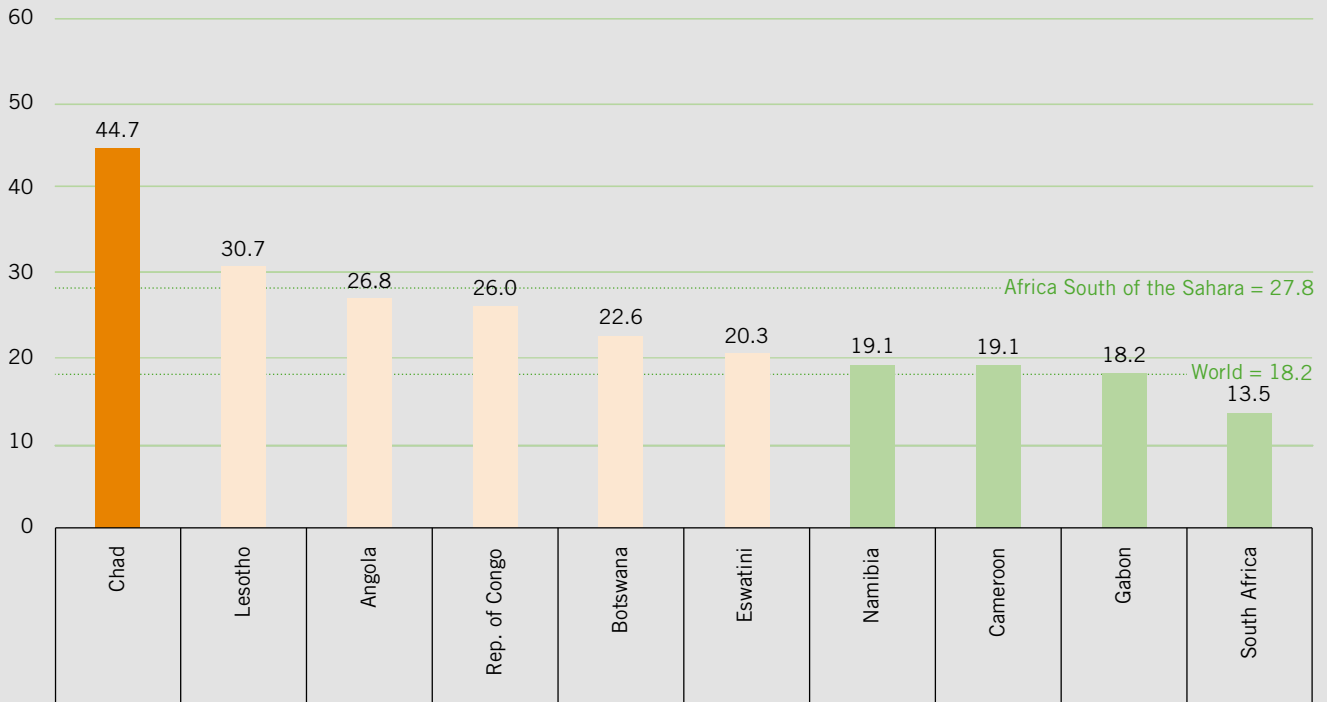
Note: Central African Republic, the Democratic Republic of the Congo, and Equatorial Guinea are in the Central Africa subregion but are not shown, owing to insufficient data for the calculation of GHI scores. Existing data and provisional indicator values for these countries were included in the calculation of regional and global GHI scores. See Box 1.3 regarding provisional designations of hunger severity for countries with incomplete data.

EAST AFRICA

Africa South of the Sahara = 27.8

World = 18.2

Madagascar	Mozambique	Rwanda	Sudan	Ethiopia	United Rep. of Tanzania	Kenya	Malawi	Mauritius
36.0	33.1	28.3	27.2	26.2	25.0	23.7	22.6	9.3
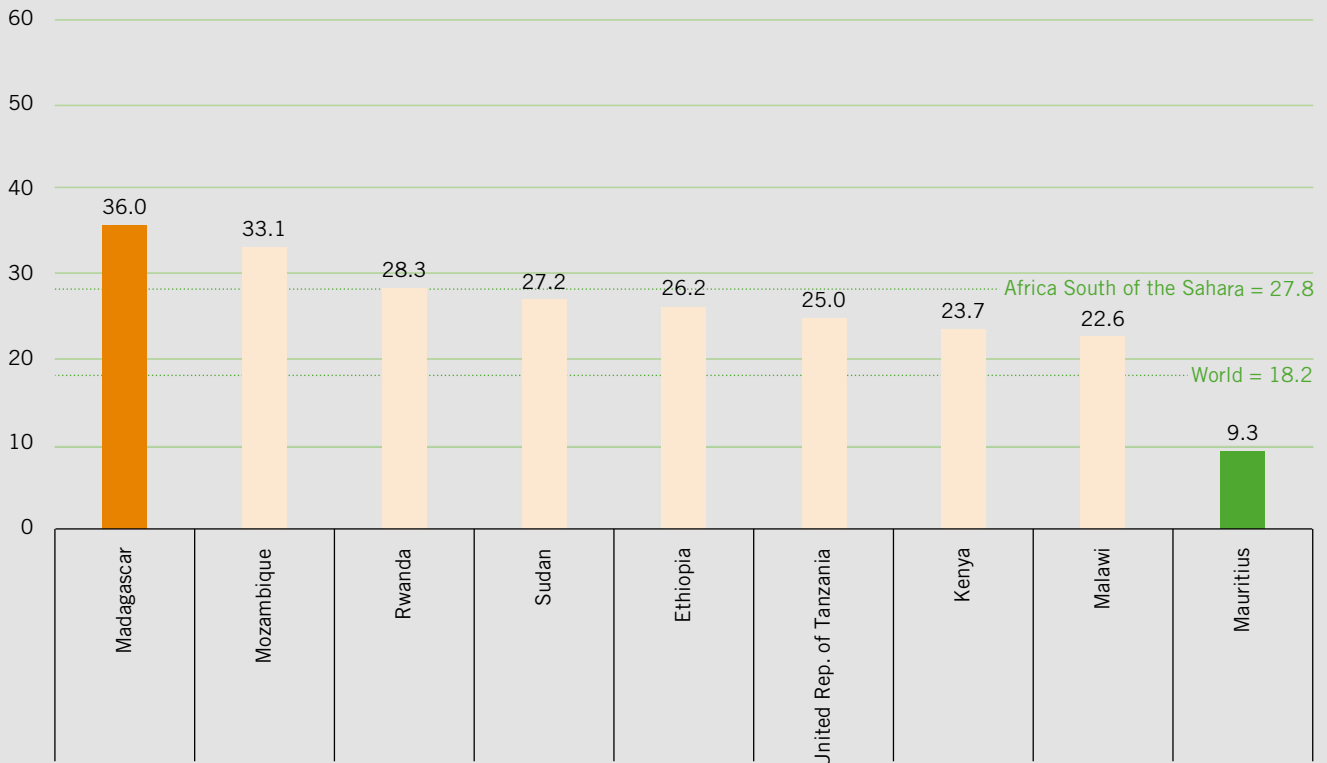
Note: Burundi, Comoros, Djibouti, Eritrea, Somalia, South Sudan, Uganda, Zambia, and Zimbabwe are in the East Africa subregion but are not shown, owing to insufficient data for the calculation of GHI scores. Existing data and provisional indicator values for these countries were included in the calculation of regional and global GHI scores. See Box 1.3 regarding provisional designations of hunger severity for countries with incomplete data.

SOUTH AMERICA

	Venezuela	Bolivia	Guyana	Ecuador	Suriname	Colombia	Paraguay	Peru	Trinidad & Tobago	Argentina	Brazil	Chile	Uruguay
Score	23.5	14.0	11.1	11.0	10.2	7.5	7.5	7.3	6.6	5.3	<5	<5	<5

World = 18.2

Latin America and Caribbean = 8.4
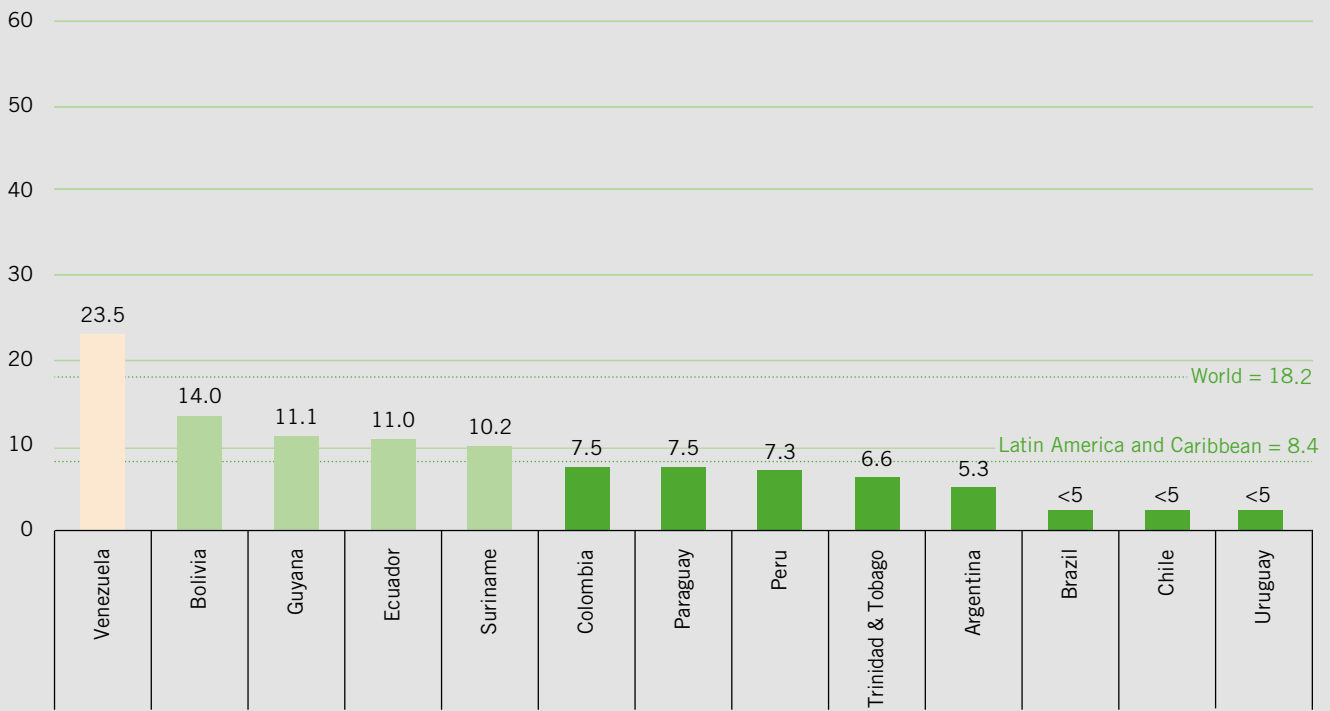
Note: Countries with GHI scores less than 5 are presented in alphabetical order.

CENTRAL AMERICA AND THE CARIBBEAN

	Haiti	Guatemala	Nicaragua	Honduras	El Salvador	Jamaica	Mexico	Panama	Dominican Republic	Costa Rica	Cuba
Score	33.5	20.7	13.2	13.1	10.5	8.1	7.7	7.2	7.1	<5	<5

World = 18.2

Latin America and Caribbean = 8.4
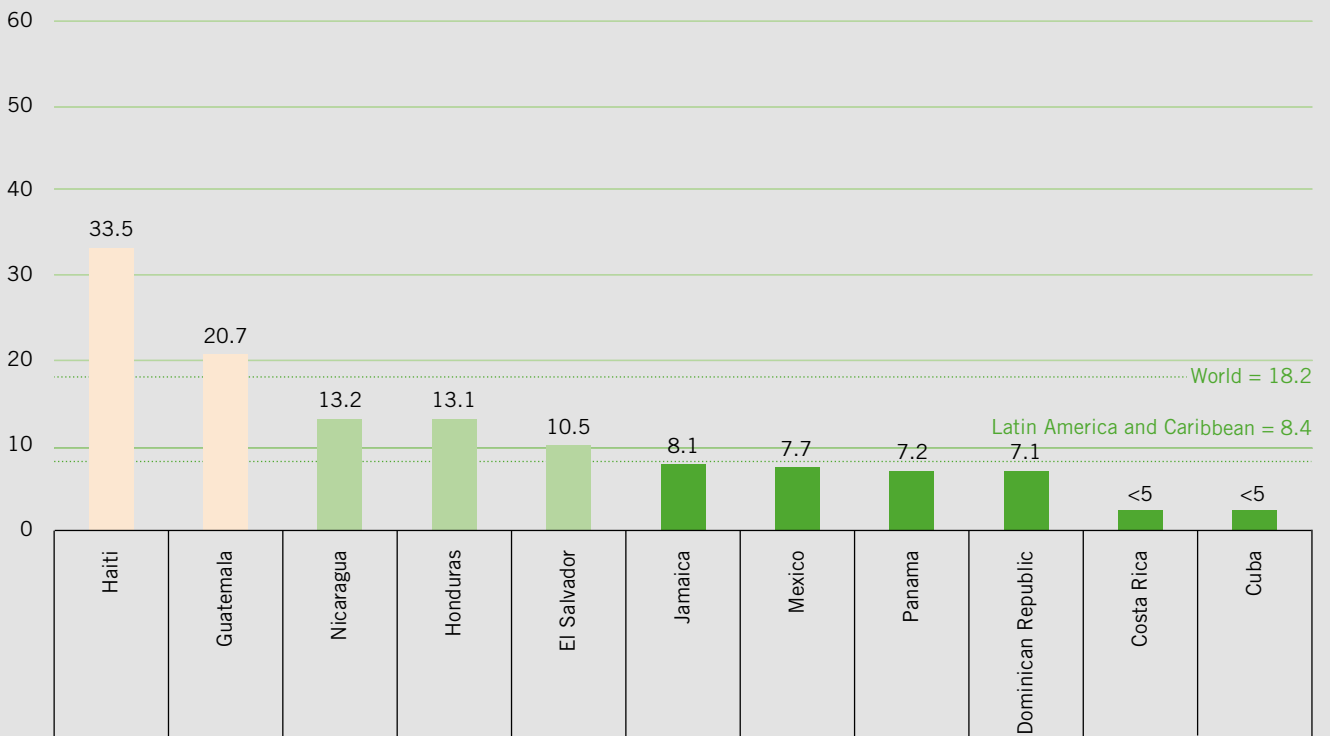
Note: Countries with GHI scores less than 5 are presented in alphabetical order.

SOUTH, EAST, AND SOUTHEAST ASIA
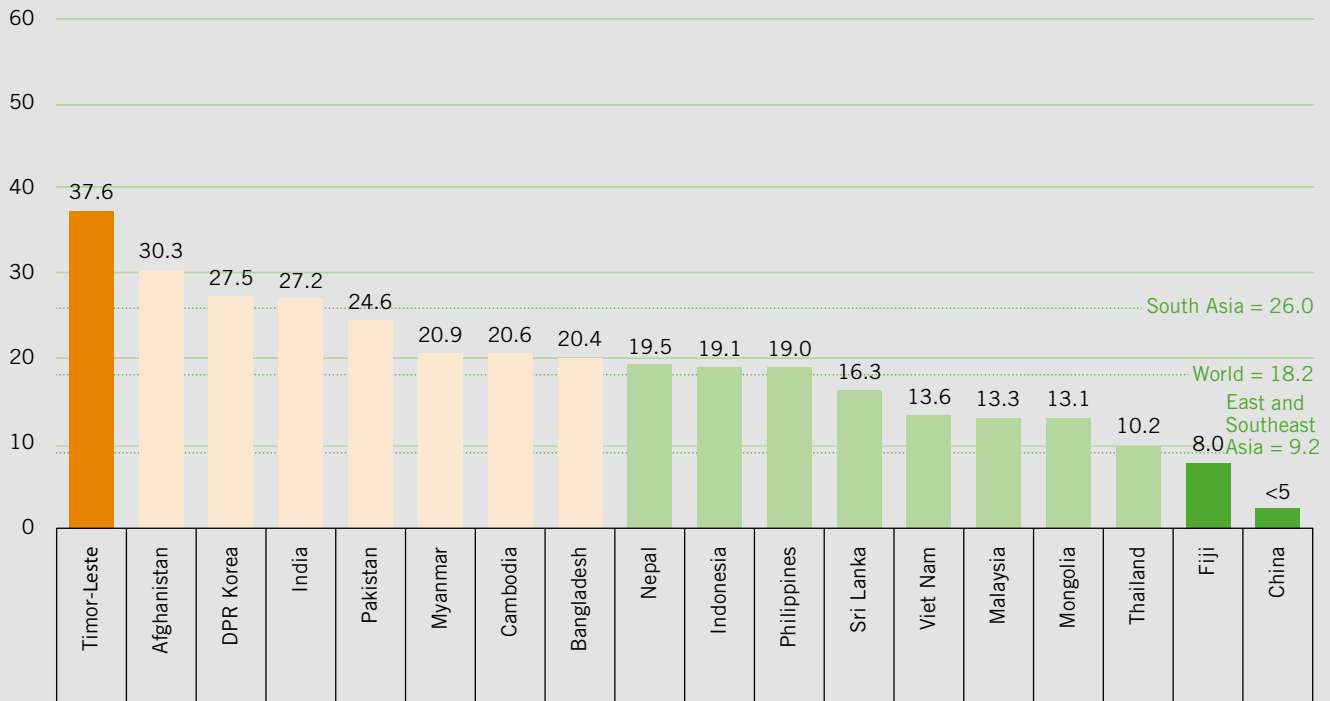
Note: Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka are in South Asia for the purposes of Figure 1.1, whereas the remaining countries are in East and Southeast Asia. Bhutan (South Asia) and Lao PDR and Papua New Guineau (Southeast Asia) are not shown, owing to insufficient data for the calculation of GHI scores. Existing data and provisional indicator values for these countries were included in the calculation of regional and global GHI scores. See Box 1.3 regarding provisional designations of hunger severity for countries with incomplete data.

EUROPE AND CENTRAL ASIA
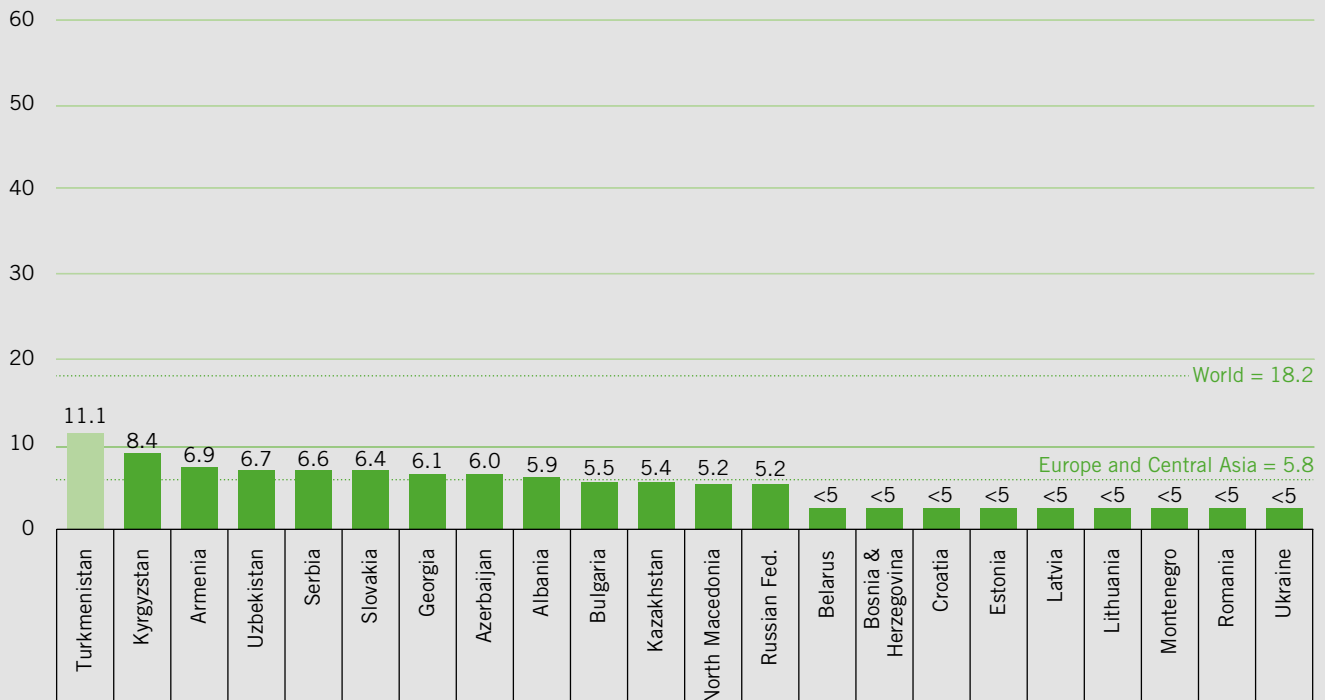
Note: The Republic of Moldova and Tajikistan are in the Europe and Central Asia region but are not shown, owing to insufficient data for the calculation of GHI scores. Existing data and provisional indicator values for these countries were included in the calculation of regional and global GHI scores. See Box 1.3 regarding provisional designations of hunger severity for countries with incomplete data. Countries with GHI scores less than 5 are presented in alphabetical order.

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PARTNERS

Who we are

Concern Worldwide is a nongovernmental, international, humanitarian organisation dedicated to the reduction of suffering and working towards the ultimate elimination of extreme poverty in the world's poorest countries.

What we do

Our mission is to help people living in extreme poverty achieve major improvements in their lives which last and spread without ongoing support from Concern. To achieve this mission, we engage in long-term development work, build resilience, respond to emergency situations, and seek to address the root causes of poverty through our development education and advocacy work.

Our vision

We believe in a world where no one lives in poverty, fear, or oppression; where all have access to a decent standard of living and the opportunities and choices essential to a long, healthy, and creative life; and where everyone is treated with dignity and respect.

Who we are

Welthungerhilfe is one of the largest nongovernmental development and humanitarian aid organizations in Germany. It was founded in 1962 as the German section of the Freedom from Hunger Campaign, one of the first global initiatives to fight hunger, initiated by the Food and Agriculture Organization of the United Nations (FAO).

What we do

We provide integrated aid encompassing rapid response to emergencies, reconstruction, and long-term development cooperation. In 2019, we supported 10.5 million people in 36 countries through 499 international projects.

How we work

Because our goal is to sustainably improve livelihoods in the long run, our work focuses on capacity building. We aim to strengthen structures from the bottom up and work together with local partner organizations to ensure the long-term success of our work. In addition, we raise public awareness and advocate with national and international policymakers. We thereby strive to address the root causes of hunger and poverty. In a shared mission with many other organizations, our goal is to make ourselves redundant.

Our vision

A world in which all people can exercise their right to lead a self-determined life in dignity and justice, free from hunger and poverty.

15 YEARS OF TRACKING WORLD HUNGER

Since 2006, the Global Hunger Index has been reporting on the state of hunger globally, by region, and by country.

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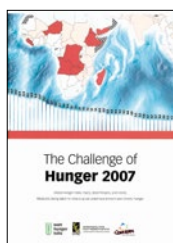
Measures Being Taken to Reduce Acute Undernourishment and Chronic Hunger
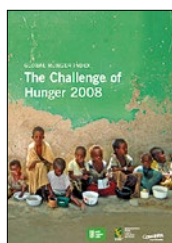
The Vicious Circle of Hunger and Poverty

Financial Crisis and Gender Inequality

The Crisis of Child Undernutrition

Taming Price Spikes and Excessive Food Price Volatility

Ensuring Sustainable Food Security Under Land, Water, and Energy Stresses

Building Resilience to Achieve Food and Nutrition Security

The Challenge of Hidden Hunger
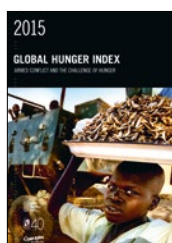
Armed Conflict and the Challenge of Hunger

Getting to Zero Hunger

The Inequalities of Hunger

Forced Migration and Hunger

The Challenge of Hunger and Climate Change

One Decade to Zero Hunger Linking Health and Sustainable Food Systems

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