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# 2012 GLOBAL HUNGER INDEX

## THE CHALLENGE OF HUNGER

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

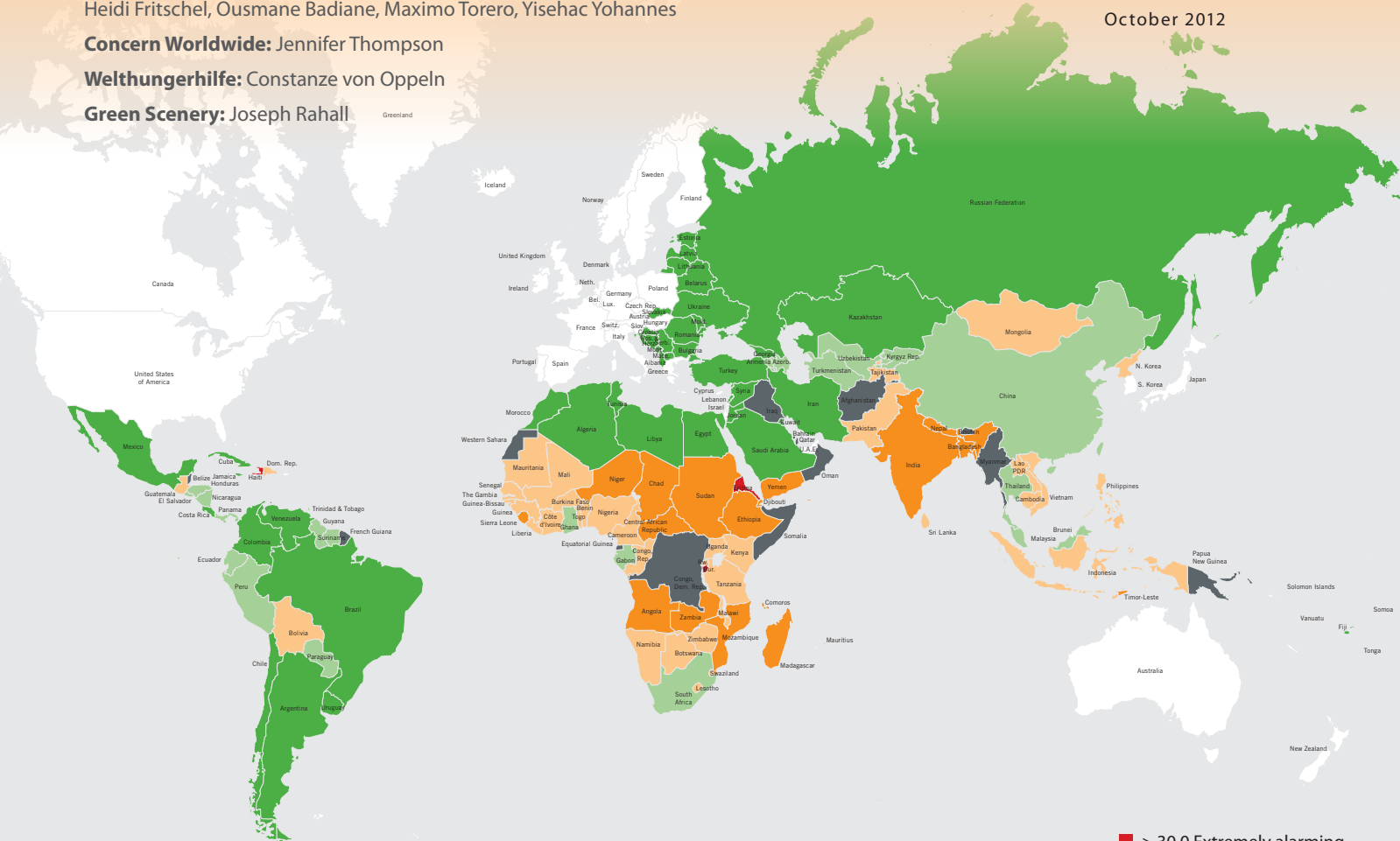
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### 2012 GLOBAL HUNGER INDEX SCORES BY SEVERITY

**Note:** For the 2012 GHI, data on the proportion of undernourished are for 2006–08, data on child underweight are for the latest year in the period 2005–10 for which data are available, and data on child mortality are for 2010. GHI scores were not calculated for countries for which data were not available and for certain countries with very small populations.

- > 30.0 Extremely alarming
- 20.0–29.9 Alarming
- 10.0–19.9 Serious
- 5.0–9.9 Moderate
- < 4.9 Low
- No data
- Industrialized country

**T**he 2012 Global Hunger Index (GHI) report—the seventh in an annual series—presents a multidimensional measure of global, regional, and national hunger. It shows that progress in reducing the proportion of hungry people in the world has been tragically slow. According to the index, hunger on a global scale remains “serious.” The 2012 GHI report also focuses particularly on how to ensure sustainable food security under conditions of land, water, and energy stress. The stark reality is that the world needs to produce more food with fewer resources, while eliminating wasteful practices and policies.

## THE GLOBAL HUNGER INDEX

The GHI aggregates three equally weighted indicators:

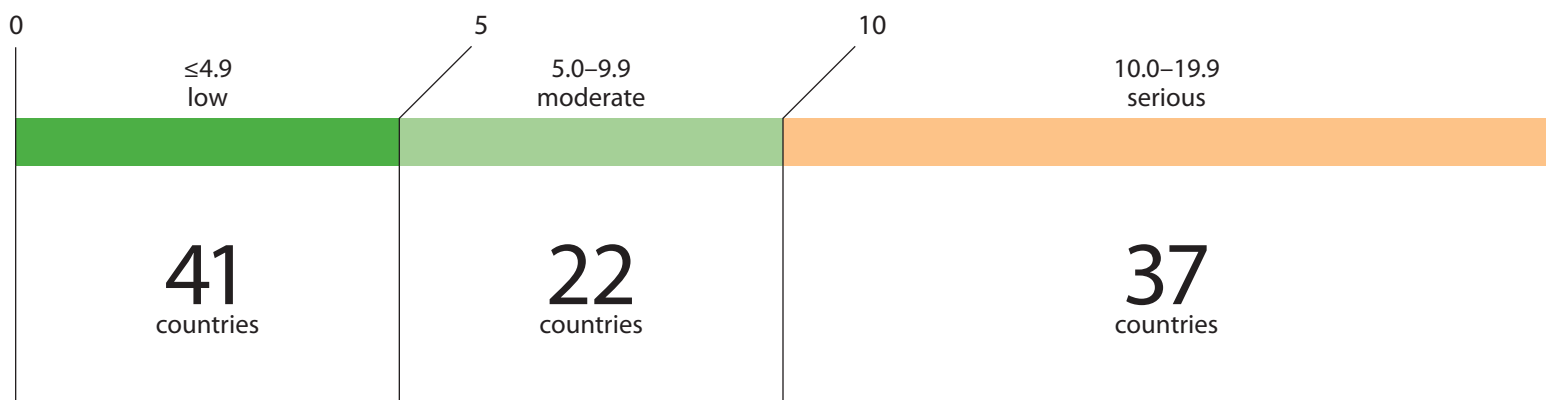
- ▶ the proportion of people who are undernourished,
- ▶ the proportion of children younger than age five who are underweight, and
- ▶ the mortality rate of children younger than age five.

Data on these indicators come from the Food and Agriculture Organization of the United Nations (FAO),

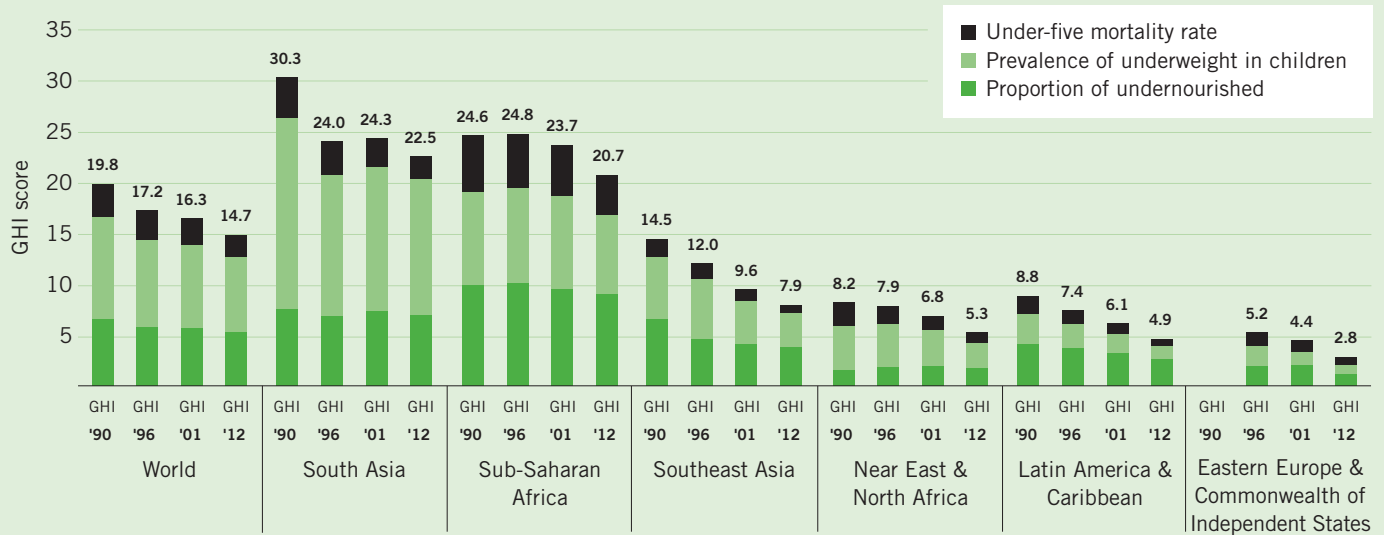
the World Health Organization (WHO), the United Nations Children’s Fund (UNICEF), various national demographic and health surveys, and IFPRI estimates. The 2012 GHI is calculated for 120 countries for which data on the three components are available and reflects data from 2005 to 2010—the most recent data available for those components.

The GHI ranks countries on a 100-point scale, with 0 being the best score (no hunger) and 100 being the worst, although neither of these extremes is reached in practice. Values less than 5.0 reflect low hunger, values between 5.0

### GLOBAL HUNGER INDEX



**FIGURE 1** Contribution of components to the 1990 GHI, 1996 GHI, 2001 GHI, and 2012 GHI



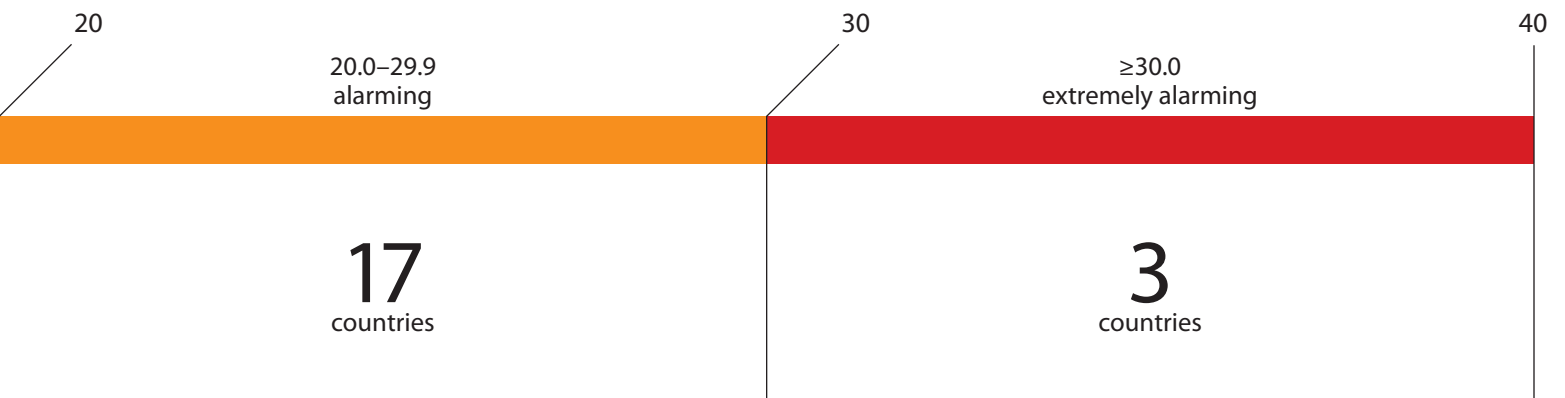
**Note:** For the 1990 GHI, data on the proportion of undernourished are for 1990–92; data on child underweight are for the year closest to 1990 in the period 1988–92 for which data are available; and data on child mortality are for 1990. For the 1996 GHI, data on the proportion of undernourished are for 1995–97; data on child underweight are for the year closest to 1996 in the period 1994–98 for which data are available; and data on child mortality are for 1996. For the 2001 GHI, data on the proportion of undernourished are for 2000–02; data on child underweight are for the year closest to 2001 in the period 1999–2003 for which data are available; and data on child mortality are for 2001. For the 2012 GHI, data on the proportion of undernourished are for 2006–08, data on child underweight are for the latest year in the period 2005–10 for which data are available, and data on child mortality are for 2010.

and 9.9 reflect moderate hunger, values between 10.0 and 19.9 indicate a serious level of hunger, values between 20.0 and 29.9 are alarming, and values of 30.0 or greater are extremely alarming.

## RANKING AND TRENDS

Improvements in global hunger since 1990 continue to be small. Although the *number* of undernourished people was

on the rise from the mid-1990s until 2006–08, the *proportion* of undernourished people in the world declined during that period. Because the GHI measures the proportion of people who suffer from hunger—broadly defined by the three component indicators—the index shows a positive trend. The 2012 world GHI fell by 26 percent from the 1990 world GHI, from a score of 19.8 to 14.7 (see Figure 1). This progress was driven mainly by reductions in the proportion of children younger than the age of five who are underweight.



Global averages mask dramatic differences among regions and countries. The 2012 GHI scores for South Asia and Sub-Saharan Africa remain alarming, whereas scores are low for the Near East and North Africa, Latin America and the Caribbean, and Eastern Europe and the Commonwealth of Independent States.

That said, all regions have made progress when compared with the 1990 scores. Indeed, the 2012 GHI score was 16 percent lower in Sub-Saharan Africa, 26 percent lower in South Asia, and 35 percent lower in the Near East and North Africa. Progress in Southeast Asia and Latin America and the Caribbean was particularly remarkable, with the GHI scores decreasing by 46 percent and 44 percent respectively (although the score was already low in the latter region). In Eastern Europe and the Commonwealth of Independent States, the 2012 GHI score was 46 percent lower than the 1996 score.

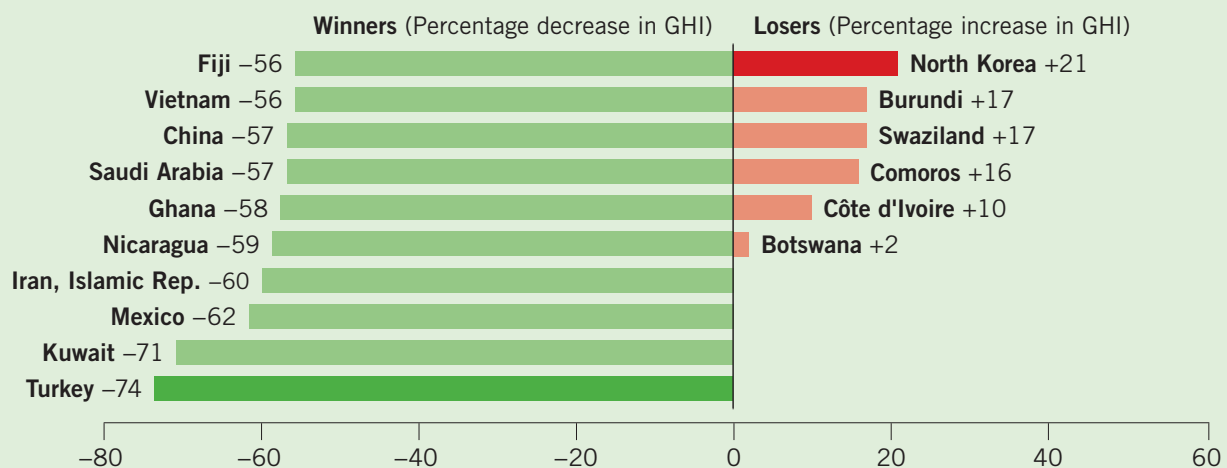
The region with the highest 2012 GHI score is South Asia. Between 1990 and 1996, South Asia reduced its GHI score by more than six points—mainly through a large decline in underweight children—but it has not maintained this rapid progress. Since 2001, despite strong economic growth, the region has lowered its GHI score by only two points. The proportion of undernourished people did not decline between 1995–97 and 2006–08 and even showed a transient increase of about 2 percentage points around 2000–02. Social inequality and the low nutritional, educational, and social status of women are major causes of child undernutrition in this region and have impeded improvements in the GHI score.

Though Sub-Saharan Africa made less progress than South Asia in the 1990s, it has caught up since the turn of the millennium, and its 2012 GHI score has fallen below that of South Asia. Countries formerly in conflict became more politically stable, and economic growth resumed on the continent. Since 2001, child mortality rates—both for infants and for children under the age of five—have declined in Sub-Saharan Africa, thanks to a range of factors. Advances were made in the fight against HIV and AIDS. A decrease in the prevalence of malaria coincided with increased use of insecticide-treated bed nets and other antimalarial interventions. Other contributors may include higher immunization rates, better antenatal care, more births in medical centers, greater access to clean water and sanitation facilities, and increasing levels of income.

Because of lags in data availability, the 2012 GHI does not reflect the recent crisis in the Horn of Africa, which intensified in 2011. The crisis, as well as the unfolding food emergency in the Sahel, demonstrates that, though the situation in Sub-Saharan Africa is improving, food security remains fragile in parts of the region and vulnerability to shocks is still high.

Not only regions, but also countries experienced great variation in tackling hunger. From the 1990 GHI to the 2012 GHI, 15 countries reduced their scores by 50 percent or more. Only one country in Sub-Saharan Africa—Ghana—is among the 10 best performers in improving their GHI score since 1990 (see Figure 2). Turkey’s notable progress

**FIGURE 2** GHI winners and losers from the 1990 GHI to the 2012 GHI



**Note:** Countries with both 1990 GHI and 2012 GHI scores of less than five are excluded.

since 1990 is due mainly to significant reductions in the prevalence of child underweight and child mortality, while undernourishment in the country remains very low. Kuwait's considerable progress in reducing hunger is due mainly to its unusually high level in 1990, when Iraq invaded the country.

With the exception of North Korea, all countries in which the hunger situation worsened from the 1990 GHI to the 2012 GHI are in Sub-Saharan Africa. Increased hunger since 1990 in Burundi, Comoros, and Côte d'Ivoire can be attributed to prolonged conflict and political instability. Between 1990 and 2001, Burundi's GHI score increased steadily, but

## CONCEPTS OF HUNGER

The terminology used to refer to different concepts of hunger can be confusing. "Hunger" is usually understood to refer to the discomfort associated with lack of food. FAO defines food deprivation, or "undernourishment," specifically as the consumption of fewer than about 1,800 kilocalories a day—the minimum that most people require to live a healthy and productive life.

"Undernutrition" goes beyond calories and signifies deficiencies in any or all of the following: energy, protein, 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 factors. These factors are in turn caused by 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 of deficiencies) and overnutrition (problems of unbalanced diets, such as consumption of too many calories in relation to requirements, with or without low intake of micronutrient-rich foods).

In this brief, the term "hunger" is based on the Global Hunger Index, which is calculated using the three component indicators listed on page 2 (proportion of undernourished people, proportion of underweight children, and child mortality rate).

it has declined slightly since. In Comoros, the GHI score fell after a peak in 2001, but it is not yet clear if this constitutes a reversal of past trends. In Côte d'Ivoire, the 1999 military coup and the 2002–07 civil war contributed significantly to the high level of hunger in the country. Recent research found that children residing in regions more affected by the conflict had significant health setbacks compared with children in less-affected regions.

For the Democratic Republic of Congo, another conflict-ridden country in Sub-Saharan Africa and by far the worst performer in terms of scores in past GHI reports, data availability is no longer sufficient to calculate the GHI. Renewed efforts should be made to collect high-quality data in that country.

## FOOD SECURITY UNDER LAND, WATER, AND ENERGY STRESSES

In the pursuit of agricultural and economic growth, natural resource scarcity and degradation have generally been afterthoughts. But recent developments in the land, water, and energy sectors have been wake-up calls. As a result of increasing natural resource scarcity—owing to population growth, higher incomes, unsustainable resource consumption, poor policies, and weak institutions—sustainable food security is now inextricably linked to developments in the land, water, and energy sectors.

Resource scarcity is already having an impact on food security. The world's best arable land is under cultivation, and agricultural practices have led to the degradation of significant amounts of farmland. One outcome of the scarcity and degradation of farmland is the growing number of deals giving land-scarce or resource-demanding countries access to farmland in land-abundant countries. Currently, 36 percent of the global population lives in water-scarce regions, and 22 percent of the world's gross domestic product is produced in water-scarce areas. Current levels of water productivity, under a scenario of medium economic growth, will not be sufficient to ensure sustainability and reduce risks to people, food systems, and economies. Rising energy prices are pushing up farmers' production costs and making biofuels, which can compete with food, more profitable. Finally, agriculture is extremely vulnerable to the adverse impacts of climate change.

Over the next four decades, agricultural production will need to increase substantially to meet the demands of a growing and increasingly wealthy world population.

With current levels of investment and economic development, however, projected production increases can be achieved only at much higher food prices. IFPRI researchers conducted simulations showing that a more sustainable world would have an increased focus on the conservation of water, land, and energy resources through more investment in technologies and more efficient resource use. It would focus on investments that reduce hunger and malnutrition, such as enhanced crop yields and livestock growth, increased investments in sanitation and female secondary education, improved governance, reduced inequality, and greater inclusion of marginalized social groups.

## POLICY RECOMMENDATIONS

As a result of growing food price volatility and food price spikes, in part driven by land, water, and energy scarcity, many countries have started to rethink agriculture and

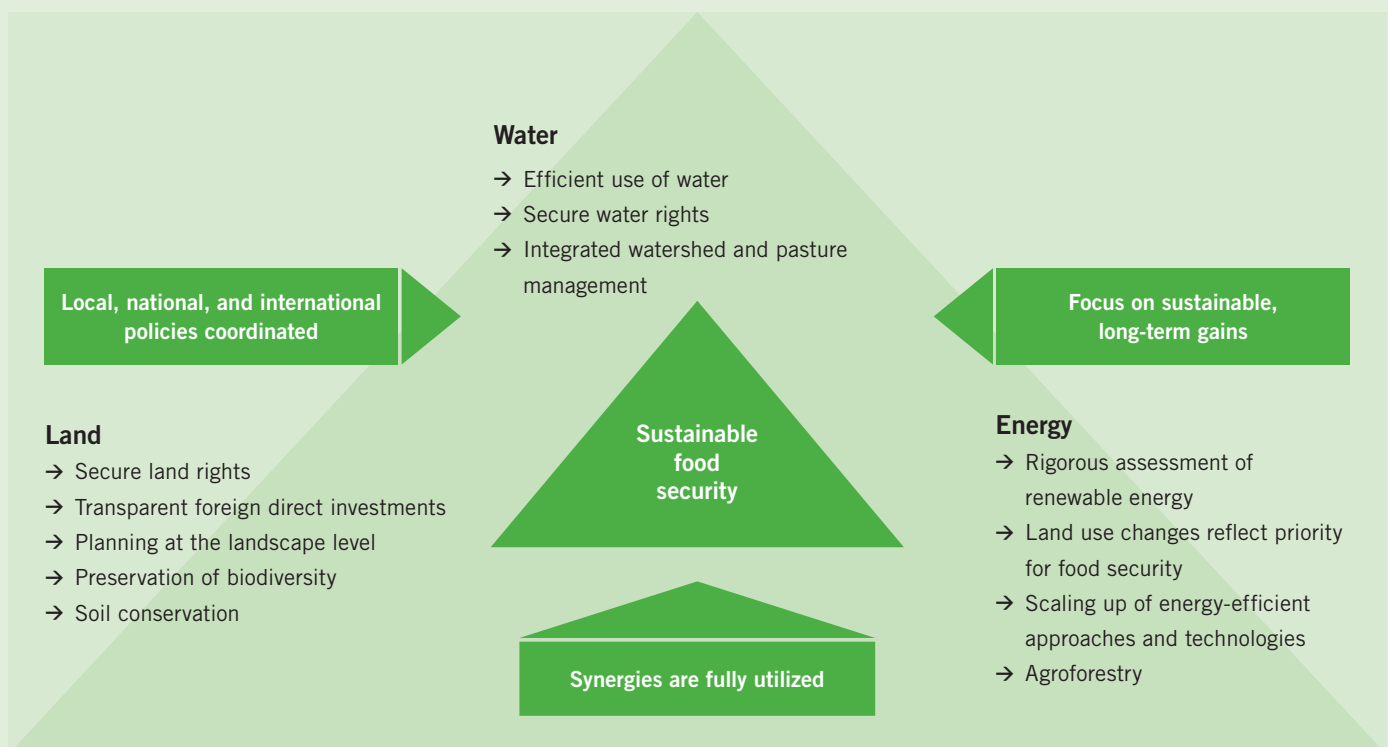
food security strategies. This rethinking provides an opportunity to ensure that these strategies are aligned with plans in relation to land, water, and energy. More holistic strategies for dealing with land, water, energy, and food can reduce the adverse impacts of policy incoherence across these areas and promote the sharing of successful innovation (Figure 3).

The following policy recommendations fit into three overall areas: improving governance of natural resources, scaling up technical approaches, and addressing the drivers of natural resource scarcity.

### Improving Governance of Natural Resources

- ▶ **Secure land and water rights.** As natural resources become scarcer, how land and water rights are allocated will have increasing implications for the social and economic development of states and their citizens, and particular impacts on the livelihoods of the

**FIGURE 3** Using land, water, and energy synergies for sustainable food security



Source: Authors.

poor. Though most regions of the world have some form of rights system, many are underdeveloped and underfinanced and neither grounded in statutory law nor respectful of customary arrangements. In these contexts, strategies must be geared toward protecting smallholder land and water rights. The newly adopted Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests are a useful instrument and should be supported.

- ▶ **Phase out subsidies.** To ensure more sustainable and efficient use of water, land, and energy resources, direct subsidies for fuels and fertilizer should be phased out. Taking into account their contribution to increasing prices and growing competition for land, biofuel mandates instituted by the United States, the EU, and a handful other countries also should be phased out. Instead, countries should provide limited, carefully targeted direct payments to support poor farmers and consumers.
- ▶ **Create a macroeconomic enabling framework.** Market solutions, which encourage behavior through market signals rather than through explicit directives, can provide payments to farmers who conserve water, land, and associated ecosystem services. Enhanced regional and international trade can help make production more efficient and ensure that agricultural products are produced in those countries where inputs are most abundant or cheaply available. To ensure that trade generates full and equitable benefits, it is important to continue to develop domestic and regional institutions and pro-poor policies to manage globalization.

### Scaling Up Technical Approaches

- ▶ **Invest in agricultural production technologies that support increased land, water, and energy efficiency.** Although private investment is rising, few developing-country governments have increased their investments in agricultural research, development, or extension, which have benefits for poor people's food security and income. Not only the quantity, but also the quality of investment must be improved to maximize land, water, and energy security for better food and nutrition outcomes. Smart, site-specific agroecological approaches that increase production, conserve natural resources, and are tailored to specific human and environmental conditions should be favored.
- ▶ **Foster approaches that lead to more efficient land, water, and energy use along the value chain.** To ensure

that food and nutrition objectives for poor, food-insecure communities and households can be met, it is important to go beyond agricultural production to assess the implications of land, water, and energy policies along the entire value chain. Water and energy efficiency should be increased not only in production, but also in the processing and retail sectors. Plans for intensifying land use or developing new land should take into account the transportation, transaction, and trade costs of the final product.

- ▶ **Prevent resource depletion by monitoring and evaluating strategies in land, water, energy, and agricultural systems.** To fully reflect the value of natural resources and set appropriate incentives to help manage them sustainably, decisionmakers should take into account the full cost of environmental degradation as well as the full range of benefits and services that ecosystems provide. To do so, they need information on which technologies and development pathways can best promote food security, poverty alleviation, and environmental sustainability. Moreover, the links between land, water, energy, and food mean that better ways of tracking, monitoring, and evaluating the impacts of natural resource policies are needed. In the case of food, agriculture, and bioenergy, new metrics are necessary to assess, for example, the nutrition and health implications of natural resource strategies.

### Addressing the Drivers of Natural Resource Scarcity

- ▶ **Address demographic change, women's access to education, and reproductive health.** In many developing countries demographic change has led to fewer younger and older people for each working-age adult. With fewer dependents for each worker, this age structure creates a window of opportunity for economic development. Studies have also shown that access to family-planning services contributes to a reduction in fertility, which frees up household resources and allows women to invest more in education.
- ▶ **Raise incomes, lower inequality, and promote sustainable lifestyles.** Rising income levels, with corresponding changes in lifestyle and consumption patterns, are likely to increase demand for a wide range of goods and services. Developing countries will have valuable opportunities to realize the wealth-creating potential of land, water, and energy resources, but they also face the risk of using these resources in ways that exacerbate economic inequality and environmental degradation. Rising

incomes should therefore be used as an opportunity to leapfrog unsustainable natural resource use and demonstrate the potential of lifestyles that are consistent with sustainable global development. Such lifestyles must not only be environmentally sustainable, but also allow poorer countries to catch up with the industrial countries in terms of human well-being. The largest onus of adjusting resource-intensive lifestyles will remain with the industrial countries, in the interest of both sustainability and equality.

- ▶ **Mitigate and adapt to climate change through agriculture.** Sustainable agriculture is critical for adapting to climate change. Agriculture contributes to climate change by producing and releasing greenhouse gases and altering land cover and land use. Consequently, it is important not only to reduce the adverse impacts of climate change on agriculture and the rural poor, but also to minimize agriculture's impact on the climate. Developing countries will require funding for both agricultural adaptation and mitigation, and this financial and technical assistance should be additional to other aid commitments. It should also be targeted to those countries and regions most vulnerable to climate change, particularly in Sub-Saharan Africa and South Asia.

## CONCLUSION

In the coming decades food security will be increasingly challenged by land, water, and energy scarcity. To improve poor people's nutrition and food security in this environment, we will need to make a diverse range of foods more available and accessible, identify and address wasteful practices and policies, and ensure that local communities have greater control over and access to productive resources. In other words, we need to build a sustainable world, where the degradation of ecosystems is halted or reversed and all people have access to food, clean water, and modern energy and are empowered to use them for their own well-being.

### For more information, see the full report:

Von Grebmer, K., C. Ringler, M. W. Rosegrant, T. Olofinbiyi, D. Wiesmann, H. Fritschel, O. Badiane, M. Torero, Y. Yohannes, J. Thompson, C. von Oppeln, J. Rahall. 2012. *2012 Global Hunger Index: The Challenge of Hunger: Ensuring Sustainable Food Security under Land, Water, and Energy Stresses*. Bonn, Washington, DC, and Dublin: Welthungerhilfe, International Food Policy Research Institute (IFPRI), and Concern Worldwide. Also available at [www.ifpri.org/publication/2012-global-hunger-index](http://www.ifpri.org/publication/2012-global-hunger-index).

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