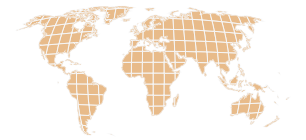


## The State of Food Insecurity in the World



**Strengthening the enabling environment  
for food security and nutrition**

## Key messages



- The latest FAO estimates indicate that global hunger reduction continues: about 805 million people are estimated to be chronically undernourished in 2012–14, down more than 100 million over the last decade, and 209 million lower than in 1990–92. In the same period, the prevalence of undernourishment has fallen from 18.7 to 11.3 percent globally and from 23.4 to 13.5 percent for the developing countries.
- The hunger target of the Millennium Development Goal 1c (MDG 1c) – of halving the proportion of undernourished people in developing countries by 2015 – is within reach. However, the developing world is not on track to achieve the World Food Summit (WFS) target of halving the number of undernourished people by next year.
- Despite overall progress, marked differences across regions persist. Sub-Saharan Africa has the highest prevalence of undernourishment, with only modest progress in recent years. Around one in four people in the region remains undernourished. Asia, the most populous region in the world, still has the highest number of undernourished. Southern Asia has made slow progress in hunger reduction, while more rapid progress has been achieved in Eastern and South-Eastern Asia with the latter having already met the WFS hunger target. Latin America and the Caribbean, as a whole, met the MDG1 hunger target while Latin America has achieved the more stringent WFS target.
- Since 1990–92, 63 developing countries have reached the MDG hunger target and 25 countries have achieved the more stringent WFS target. Of the 63 developing countries that have achieved the MDG hunger target, 11 countries have maintained the prevalence of undernourishment below 5 percent since 1990–92.
- Sustained political commitment at the highest level is a prerequisite for hunger eradication. It entails placing food security and nutrition at the top of the political agenda and creating an enabling environment for improving food security and nutrition through adequate investments, better policies, legal frameworks, stakeholder participation and a strong evidence base. Institutional reforms are also needed to promote and sustain progress. Regions as well as countries have strengthened their political commitment to food security and nutrition.
- Hunger reduction requires an integrated approach, which would include: public and private investments to raise agricultural productivity; better access to inputs, land, services, technologies and markets; measures to promote rural development; social protection for the most vulnerable, including strengthening their resilience to conflicts and natural disasters; and specific nutrition programmes, especially to address micronutrient deficiencies in mothers and children under five.

2014

# The State of Food Insecurity in the World

**Strengthening the enabling environment  
for food security and nutrition**

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2014

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**W**hen the 69th United Nations General Assembly begins its General Debate on 23 September 2014, 464 days will remain to the end of 2015, the target date for achieving the Millennium Development Goals (MDG).

A stock-taking of where we stand on reducing hunger and malnutrition shows that progress in hunger reduction at the global level has continued but that food insecurity is still a challenge to be conquered.

The latest estimates show that, since 1990–92, the prevalence of undernourishment has fallen from 18.7 to 11.3 percent in 2012–14 for the world as a whole, and from 23.4 to 13.5 percent for the developing regions. The global MDG target 1c of reducing *by half* the *proportion* of undernourished people is within reach, if appropriate and immediate efforts are stepped up. Not only is MDG 1c within reach at the global level, but it has already been achieved by many countries. Sixty-three developing countries have already reached the target, 11 of which have maintained the prevalence of undernourishment below 5 percent since 1990–92, while another six are on track to do so by 2015. Twenty-five of the 63 countries have also accomplished the more ambitious 1996 World Food Summit (WFS) goal of halving the *number* of chronically underfed people.

Since 1990–92, the number of hungry people has fallen by over 200 million. This is proof that we can win the war against hunger and should inspire countries to move forward, with the assistance of the international community as needed, by finding individual sets of action that respond to their national needs and specificities. This is the first step to achieving the other MDGs.

Despite this progress, however, the number of hungry people in the world is still unacceptably high: at least 805 million people, or one in nine, worldwide do not have enough to eat. Global trends in hunger reduction mask disparities within and among regions.

While Northern Africa has had a consistently low prevalence of hunger at less than 5 percent, in sub-Saharan Africa, one in four people remain chronically hungry. Reversing this trend is our greatest challenge and requires transforming into concrete progress the growing political will in the region shown by the commitment made at the June 2014 African Union Summit to end hunger by 2025.

The sheer size of Asia makes it a region of extremes: 217 million Asians have overcome hunger since 1990–92; yet, it is still the region where two-thirds of the world's hungry live. Significant reductions in global hunger numbers require even greater progress in the region. While the MDG hunger target has already been achieved in Eastern and South-Eastern Asia, hunger prevalence in Southern Asia has declined, but insufficiently, since 1990–92.

Latin America and the Caribbean is the region that has shown the greatest progress in hunger reduction, with the prevalence of hunger reduced by almost two-thirds since the early 1990s. As a whole, it has already reached the MDG hunger target and is very close to meeting the WFS target. Government-led efforts combining support for production with social protection have been supported by much wider commitment: societies have decided to end hunger; parliaments are taking responsibility, and national efforts have been pushed forward by the strong commitment of the region as a whole that became the first region to commit to the goal of zero hunger by adopting the Hunger-Free Latin America and the Caribbean Initiative 2025 nearly ten years ago – a commitment reaffirmed by the region's leaders at recent Summits of the Community of Latin America and the Caribbean States (CELAC).

A most welcome message emerging from this year's report is that accelerated, substantial and sustainable hunger reduction is possible with the requisite political commitment. This has to be well informed by sound understanding of national challenges, relevant policy options, broad participation and lessons from other experiences. This year's report includes seven case studies that summarize how and to what extent some countries have sought to create an "enabling environment for food security and nutrition".

Food insecurity and malnutrition are complex problems that cannot be solved by one sector or stakeholder alone, but need to be tackled in a coordinated way, with the necessary political commitment and integrated leadership. A critical appreciation of lessons learned is essential for hunger reduction.

We, as heads of the Rome-based food and agriculture agencies, will continue working with our member countries to support their efforts to accelerate progress in improving food security and nutrition by strengthening their capacities and capabilities to realize their commitments to make hunger a part of history and not of our future.



**José Graziano da Silva**  
FAO Director-General



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IFAD President



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WFP Executive Director

This is the fourth edition of *The State of Food Insecurity in the World* that has been jointly prepared by the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP).

Technical coordination of the publication was carried out by Pietro Gennari, with the support of Kostas Stamoulis and guidance of the management team of the FAO Economic and Social Development Department. Piero Conforti, George Rapsomanikis and Josef Schmidhuber, of FAO, served as technical editors. Constanza Di Nucci, of IFAD, and Astrid Mathiassen, of WFP, collaborated in preparing the country case studies and coordinated support from their respective institutions. Lisa Hjelm provided valuable inputs for WFP on the country case study for Yemen, as did Iain McDonald and Endalkachew Alamnew (WFP) and Claudia Martinez Mansell (FAO). Other WFP colleagues who provided valuable inputs and comments included Arif Husain, John McHarris, Susanna Sandstrom, Lynnda Kiess, Brian Bogart, Getachew Diriba, Sergio Torres, Rachael Wilson, Maherisoa Rakotonirainy and Naouar Labidi. Valuable comments and final approval of the report were provided by the executive heads of the three Rome-based agencies and their offices.

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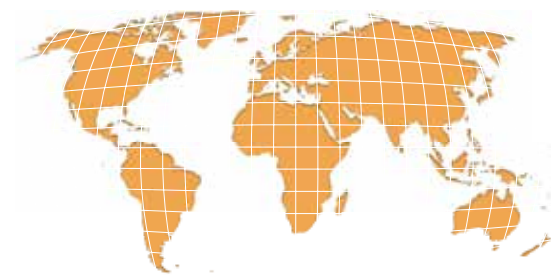
Filippo Gheri was responsible for preparing Annex 1 and the related data processing, with key technical contributions from Chiara Brunelli, Michele Rocca, Nathalie Troubat, Nathan Wanner and Firas Yassin. Carlo Cafiero, Chiara Brunelli, Piero Conforti, Nathalie Troubat and Nathan Wanner prepared Annex 2.

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# Undernourishment around the world in 2014

## Progress in hunger reduction continues

The latest FAO estimates indicate that the trend in global hunger reduction continues. About 805 million people were estimated to be chronically undernourished in 2012–14, down by more than 100 million over the last decade and by 209 million since 1990–92. However, about one in every nine people in the world still has insufficient food for an active and healthy life. The vast majority of these undernourished people live in developing countries, where an estimated 791 million were chronically hungry in 2012–14. Although developing countries also

account for most of the improvements over the last two decades – with an overall reduction of 203 million undernourished people since 1990–92 – about one in eight people in these regions, or 13.5 percent of the overall population, remain chronically underfed (Table 1). Considerable efforts are therefore still needed to reach the Millennium Development Goal (MDG) hunger target by 2015, especially in countries that have registered inadequate progress.

TABLE 1

Undernourishment around the world, 1992–92 to 2012–14

	Number of undernourished (millions) and prevalence (%) of undernourishment									
	1990–92		2000–02		2005–07		2008–10		2012–14*	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>WORLD</b>	<b>1 014.5</b>	<b>18.7</b>	<b>929.9</b>	<b>14.9</b>	<b>946.2</b>	<b>14.3</b>	<b>840.5</b>	<b>12.1</b>	<b>805.3</b>	<b>11.3</b>
<b>DEVELOPED REGIONS</b>	<b>20.4</b>	<b>&lt;5</b>	<b>21.1</b>	<b>&lt;5</b>	<b>15.4</b>	<b>&lt;5</b>	<b>15.7</b>	<b>&lt;5</b>	<b>14.6</b>	<b>&lt;5</b>
<b>DEVELOPING REGIONS</b>	<b>994.1</b>	<b>23.4</b>	<b>908.7</b>	<b>18.2</b>	<b>930.8</b>	<b>17.3</b>	<b>824.9</b>	<b>14.5</b>	<b>790.7</b>	<b>13.5</b>
<b>Africa</b>	<b>182.1</b>	<b>27.7</b>	<b>209.0</b>	<b>25.2</b>	<b>211.8</b>	<b>22.6</b>	<b>216.8</b>	<b>20.9</b>	<b>226.7</b>	<b>20.5</b>
Northern Africa	6.0	<5	6.5	<5	6.4	<5	5.6	<5	12.6	6.0
Sub-Saharan Africa	176.0	33.3	202.5	29.8	205.3	26.5	211.2	24.4	214.1	23.8
<b>Asia</b>	<b>742.6</b>	<b>23.7</b>	<b>637.5</b>	<b>17.6</b>	<b>668.6</b>	<b>17.4</b>	<b>565.3</b>	<b>14.1</b>	<b>525.6</b>	<b>12.7</b>
Caucasus and Central Asia	9.6	14.1	10.9	15.3	8.5	11.3	7.4	9.5	6.0	7.4
Eastern Asia	295.2	23.2	222.2	16.0	218.4	15.3	185.8	12.7	161.2	10.8
South-Eastern Asia	138.0	30.7	117.7	22.3	103.3	18.3	79.3	13.4	63.5	10.3
Southern Asia	291.7	24.0	272.9	18.5	321.4	20.2	274.5	16.3	276.4	15.8
Western Asia	8.0	6.3	13.8	8.6	17.0	9.3	18.3	9.1	18.5	8.7
<b>Latin America and the Caribbean</b>	<b>68.5</b>	<b>15.3</b>	<b>61.0</b>	<b>11.5</b>	<b>49.2</b>	<b>8.7</b>	<b>41.5</b>	<b>7.0</b>	<b>37.0</b>	<b>6.1</b>
Caribbean	8.1	27.0	8.2	24.4	8.4	23.7	7.6	20.7	7.5	20.1
Latin America	60.3	14.4	52.7	10.7	40.8	7.7	33.9	6.1	29.5	5.1
<b>Oceania</b>	<b>1.0</b>	<b>15.7</b>	<b>1.3</b>	<b>16.5</b>	<b>1.3</b>	<b>15.4</b>	<b>1.3</b>	<b>13.5</b>	<b>1.4</b>	<b>14.0</b>

Note: \* Projections.  
Source: FAO.



## The MDG hunger target is within reach...

The decline in the share of hungry people has been more impressive than the reduction in absolute numbers. Between 1990–92 and 2012–14, the prevalence of undernourishment has fallen from 18.7 percent to 11.3 percent at the global level, and from 23.4 percent to 13.5 percent in developing countries. This means that the MDG 1c hunger target of *halving the proportion* of undernourished people by 2015 is within reach. If the current trend of a reduction of about

0.5 percent per year since 1990–92 continues, the prevalence of undernourishment in developing regions would reach 12.8 percent in 2015 – 1.1 percentage points above the MDG target of 11.7 percent (Figure 1). With greater efforts, particularly in sub-Saharan Africa and Southern and Western Asia, the trend in hunger reduction can be accelerated to meet the MDG hunger target.

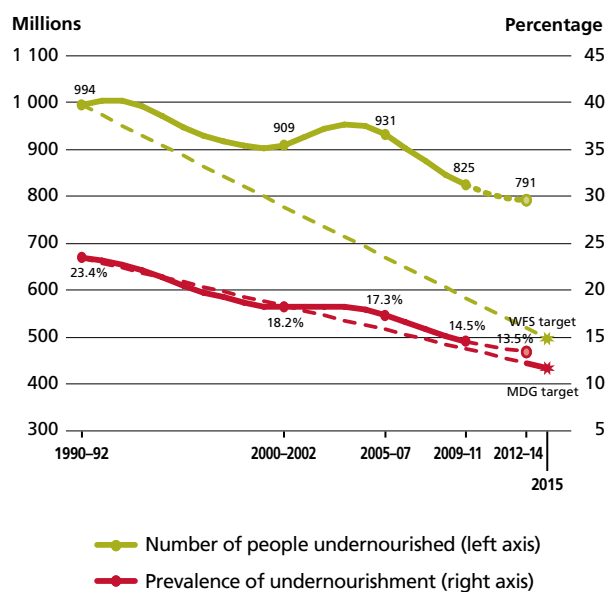
## ...but the World Food Summit target cannot be met

While the MDG hunger target seems to be within reach globally, there is not enough time to achieve the World Food Summit (WFS) target of *halving the number* of undernourished people by 2015.

Despite the progress in developing regions as a whole, large differences remain across regions (Figures 2 and 3). In general, in Africa, there has been insufficient progress towards international hunger targets, especially in the sub-Saharan region, where more than one in four people remain undernourished – the highest prevalence of any region in the world. Nevertheless, the prevalence of undernourishment in sub-Saharan Africa has declined from 33.3 percent in 1990–92 to 23.8 percent in 2012–14. Growing political commitment to promote food security in Africa is being transformed into concrete results. Strong economic growth (7 of the 10 fast-growing economies in the world are in Africa) is improving the living conditions of its growing population. There is greater recognition of the importance of ensuring peace and stability, the lack of which has been both cause and consequence of conflict that risks thwarting efforts to fight hunger in many countries in Africa. The situation is different in Northern Africa, which has a far lower hunger burden, with the prevalence of undernourishment consistently less than 5 percent since 1990. The apparent abrupt increase in 2012–14 (Figures 3

FIGURE 1

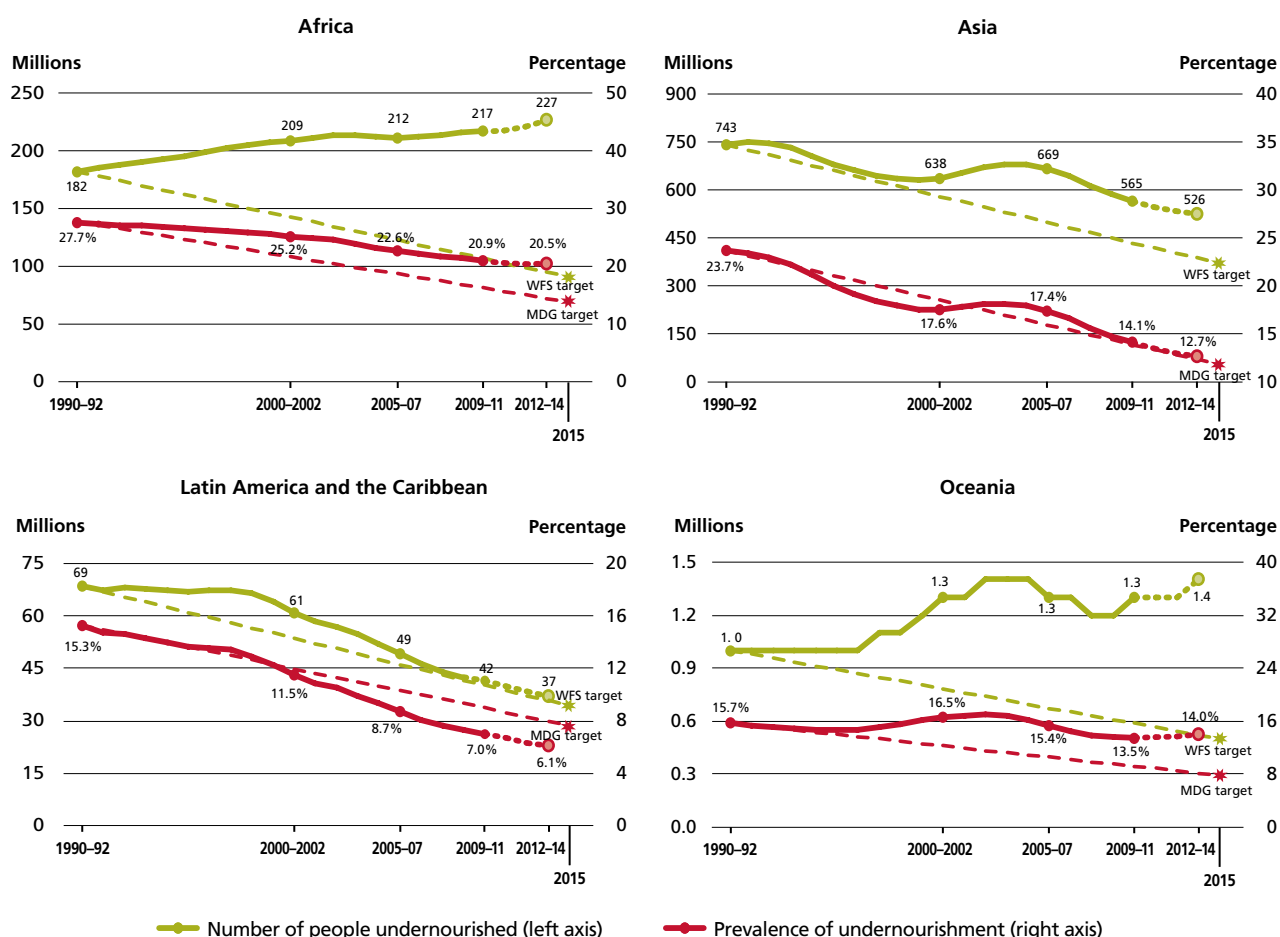
The trajectory of undernourishment in developing regions: actual and projected progress towards the MDG and WFS targets



Note: Data for 2012–14 refer to provisional estimates.  
Source: FAO.

FIGURE 2

Regions differ markedly in progress towards achieving the MDG and WFS hunger targets



Note: Data for 2012–14 refer to provisional estimates.  
Source: FAO.

and 4) is due to the addition of the Sudan to the Northern Africa region.<sup>1</sup>

Asia as a whole has a prevalence of undernourishment of 12.7 percent, corresponding to 526 million people, or an eighth of the region's population, chronically lacking access to enough food. As the most populous region in the world, Asia is home to two out of three of the world's undernourished people. Overall, it is close to reaching the MDG 1c hunger target, but there are large differences across its subregions. Eastern and South-Eastern Asia have already met the target, having cut their undernutrition rates by more than half and more than two-thirds respectively. The Caucasus and Central Asia are also on track to reach the goal by 2015, while lack of progress in Southern and Western Asia makes it unlikely that these regions can achieve MDG 1c.

Hunger continues to take its largest toll in Southern Asia, where population growth is high. The estimate of 276 million chronically undernourished people in 2012–14 is only marginally lower than the number at the beginning of

the MDG process. Although the prevalence of undernourishment has declined from 24.0 percent in 1990–92 to 15.8 percent in 2012–14, progress is still too slow to allow Southern Asia to reach the MDG target by 2015. The situation is worse in Western Asia, where the prevalence of undernourishment actually increased from 6.3 percent in 1990–92 to 8.7 percent in 2012–14, largely owing to political instability and the deterioration in overall economic conditions during recent years.

To date, Latin America and the Caribbean – the first region to publically commit to eradicate hunger by 2025 – has the most successful developing region record in increasing food security. It has already met the MDG target by a comfortable margin and is close to the WFS summit target. Much of the success results from rapid hunger reduction in Latin America, which has reached the WFS target, while the Caribbean has seen slower progress in fighting undernourishment so far. For the region as a whole, the prevalence of undernourishment has declined to



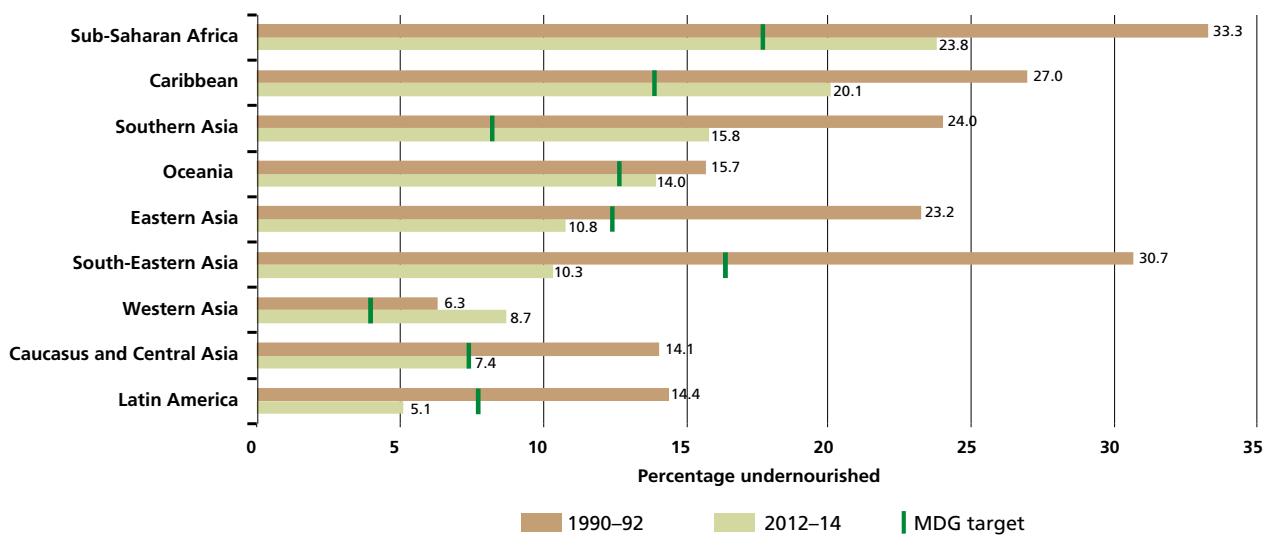
6.1 percent – representing little more than one-third of its hunger burden in the early 1990s.

Of all the developing regions, Oceania currently has the lowest number of undernourished people. However, despite the low overall burden of hunger in the region, this number has increased over the last two decades, while the prevalence of undernourishment has only registered a very

modest reduction: estimates place undernourishment at 14.0 percent in 2012–14, only 1.7 percentage points below the level for 1990–92. An additional cause for concern is that rising undernourishment in Oceania has been accompanied by a growing burden of overweight and obesity, exposing the region to a significant double burden of malnutrition.

FIGURE 3

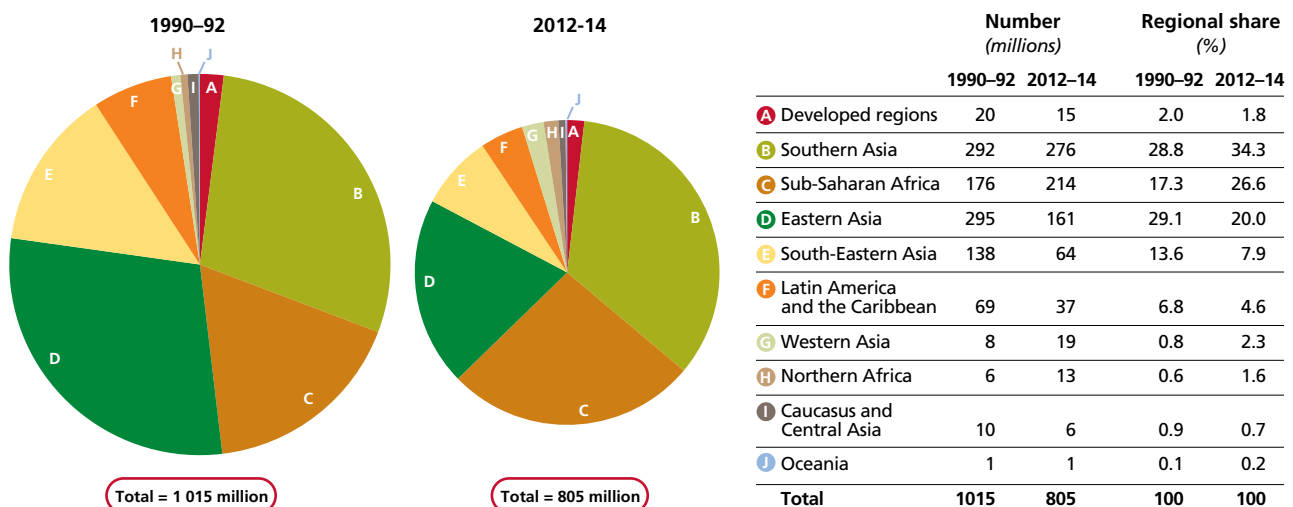
Undernourishment trends: progress made in almost all regions, but at very different rates



Note: Data for 2012–14 refer to provisional estimates.  
Source: FAO.

FIGURE 4

The changing distribution of hunger in the world: numbers and shares of undernourished people by region, 1990–92 and 2012–14



Note: The areas of the pie charts are proportional to the total number of undernourished in each period. Data for 2012–14 refer to provisional estimates. All figures are rounded.  
Source: FAO.



## Key findings

- The latest estimates indicate that 805 million people – about one in nine of the world’s population – were chronically undernourished in 2012–14, with insufficient food for an active and healthy life. This number represents a decline of more than 100 million people over the last decade and of 209 million since 1990–92.
- The vast majority of hungry people live in developing regions, which saw a 42 percent reduction in the prevalence of undernourished people between 1990–92 and 2012–14. Despite this progress, about one in eight people, or 13.5 percent of the overall population, remain chronically undernourished in these regions, down from 23.4 percent in 1990–92.
- The MDG 1c hunger target – of halving, by 2015, the proportion of undernourished people in the developing world – is within reach, but considerable efforts are immediately needed, particularly in countries where progress has stalled.
- Despite overall progress, large differences remain across developing regions. Eastern and South-Eastern Asia have already achieved the MDG hunger target. The same is true of Latin America and the Caribbean, while the Caucasus and Central Asia are on track to reach MDG 1c by 2015. Latin America and the Caribbean is also on track to reach the more ambitious WFS goal. By contrast, sub-Saharan Africa and Southern and Western Asia have registered insufficient progress to reach the MDG target. Sub-Saharan Africa has become home to more than a quarter of the world’s undernourished people, owing to an increase of 38 million in the number of hungry people since 1990–92.





## Beyond undernourishment: insights from the suite of food security indicators

**F**ood security is a complex phenomenon that manifests itself in numerous physical conditions resulting from multiple causes. The WFS of 1996 established four dimensions of food security: availability, access, stability and utilization. *The State of Food Insecurity in the World 2013* introduced a suite of indicators organized around these four dimensions with a view to overcoming the drawbacks that arise from relying solely on the prevalence of undernourishment indicator.<sup>2</sup> By measuring food security across its four dimensions, the suite of indicators (presented in Annex 2) provides a more comprehensive picture, and can also help in targeting and prioritizing food security and nutrition policies.

The *availability* dimension captures not only the quantity, but also the quality and diversity of food. Indicators for assessing availability include the adequacy of dietary energy supply; the share of calories derived from cereals, roots and tubers; the average protein supply; the average supply of animal-source proteins; and the average value of food production.

The *access* dimension comprises indicators of physical access and infrastructure such as railway and road density; economic access, represented by the domestic food price

index; and the prevalence of undernourishment.

The *stability* dimension is divided into two groups. The first group covers factors that measure exposure to food security risk with a diverse set of indicators such as the cereal dependency ratio, the area under irrigation, and the value of staple food imports as a percentage of total merchandise exports. The second group focuses on the incidence of shocks such as domestic food price volatility, fluctuations in domestic food supply, and political instability.

The *utilization* dimension also falls into two groups. The first encompasses variables that determine the ability to utilize food, notably indicators of access to water and sanitation. The second group focuses on outcomes of poor food utilization, i.e. nutritional failures of children under five years of age, such as wasting, stunting and underweight. Since the 2013 edition of this report, four more utilization indicators of micronutrient deficiency have been added: the prevalence of anaemia and of vitamin A deficiency among children under five; and the prevalence of iodine deficiency and of anaemia in pregnant women.<sup>3</sup> Data for the suite of indicators are published in FAOSTAT and on the FAO Food Security Indicators website.<sup>4</sup>

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## Analysing the dimensions of food security

To obtain a complete and more nuanced picture of the state of food security in a population, it is necessary to comprehensively analyse the four dimensions of food security. Each of them can be measured by a set of indicators (presented in Annex 2) that provides detailed information on the food security situation in a country or region. Such measurement and analysis inform the design of targeted strategies and policies to tackle food insecurity and to pave the way to its sustainable reduction.

*Availability of food from domestic production* is key as economies begin to develop and domestic agriculture is still the main provider of food and the principal source of income and employment in rural areas. At this stage, increasing agricultural productivity improves access of subsistence food producers to food. However, increasing productivity may not sufficiently address problems of access for net food buyers and for other vulnerable groups who may require targeted policy interventions such as strengthening safety nets and other social protection.



As economies grow and diversify away from food and agriculture, *access to food* becomes increasingly important for achieving food security. Higher rural labour productivity may raise income levels, which should help improve access. However, remaining access difficulties for vulnerable population groups still need to be tackled through policy interventions.

There are still many countries that have made little or no progress in improving food security, often because of a combination of adverse factors such as natural disasters, conflicts, price hikes, weak institutions and poor governance, often manifested in repeated food crises. *The State of Food Insecurity in the World 2010* showed that protracted crises can create vicious circles in which recovery is fragile and may become more difficult over time. The price hikes on

international food markets in 2007–08, 2010 and 2012 highlighted how sudden price shocks can trigger severe and prolonged crises, underlining the importance of ensuring steady and reliable food supplies to safeguard the *stability* dimension of food security.

Progress in improving availability, access and stability alone does not guarantee food security, as compromised *utilization* caused by poor hygiene can generate nutrition failures manifest in high levels of wasting and stunting, while inappropriate diets can give rise to obesity and diet-related non-communicable diseases. The coexistence of under- and overnutrition has taken a heavy toll on countries undergoing rapid transformations, resulting in the double burden of malnutrition.

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## Empirical findings from the suite of indicators

All available data on each dimension of food security have been compiled and on changes in these dimensions over time analysed. Indicators of the four dimensions, measured on a scale from 1 to 5, have been aggregated into composite indices for each dimension for the years 1994–96 and 2012–14 using weights derived from principal components analysis.<sup>5</sup> Although all measures of micronutrient deficiencies could not be included because data availability is limited, the results of this analysis offer a more complete and nuanced picture of the various forms of food insecurity than any single indicator can achieve. They also provide better empirical understanding of progress towards food security.

Many developing countries have made significant progress in improving food security and nutrition, but this progress has been uneven across both regions and dimensions of food security. Large challenges remain in the area of food utilization. Despite considerable improvements over the last two decades, stunting, underweight and micronutrient deficiencies remain stubbornly high,<sup>6</sup> even where availability and access no longer pose problems. At the same time, access to food remains an important challenge for many developing countries, even if significant progress has been made over the last two decades, due to income growth and poverty reduction in many countries.

Food availability has also improved considerably over the past two decades, with more food available than ever before. This increase is reflected in the improved adequacy of dietary energy and higher average supplies of protein. Of the four dimensions, the least progress has been made in stability, reflecting the effects of growing political instability

and international food price volatility.

Overall, the analyses reveal positive trends, but it also masks important divergences across various subregions. The two subregions that have made the least headway are sub-Saharan Africa and Southern Asia, with almost all indicators still pointing to low levels of food security. On the other hand, Eastern (including South Eastern) Asia and Latin America have made the most progress in improving food security, with Eastern Asia experiencing rapid progress on all four dimensions over the past two decades.

The greatest food security challenges overall remain in sub-Saharan Africa, which has seen particularly slow progress in improving access to food, with sluggish income growth, high poverty rates and poor infrastructure, which hampers physical and distributional access. Food availability remains low, even though energy and protein supplies have improved.

Food utilization remains a major concern, as indicated by the high anthropometric prevalence of stunted and underweight children under five years of age. Limited progress has been made in improving access to safe drinking-water and providing adequate sanitation facilities, while the region continues to face challenges in improving dietary quality and diversity, particularly for the poor. The stability of food supplies has deteriorated, mainly owing to political instability, war and civil strife.

For Southern Asia, the main remaining challenge is the slow progress in improving the low levels of food utilization. Low utilization mainly results from poor hygienic conditions and inadequate sanitation facilities, with outcomes reflected



## BOX 1

## Measuring food insecurity

FAO has developed the Food Insecurity Experience Scale (FIES) as a tool to fill a gap in global food security monitoring, particularly for assessing the access dimension at the individual and household levels.<sup>1</sup> The FIES directly measures the severity of food insecurity defined as the extent of people's difficulties in obtaining food.<sup>2</sup>

Measuring food insecurity through experience-based scales is not an entirely new approach. It has been regularly used to assess food insecurity in United States households since 1995.<sup>3</sup> Similar tools, such as the Household Food Insecurity Access Scale<sup>4</sup> of Food and Nutrition Technical Assistance (FANTA) and FAO's Latin American and Caribbean Food Security Scale,<sup>5</sup> have already been adopted at national, regional and project levels.

The FIES builds on the methodology used to develop these tools and on the experience gained from applying them in various country contexts. It improves on other tools by developing an analytic framework that ensures the full comparability of experience-based measures across countries, even in completely different food security situations. The FIES thus contributes to defining a truly global standard for measuring food insecurity at individual and household levels. As measurements are based on data collected at the individual level, the FIES enables better analysis of gender disparities in food insecurity.

Application of the FIES was piloted in 2013 through FAO's Voices of the Hungry project in Angola, Ethiopia, Malawi and Niger. The results affirmed the robustness of

the analytic method and allowed comparisons of profiles of the severity of food insecurity across countries.<sup>6</sup>

With support from Belgium and the United Kingdom of Great Britain and Northern Ireland, the Voices of the Hungry project became operational at the global level in 2014, when the FIES questionnaire was first included in the Gallup World Poll,<sup>7</sup> ensuring real-time monitoring of the prevalence of moderate and severe food insecurity for most developing countries.

FAO is also supporting national statistical institutions in adopting the FIES in representative household surveys to monitor national food security trends, to target interventions, and to measure the impacts of national policy and programme implementation.<sup>8</sup> Meanwhile, working with WFP, IFAD and other technical partners, further validation is being sought to ensure greater confidence and reliability as an indicator of food insecurity.

The FIES indicators will make it possible to monitor the prevalence of food insecurity at different levels of severity in a way that allows the comparison of measurements across countries and over time, even when the prevalence of severe food insecurity is low. These indicators will be a valuable additional component to *SOFI's* suite of food security indicators, providing better assessment of the extent of problems with food access and their distribution within countries.

These characteristics will also make FIES measurements useful for countries and international organizations to

<sup>1</sup> Reliable measures of the *distribution* and *severity* of food insecurity within a country require information at the individual level, which is not normally available. This lack of direct and accurate data on individuals' food security makes it impossible to measure the prevalence of chronic caloric deficiency beyond the national level. Current measures refer to the average individual in the population, but do not identify who the food-insecure are or where they live. Actions to enhance the availability of data on food security include collecting food consumption data in large-scale national household surveys. However, overcoming methodological problems and establishing such surveys as the basis for regular and timely comparable assessments of food insecurity in the world will require time and significant additional financial and human resources. See A.D. Jones, F.M. Ngure, G. Pelto and S.L. Young. 2013 What are we assessing when we measure food security? A compendium and review of current metrics. *Adv. Nutr.*, 4(5): 481–505; J.D. De Weerd, K. Beegle, J. Friedman and J. Gibson. 2014. *The challenge of measuring hunger*. Policy Research Working Paper No. 6736. Washington, DC, World Bank Development Research Group, Poverty and Inequality Team (available at <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-6736>).

<sup>2</sup> This latent trait cannot be directly observed, but its extent can be inferred from the experiences that people report when they face restricted access to food. This approach appears to be more effective than trying to infer the extent of problems with food access indirectly, by measuring food expenditures or by assessing nutritional outcomes through anthropometric measures.

<sup>3</sup> See USDA/ERS website (<http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us.aspx>).

<sup>4</sup> See Food and Nutrition Technical Assistance Project (FANTA) website (available at <http://www.fantaproject.org/>).

<sup>5</sup> FAO. 2012. *Escala Latinoamericana y Caribeña de Seguridad Alimentaria (ELCSA): Manual de Uso y Aplicaciones*. Santiago (available at <http://www.fao.org/docrep/019/i3065s/i3065s.pdf>).

<sup>6</sup> See Voices of the Hungry website (<http://www.fao.org/economic/ess/ess-fs/voices/reports/en/>).

<sup>7</sup> See Gallup World Poll website (<http://www.gallup.com/strategicconsulting/en-us/worldpoll.aspx>).

<sup>8</sup> It is intended that the parallel activities of data collection and capacity development will continue for at least five years, after which countries will be expected to fully own the tool and to have the capacity to produce indicators for national monitoring in line with global monitoring requirements.

(Cont.)

**BOX 1 (Cont.)**

monitor progress for the new food security target and indicator foreseen in the Post-2015 Development Agenda. The Open Working Group on the Sustainable Development Goals has recommended that the second goal for 2030<sup>9</sup> should be to “ensure that all people, in

particular the poor and vulnerable including infants, have access to safe, nutritious and sufficient food all year round”. The FIES indicators should provide the necessary information to respond to this monitoring need on an annual basis on a global scale.

<sup>9</sup> Open Working Group on Sustainable Development Goals. 2014. Outcome Document (<http://sustainabledevelopment.un.org/focussdgs.html>).

in anthropometric measures. While some progress has been made over the last two decades, there is still much room for improvement. In addition, Southern Asia faces major access problems. While it has experienced rapid overall economic growth, most of the region’s poor have not participated adequately. Various social protection interventions have not been enough to ensure food access.

Northern Africa has achieved high levels of access and availability, reflecting rises in income levels and extensive policy interventions aimed at making basic food items available at very low prices. These interventions have contributed to rapid improvements in average calorie availability, which reached 3 425 kilocalories/person/day in 2012–14 (up from 3 113 kilocalories/person/day in 1994–96). However, indicators of food utilization point to persistent, albeit contained, problems. The prevalence of stunting among children remains disturbingly high, with only limited progress in reduction over the past two decades. Exacerbating this situation, the region faces a growing problem with overweight and obesity, as evidenced by supplementary indicators.

Stability remains a challenge, as signalled by low aggregate scores and stalled progress since the mid-1990s. The region is especially exposed to instability because of its dependency on international food markets and its rapidly growing population.

Latin America as a subregion, particularly South America, overcame its food availability problems decades ago, with food production now well in excess of consumption. Latin America has established itself as a major agricultural

exporter, with the agriculture sector becoming an engine of domestic economic and employment growth for countries in the region. However, such growth has not been sufficiently inclusive to ensure access to food for all, underscoring that economic growth alone is not enough to ensure sustainable food security and nutrition. Several countries in the region have successfully addressed this challenge with targeted social protection measures, which have significantly improved access. Without these measures, progress towards food security in the region would have been limited or possibly even reversed.

The few subregions to have sustained progress through simultaneous improvements on all four dimensions of food security are in Asia. Eastern and South-Eastern Asia have high scores on all four dimensions, initially raising agricultural productivity and later benefiting from rapid overall economic expansion. Much of the progress in fighting hunger in Asia, and at the global level, is accounted for by improvements in China and countries in South-Eastern Asia, such as Indonesia, Thailand and Viet Nam, which have experienced rapid economic growth over the past three decades. The common feature of progress in these countries is that their pathways to growth began with investments in agriculture, which resulted in higher food availability, improved access and steady growth in food supplies.<sup>7</sup> The Caucasus and Central Asia are still exposed to stability challenges, stemming from either food supply swings or political instability. Remaining challenges across Asia as a whole are in the area of utilization, with problematic hygiene conditions and a continuing need to improve dietary quality.



## Key findings

- The suite of indicators conveys a more comprehensive and detailed picture of the food security and nutrition challenges in a country. It also provides valuable information for designing targeted food security and nutrition interventions.
- Overall, the results confirm that developing countries have made significant progress in improving food security and nutrition, but that progress has been uneven across both regions and food security dimensions.
- Food availability remains a major element of food insecurity in the poorer regions of the world, notably sub-Saharan Africa and parts of Southern Asia, where progress has been relatively limited.
- Access to food has improved fast and significantly in countries that have experienced rapid overall economic progress, notably in Eastern and South-Eastern Asia. Access has also improved in Southern Asia and Latin America, but only in countries with adequate safety nets and other forms of social protection. By contrast, access is still a challenge in sub-Saharan Africa, where income growth has been sluggish, poverty rates have remained high, and rural infrastructure remains limited and has often deteriorated.
- Utilization problems remain the single largest challenge for developing countries, despite some progress over the past two decades. Most progress has been made in regions that already have relatively high levels of overall food security, such as Eastern Asia and Latin America.
- Stability remains a challenge in regions that are heavily reliant on international food markets for domestic supplies, have not ensured domestic food access, or are particularly vulnerable because of their limited and fragile natural resource base. These conditions are especially significant in the Near East and North Africa region and the Caribbean.



## Strengthening the enabling environment to improve food security and nutrition: lessons learned from the analysis of individual countries

**W**orld leaders have made several commitments to drastically reduce or eliminate hunger and malnutrition and achieve sustainable food security for all. Progress continues, but at least 805 million people in the world still suffer from chronic hunger. Decades of food security policies and programmes have brought the MDG 1c hunger target – of halving the hungry share of the population – within reach, but more efforts are needed to achieve internationally agreed goals. The first section of this issue of *The State of Food Insecurity in the World* shows clearly that progress in hunger reduction is uneven among regions and countries, implying that the global picture masks lack of sufficient progress in many countries, especially where food insecurity is high.

A key lesson learned from examining country experiences is that hunger, food insecurity and malnutrition are complex problems that cannot be solved by a single stakeholder or sector. A variety of actions are required to deal with the immediate and underlying causes of hunger and malnutrition. Depending on the context and the specific situation, actions may be required in agricultural production and productivity, rural development, fisheries, forestry, social protection, public works, trade and markets, resilience to shocks, education and health, and other areas. While many of these actions will be at the national and local levels, some issues are regional or global in scope and require action at the appropriate level. Policies and programmes are formulated and implemented in complex social, political and economic environments, and there is growing recognition that food security governance is crucial for their success.

Acknowledging that concerned stakeholders are driven by their own interests, which tend to be “compartmentalized”, if not competing – as seen, for example, in the divergent goals of different stakeholders, or the separate actions taken by governments, civil society and the private sector – a fundamental challenge for improving the effectiveness of

food security policies and programmes is to enhance their overall coordination. Such coordination requires an *enabling environment* that allows and creates incentives for key sectors and stakeholders to sharpen their policy focus, harmonize actions and improve their impact on hunger, food insecurity and malnutrition. An enabling environment for food security and nutrition should reflect commitment and capacities across four dimensions: policies, programmes and legal frameworks; mobilization of human and financial resources; coordination mechanisms and partnerships; and evidence-based decision making. Through targeted efforts across those dimensions, the actors and sectors concerned contribute to enhancing food security outcomes.<sup>8</sup>

The analysis in this section examines seven countries – Bolivia (Plurinational State of), Brazil, Haiti, Indonesia, Madagascar, Malawi and Yemen. The four dimensions of the enabling environment guide the country reviews. The discussion also considers how external events may influence the capacity of countries to deliver on their commitments and to thus progress towards achieving food security and nutrition objectives.

More specifically, the analysis is based on the following criteria and considerations:

1. *Policies, programmes and legal frameworks*: The country implements comprehensive and evidence-based policies, strategies and programmes that address the immediate and underlying causes of food insecurity and malnutrition through a twin-track approach – combining immediate hunger relief interventions with long-term actions for sustainable growth, especially in agriculture and the rural economy. Policies should be supported by appropriate legal frameworks which promote people’s right to food.
2. *Human and financial resources*: Policies, strategies, programmes and legislation are translated into effective action through the allocation of financial and human resources and the effective administrative capacity of





## BOX 2

### The world can end hunger by 2025

In July 2014, at the African Union summit in Malabo, Equatorial Guinea, African Heads of State<sup>1</sup> committed to end hunger in the continent by 2025. At the 2013 summit of the Community of Latin America and the Caribbean States (CELAC),<sup>2</sup> Heads of State and Government endorsed the Hunger-Free Latin America and the Caribbean Initiative to end hunger by 2025, an initiative launched in 2005. Together, these two regional organizations include nearly 90 states and over 1.5 billion people. These commitments send a powerful message to their citizens and to the rest of the world.

The Latin America and Caribbean regional commitment to end hunger by 2025 is underpinned by national and regional actions to promote food security that have contributed to progress in the region as a whole, towards both the MDG hunger target and the WFS goal. The decision has built on and, in turn, strengthened the commitment and participation of various actors involved – governments, parliaments, and non-state actors. It has reinforced integrated approaches to promote food security adopted in many countries of the regions, e.g. by linking social protection with support to enhance production. Regional commitment and cooperation encourage the sharing of experiences and other cooperation among developing countries. Africa's commitment to end hunger by 2025 also promises to strengthen on-going efforts within the framework of NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP). The Africa Solidarity Trust Fund for Food Security, established in 2013, is also a manifestation of the willingness of the region to create the appropriate instruments to move forward the hunger eradication agenda.

Governments in various regions have also responded to the call made by United Nations Secretary-General Ban Ki-moon in his Zero Hunger Challenge: to build a future in which all people enjoy their fundamental right to food, and in which their livelihoods and food systems are resilient and able to withstand the pressures induced by climate change and other resource and environmental challenges. Eradicating hunger will make a major

contribution to poverty reduction and to global peace and stability.

In general, turning political commitment into results on the ground implies, inter alia, the adoption of a comprehensive large-scale approach to prioritizing and investing in agriculture, rural development, education, health, decent work, social protection and equality of opportunity. It also requires policies and programmes to improve the productivity of family farmers, especially women and youth. Investing in sustainable family farming is crucial: family farmers produce a high proportion of the food we eat and are, by far, the biggest source of employment in the world. They are also the custodians of the world's agricultural biodiversity and other natural resources. Such policies and programmes should address the need for better infrastructure, including to better link farmers to markets and to reducing food losses, especially post-harvest. At the same time, actions are required to raise incomes and to bring about more equitable and sustainable rural development.

Integrated actions are key to fight hunger. Interventions to boost agricultural productivity growth are most effective in promoting food security when complemented by social protection measures. For example, school meal programmes can be designed to procure food from smallholder farmer organizations and cooperatives. This, in turn, raises producer incomes while stimulating the local supply of more nutritious, diverse and safe foods by small family farmers. Cash transfer programmes are an important tool for social protection and poverty reduction strategies. While their focus is on food security, health, nutrition and education, particularly of children, they can also enhance the productive capacities of beneficiary households who typically have few assets and limited access to financial services. The provision of predictable regular cash transfers to poor households can both promote investment and mitigate risk, thus stimulating production and productivity increases, both on- and off-farm.

<sup>1</sup> African Union. 2014. Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity And Improved Livelihoods. Assembly of the Union, Twenty-third Ordinary Session, 26–7 June 2014. Assembly/AU//Decl.1(XXIII) (available at [http://summits.au.int/en/sites/default/files/Assembly%20AU%20Dec%20517%20-%20545%20\(XXIII\)%20\\_E.pdf](http://summits.au.int/en/sites/default/files/Assembly%20AU%20Dec%20517%20-%20545%20(XXIII)%20_E.pdf)).

<sup>2</sup> CELAC. 2013. Declaración de Santiago de la I Cumbre CELAC. I Cumbre de la Comunidad de Estados Latinoamericanos y Caribeños (CELAC), Santiago, Chile, 27–8 December 2013 (available at [http://www.minrel.gob.cl/minrel/site/artic/20130208/asocfile/20130208155151/declaracion\\_de\\_santiago.pdf](http://www.minrel.gob.cl/minrel/site/artic/20130208/asocfile/20130208155151/declaracion_de_santiago.pdf)).

government. Resource constraints compromise the quality of policy design, implementation and effectiveness.

3. *Coordination mechanisms and partnerships:* Governments should regard food security and nutrition as an intersectoral priority by setting up high-level institutional mechanisms responsible for the design, implementation and coordination of food security and nutrition policies. The government takes a lead role in managing partnerships and coordinated actions among a broad range of actors and sectors involved in food security and nutrition at the national and decentralized levels, including by creating space for civil society participation. A major challenge for effective coordination is ensuring that planned actions are compatible with the stakeholders' other incentives.
4. *Evidenced-based decision-making:* Decision-making on food security and nutrition draws on evidence generated from functional information systems that monitor trends, track and map actions, and assess impacts in a timely and comprehensive manner, enabling lessons learned to be fed back into the policy process.

The countries examined in this section have very different food security situations, policy environments and governance regimes (in terms of partnerships and coordination mechanisms), all conditioned by prevailing levels of political stability, conflict, cultural identities, social and environmental conditions, economic growth and stages of development.

However, all the countries seek to address food insecurity through the twin-track approach of enhancing agricultural productivity and promoting rural development while facilitating access to adequate food for people in need.

The Plurinational State of Bolivia has established processes and institutions that include all stakeholders, particularly previously marginalized indigenous peoples, ensuring adequate food security for those in need. In Brazil, efforts that started in 2003 have resulted in successful participatory processes and coordinating institutions, delivering policies that have effectively reduced poverty and hunger.

In Madagascar, political crisis has hindered the development of food security institutions, but the situation is now back to normal, with the Government working on rebuilding capacities.

In Yemen, following the recent political unrest, the transition government has taken steps to improve food security and nutrition. Indonesia has made significant progress in establishing an enabling environment through efforts that include strengthening local government capacities.

Haiti, a country in protracted crisis frequently hit by natural disasters, has also taken steps to improve the design and implementation of food security policies to cope with multiple challenges. In Malawi, progress in fighting hunger stands out against its modest, but improving, food security arrangements.

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## Plurinational State of Bolivia

Bolivia has developed a political environment that is conducive to indigenous peoples and smallholder producers' organizations, making it – together with Ecuador – an exceptional case in South America. Significant reductions in food insecurity have occurred alongside two decades of efforts to empower indigenous people, who comprise about 62 percent of the population.

Between 2001 and 2012, extreme poverty decreased by 17.2 percent because of income redistribution, with the average income of the poorest 40 percent of the population growing by three times as much as the average national income. These reductions in poverty are reflected in reductions in the prevalence of undernourishment. The proportion of undernourished people in the population decreased from 38 percent in 1990–92 to 19.5 percent in 2012–14 (Figure 5). A strong focus on pro-poor and food security policies resulted in the prevalence of undernourishment decreasing by 7.4 percentage points between 2009–11 and 2012–14, while chronic

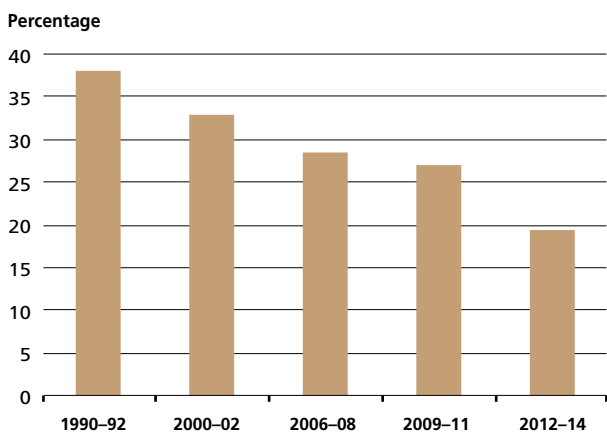
undernourishment in children under three years of age fell to 18.5 percent in 2012 (Figure 6). Malnutrition is also decreasing: between 1994 and 2008, the prevalence of stunting among children under five years of age declined from 35.2 percent to 27.2 percent. Ending hunger is a goal in the country's wider development plans such as the Patriotic Agenda 2025, the development goals of which include eradicating extreme poverty and hunger in line with international food security and nutrition targets.

Agriculture plays a crucial role in the Bolivian food security strategy – about a third of the population lives in rural areas where poverty is widespread. In implementing a twin-track approach, the government places equal weight on increasing the productivity of family farmers and addressing the immediate needs of vulnerable people through social protection and cash transfer programmes. As well as facilitating access to food, these programmes have a positive impact on other dimensions of food security. The provision of regular and predictable cash transfers leads to increased



FIGURE 5

Prevalence of undernourishment, Plurinational State of Bolivia, 1990–92 to 2012–14



Source: FAO.

on-farm investments and improves the productive capacity of beneficiary households. Social protection programmes promote nutrition education, improve food utilization and build resilience to natural disasters. Addressing social justice concerns and targeting the most vulnerable segments of the population with measures that improve food access and utilization reflect a deeper transformation in the design of food security policies in the Plurinational State of Bolivia. Since 2006, legal provisions (Law 3545) have significantly increased access to land for indigenous communities and smallholder farmers, offering tenure security to previously marginalized people. Legal frameworks related to food security have been strengthened to provide formal recognition and support to the economic, civil and political participation of smallholders and indigenous groups.

In 2007, the Bolivian Government instituted the National Development Plan, which set food security as a cornerstone of national sovereignty. The Plan also defined policy guidelines for promoting food security and sovereignty by ensuring the provision of healthy, domestically produced food and deepening the contribution of agriculture and forestry to improve livelihoods.<sup>9</sup>

However, the main milestone has been the adoption of the new Constitution in 2009, which proclaims political, economic, legal, cultural and linguistic pluralism. The Constitution empowers the indigenous majority and protects a range of human rights, including the right to food.<sup>10</sup>

In 2009, the country took a major step towards realization of the right to food by including this right in its Constitution. Legislation on communal agricultural production<sup>11</sup> recognizes the role of indigenous farmers in food production, and indigenous communities as economic organizations of smallholders.<sup>12</sup> Relevant laws include

provisions to facilitate the establishment of an enabling environment for food security and nutrition. Legislation defines how institutions interact in the development of policies to support agricultural production, trade and finance, and defines mechanisms that enable all stakeholders to participate in formulating policies, thus prioritizing community-level needs.<sup>13</sup> Other essential elements of food security governance in the Plurinational State of Bolivia include building institutions' capacities to implement policies effectively, and providing a legal framework for the sustainable management of natural resources.

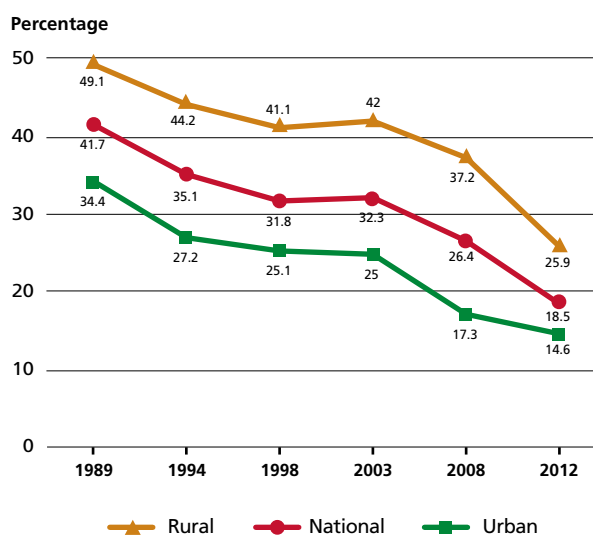
In 2012, the Government approved the Framework Law of the Mother Earth and Integral Development to Live Well (*Ley Marco de la Madre Tierra y Desarrollo Integral para Vivir Bien*), which establishes the basis for sustainable development, promoting the conservation and the regeneration of the environment, and recovering and strengthening local and traditional knowledge. The framework law covers different areas, including food production and consumption.

The country's architecture for food security governance (Figure 7) facilitates improved food security and nutrition through a mix of policies and programmes with the dual objective of creating opportunities for the hungry to improve their livelihoods by promoting agricultural and rural development, and ensuring direct and immediate action against hunger through programmes that enhance access to food.

Several state-owned enterprises aim to increase food productivity. For example, the Food Production Support

FIGURE 6

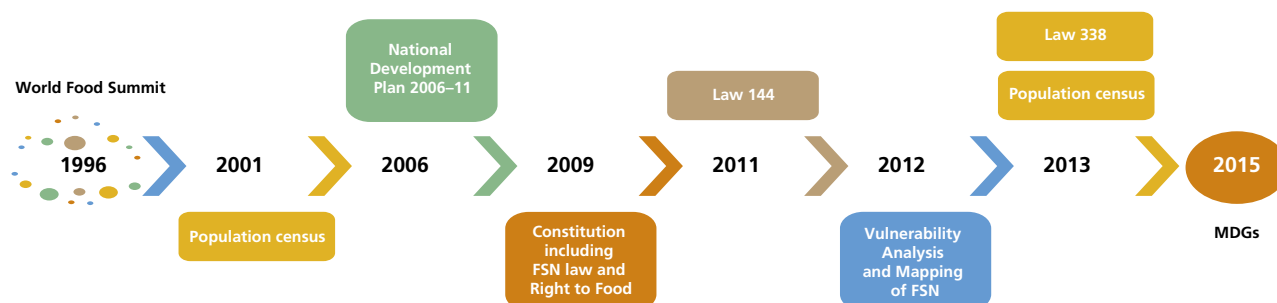
Prevalence of undernourishment in children under three years of age, Plurinational State of Bolivia, 1989–2012



Source: Economic and Social Policy Analysis Unit of the Plurinational State of Bolivia.

FIGURE 7

Evolution of food security governance, Plurinational State of Bolivia, 1996–2015



Source: FAO Bolivia.

Company assists small and medium-sized producers of food staples such as wheat, soybean, rice and maize by providing credit, intermediation in input procurement and sales of produce, and access to machinery. Other state-owned enterprises provide agricultural inputs such as certified seeds and fertilizers. LACTEBOSOL promotes the production and marketing of dairy products.<sup>14</sup>

The *Pachamama* agricultural insurance programme aims to reduce farmers' vulnerability to natural shocks and to reduce migration from rural areas to the cities.<sup>15</sup> The many programmes focusing on small family farmers include the Creation of Rural Agrifood Initiatives programme, which promotes small-scale food production, and the Rural Alliances programme, which aims to improve access to credit for smallholder farmers.

Interventions that seek to improve child nutrition include school meal programmes implemented by local governments and covering 89 percent of the children attending school.<sup>16</sup> Conditional cash transfers to vulnerable groups – including the Dignity Pension, which reaches about 1 million elderly people, *Bono Juancito Pinto*, which helps nearly 2 million poor families with children under five years of age and aims to increase school attendance, and *Bono Juana Azurduy*, which provides cash to pregnant and lactating women with no medical insurance – also reduce poverty and enhance food security and nutrition. The *Bono* programmes reach those in need, even in the most isolated municipalities.<sup>17</sup>

Food security and nutrition policies are highly inclusive, with local communities – including indigenous ones – participating in their formulation and implementation. Institutional platforms that facilitate the discussion and coordination of food security and nutrition policies include the Plurinational Economic and Productive Board, which coordinates the design of food security policies, identifies participating actors, and is responsible for monitoring and evaluation of policies.

The National Food Security and Nutrition Board (CONAN) is responsible for implementing and coordinating

programmes and policies, bringing together several ministries and departments, including the Office of the President.<sup>18</sup> Departmental and municipal food and nutrition boards carry out CONAN's functions at the subnational and local community levels. Food security policies are discussed in the Parliamentary Group Against Hunger, whose members include representatives of academia, civil society and implementing institutions. However, the most important element in the governance structure for food security is the Patriotic Agenda, the country's core development plan, which brings together ministries at different administrative levels and civil society to fight undernourishment.

These governance mechanisms are informed by an extensive system of data collection. The National Statistics Office collects information through household and employment surveys and monitors food prices, albeit not consistently. The Ministry of Health manages the National Health Information System, which collects anthropometric information on children and on women of reproductive age. The Ministry of Rural Development and Land maintains the Production and Agro-environmental Observatory, which collects information on food production.

The Plurinational State of Bolivia has made significant progress in food security and its governance. Legal frameworks such as Law 144 embed food security and food sovereignty issues in the Constitution, and recognize indigenous people as producers of food and formal recipients of public resources. Significant advances in developing food security governance are reflected in the system's participatory processes and policy coordination. However, the development of strong and effective institutions at the local level – involving different stakeholders in addressing multiple food security objectives and implementing policies – remains a major challenge. Political commitment is crucial, and the Government of the Plurinational State of Bolivia has ensured that food security and sovereignty remain a priority in the Patriotic Agenda of 2025, the country's long-term development plan.



## Brazil

This edition of *The State of Food Insecurity in the World* reveals that Brazil achieved both the MDG target of halving the proportion of its people who suffer from hunger and the more stringent WFS target of reducing by half the absolute number of hungry people. This achievement is consistent with the overall improvement in human development and reduction in inequality that the country experienced in recent years.<sup>19</sup> Progress towards these internationally established targets was accelerated when ending hunger was put at the centre of Brazil's political agenda. Ensuring that all people could eat three meals a day – as former President Luis Ignácio Lula da Silva said in his inaugural address – became a presidential and government priority in 2003, with the launch of the Zero Hunger programme. Between 2000–02 and 2004–06, the undernourishment rate in Brazil fell by half from 10.7 percent to below 5 percent.

Zero Hunger was the first step in translating the decision to end hunger into action, and introduced a new approach for the country that placed food security and nutrition and social inclusion at the centre of the government's agenda, while linking macroeconomic, social and agricultural policies. Over the years, this approach gained momentum through strengthening of the legal framework for food security and nutrition; establishment of an institutional setting that facilitates cooperation and coordination among ministries and different levels of government, with clearly defined responsibilities; increased investments in areas such as family farming and social protection; and strong involvement of civil society in the policy process, from formulation to monitoring and from the national to the local level, through the National Food and Nutrition Security Council (CONSEA). The successful reduction of hunger and extreme poverty in both rural and urban areas resulted from this well-coordinated array of policies led by the government with strong engagement from civil society, rather than from any single, isolated action.

The inclusive development model has since been incorporated into the Brazil without Extreme Poverty plan, launched in 2011 by President Dilma Rousseff with the bold goal of eliminating extreme poverty in Brazil. What began as a government pledge to end hunger was transformed, over a decade, into national law with institutional structures aimed at promoting the progressive realization of the human right to adequate food, which was enshrined in the country's Constitution in 2010.

The Zero Hunger programme comprised an integrated set of actions across 19 ministries, and applied a twin-track approach linking social protection to policies for promoting income equality, employment, family farm production, and nutrition. Economic policies and social protection

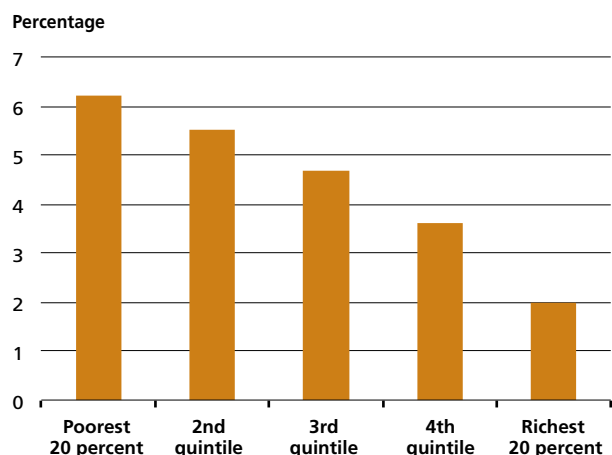
programmes, such as the ambitious Family Allowance cash transfer programme, combined with innovative programmes for family farming created links between productive support and social protection, contributing to job creation and higher real wages,<sup>20</sup> as well as significant decreases in hunger and greater income equality. FAO provided support through international technical cooperation agreements, and played an important role in preparing the Zero Hunger programme for implementation in the first months of 2003.

The results of these efforts are demonstrated by Brazil's success in meeting internationally established goals. Overall poverty fell from 24.3 percent to 8.4 percent of the population between 2001 and 2012,<sup>21</sup> while extreme poverty dropped from 14.0 percent to 3.5 percent.<sup>22</sup> From 2001 to 2012, the income of the poorest 20 percent of the population grew by three times as much as that of the wealthiest 20 percent (Figure 8).<sup>23</sup> The proportion of undernourished people fell from 10.7 percent of the population in 2000–02 to less than 5 percent in 2004–06.

The prevalence of stunting in children under five years of age was nearly halved from 13.4 percent in 1996 to 6.7 percent in 2006, while child wasting fell from 4.2 percent to 1.8 percent (Figure 9).<sup>24</sup> A national survey that included the Brazilian Household Food Insecurity Scale showed a 25 percent decrease in severe food insecurity from 2004 to 2009. The decrease in food insecurity was greater among people living in extreme poverty.<sup>25</sup>

FIGURE 8

Mean annual growth in family per capita income by income quintile, Brazil, 2001–2012



Source: Government of Brazil, 2014.





Brazil's National Food and Nutrition Security Law (Law No. 11.346 of September 2006) defines food and nutrition security as "the realization of everyone's right to regular and permanent access to enough food of good quality without compromising access to other basic necessities, and based on food practices that promote health, respect cultural diversity, and are environmentally, culturally, economically, and socially sustainable". The breadth of this definition was reflected in the Zero Hunger programme and subsequent policies and programmes, which include activities ranging from sustainable agricultural practices to education in nutrition and food habits – the approach that shaped today's National Food and Nutrition Security Plan.

The current National Food and Nutrition Security Plan incorporates more than 40 programmes and actions. While the Ministry of Social Development and Fight against Hunger is responsible for many of these programmes, several core actions pertain to other ministries, including those of Health, Agrarian Development, Education, Agriculture and Environment.

Federal expenditures on food security and nutrition programmes and actions totalled approximately US\$35 billion in 2013. Spending on social programmes increased by more than 128 percent from 2000 to 2012, while the share of these programmes in gross national product increased by 31 percent.<sup>26</sup> In 2013, social protection programmes accounted for the largest portion of Federal allocations to food security and nutrition, while programmes related to food production and distribution, including those to promote family farming, accounted for one-sixth.<sup>27</sup>

The Family Allowance income transfer programme, launched in 2003 as part of Zero Hunger, currently provides

cash benefits, preferentially in the mother's name, to more than 13.8 million low-income families on the condition that children in the family remain in school and visit the local health clinic monthly for growth monitoring and immunization. Investment in this programme tripled in ten years, reaching nearly US\$11 billion in 2013, and currently accounts for approximately one-third of Federal expenditures on food security and nutrition programmes and actions.<sup>28</sup>

The Brazil without Extreme Poverty strategy builds on the success of Zero Hunger. In 2011, it introduced new policies targeting the extremely poor, which included improving access to public services to promote education, health and employment. To ensure that children receive the care and nutrition they need during their first 1 000 days, policies supporting families with young children have been implemented. Measures include increasing the Family Allowance cash distributions for children and pregnant and lactating women, and expanding access to day care and preschools – all of which improve access to nutritious food. In March 2013, families in extreme poverty started to receive benefits that ensure a minimum per capita income of approximately US\$1.25 per day. An additional 22.1 million Brazilians have been lifted out of extreme poverty since 2011.<sup>29</sup>

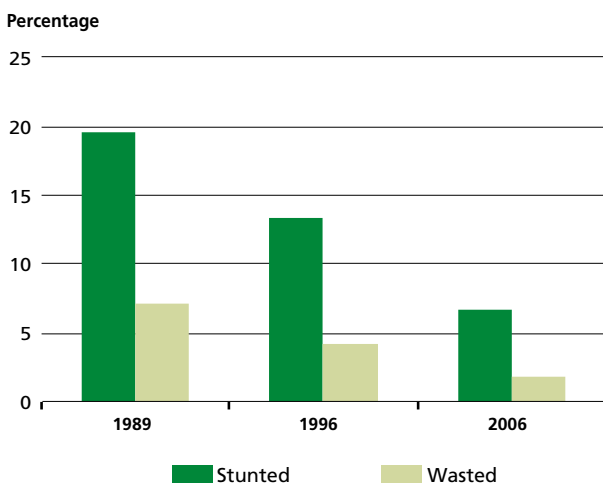
Another pillar of food security and nutrition policy in Brazil is the National School Meals Programme, which provides free meals to all public school pupils – a total of more than 43 million children in 2012. Public schools in Brazil serve children mainly from lower-income families, and the improved access to food provided by the programme represents a substantial benefit for poorer households. Federal investment in the school meals programme was US\$1.5 billion in 2012, complemented by funding from state and municipal governments.<sup>30</sup> The programme's impact has been significant enough to reduce the estimated prevalence of undernourishment in Brazil by about one-third compared with what it would likely have been without the programme.<sup>31</sup>

Policies for strengthening family farming were central to the Zero Hunger programme from the outset. Implementation of these policies in parallel with cash transfer programmes such as the Family Allowance illustrated the twin-track approach of actions to eliminate hunger. While agribusinesses and large-scale farms dominate export-oriented agricultural production in Brazil, family farming is growing and currently accounts for 70 percent of the food consumed in the country.<sup>32</sup> Investments in policies to support family farmers totalled US\$5.6 billion in 2013;<sup>33</sup> the budget of the rural credit programme of the National Programme for Strengthening Family Farming had increased tenfold since 2003.

Other policies, such as the provision of crop insurance against food price risks and extreme climatic events, minimum price guarantees, specific support to women, rural development and technical assistance, all aim to increase productivity and incomes while also responding to specific needs in different

FIGURE 9

Percentages of stunted or wasted children under five years of age, Brazil, 1989–2006



Source: Institute of Applied Economic Research.





regions of Brazil. Over the last ten years, access to land has been enhanced by allocating 50 million hectares to more than 600 000 poor landless families. Brazil without Extreme Poverty programmes strengthen this support by providing family farmers with extension services for implementing three-year resilience projects and improving their livelihoods. Programmes in semi-arid regions ensure that poor rural families have access to water, to increase their productivity through irrigation and to improve sanitation.

The innovative Family Farming Food Procurement Programme, launched in 2003 as part of Zero Hunger, purchases food directly from family farmers and donates it to institutions serving vulnerable populations, or uses it to replenish government stocks. By guaranteeing a market for small family farmers, the programme contributes to poverty alleviation in rural areas – nearly half of participating farmers are poor.<sup>34</sup> In 2012, more than 185 000 farmers throughout Brazil participated in the programme, each receiving an average of approximately US\$2 000 for their products.<sup>35</sup> Federal allocations to the programme increased nearly tenfold since 2003, to exceed US\$600 million in 2013. Such linkages between social protection policies and measures to support family farmers characterize the policy mix in Brazil. In 2009, the National School Meals Programme adopted a policy of requiring public schools to allocate at least 30 percent of food expenditures to direct purchases from family farmers. By 2012, 80 percent of public schools were purchasing directly from family farmers, and half had achieved the 30 percent goal.<sup>36</sup>

These investments in family farming have had a significant impact. Over the last ten years, family farmers' income has increased by 52 percent in real terms, and more than 3.7 million people in rural areas have entered the middle class.

The governance of food security and nutrition has also evolved significantly over the past decade. A series of legal milestones, consolidation of institutional arrangements by the Federal Government, and effective promotion of the participation of diverse stakeholders facilitate actions to support food security and nutrition policy.<sup>37</sup> Central to these efforts is the National Food and Nutrition Security Council (CONSEA), which was originally created in 1993, discontinued in 1995 and reinstated in 2003 as an advisory council with a direct institutional link to the Office of the President. Two-thirds of CONSEA's members are representatives of civil society and one-third come from the government. In 2006, it worked with the Federal Government to ensure passage of the National Food and Nutrition Security Law, which instituted the National Food and Nutrition Security System (SISAN).

SISAN is central to food security governance in Brazil. It is composed of two bodies at the national level: CONSEA; and the Interministerial Chamber on Food and Nutrition Security (CAISAN), which is composed of government representatives responsible for food security and nutrition policies and programmes. CONSEA guides and monitors food security

and nutrition policies, including the National Food and Nutrition Security Plan, and promotes the integration of food and nutrition activities into a unified strategy, while CAISAN is the interministerial mechanism for government coordination, implementation and management of the National Food and Nutrition Security Plan. This institutional architecture at the Federal level is replicated at the state and municipal levels.

In 2010, the human right to adequate food was incorporated into the Brazilian Constitution and the National Food and Nutrition Security Plan was instituted by decree. These developments consolidated the advances that Brazil had made and ensured the sustainability of policies initiated under Zero Hunger. CONSEA played a major role in these achievements, including by mobilizing public opinion throughout the country.

Established in 2003, the National Council for Sustainable Rural Development provides the institutional setting for coordinating rural development and family farming programmes in a role similar to that of CONSEA for food security and nutrition. The National Sustainable Rural Development and Family Farming Plan consists of dozens of coordinated policies and programmes that are linked to actions promoted by the National Food and Nutrition Security Plan.

Currently, the government is working to consolidate SISAN at the municipal level, as most Federal programmes for food security and nutrition and family farming are managed at this level according to national directives, following a decentralized approach that is already in place in other sectors. For example, beneficiaries of the Family Allowance programme are identified locally through a unified national registry of social programmes that facilitates the targeting and coordination of programmes and benefits. Municipal governments also monitor families' compliance with the conditions for the Family Allowance programme and link beneficiaries to employment training and other social programmes through the Universal Social Assistance System. Family farmers' participation in the food procurement programme is also managed locally, with targeting aided by a national registry of family farmers that serves as the gateway to an array of programmes for supporting family farmers. The participation of civil society organizations is crucial in these efforts, as they play a core role in setting up and maintaining the registries, and ensuring that families entitled to receive benefits are included.

Monitoring of food security and nutrition has been an integral part of the strategy to fight hunger since 2004, effectively guiding decisions and documenting progress. The Federal Government has worked closely with CONSEA to implement a national food security and nutrition information system with more than 50 indicators divided among six dimensions of food security: (i) food production; (ii) food availability; (iii) income and living conditions; (iv) access to



adequate food and water; (v) health, nutrition and access to related services; and (vi) education. Policy evaluation, conducted by an evaluation unit in the Ministry of Social Development, also has a significant impact by informing programme management, gaining support for successful measures and guiding policy-makers.<sup>38</sup>

Brazil has made great strides in food security and nutrition governance over the last ten years, with laws and institutions that are the legacy of the Zero Hunger programme. Significant advances in poverty and hunger alleviation demonstrate the success of this intersectoral, participatory and well-coordinated approach. The National Food and Nutrition Security Plan, developed with the effective participation of diverse stakeholders, is linked to the Federal budget and a well-structured system for monitoring food

and nutrition security. The ambitious Brazil without Extreme Poverty strategy builds on all of these strengths in scaling up actions to reach vulnerable populations and invest in early childhood – priority actions that hold promise for the future.

Collaboration among ministries and sectors is a continual challenge, but CONSEA and CAISAN are fulfilling their roles as coordinating mechanisms. Joint interministerial strategies are increasingly common, based on growing intersectoral vision and capacity.

The structures and capacities resulting from the evolution and institutionalization of food security and nutrition governance, and continuing financial and political commitment, place Brazil on a solid footing to protect the advances achieved and to face the new challenges that lie ahead.

## Haiti

Haiti has one of the highest levels of food insecurity in the world; more than half of its total population is chronically undernourished (Figure 10). Although this represents a decrease in the prevalence of undernourishment, from 61.1 percent at the beginning of the 1990s, the number of hungry people has increased from 4.4 million in 1990–92 to 5.3 million in 2012–14 because population growth has not been matched by sufficient levels of development.

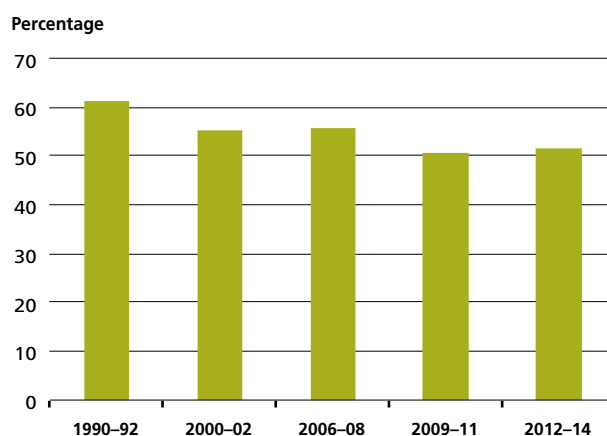
Poor nutrition status among children is another reflection of the severity of food insecurity in Haiti. In 2012, 11.4 percent of children under five years of age were underweight, and 21.9 percent were stunted. However, although these levels are still alarmingly high, they show some progress towards achievement of the MDG hunger target; in 1990, the rate of underweight was 23.7 percent and that of stunting 40.1 percent.

Food insecurity in Haiti is related to high levels of extreme poverty. In 2001, 62 percent of the population lived on less than \$1.25/day (international dollars). With low rates of economic growth, averaging about 0.8 percent per year between 2000 and 2012, poverty persists, and the latest estimates suggest that 40 percent of the population lived below the even more severe poverty line of US\$1/day in 2011.<sup>39</sup> Recurring natural disasters exacerbate the fragility of the economy. The government reports that in 2012, the number of people suffering from acute food insecurity<sup>40</sup> increased from 800 000 to more than 1.5 million – about 15 percent of the total population – as a result of drought, tropical storms and hurricane Sandy.<sup>41</sup> Natural disasters deepen unemployment as people lose their livelihoods in the devastated economy, and access to food worsens.

Even before the earthquake of 2010, unemployment exceeded 16 percent, with higher rates among young people (30 percent) and in urban areas (33 percent in the metropolitan area of Port-au-Prince). Agriculture provides 50 percent of jobs at the national level and accounts for 25 percent of the country's gross domestic product (GDP). For most of the 1 million small farmers, low agricultural productivity and tenure insecurity are significant problems. Farms are small – averaging less than 1 hectare each – and increasing population density puts pressure on farm size,

FIGURE 10

Prevalence of undernourishment, Haiti, 1990–92 to 2012–14

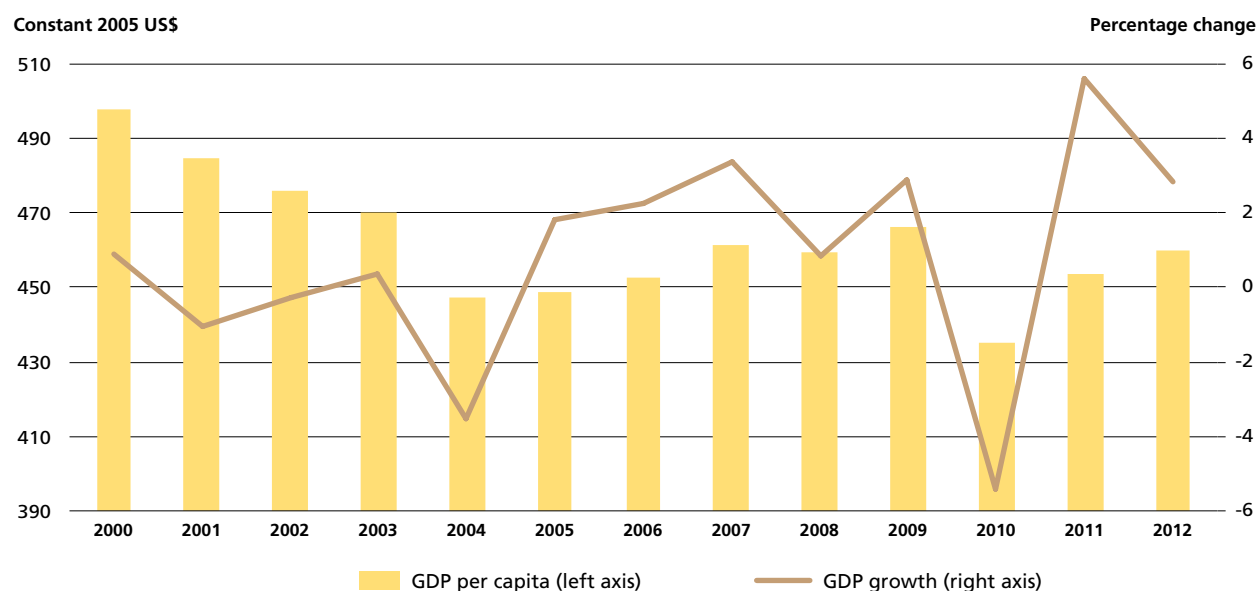


Source: FAO.



FIGURE 11

Economic growth and GDP, Haiti, 2000–12



Source: World Bank, 2014, World Development Indicators.

which is exacerbated by urban encroachment on arable and irrigated land.

Haiti depends on food imports to satisfy demand; this dependence is increasing as the population continues to grow while agricultural productivity remains low. Food imports represented 44 percent of total food availability in 2010, compared with 19 percent three decades ago. Although self sufficient in rice during the 1980s, Haiti became a major rice importer, a shift brought about by the country's changes in trade policies, extreme poverty and vulnerability to extreme weather events. About 80 percent of rice and 100 percent of wheat – staples that account for one-third of the calorie intake of the population – are sourced from international markets.<sup>42</sup> In 2008–10, Haiti spent 50 percent more on food imports than it received from total merchandise exports. Such exposure to international markets makes the country vulnerable to international price shocks.

The devastation caused by the earthquake in 2010 prompted the government and its international partners to develop plans that focus on both reconstruction and long-term economic development. Haiti's Strategic Development Plan concentrates on rebuilding the country's economic, social and institutional structures, and aims to transform Haiti into an emerging economy by 2030.<sup>43</sup>

Food security policies and related institutional arrangements are embedded in the Strategic Development Plan. The National Plan for Food Security, developed for the first time in 1996 and revised in 2010 by the National Coordination Agency for Food Security (CNSA), reflects this longer-term vision. Its objectives are to eradicate hunger by

2025 and to guarantee the right to food by establishing measures that address the multiple dimensions of food security. The plan emphasizes agriculture and productivity growth to increase the availability of food while generating employment and income in the rural areas where poverty and food insecurity are most severe. The role of agriculture in achieving food security is reflected in the Agricultural Development Policy 2010–2025, which aims to create the conditions for promoting agricultural productivity, ensuring food security, increasing value-added and enhancing resilience to natural catastrophes.

The Three-Year Agricultural Recovery Programme aims to initiate agricultural development across the country through an array of policies and measures. For example, the Support to Family Agriculture sub-programme targets small family farmers with interventions to improve their access to inputs and services that increase productivity and incomes. Its broader objective is to increase the country's food self-sufficiency from 50 to 60 percent. The Agribusiness Recovery sub-programme aims to strengthen the capacity of agribusinesses through better value chain coordination, logistics, marketing and processing, and to increase the value of agricultural exports by 40 percent from their 2009–2011 levels. The Three-Year Agricultural Recovery Programme also includes measures to promote the sustainable management of natural resources, and – even more important – its Institutional and Governance Strengthening sub-programme aims to reform and build the capacities of the Ministry of Agriculture in monitoring, evaluating and managing policy processes for agricultural development.



While interventions in agriculture are geared to improving productivity and food availability, the National Programme for the Fight against Hunger and Malnutrition, *Aba Grangou*, focuses on increasing food access and utilization. An initiative of the President of Haiti, launched in 2012, *Aba Grangou* aims to half the prevalence of hunger and malnutrition between 2012 and 2016, and to eradicate them by 2025. *Aba Grangou* follows the general principles of the National Plan for Food Security and shifts the overall strategy for food security towards a twin-track approach, combining attention to the most urgent food needs with solutions to address long-term challenges to food security.

*Aba Grangou* provides an umbrella for 21 programmes, ranging from cash transfers and school meals to investments in agricultural infrastructure and basic public services. For example, it aims to improve access to food for 2.2 million children by scaling up the National School Meals Programme, which currently provides hot meals to 1.5 million children every day. *Aba Grangou* also promotes food purchases from local small farmers to supply the schools, thus providing the farmers with a market for their produce. Other measures are designed to facilitate food access during emergencies, such as temporary employment programmes, cash transfers or food voucher programmes. The National Network of Multipurpose Development Agents coordinates the activities of non-governmental organizations (NGOs) under *Aba Grangou*, and helps to ensure that the most vulnerable households have access to nutritious diets and information.

Access to food has also been improved by Haiti's social protection policies. The National Social Assistance Programme provides extremely poor households with cash transfers and other subsidies. For example, *Ti Manman Cheri* is a conditional cash transfer programme aimed at enhancing

children's school attendance. Other social protection measures, such as the Solidarity Cart, mobile and fixed canteens and emergency vouchers, are designed to facilitate food access during emergency situations through in-kind and cash transfers.

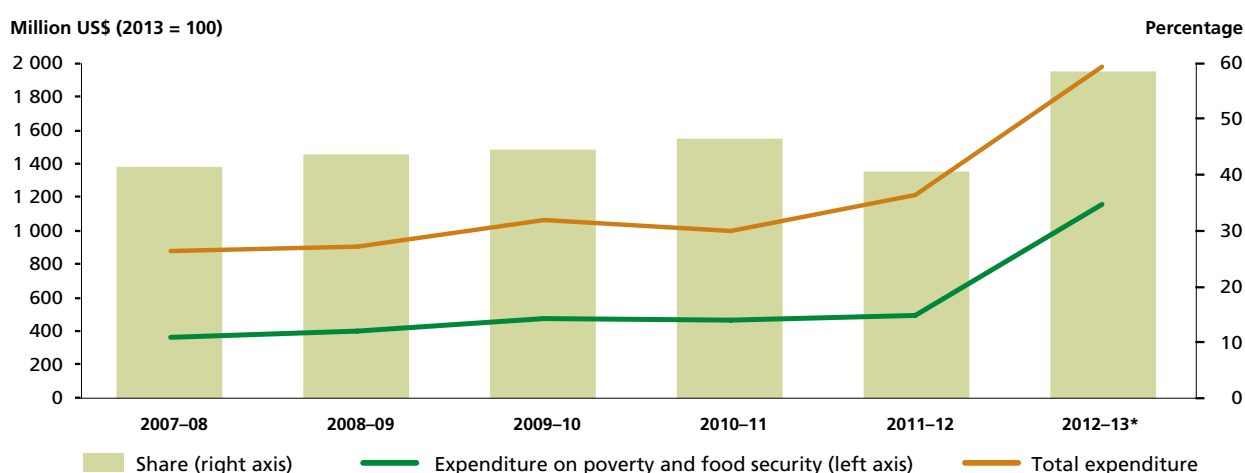
The government's commitment to fighting hunger is reflected not only in this broad range of policies and programmes, but also by an increase in budget allocations. Public spending on food security and poverty reduction increased from just over 40 percent of total public expenditure in 2007–09 to 59 percent in 2012–13.

Efforts to achieve multiple objectives – such as promoting agricultural productivity growth, creating jobs, improving food security and nutrition, and supporting the sustainable management of natural resources while enhancing communities' resilience to natural disasters – require strong institutions and sound governance mechanisms. After the earthquake of 2010, the Government of Haiti established institutional arrangements that identify the mechanisms, actors and responsibilities involved in a wide range of policies.

The National Coordination Agency for Food Security (CNSA) was established in 1996 to formulate and coordinate food security policies and programmes under the direction of the Ministry of Agriculture; it is composed of officials from the Ministries of Agriculture, Health, Planning and External Cooperation, Economy and Finance, and Trade. In 2010, CNSA developed the National Plan for Food Security. As well as policy formulation and coordination, CNSA is also responsible for overseeing the use of foreign aid for food security activities; developing a food security monitoring system; and providing a framework of action for responding to food crises. For example, CNSA regularly collects and

FIGURE 12

Evolution of public spending on food security and poverty reduction, Haiti, 2007–13



\*Figures refer to the budget for fiscal year 2012–13.  
Source: Government of Haiti, 2013.



disseminates information on the state of food security, and monitors food price trends at the national and local levels, enabling it to issue food crisis alerts when necessary.

The establishment of *Aba Grangou* significantly enhanced food security governance in Haiti. *Aba Grangou* promotes the participation of local governments and civil society by strengthening the institutional capacity of municipalities and mechanisms for involving civil society, such as the Support to Participatory Development Councils that already function in 73 municipalities.

*Aba Grangou* is an ambitious programme for which responsibility is divided among several government departments, including the President's Office, nine ministries, autonomous public departments and Haiti's Red Cross Society. Its multiple and interrelated objectives require significant collaboration across the government. The National Commission for the Fight against Hunger and Malnutrition – composed of members from the Office of the President, the Office of the Prime Minister, ministries and Parliament, and chaired by the First Lady – has the task of providing overall guidance and political support to *Aba Grangou*. The Planning Committee for the Fight against Hunger and Malnutrition also involves nine ministries and is responsible for planning programme measures and prioritizing and allocating resources. At the operational level, the National Coordination Agency for the Management of *Aba Grangou*, under the direction of the Ministry of Economy and Finance, is in charge

of the programme's overall coordination, results-based management, monitoring and evaluation, and reporting.

Rapid progress towards food security in Haiti depends heavily on having coherent policies, while the presence of multiple coordination mechanisms poses challenges. At the implementation level, increased coordination among the Ministry of Agriculture, which is responsible for agricultural development policy, the Ministry of Economy and Finance, which coordinates social protection policies, and the other ministries participating in *Aba Grangou* is essential for strengthening food security governance. Bringing together mechanisms such as CNSA and the National Commission for the Fight against Hunger and Malnutrition, and enhancing coherence among the different programmes of government, donors and NGOs are also fundamental in the fight against hunger. Haiti has made significant progress in developing food security-related coordination mechanisms and an institutional environment that is conducive to enhanced governance for food security.

Recognition of the human right to food will bring new impetus to these efforts. In 2013, the Government of Haiti ratified the International Covenant on Economic, Social and Cultural Rights, which recognizes the right of all people to adequate nutrition and to live free from hunger. This ratification, along with proposals to establish a law on food security that are currently being discussed in Parliament, are clear steps that will help fortify and sustain the political commitment to meeting food security targets.

## Indonesia

Indonesia is the largest economy in South-Eastern Asia. Despite the global economic slowdown of recent years, Indonesia's economy continues to grow steadily. Democratization, decentralization and greater political participation have improved governance and the peaceful resolution of regional conflicts.

Since the Asian economic crisis of 1997–98, per capita GDP has increased by 65 percent, from US\$1 057 in 1998 to US\$1 731 in 2012.<sup>44</sup> Strong economic growth has gradually reduced overall poverty in the country. The proportion of people living below the national poverty line decreased from 23.4 percent in 1999 to 11.4 percent in 2013,<sup>45</sup> and Indonesia has already achieved the MDG target for reducing extreme poverty.<sup>46</sup> In 2009, the population living under the poverty line was 14 percent, or 32 million people. In March 2014, 11 percent of the population lived below the poverty line.<sup>47</sup>

Despite these developments, income inequality is rising, as in many other countries in recent decades. The richest

20 percent of the population has 80 percent of the country's wealth, while about 43 percent lives on less than US\$2 per day.<sup>48</sup> There are striking disparities across the country, with poverty rates ranging from 3.5 percent in Jakarta to 31.1 percent in West Papua.<sup>49</sup>

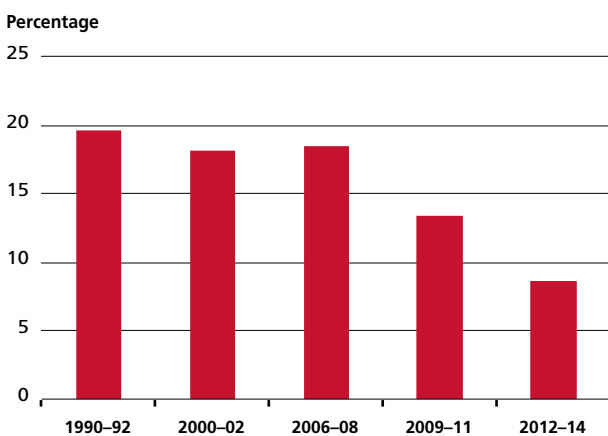
Reductions in extreme poverty have improved food security. According to FAO, Indonesia has achieved the MDG hunger target, by reducing the proportion of undernourished people from 19.7 percent of the population in 1990–92 to 8.7 percent in 2012–14 (Figure 13). However, despite a substantial rise in the availability of dietary energy, Indonesia has made slower progress in reducing undernutrition. The most recent data suggest that the prevalence of stunting in children under five years of age was 37.2 percent in 2013 (Figure 14), implying inadequate access to diverse foods to support good nutrition.

Efforts have been made to strengthen the enabling environment to improve food security and nutrition, and legal frameworks and institutions for food security and



FIGURE 13

Prevalence of undernourishment, Indonesia, 1990–92 to 2012–14



Source: FAO.

nutrition governance have evolved. In Indonesia, food self-sufficiency has been a focus of food security policies since the Asian economic crisis of 1997–98, particularly in rice. After the food price surge in 2008, food self-sufficiency continues to dominate the political agenda, with policies that aim to attain self-sufficiency in rice and other major food commodities – maize, soybeans, beef and sugar – focusing on maintaining food prices that are affordable for lower-middle-income communities, and increasing farm incomes.

Notably, the National Medium-Term Development Plan 2010–2014 articulates the country’s approach to poverty reduction and development, with the government focusing on increasing food security and promoting inclusive growth, particularly in rural areas. Maintaining stable prices for rice – the main staple – has been a major element of the government’s food security policy since independence. Food consumption is still dominated by carbohydrates, particularly rice – a 10 percent increase in the price of rice leads to a 1.3 percent increase in the poverty rate.<sup>50</sup> Approximately half the country’s population lives in rural areas, and about 34 percent of people depend mainly or exclusively on agriculture for their livelihoods, with rice being the main crop. Boosting agricultural productivity to improve the welfare of smallholder farmers through higher incomes is a desired policy outcome that is expected to lead to the reduction of poverty and food insecurity.

Several laws, together with establishment of the multistakeholder Food Security Council and the National Food Security Agency, form the overarching governance structure for food and nutrition security in Indonesia.<sup>51</sup> Important among these measures is Law No. 18 of 2012, which institutionalizes the human right to food and defines the state’s legal obligation to ensure the availability and affordability of sufficient, safe and nutritionally balanced

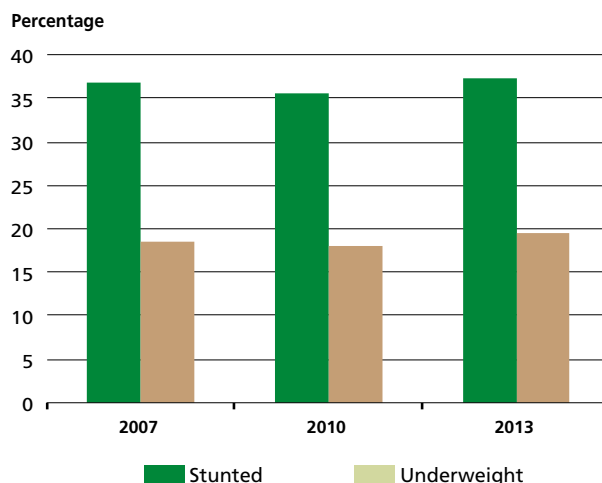
food for all people at all times. In assuming this role, the government should utilize local resources, engage national institutions and respect cultural diversity.

In 2013, Indonesia’s House of Representatives passed legislation to empower farmers by creating an environment with better infrastructure and facilities, stable food prices, and finance and support for farmers’ organizations in becoming more productive, modern and sustainable.<sup>52</sup> These laws call for the reform of institutions and provide the basis for policies that address both agricultural development and the immediate needs of the vulnerable. However, more efforts are needed to strengthen their enforcement and ensure effective governance. For example, although agricultural land is protected by law, its conversion to non-agricultural purposes is widespread and uncontrolled.<sup>53</sup>

The Food Security Council coordinates food security policies and programmes and is chaired by the President of Indonesia, with the Minister of Agriculture responsible as the chairperson-in-charge. The council’s secretariat is provided by the National Food Security Agency, hosted in the Ministry of Agriculture. Membership of the National Food Security Council comprises representatives from 16 departments – including the Ministries of Social Affairs, Health, Education, Finance, Industry, Trade, Public Works, and Marine Affairs and Fisheries – two agencies, and NGOs; non-ministerial technical experts; and community leaders. Following decentralization, the council also has members at the district and municipal levels.<sup>54</sup> Its annual national and regional meetings are attended by representatives from all regions and municipalities, facilitating coordination of the formulation and evaluation of policies. Decentralization has

FIGURE 14

Prevalence of underweight and stunting in children under five years of age, Indonesia, 2007–2013



Source: Health Research Association, Indonesia.





had a significant impact on the effectiveness of agricultural development and food security programmes.

To achieve its range of objectives, the Food Security Council works through several technical working groups in specialized areas such as monitoring of rice prices, fertilizers, monitoring of food availability and distribution, the Food Security Information System, food insecurity maps, and nutrition.<sup>55</sup>

Food price stabilization is crucial for achieving food self-sufficiency. At the operational level, one of the most important institutions in food security governance is the Food Logistics Agency (BULOG), which was founded in 1969.<sup>56</sup> A state-owned enterprise, BULOG has the mandate to balance the needs of producers and consumers and achieve food self-sufficiency targets by establishing buffer stocks, stabilizing domestic food prices and responding to food emergencies. Import restrictions are another important policy instrument in maintaining domestic prices at levels higher than those on the world market and promoting national self-sufficiency.

As part of the reform of public institutions – a priority in the National Medium-Term Development Plan 2010–2014 – the government is considering moving the National Food Security Agency from the Ministry of Agriculture to the Office of the President as a way of broadening the policy mix and giving equal attention to both agricultural policies and measures that protect vulnerable population groups.

Food security governance in Indonesia comprises a wide spectrum of policies. Fertilizer and seed subsidies have been an important part of the country's agricultural development strategy in increasing agricultural productivity and food security and promoting technology adoption, and are also linked to the goal of self-sufficiency in rice production, which remains a priority for Indonesian policy-makers.<sup>57</sup> The subsidies have had a positive impact on fertilizer use, resulting in increased rice yields. Nevertheless, the cost of the subsidy programme has increased in recent years, diverting government expenditures away from public goods, while also creating negative environmental impacts due to fertilizer runoff.

Improvements in food security and nutrition are achieved through food subsidies for the poor, such as the Rice Subsidy for the Poor, which increases poor people's access to the main food staple. In 2011, about 17.5 million poor households bought 3.15 million tonnes of rice at one-third of the market price.<sup>58</sup> The National Community Empowerment Programme (PNPM) provides poor communities with grants for high-priority local programmes and projects. In rural areas, PNPM finances infrastructure investments, provides microcredit for women's groups, and establishes social safety nets for the poorest and most vulnerable people. In a country spread over many islands, the Marine and Fisheries PNPM is particularly important; in 2011, it provided funds for direct community assistance to more than 1 000 fisher groups in 132 districts, more than 2 000

farmers' groups in 300 districts, and about 408 processing groups in 53 districts.<sup>59</sup> From 2006 until 2013, the PNPM Programme has benefited 60 million Indonesians through thousands of PNPM projects in rural and urban areas.<sup>60</sup>

The ongoing Farmer Empowerment through Agricultural Technology and Information Project (FEATI) aims to improve the delivery of support services to farmers. The Sustainable Management of Agricultural Research and Technology Dissemination Project (SMARTD) complements FEATI by focusing on technology. SMARTD strengthens capacities to develop and disseminate best practice technologies and to improve sustainable agricultural productivity and incomes, particularly for women.<sup>61</sup>

The Development of Sustainable Home-Yard Food Garden programme (KRPL) has the objective of ensuring food security while diversifying consumption away from rice to improve nutrition. KRPL is an empowerment programme, reaching more than 1 million people and aiming to increase the use of home gardens for the production of tubers and vegetables. The programme promotes a diversified, nutritious and safe diet, and also helps to increase household incomes. The Development of Village Food Resilience project is a community empowerment programme that targets areas vulnerable to food insecurity with activities to expand livelihood options and achieve food security. Between 2006 and 2012, the programme reached more than 3 000 villages. The KRPL programme is targeted to reach 5 000 villages by 2014.

Significant efforts have strengthened the provision of food security information and monitoring, which is of paramount importance to the work of the Food Security Council. Food security and vulnerability atlases, produced at the national and regional levels, aim to improve geographical targeting of the people most in need. The Food and Nutrition Surveillance System (FNSS), launched in 2009, is an important tool for assessing food and nutrition insecurity at the household level. FNSS collects data on food security every three months, and data on the nutritional status of children under five years of age and their mothers twice a year.<sup>62</sup> However, insufficient resources and an inadequate technological platform for data collection hinder the work of FNSS.

Indonesia has made significant progress in establishing institutions and mechanisms that enhance food security governance, but challenges remain in ensuring that these systems have adequate financial and institutional support to function effectively. The Food Law (No. 18/2012) provides a solid regulatory framework for food security by declaring food a human right. It is expected that the law will be translated into decrees and applied by 2015. The overall success of this reformed food security policy and governance regime will depend on how effectively the Food Law is applied, especially at the local level. The weak capacities of Food Security Council offices at the regional, district and municipal levels are a major challenge, and building capacities at the local level will significantly improve the effectiveness of food security policies in Indonesia.



## Madagascar

Madagascar is one of the poorest countries in the world, ranking 151 of the 187 countries in the 2012 Human Development Index. The island is highly exposed to climate hazards – in recent decades, it has faced cyclones, droughts, floods and locust invasions. Such natural disasters have led to and exacerbated poverty and food insecurity.<sup>63</sup>

More than 70 percent of the population lives on less than US\$1/day, and poverty rates in rural areas are even higher.<sup>64</sup> Approximately 73 percent of the rural population is engaged in agricultural activities, livestock and fisheries, and most rural households practise subsistence farming. Six out of ten farming households cultivate less than 1.5 hectares of land each.<sup>65</sup> Because of large family size and low agricultural productivity, most rural households are net food buyers. About 31 percent of the population was undernourished in 2012–14, up from 27 percent in 1990–92 (Figure 15). About 84 percent of the population obtain most of their calories (more than 75 percent) from staples, indicating that diets are of poor quality.<sup>66</sup>

Malnutrition is widespread, and about 47 percent of children under five years of age are chronically malnourished or stunted.<sup>67</sup> Political instability has thwarted economic growth and strained relations with international donors. Average annual GDP growth fell from an average of 5.6 percent in the five years before the political crisis of 2009, to just 1.8 percent in the three years following.<sup>68</sup>

After a successful election in 2013, and the country's reinstatement in the African Union, Madagascar is resuming relationships with bilateral and multilateral partners.

However, despite the lifting of all trade and economic sanctions and most restrictions on foreign aid – imposed during the political crisis – overseas development assistance is not likely to reach pre-crisis levels in the next couple of years.

Before the political crisis, the government was taking action to improve the country's development. Central to these efforts was the ambitious poverty reduction strategy, the Madagascar Action Plan (MAP), which was to be implemented from 2007 to 2012. MAP outlined a strategy for achieving the MDGs and supporting the poorest and most vulnerable segments of the population. However, many of the policies articulated in MAP to stimulate growth and reduce poverty were never implemented.

Within the broader development context, Madagascar's National Action Plan for Food Security was a ten-year strategy (2005–2015) for improving productivity, especially of rice, agricultural services, technology and nutrition education. However, the deepening political crisis prevented it and MAP from being implemented. Faced with a severe decline in fiscal revenues, resulting from the economic slowdown coupled with sharp reductions in financial support from development partners, government spending on social protection fell from 1.9 percent of GDP in 2008 to 1.1 percent in 2010.<sup>69</sup> Public spending on rural irrigation infrastructure and agricultural support services was also hit, as the transitional government focused on regaining macroeconomic stability.

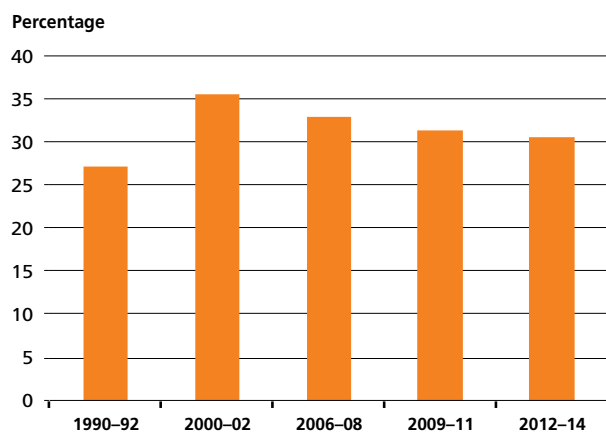
Today, the signs are more promising. The government has recently presented the new General State Policy, which aims to put the country back on the path to development. Two of the 22 challenges that the policy addresses – revitalization of rural areas, and social protection – are related to agriculture and food security.

The government's commitment to meeting these challenges is reflected by its establishment of the cross-departmental National Compact, which envisions a competitive, sustainable and integrated agriculture sector that ensures food security in Madagascar by 2025. An array of measures, under the newly formulated Agriculture, Livestock and Fisheries Sector Programme (PSAEP), aim to increase rural incomes by 40 percent and reduce poverty by 50 percent, by promoting agricultural productivity and sustainable use of natural resources.

PSAEP's policies focus on improving smallholders' access to inputs by establishing seed and fertilizer centres and promoting investments in productive capital such as transport infrastructure, irrigation and equipment for fish farming. Other policies aim to strengthen preparedness and planning for food and nutrition emergencies; for example,

FIGURE 15

Prevalence of undernourishment, Madagascar, 1990–92 to 2012–14



Source: FAO.



an integrated food security and nutrition programme implemented in 12 vulnerable regions provides a nutritional supplement for mothers and children, while also facilitating the distribution of improved seeds (especially vegetables) and improved availability of fishery products in local markets. The government has also started consolidating the new land policy, a process expected to be completed by March 2015, taking into account the indigenous rural and urban populations, and the need to focus on priorities such as food and nutrition security.

The National Nutrition Action Plan 2012–2015 (PNAN2) aims to reduce the prevalence of chronic malnutrition among children and to lower the proportion of the population consuming fewer than 2 300 kilocalories per day from 65 percent to 43 percent. Measures under PNAN2 include promoting the cultivation of vegetables and micronutrient-rich foods, developing school feeding programmes, and providing fortified food and supplements to vulnerable groups. Its forerunner, PNAN1, was hampered by weak coordination and lack of ownership by stakeholders. PNAN2 has adopted a more inclusive approach, and benefits from joining the Scaling Up Nutrition initiative in 2012. However, strengthened coordination is needed to make PNAN2's nutrition policies more effective.

The Ministry of Public Health is responsible for nutrition policies, in collaboration with the Ministries of Agriculture and Rural Development, Livestock and Fisheries, Water and Sanitation, Economy and Finance, Education, Population, and Decentralization and Regional Planning. The United Nations, other international organizations and many NGOs<sup>70</sup> are partners in implementing PNAN2, together with these ministries, with the National Nutrition Office providing overall technical coordination. Although the country lacks resources for mechanisms to monitor food and nutrition, several international organizations generate food security information; for example, the Famine Early Warning Systems Network (FEWSNET), WFP, the World Bank and FAO conduct food security assessments and monitor trends.

Non-governmental stakeholders implementing large-scale projects and other programmes include the World Bank, the African Development Bank, the United States Agency for International Development (USAID), United Nations agencies such as FAO, IFAD, WFP and the United Nations Children's Fund (UNICEF), and the European Union. These programmes address problems ranging from weak investment to food

insecurity and malnutrition, with interventions such as school feeding, cost exemptions and funding for the most vulnerable people attending health centres and hospitals, cash for work, control of locust outbreaks, and natural disaster response measures. They are coordinated through the Donors' Group for Rural Development, Food Security and the Environment. The World Bank's large-scale Emergency Food Security and Reconstruction Project (of US\$40 million) aims to increase access to short-term employment in targeted food-insecure areas and to restore access to social and economic services following natural disasters, in targeted communities.

Although the government has pledged to allocate at least 10 percent of the national budget to agriculture in line with the 2003 Maputo Declaration, public institutions – including the Ministries of Agriculture and Rural Development, Livestock and Animal Protection, Marine Resources and Fisheries, and Environment, Ecology and Forests – lack capacity and resources. For example, the Rural Information System on Food Security, established in 2004, provided monthly information on agricultural production, weather and markets, but had to close when development assistance was cut. Currently, there is no coordinating institution, but the government is considering establishing an independent body, involving all relevant actors, to oversee policy coordination and guidance, advocate for funding and carry out impact evaluation of PSAEP.

Political instability has seriously impeded the country's progress in all areas of development. The crisis disrupted promising national strategies for food security and nutrition and the gaps left by the collapse of MAP were only partly filled by international organizations. Food security is the most urgent of the country's development needs. As new national policies for nutrition, agriculture and response to natural disasters are formulated and implemented, it will be crucial to build the capacities of the institutions involved. Progress in addressing the underlying causes of hunger and food insecurity in Madagascar depends on establishing a mechanism that ensures effective coordination of different policies in agriculture, food security and nutrition. Enhanced coordination of food security policies can build an enabling environment in which more people can feed themselves with dignity while appropriate safety nets serve those unable to do so.



## Malawi

Malawi has met the MDG hunger target, although 21.8 percent of the population remains undernourished (Figure 16). Malawi is one of the world's least-developed countries, with a per capita GDP of about US\$220 in 2012 (in constant 2005 United States dollars). Poverty is widespread. The latest estimates show that in 2010–11, 50.7 percent of the population lived below the national poverty line, compared with 52.4 percent in 2004–05. However, over the same period, 'extreme poverty' increased from 22.4 percent of the population to 24.5 percent, suggesting increasing rural inequality – a crucial issue for the country.

In this small land-locked country in Eastern Africa, which shares boundaries with Mozambique, the United Republic of Tanzania and Zambia, the population is expanding rapidly. About 84 percent of the people live in rural areas with average access to 0.23 hectares of arable land per person, compared with the sub-Saharan African average of 0.40 hectares.<sup>71</sup>

Malawi's agriculture is dominated by small subsistence farms, but is a major economic sector, contributing 30 percent of GDP in 2011. Agriculture employs about 80 percent of the workforce, and generates 83 percent of foreign exchange earnings. Maize, the main food staple, is grown on 70 percent of total arable area and is a major factor in the country's food security.<sup>72</sup>

Hunger and food inadequacy have been declining since 2005, coinciding with a period of strong and persistent growth in maize production. However, in spite of the decreased prevalence of undernourishment, malnutrition remains a challenge – about 50 percent of children under five

years of age are stunted and 12.8 percent are underweight, reflecting significant nutritional imbalances in their diets, which lack proteins, vitamins and other nutrients.<sup>73</sup> Most people rely on maize and other starchy staples for their nutrition; average per capita maize consumption is 163 kg/year, with households devoting an average of 40 percent of their food expenditure to buy this staple.

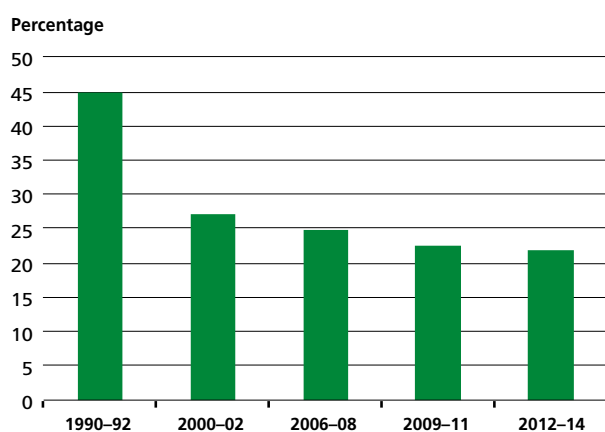
Food security and nutrition is a core priority of the Malawi Growth and Development Strategy 2011–2016, the country's overarching development plan. Within this broad development plan, specific policies aim to increase food availability by strengthening agricultural productivity growth, promote food access through poverty reduction, improve nutrition through human resource development, and protect vulnerable population groups with productive safety nets and disaster preparedness. The commitment to food security and nutrition is reflected in the country's Constitution, which acknowledges access to and utilization of sufficient and safe food as a human right. In line with the Maputo Declaration, the government emphasizes agriculture as the key driver of economic development and growth.

A spectrum of policy measures have been implemented to meet the country's food security objectives under the Agriculture Sector-Wide Approach Programme – the government's investment framework for agriculture, which is aligned to the National Agriculture and Food Security Investment Plan of the Comprehensive Africa Agriculture Development Programme (CAADP). The Farm Input Subsidy Programme is an important component of the country's approach to increasing productivity, ensuring food security and reducing poverty. Launched in 2005, the programme benefits approximately half of all rural households, providing about 1.5 million with subsidized fertilizer and other inputs, such as maize and, to a lesser extent legume seeds, through a coupon system. Maize production has increased significantly since the start of programme implementation (Figure 17). Although it is difficult to isolate the impact of the programme from other factors, there is consensus that the subsidy has increased maize production and consumption at the household level, while also having a positive effect – through increases in income – on school enrolment among children aged five to 13 years.<sup>74</sup>

Programmes under the Presidential Initiative on Poverty and Hunger Reduction, which were hosted in the Office of the President since 2012 and have now moved to the Ministry of Agriculture, aim to increase the welfare of the rural poor by promoting legume production to improve nutrition and income, increasing milk production through the distribution of cows and small animal stock, and developing fisheries and aquaculture. Crop insurance schemes

FIGURE 16

Prevalence of undernourishment, Malawi, 1990–92 to 2012–14

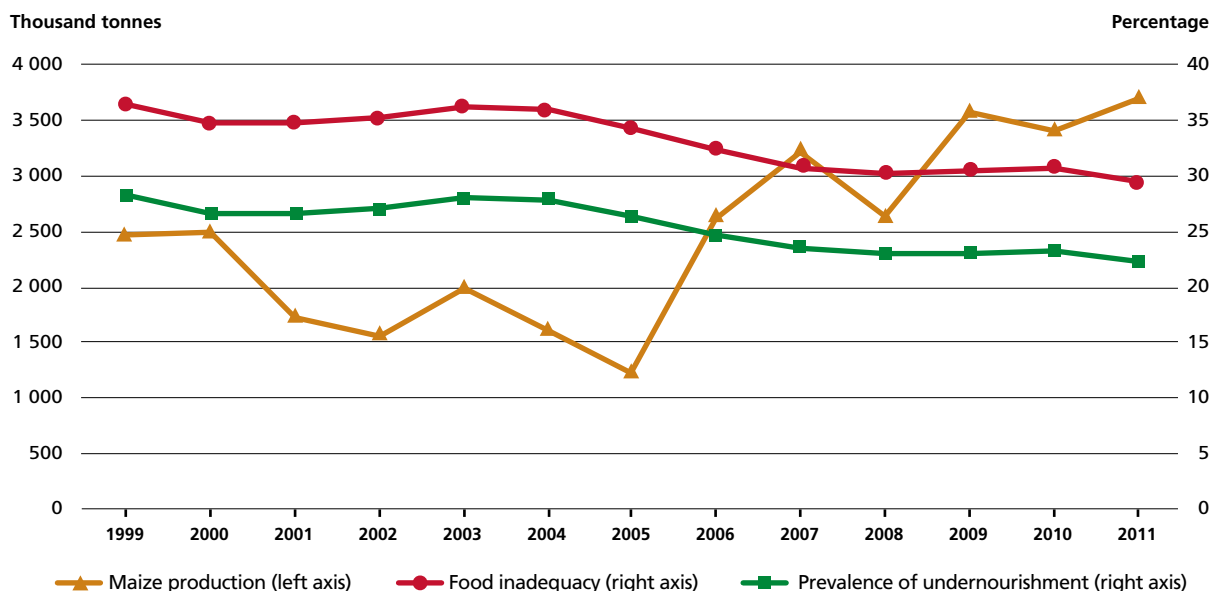


Source: FAO.



FIGURE 17

Trends in maize production, food inadequacy and prevalence of undernourishment, Malawi, 1999–2011



Note: Data for food inadequacy are based on three-year averages.  
Source: FAO.

developed by the World Bank and Malawi’s National Association of Small Farmers help smallholders to manage weather risks such as drought, promote access to agricultural credit, and facilitate on-farm investment.<sup>75</sup>

The Agricultural Development and Marketing Corporation and the National Food Reserve Agency are central institutions in Malawi’s food security governance. The corporation manages the maize market through buffer stock operations, ensuring availability of the food staple; the Food Reserve Agency provides maize to poor households at subsidized prices.

The National Nutrition Policy and Strategic Plan receives significant political support. Implemented by the Department of Nutrition, HIV and AIDS, which was established in 2004 to ensure that nutrition policies are well coordinated and is hosted in the Ministry of Health (it was moved from the Office of the President), the plan aims to improve nutrition and build the foundations for human resource development, economic growth and prosperity. The National Nutrition Policy is complemented by other measures, such as the National Nutrition Education and Communication Strategy 2012–2016 and the National School Health and Nutrition Strategic Plan. Implementation of community-based nutrition interventions has been scaled up to 50 percent of districts, and focuses on reducing stunting.<sup>76</sup> The National Social Support Policy covers an array of social protection programmes that focus on the vulnerable, promoting social welfare and food security and nutrition.

Several government institutions are involved in the implementation and coordination of food security policies,

creating a broad governance structure: the Ministry of Agriculture, Irrigation and Water Development is responsible for formulating and implementing agricultural policies; the Department of Nutrition, HIV and AIDS coordinates nutrition measures; and the Ministry of Finance, Economic Planning and Development is charged with coordinating and planning resilience and social protection programmes and disaster and risk management. Through its involvement in the Scaling Up Nutrition movement, the country has established high-level political committees such as the Cabinet Committee on Nutrition, HIV and AIDS; the Parliamentary Committee on Nutrition, HIV and AIDS, which is responsible for evaluating nutrition interventions; the Principal Secretaries’ Committee on Nutrition, HIV and AIDS; the Government and Development Partners Committee; and the National Nutrition Committee.

At the district level, food security and nutrition policy is coordinated through district nutrition coordinating committees made up of representatives from relevant departments, civil society organizations and the private sector. Information – crucial for evidence-based policies – is provided by the Technical Working Group on Monitoring and Evaluation, composed of a wide variety of stakeholders from the public and non-state sectors and donors.

Other stakeholders, including the private sector, civil society and producers’ groups, are also active participants in the food security and nutrition dialogue. At the national level, the Multi-Sectoral Technical Committee on Nutrition – made up of representatives from key ministries, donors, civil society organizations, academia, and research and advocacy



institutions – provides a platform for discussion of food security and nutrition policies. Donors could play a vital role in implementing and monitoring measures through the Joint Task Force on Food and Nutrition Security.

Although Malawi is one of the poorest countries in the world, it has made progress in fighting hunger. Developing agriculture to enhance the welfare of rural people, increase food security and improve nutrition for the whole nation is a significant challenge. Agriculture in Malawi is mainly rain fed and prone to natural disasters, which result in crop failures. Slow progress in poverty reduction hinders access to food, while poor sanitation affects nutrition.

Since 2012, poor macroeconomic performance has impeded progress towards development and food security. Economic shocks have necessitated large-scale relief operations, reaching almost two million people for two consecutive years. Together with devaluation of the currency,

rising fertilizer prices put at risk the Farm Input Subsidy Programme – one of the country’s main agricultural development efforts. This programme accounts for 70 percent of the total budget of the Ministry of Agriculture, Irrigation and Water Development and about 10 percent of the total national budget;<sup>77</sup> with additional resources allocated to other agricultural programmes, Malawi dedicated 19 percent of its total annual budget to agriculture in 2012–13, surpassing the Maputo Declaration minimum threshold of 10 percent.<sup>78</sup>

The government is facing serious challenges in coordinating the various policies and moving the food security and nutrition agenda forward. Strengthening the coherence of policy formulation, implementation and evaluation, and including all stakeholders – especially the international donor community, the private sector and civil society – are of paramount importance in achieving food security.

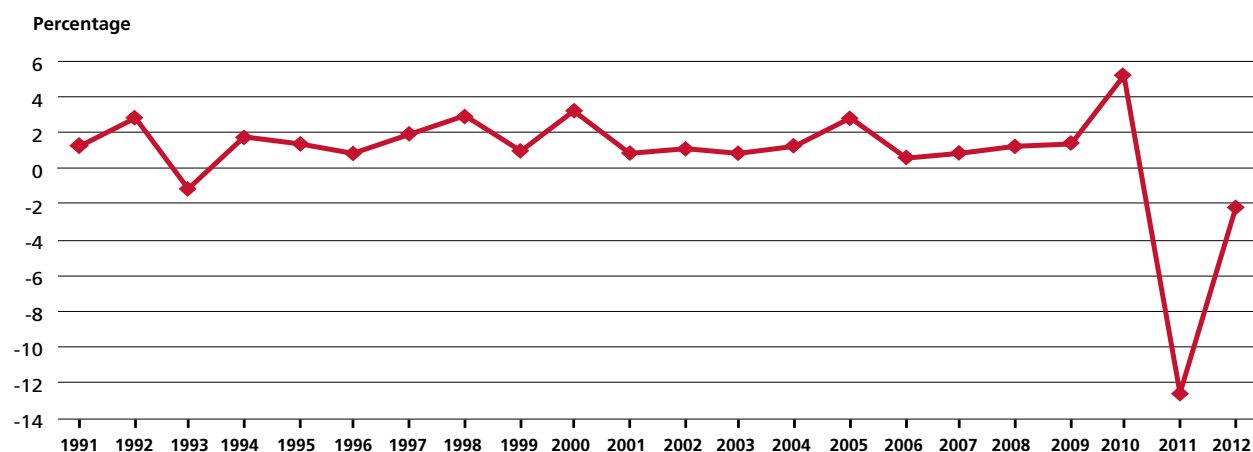
## Yemen

Yemen is one of the poorest countries in the world, with a Human Development Index ranking of 160 out of 187 countries. Progress in economic and social development over recent years has been slow, mainly as a result of the political crisis of 2011, ongoing instability and weak governance. The security situation is fragile and unpredictable, with conflict in the north, secessionists in the south and an increasing presence of militant groups, including Al-Qaeda.

Following the National Dialogue Conference, concluded in February 2014, Yemen currently has a transition government.<sup>79</sup> A draft Constitution is being prepared, and elections are planned for 2015. As a result of the conflict, GDP growth plummeted from 5.2 percent in 2010 to –12.6 percent in 2011. Since then, economic growth has recovered somewhat, but has not regained its pre-crisis levels (Figure 18).

FIGURE 18

Annual per capita GDP growth, Yemen, 1991–2012



Source: World Bank, *World Development Indicators*.





Conflict, economic downturn, low agricultural productivity, and poverty make Yemen one of the most food-insecure countries in the world. In 2012–14, 25.7 percent of the population was undernourished – just 3 percent less than in 1990–92 (28.9 percent) (Figure 19). The conflict has significantly worsened diet diversity. Inadequate diets, measured by WFP's food consumption score, increased by 41 percent between 2009 and 2011,<sup>80</sup> when 4.5 million people were severely food-insecure and 6 million moderately food-insecure.<sup>81</sup> According to the World Health Organization (WHO) classification of malnutrition severity, the prevalence of stunted children under five years of age remains critical, with 46.6 percent of children stunted or chronically malnourished.

The limited availability of land suitable for cultivation and water scarcity, caused by low and declining groundwater levels, affect food production, food security and rural incomes. Nearly two-thirds of the country's people depend on agriculture, and more than 90 percent of water is used for irrigation.<sup>82</sup> The narcotic leaf, qat, has become the preferred cash crop as it commands a high price on local markets; 40–50 percent of water for agriculture is used to irrigate qat.<sup>83</sup>

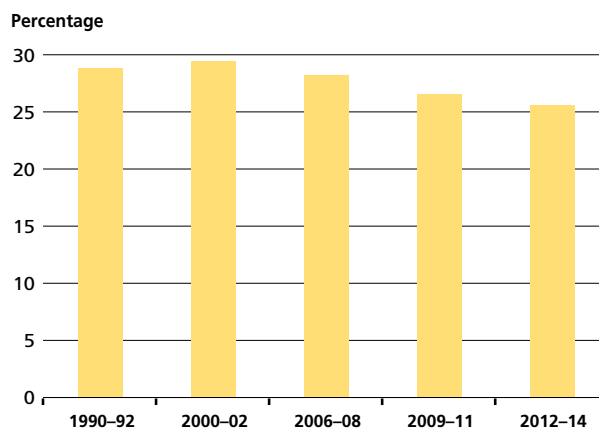
With an average value of food production amounting to US\$73 per capita in 2009–11, compared with an average of US\$247 in Western Asia, Yemen is highly dependent on food imports. About 90 percent of wheat and 100 percent of rice, the country's two main staples, are imported. Such high exposure to the international food market makes the country vulnerable to international food price surges. For example, between 2000–02 and 2008–10 – a period characterized by increasing world cereal prices – the share of merchandise export revenue used to buy food increased from 22 percent to 31 percent.<sup>84</sup> Most export revenue comes from oil; in 2010, more than 90 percent of foreign exchange earnings were from exports of oil and gas.<sup>85</sup>

Oil exports have been reduced by attacks on the pipelines that carry crude oil to the ports, resulting in lower foreign exchange earnings and limiting the funds available for importing essential commodities, including food and fuel. In the medium term, Yemen will face a significant food security threat, as its oil reserves are expected to be exhausted by 2017.<sup>86</sup> The price and availability of both food and water are closely linked to the cost of fuel, which has been heavily subsidized. However, subsidies are being removed, causing civil unrest and exacerbating the fragile security situation. Higher fuel prices will have a significant impact on food prices, not only by adding to transport costs but also through increasing the cost of irrigation, which is operated by water pumps and diesel electricity generators.

The government's priorities are to restore political security and economic stability and to enhance state building through the Transitional Programme for Stabilization and Development. To support the restoration of stability, the National Food Security Strategy (NFSS) aims to reduce the prevalence of food insecurity by one-third by 2015; to make 90 percent of the

FIGURE 19

Prevalence of undernourishment, Yemen, 1990–92 to 2012–14



Source: FAO.

population food-secure by 2020; and to reduce child malnutrition by at least one percentage point per year. To meet these goals, the NFSS action plan includes measures to decrease qat production and consumption, reduce Yemen's vulnerability to global food price shocks and natural disasters, promote the sustainable use of water, increase public investment, and improve the provision of services.

Central to the implementation of NFSS are the National Agriculture Sector Strategy and Investment Plan 2012–2016 and the National Water Sector Strategy and Investment Programme, which was initiated in 2004. In addition to reducing the cultivation of qat and increasing investments, the National Agriculture Sector Strategy and Investment Plan aims to enhance growth in domestic food productivity.<sup>87</sup> Efforts to fight poverty in rural areas, increase farm incomes and create more jobs are centred on measures to increase access to inputs – such as improved seed varieties for grains and oilseeds – and credit and to upgrade agricultural marketing.

Significant efforts are also planned to reduce food waste, conserve the environment and natural resources, mainly through water management, and activate community participation to ensure that growth is sustainable. Water is crucial for Yemen and its agricultural development. Through the National Water Sector Strategy, the transitional government focuses on promoting the sustainable use of water and balancing the water needs of various communities and sectors.

To reduce the country's vulnerability to international food price shocks, the government is discussing the possibility of establishing a strategic grain reserve. Such a reserve is considered vital for Yemen, which depends heavily on food imports to meet the consumption needs of its population. A strategic grain reserve linked to social protection and early





warning systems can facilitate the capacity to cope with food emergencies and protect the vulnerable. In addition, many economic activities and sectors, such as food and food processing, packaging and distribution, are dominated by small numbers of companies and actors, resulting in a lack of transparency.<sup>88</sup> To stimulate competition in the food trade, the Yemen Economic Corporation imports food, accounting for between 5 and 10 percent of the country's total cereal imports.

Tackling undernutrition is a significant challenge. The National Nutrition Strategy is a comprehensive multisector plan to reduce the high levels of undernutrition and improve the health of the population by 2020, and is closely linked to the nutrition objectives of NFSS. The strategy consists of systematic nutrition interventions at the household level, carried out by well-trained health workers and other stakeholders. Yemen joined the Scaling Up Nutrition (SUN) movement in 2012, and has established a SUN steering committee. However, the country still needs to adopt a far more integrated approach to coordinating programmes and aligning the overlapping objectives of food security and nutrition.

Social safety nets have been crucial for enhancing the country's food security and nutrition, with the Social Welfare Fund and the Social Fund for Development serving as the main mechanism for social protection. The Social Welfare Fund is an unconditional cash transfer programme funded largely by the government with international donor support. Coverage has expanded significantly from 100,000 beneficiary households in 1996 to more than 1 million in 2010, providing cash to half the country's poor.<sup>89</sup> However, lack of funds significantly limits the capacity of these two programmes to expand their coverage; the Social Welfare Fund has not made any payments to beneficiaries since January 2014.

Conflict and the economic downturn have made large-scale humanitarian assistance necessary, with the Yemen Humanitarian Response Plan providing life-saving interventions for vulnerable and displaced people. Overall, humanitarian assistance in Yemen has increased dramatically; in 2014, funding for the activities planned by humanitarian assistance partners to meet the most urgent needs amounted to US\$592 million, compared with US\$293 million in 2011.<sup>90</sup>

The Food Security Supreme Council, established in 2013, oversees implementation of NFSS and the National Agriculture Sector Strategy and Investment Plan. The Supreme Council, chaired by the Prime Minister, aims to strengthen coordination among government departments and to ensure a coherent approach to increasing food security. Its members include representatives from the Ministries of Agriculture and Irrigation, Social Affairs and Labour, Fisheries, Finance, Industry and Trade, Public Health and Population, Education, Water and Environment, and Transport, and the Central Statistical Organization. Participation of relevant stakeholders is ensured by the inclusion of high-level representatives from industry, the

Agricultural Cooperative Union, the Consumer Protection Association and the Yemen Economic Corporation.

The Supreme Council has a strategic function in food security governance in Yemen. It sets objectives and priorities, maps strategies and policies, approves food security projects and programmes, allocates funds for implementation, and takes action in response to emergency and disaster situations. Its technical secretariat, hosted by the Ministry of Planning and International Cooperation, assists with these functions, ensuring that all relevant authorities implement policies in a coordinated way and significantly contributing to enhancing the country's food security governance.

However, in spite of this food security governance architecture, weak commitment – caused mainly by political instability – and poor capacity in the civil service and monitoring systems hinder progress towards food security. Yemen's economy depends increasingly on international assistance, but continues to suffer from low capacity to absorb these resources. The Friends of Yemen, established in 2010 involving the foreign ministers of 39 countries, seeks to assist Yemen-led efforts to tackle the underlying causes of instability and to assist the political transition. With objectives that include directing international aid, increasing international awareness and sustaining international support, the Friends of Yemen pledged approximately US\$8 billion in aid in 2012.<sup>91</sup> At the request of donor countries, Yemen has established an executive bureau to coordinate international aid and facilitate the transfer of funds, which is often delayed by capacity constraints. Currently, the executive bureau is accountable for the effective and transparent use of international aid, while project planning and implementation are carried out by the relevant ministries.

Effective food security monitoring and sound analysis are crucial for formulating evidence-based policies. Although there are large information gaps in Yemen, comprehensive food security assessments – undertaken by WFP in 2009, 2011 and 2014 with support from FAO and UNICEF and the Central Statistical Organization – have provided vital information. Significant efforts have been made to establish the Humanitarian Early Warning Service (HEWS), provided by a global interagency partnership to support humanitarian emergency preparedness for multiple hazards. The Integrated Food Security Phase Classification (IPC) is being piloted, and the Famine Early Warning Systems Network (FEWSNET) plans to establish a monitoring mechanism in 2014.

Yemen's economic growth prospects have been set back by conflict and political instability. Low agricultural productivity contributes significantly to poverty, as nearly two-thirds of the country's people depend on agriculture for their livelihoods. Currently, about 5 million people depend on food assistance. Owing to the political crisis, implementation of NFSS, developed in response to the 2008 global food price surge, has only recently started. NFSS, the National Agriculture Sector Strategy and Investment Plan and the National Water Sector Strategy are currently being



revitalized, with new institutional mechanisms to facilitate implementation across a wide range of ministries.

The success of these mechanisms depends largely on political developments, restitution of the rule of law and significant improvements in the capacity of implementing institutions. To end hunger, political commitment is crucial. The National Dialogue Conference, which resulted in the

transitional government, has underlined the need to recognize the right to food as a constitutional human right, supported by appropriate laws. Through the newly created Ministry of Human Rights, the government is making progress in achieving consensus on this right as a step towards developing the necessary legal and institutional framework to underpin the formulation and implementation of food security policies.

## Key findings

**Food insecurity and malnutrition are the result of a complex interplay of factors. Hunger and hidden hunger (micronutrient deficiencies) deprive people of the most valuable resource they own: the energy and skill to work productively. Civil unrest and conflict, natural disasters, extreme weather events and economic crises complicate efforts to effectively deal with extreme poverty, food insecurity and malnutrition.**

Creating an enabling environment for food security and nutrition is key to eradicating hunger; it entails sharpening the focus of policies and programmes and of stakeholders on food security and nutrition.

- Sustained political commitment at the highest level is a prerequisite to hunger eradication, as in Malawi where political will was crucial. It entails placing food security and nutrition at the top of the political agenda, and facilitates implementation of necessary policies, programmes and institutional reforms, including to maintain peace and stability and to reduce vulnerability.
- Social participation and involvement of a wide range of stakeholders in policy processes are crucial. Strong democratic principles and effective inclusion of all stakeholders in the formulation and implementation of food security and nutrition policies at various levels, as in Brazil, can ensure that even politically weak groups have voice, resulting in more equitable policies that better address the needs of the vulnerable.
- Legal frameworks contribute by helping to ensure that government, civil society and formal and informal groups work together responsibly. However, political crises often render crucial institutions and processes less effective, compromising efforts to improve food security and nutrition outcomes.
- A coherent approach must ensure complementarities among agriculture, food, economic, health, environmental, education and other relevant sectors, e.g. for more coordinated and effective public investments.
- Better coordination and governance mechanisms are essential, and require strong political support at the highest level, a clear mandate, broad inclusion and well-defined roles and responsibilities, as in Bolivia. Countries have sometimes put in place redundant, incoherent or even contradictory food security and nutrition programmes and policies, designed and implemented by different ministries and agencies. In such circumstances, actions become highly fragmented as responsibility and accountability are diffused among many bodies, each with its own mandate and policy objectives.
- Policies and programmes are most effective when based on sound analysis and using appropriate, accessible and inclusive information systems. The integrated use of demonstrably effective policy tools and instruments promoted agricultural and rural development, food security and nutrition through: public and private investments to raise agricultural productivity; better access to inputs, land, services, technologies and markets; measures to promote rural development; social protection for the most vulnerable, including strengthening their resilience to shocks and natural hazards; and specific nutrition programmes, especially to address micronutrient deficiencies in mothers and children under five.

**TABLE A1**

 Prevalence of undernourishment and progress towards the World Food Summit (WFS)<sup>1</sup> and the Millennium Development Goal (MDG)<sup>2</sup> targets in developing regions

Regions/subregions/countries	Number of people undernourished							Proportion of undernourished in total population						
	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards WFS target <sup>5</sup>	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards MDG target <sup>5</sup>
	(millions)					(%)		(%)						
<b>WORLD</b>	<b>1 014.5</b>	<b>929.9</b>	<b>946.2</b>	<b>840.5</b>	<b>805.3</b>	<b>-20.6</b>		<b>18.7</b>	<b>14.9</b>	<b>14.3</b>	<b>12.1</b>	<b>11.3</b>	<b>-39.6</b>	
Developed regions	20.4	21.1	15.4	15.7	14.6	-28.4		<5.0	<5.0	<5.0	<5.0	<5.0	na	
Developing regions	994.1	908.7	930.8	824.9	790.7	-20.5	◀▶	23.4	18.2	17.3	14.5	13.5	-42.4	■
Least-developed countries <sup>6</sup>	209.3	243.4	237.6	237.8	246.7	17.8	▲	40.0	36.4	31.4	28.6	27.5	-31.3	■
Landlocked developing countries <sup>7</sup>	94.6	112.4	105.9	102.4	106.9	13.0	▲	35.7	33.6	28.3	25.0	23.7	-33.6	■
Small island developing states <sup>8</sup>	10.2	10.7	10.9	10.0	10.0	-2.3	◀▶	24.5	22.5	21.4	18.8	18.1	-26.0	■
Low-income economies <sup>9</sup>	199.4	237.4	231.4	232.8	244.0	22.4	▲	39.2	36.4	31.7	29.3	28.4	-27.7	■
Lower-middle-income economies <sup>10</sup>	408.3	374.9	421.3	357.7	348.6	-14.6	◀▶	22.9	17.5	18.2	14.4	13.7	-40.3	■
Low-income food-deficit countries <sup>11</sup>	461.1	468.5	514.5	471.7	481.8	4.5	▲	27.6	22.8	22.8	19.4	18.9	-31.7	■
<b>FAO regions</b>														
Africa <sup>12</sup>	176.0	202.5	205.3	211.2	214.1	21.6	▲	33.3	29.8	26.5	24.4	23.8	-28.5	■
Asia and the Pacific <sup>13</sup>	727.1	618.3	648.5	543.8	504.6	-30.6	◀▶	24.4	18.0	17.8	14.3	12.9	-47.0	■
Europe and Central Asia <sup>14</sup>	9.9	11.5	8.9	7.7	6.3	-36.8	◀▶	8.0	8.5	6.2	5.1	<5.0	na	*
Latin America and the Caribbean <sup>15</sup>	68.4	61.0	49.2	41.5	37.0	-45.9	◀▶	15.3	11.5	8.7	7.0	6.1	-60.3	*
Near East and North Africa <sup>16</sup>	16.5	23.0	26.7	26.9	32.8	98.6	▲	6.6	7.5	7.9	7.3	7.7	17.8	■
<b>AFRICA</b>	<b>182.1</b>	<b>209.0</b>	<b>211.8</b>	<b>216.8</b>	<b>226.7</b>	<b>24.5</b>	<b>▲</b>	<b>27.7</b>	<b>25.2</b>	<b>22.6</b>	<b>20.9</b>	<b>20.5</b>	<b>-26.1</b>	<b>■</b>
<b>Northern Africa<sup>17</sup></b>	<b>6.0</b>	<b>6.5</b>	<b>6.4</b>	<b>5.6</b>	<b>12.6</b>	<b>na</b>	<b>na</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>6.0</b>	<b>na</b>	<b>na</b>
Algeria	2.1	2.7	2.4	1.9	ns	>-50.0	◀▶	7.7	8.4	6.8	5.1	<5.0	na	*
Egypt	ns	ns	ns	ns	ns	>-50.0	◀▶	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Morocco	1.5	1.9	1.7	1.7	ns	>0.0	▲	5.9	6.6	5.5	5.3	<5.0	na	*
Tunisia	ns	ns	ns	ns	ns	>0.0	▲	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
<b>Sub-Saharan Africa<sup>18</sup></b>	<b>176.0</b>	<b>202.5</b>	<b>205.3</b>	<b>211.2</b>	<b>214.1</b>	<b>21.6</b>	<b>▲</b>	<b>33.3</b>	<b>29.8</b>	<b>26.5</b>	<b>24.4</b>	<b>23.8</b>	<b>-28.5</b>	<b>■</b>
Angola	6.8	7.0	5.3	4.1	3.9	-42.9	◀▶	63.3	48.8	31.2	20.9	18.0	-71.6	*
Benin	1.5	1.6	1.3	1.2	1.0	-31.5	◀▶	28.1	22.4	15.1	12.4	9.7	-65.6	*
Botswana	0.4	0.6	0.6	0.6	0.5	50.4	▲	25.1	36.0	32.2	30.4	26.6	6.0	■
Burkina Faso	2.4	3.3	3.5	3.5	3.5	49.2	▲	26.0	27.6	25.4	22.6	20.7	-20.2	■
Cameroon	4.7	5.0	3.9	2.8	2.3	-50.4	*	37.8	30.8	21.0	13.5	10.5	-72.3	*
Cabo Verde	<0.1	<0.1	<0.1	<0.1	<0.1	-15.3	◀▶	16.1	19.3	14.2	12.3	9.9	-38.9	■
Central African Republic	1.4	1.6	1.6	1.5	1.7	23.3	▲	47.3	42.9	40.7	34.4	37.6	-20.4	■
Chad	3.6	3.5	4.1	4.9	4.5	23.1	▲	59.1	40.1	39.9	41.5	34.8	-41.1	■
Congo	1.1	1.0	1.2	1.4	1.4	32.5	▲	43.2	32.0	33.2	33.6	31.5	-27.1	■
Côte d'Ivoire	1.3	2.7	2.5	2.8	3.0	123.3	▲	10.6	16.2	14.1	14.6	14.7	37.7	■
Djibouti	0.5	0.4	0.3	0.2	0.2	-64.0	*	74.8	48.9	33.0	23.1	18.9	-74.8	*
Ethiopia	37.2	37.4	34.7	33.2	32.9	-11.6	◀▶	74.8	55.0	44.3	38.1	35.0	-53.3	*
Gabon	0.1	ns	ns	ns	ns	>-50.0	◀▶	11.7	<5.0	<5.0	<5.0	<5.0	na	*

**TABLE A1**Prevalence of undernourishment and progress towards the World Food Summit (WFS)<sup>1</sup> and the Millennium Development Goal (MDG)<sup>2</sup> targets in developing regions

Regions/subregions/countries	Number of people undernourished							Proportion of undernourished in total population						
	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards WFS target <sup>5</sup>	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards MDG target <sup>5</sup>
	(millions)					(%)		(%)						
Gambia	0.1	0.2	0.2	0.1	0.1	-11.3	◀▶	13.3	13.0	14.9	8.8	6.0	-54.5	*
Ghana	7.1	3.1	2.3	1.5	ns	<-50.0	*	47.3	15.9	10.5	6.0	<5.0	na	*
Guinea	1.5	2.3	2.1	2.0	2.1	43.8	▲	23.2	26.1	21.4	18.4	18.1	-22.0	■
Guinea-Bissau	0.2	0.3	0.4	0.4	0.3	25.3	▲	23.1	26.6	25.7	23.1	17.7	-23.5	■
Kenya	8.0	10.3	10.3	10.1	10.8	34.5	▲	33.0	32.0	27.9	24.7	24.3	-26.5	■
Lesotho	0.3	0.2	0.2	0.2	0.2	-6.1	◀▶	15.6	12.3	10.8	11.3	11.5	-26.2	■
Liberia	0.6	1.1	1.2	1.2	1.3	112.2	▲	29.0	37.2	34.9	29.9	29.6	2.1	■
Madagascar	3.2	5.8	6.6	6.6	7.0	115.6	▲	27.3	35.6	35.0	31.5	30.5	11.9	■
Malawi	4.3	3.1	3.5	3.4	3.6	-17.1	◀▶	44.7	27.0	26.4	22.4	21.8	-51.3	*
Mali	1.4	1.3	1.1	ns	ns	<-50.0	*	16.7	12.6	9.1	<5.0	<5.0	na	*
Mauritania	0.3	0.3	0.4	0.3	0.3	-17.3	◀▶	14.6	11.2	10.8	7.4	6.5	-55.7	*
Mauritius	<0.1	<0.1	<0.1	ns	ns	>-50.0	◀▶	8.1	6.7	5.4	<5.0	<5.0	na	*
Mozambique	7.7	7.8	7.8	7.5	7.2	-6.7	◀▶	55.4	41.2	36.2	31.2	27.9	-49.7	■
Namibia	0.5	0.5	0.5	0.8	0.9	63.3	▲	35.9	27.3	26.0	37.6	37.2	3.8	■
Niger	2.2	2.3	2.0	1.8	2.0	-9.4	◀▶	27.7	20.5	14.4	11.0	11.3	-59.3	*
Nigeria	20.9	11.2	9.2	8.9	11.2	-46.4	◀▶	21.3	8.9	6.4	5.5	6.4	-69.7	*
Rwanda	3.8	4.7	4.5	4.0	4.0	3.7	▲	55.6	54.3	46.3	37.2	33.8	-39.2	■
Sao Tome and Principe	<0.1	<0.1	<0.1	<0.1	<0.1	-52.0	*	22.9	17.9	10.0	7.8	6.8	-70.1	*
Senegal	1.9	2.9	2.4	1.8	2.4	24.1	▲	24.5	28.2	21.1	13.9	16.7	-32.0	■
Sierra Leone	1.7	1.7	2.0	1.8	1.6	-10.2	◀▶	42.8	40.2	37.4	31.0	25.5	-40.4	■
South Africa	ns	ns	ns	ns	ns	>-50.0	◀▶	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Sudan (former) <sup>19</sup>	10.6	9.6	10.2	11.4	na	na		40.0	27.2	25.0	24.3	na	na	
Swaziland	0.1	0.2	0.2	0.3	0.3	131.8	▲	15.9	19.2	17.4	23.6	26.1	64.3	■
Togo	1.5	1.4	1.4	1.3	1.0	-29.0	◀▶	37.9	28.7	24.2	20.5	15.3	-59.5	*
Uganda	4.2	7.1	6.6	8.5	9.7	129.9	▲	23.2	28.1	22.2	24.9	25.7	11.1	■
United Republic of Tanzania	6.4	13.0	13.9	15.9	17.0	167.6	▲	24.2	37.3	34.8	35.4	34.6	43.1	■
Zambia	2.7	4.7	6.0	6.8	7.0	160.7	▲	33.5	45.0	50.5	51.2	48.3	44.0	■
Zimbabwe	4.6	5.5	5.1	4.5	4.5	-2.2	◀▶	43.0	43.4	39.8	34.5	31.8	-25.9	■
<b>ASIA</b>	<b>742.6</b>	<b>637.5</b>	<b>668.6</b>	<b>565.3</b>	<b>525.6</b>	<b>-29.2</b>	<b>◀▶</b>	<b>23.7</b>	<b>17.6</b>	<b>17.4</b>	<b>14.1</b>	<b>12.7</b>	<b>-46.5</b>	<b>■</b>
<b>Caucasus and Central Asia</b>	<b>9.6</b>	<b>10.9</b>	<b>8.5</b>	<b>7.4</b>	<b>6.0</b>	<b>-37.3</b>	<b>◀▶</b>	<b>14.1</b>	<b>15.3</b>	<b>11.3</b>	<b>9.5</b>	<b>7.4</b>	<b>-47.4</b>	<b>■</b>
Armenia	0.9	0.7	0.2	0.2	0.2	-81.0	*	27.3	23.0	8.2	6.5	5.7	-79.0	*
Azerbaijan	1.8	1.4	ns	ns	ns	<-50.0	*	23.6	17.1	<5.0	<5.0	<5.0	na	*
Georgia	3.0	0.8	0.3	0.4	0.4	-85.9	*	56.5	16.3	6.0	9.0	9.8	-82.6	*
Kazakhstan	ns	ns	0.8	ns	ns	>-50.0	◀▶	<5.0	<5.0	5.0	<5.0	<5.0	na	*
Kyrgyzstan	0.7	0.8	0.5	0.4	0.3	-54.3	*	16.0	16.7	9.4	7.9	6.0	-62.6	*
Tajikistan	1.6	2.5	2.8	2.9	2.7	65.9	▲	28.1	39.5	40.5	37.4	32.3	15.2	■

TABLE A1

Prevalence of undernourishment and progress towards the World Food Summit (WFS)<sup>1</sup> and the Millennium Development Goal (MDG)<sup>2</sup> targets in developing regions

Regions/subregions/countries	Number of people undernourished							Proportion of undernourished in total population						
	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards WFS target <sup>5</sup>	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards MDG target <sup>5</sup>
	(millions)					(%)		(%)						
Turkmenistan	0.4	0.4	0.2	ns	ns	<-50.0	*	8.6	8.4	5.1	<5.0	<5.0	na	*
Uzbekistan	ns	3.6	3.3	2.5	1.7	134.7	▲	<5.0	14.4	12.6	9.1	5.8	74.6	■
<b>Eastern Asia</b>	<b>295.2</b>	<b>222.2</b>	<b>218.4</b>	<b>185.8</b>	<b>161.2</b>	<b>-45.4</b>	◀▶	<b>23.2</b>	<b>16.0</b>	<b>15.3</b>	<b>12.7</b>	<b>10.8</b>	<b>-53.4</b>	*
<b>Eastern Asia (excluding China)</b>	<b>6.4</b>	<b>10.4</b>	<b>10.3</b>	<b>11.6</b>	<b>10.4</b>	<b>63.2</b>	▲	<b>9.6</b>	<b>14.6</b>	<b>13.9</b>	<b>15.3</b>	<b>13.5</b>	<b>40.1</b>	■
China	288.9	211.7	208.2	174.2	150.8	-47.8	▼	23.9	16.1	15.3	12.5	10.6	-55.4	*
Democratic People's Republic of Korea	4.8	8.7	8.5	10.2	9.3	94.8	▲	23.3	37.7	35.5	41.7	37.5	60.5	■
Mongolia	0.7	0.9	0.9	0.7	0.6	-4.0	◀▶	29.9	36.1	34.0	25.9	22.4	-25.1	■
Republic of Korea	ns	ns	ns	ns	ns	<-50.0	*	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
<b>Southern Asia</b>	<b>291.7</b>	<b>272.9</b>	<b>321.4</b>	<b>274.5</b>	<b>276.4</b>	<b>-5.2</b>	◀▶	<b>24.0</b>	<b>18.5</b>	<b>20.2</b>	<b>16.3</b>	<b>15.8</b>	<b>-34.0</b>	■
<b>Southern Asia (excluding India)</b>	<b>81.0</b>	<b>86.7</b>	<b>85.8</b>	<b>84.1</b>	<b>85.8</b>	<b>5.9</b>	▲	<b>24.5</b>	<b>21.0</b>	<b>19.1</b>	<b>17.7</b>	<b>17.3</b>	<b>-29.4</b>	■
Afghanistan	3.8	10.0	8.3	7.1	7.5	100.8	▲	29.5	46.7	32.4	24.8	24.7	-16.4	■
Bangladesh	36.0	27.7	24.3	26.0	26.2	-27.3	◀▶	32.8	20.6	16.8	17.2	16.7	-50.0	*
India	210.8	186.2	235.7	190.4	190.7	-9.5	◀▶	23.8	17.6	20.6	15.8	15.2	-36.0	■
Iran (Islamic Republic of)	2.9	3.8	4.7	4.7	ns	>0.0	▲	5.1	5.6	6.6	6.4	<5.0	na	*
Maldives	<0.1	<0.1	<0.1	<0.1	<0.1	-22.3	◀▶	12.3	11.9	15.3	9.8	6.2	-50.1	*
Nepal	4.2	5.2	4.4	3.3	3.6	-14.4	◀▶	22.6	22.1	17.2	12.4	13.0	-42.8	■
Pakistan	28.7	34.3	38.2	37.6	39.6	37.9	▲	25.1	23.4	23.7	21.7	21.7	-13.5	■
Sri Lanka	5.4	5.6	5.9	5.4	5.2	-2.6	◀▶	30.6	29.6	29.1	25.9	24.6	-19.8	■
<b>South-Eastern Asia</b>	<b>138.0</b>	<b>117.7</b>	<b>103.3</b>	<b>79.3</b>	<b>63.5</b>	<b>-54.0</b>	*	<b>30.7</b>	<b>22.3</b>	<b>18.3</b>	<b>13.4</b>	<b>10.3</b>	<b>-66.3</b>	*
Brunei Darussalam	ns	ns	ns	ns	ns	>0.0	▲	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Cambodia	3.0	3.6	2.7	2.4	2.4	-19.2	◀▶	32.1	28.5	19.6	17.0	16.1	-50.0	*
Indonesia	35.9	38.3	42.7	32.3	21.6	-39.8	◀▶	19.7	18.1	18.7	13.4	8.7	-56.2	*
Lao People's Democratic Republic	1.9	2.1	1.6	1.5	1.5	-21.1	◀▶	42.8	37.9	26.9	23.3	21.8	-49.1	■
Malaysia	1.0	ns	ns	ns	ns	>0.0	▲	5.1	<5.0	<5.0	<5.0	<5.0	na	*
Myanmar	26.8	24.3	17.1	10.5	8.9	-66.8	*	62.6	49.7	33.8	20.3	16.7	-73.4	*
Philippines	16.7	16.0	14.3	11.8	11.3	-32.2	◀▶	26.3	20.2	16.4	12.6	11.5	-56.3	*
Thailand	20.4	11.6	7.7	6.1	4.6	-77.6	*	35.7	18.5	11.7	9.2	6.8	-80.9	*
Timor-Leste	0.4	0.4	0.3	0.3	0.3	-7.1	◀▶	45.2	41.6	34.0	32.1	28.8	-36.2	■
Viet Nam	32.1	20.8	15.9	13.2	11.9	-63.1	*	45.6	25.4	18.6	14.8	12.9	-71.7	*
<b>Western Asia<sup>20</sup></b>	<b>8.0</b>	<b>13.8</b>	<b>17.0</b>	<b>18.3</b>	<b>18.5</b>	<b>132.0</b>	▲	<b>6.3</b>	<b>8.6</b>	<b>9.3</b>	<b>9.1</b>	<b>8.7</b>	<b>38.6</b>	■
Iraq	1.4	5.8	7.3	7.8	7.9	460.6	▲	7.9	23.5	26.0	25.2	23.5	199.2	■
Jordan	0.2	0.3	ns	ns	ns	>-50.0	◀▶	5.5	6.0	<5.0	<5.0	<5.0	na	*
Kuwait	0.8	ns	ns	ns	ns	<-50.0	*	39.5	<5.0	<5.0	<5.0	<5.0	na	*
Lebanon	ns	ns	ns	ns	ns	>0.0	▲	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Saudi Arabia	ns	ns	ns	ns	ns	>-50.0	◀▶	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Turkey	ns	ns	ns	ns	ns	>-50.0	◀▶	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
United Arab Emirates	ns	ns	ns	ns	ns	>0.0	▲	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Yemen	3.6	5.3	6.1	6.1	6.3	75.0	▲	28.9	29.5	29.6	26.6	25.7	-11.1	■

**TABLE A1**Prevalence of undernourishment and progress towards the World Food Summit (WFS)<sup>1</sup> and the Millennium Development Goal (MDG)<sup>2</sup> targets in developing regions

Regions/subregions/countries	Number of people undernourished							Proportion of undernourished in total population						
	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards WFS target <sup>5</sup>	1990-92	2000-02	2005-07	2009-11	2012-14 <sup>3</sup>	Change so far <sup>4</sup>	Progress towards MDG target <sup>5</sup>
	(millions)					(%)		(%)						
<b>LATIN AMERICA AND THE CARIBBEAN</b>	<b>68.5</b>	<b>61.0</b>	<b>49.2</b>	<b>41.5</b>	<b>37.0</b>	<b>-45.9</b>	◀▶	<b>15.3</b>	<b>11.5</b>	<b>8.7</b>	<b>7.0</b>	<b>6.1</b>	<b>-60.3</b>	*
<b>Caribbean<sup>21</sup></b>	<b>8.1</b>	<b>8.2</b>	<b>8.4</b>	<b>7.6</b>	<b>7.5</b>	<b>-7.6</b>	◀▶	<b>27.0</b>	<b>24.4</b>	<b>23.7</b>	<b>20.7</b>	<b>20.1</b>	<b>-25.7</b>	■
Barbados	ns	<0.1	<0.1	ns	ns	>0.0	▲	<5.0	5.2	6.7	<5.0	<5.0	na	*
Cuba	0.6	ns	ns	ns	ns	<-50.0	*	5.7	<5.0	<5.0	<5.0	<5.0	na	*
Dominican Republic	2.5	2.5	2.3	1.8	1.5	-39.7	◀▶	34.4	28.5	24.5	18.2	14.7	-57.2	*
Haiti	4.4	4.8	5.4	5.0	5.3	20.5	▲	61.1	55.2	57.3	50.5	51.8	-15.3	■
Jamaica	0.2	0.2	0.2	0.2	0.2	-11.1	◀▶	10.4	7.3	7.0	7.9	7.9	-24.0	■
Saint Vincent and the Grenadines	<0.1	<0.1	<0.1	<0.1	<0.1	-72.1	*	20.7	16.8	9.2	6.8	5.7	-72.5	*
Trinidad and Tobago	0.2	0.2	0.2	0.1	0.1	-22.5	◀▶	12.6	11.9	11.7	10.2	9.0	-29.0	■
<b>Latin America</b>	<b>60.3</b>	<b>52.7</b>	<b>40.8</b>	<b>33.9</b>	<b>29.5</b>	<b>-51.1</b>	*	<b>14.4</b>	<b>10.7</b>	<b>7.7</b>	<b>6.1</b>	<b>5.1</b>	<b>-64.3</b>	*
Argentina	ns	ns	ns	ns	ns	>-50.0	▼	<5.0	<5.0	<5.0	<5.0	<5.0	na	*
Belize	<0.1	<0.1	ns	<0.1	<0.1	15.7	▲	9.7	5.9	<5.0	5.9	6.5	-33.3	■
Bolivia (Plurinational State of)	2.6	2.8	2.8	2.7	2.1	-21.3	◀▶	38.0	32.8	29.6	26.9	19.5	-48.7	■
Brazil	22.5	19.0	ns	ns	ns	<-50.0	*	14.8	10.7	<5.0	<5.0	<5.0	na	*
Chile	1.2	ns	ns	ns	ns	<-50.0	*	9.0	<5.0	<5.0	<5.0	<5.0	na	*
Colombia	7.3	5.4	6.1	7.1	5.5	-25.1	◀▶	21.6	13.4	14.0	15.3	11.4	-47.3	■
Costa Rica	0.2	0.2	0.2	0.2	0.3	75.3	▲	5.2	5.1	5.6	5.3	5.9	13.5	■
Ecuador	2.0	2.4	2.6	2.1	1.8	-12.2	◀▶	19.4	18.6	18.7	14.2	11.2	-42.2	■
El Salvador	0.9	0.6	0.7	0.7	0.9	-2.6	◀▶	16.2	10.6	10.7	12.0	13.5	-16.6	■
Guatemala	1.4	2.3	2.0	2.1	2.2	63.6	▲	14.9	20.2	15.7	14.7	14.3	-3.8	■
Guyana	0.2	<0.1	<0.1	<0.1	<0.1	-51.4	*	22.8	9.7	10.4	11.9	10.0	-56.0	*
Honduras	1.2	1.2	1.2	1.1	1.0	-15.4	◀▶	23.0	18.5	16.4	14.9	12.1	-47.3	■
Mexico	6.0	ns	ns	ns	ns	>-50.0	◀▶	6.9	<5.0	<5.0	<5.0	<5.0	na	*
Nicaragua	2.3	1.6	1.3	1.2	1.0	-55.7	*	54.4	31.3	23.2	20.3	16.8	-69.1	*
Panama	0.7	0.9	0.8	0.5	0.4	-39.2	◀▶	26.4	27.6	23.0	14.8	10.6	-60.0	*
Paraguay	0.9	0.7	0.7	0.7	0.7	-12.0	◀▶	19.5	12.9	10.9	10.4	11.0	-43.6	■
Peru	7.0	5.4	5.3	3.6	2.7	-62.2	*	31.6	20.6	18.9	12.3	8.7	-72.3	*
Suriname	<0.1	<0.1	<0.1	<0.1	<0.1	-29.0	◀▶	15.5	13.9	11.5	8.7	8.4	-45.7	■
Uruguay	0.3	ns	ns	ns	ns	<-50.0	*	8.5	<5.0	<5.0	<5.0	<5.0	na	*
Venezuela (Bolivarian Republic of)	2.8	3.8	2.4	ns	ns	<-50.0	*	14.1	15.4	9.0	<5.0	<5.0	na	*
<b>OCEANIA<sup>22</sup></b>	<b>1.0</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>	<b>1.4</b>	<b>43.7</b>	▲	<b>15.7</b>	<b>16.5</b>	<b>15.4</b>	<b>13.5</b>	<b>14.0</b>	<b>-11.2</b>	■
Fiji	<0.1	ns	ns	ns	ns	>-50.0	◀▶	6.6	<5.0	<5.0	<5.0	<5.0	na	*
Kiribati	<0.1	ns	ns	ns	ns	>-50.0	◀▶	7.5	<5.0	<5.0	<5.0	<5.0	na	*
Samoa	<0.1	<0.1	ns	ns	ns	<-50.0	*	10.7	5.2	<5.0	<5.0	<5.0	na	*
Solomon Islands	<0.1	<0.1	<0.1	<0.1	<0.1	-12.2	◀▶	24.8	15.0	12.0	10.9	12.5	-49.8	■
Vanuatu	<0.1	<0.1	<0.1	<0.1	<0.1	8.1	▲	11.2	8.2	7.0	6.0	7.2	-35.5	■

## Progress on food security indicators in the developing world

### Suite of food security indicators

FIGURE A2.1

The suite of food security indicators, 2014

FOOD SECURITY INDICATORS	DIMENSION
Average dietary energy supply adequacy Average value of food production	AVAILABILITY
Share of dietary energy supply derived from cereals, roots and tubers Average protein supply Average supply of protein of animal origin	
Percentage of paved roads over total roads Road density Rail lines density	
Gross domestic product per capita (in purchasing power equivalents) Domestic food price index	
Prevalence of undernourishment Share of food expenditure of the poor* Depth of the food deficit* Prevalence of food inadequacy*	ACCESS
Cereal import dependency ratio Percent of arable land equipped for irrigation Value of food imports over total merchandise exports	STABILITY
Political stability and absence of violence/terrorism Domestic food price volatility Per capita food production variability* Per capita food supply variability	
Access to improved water sources Access to improved sanitation facilities	
Percentage of children under 5 years of age affected by wasting Percentage of children under 5 years of age who are stunted Percentage of children under 5 years of age who are underweight Percentage of adults who are underweight* Prevalence of anaemia among pregnant women* Prevalence of anaemia among children under 5 years of age* Prevalence of vitamin A deficiency in the population* Prevalence of iodine deficiency in the population*	UTILIZATION

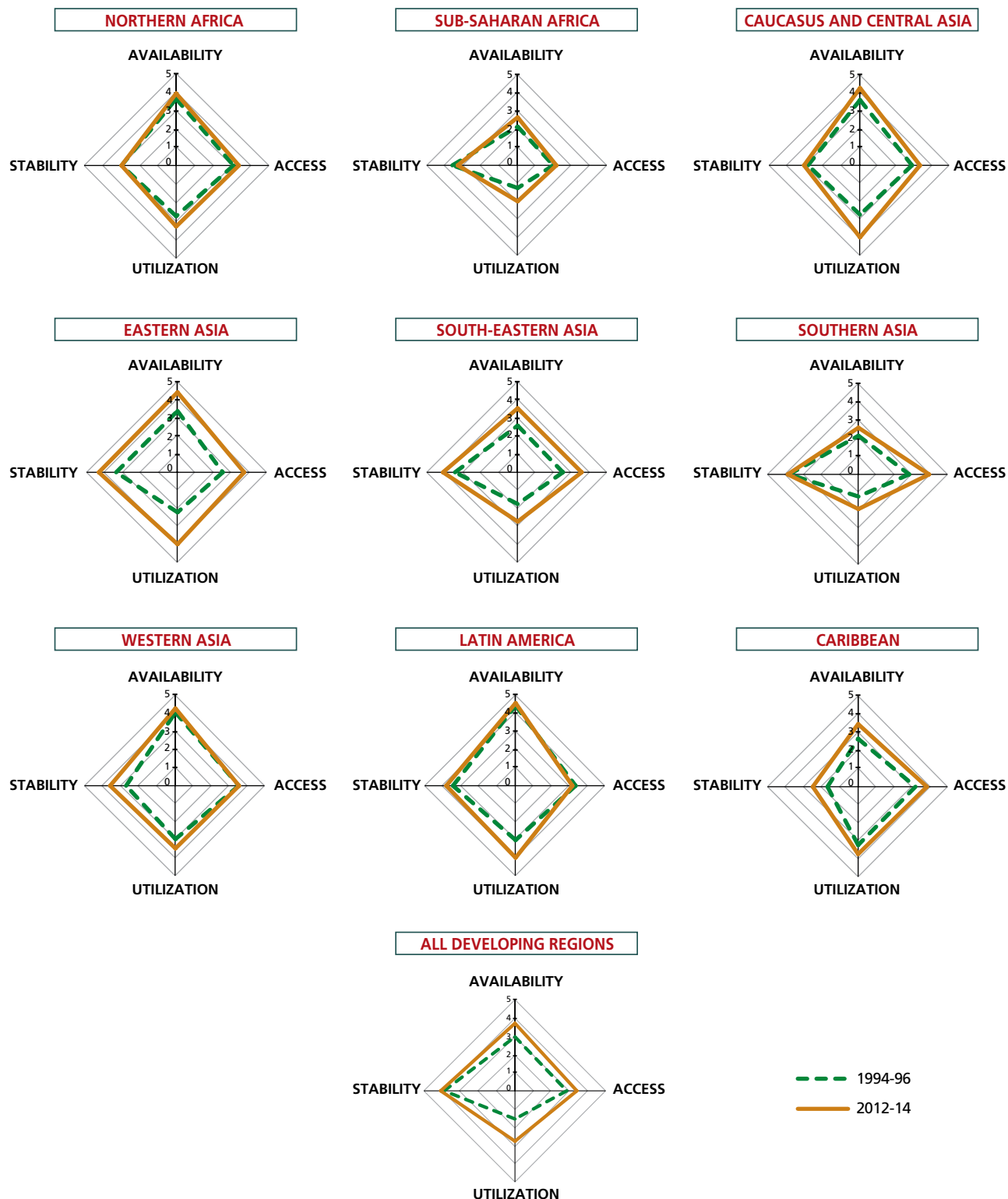
\*Indicator not included in the corresponding dimensional index.  
 Source: FAO.



## Dimensions of food security

FIGURE A2.2

Evolution of food security dimensions in the developing regions



Source: FAO.

## Prevalence of undernourishment indicator

The FAO prevalence of undernourishment (PoU) indicator monitors progress towards Millennium Development Goal target 1C of halving, between 1990 and 2015, the *proportion* of people suffering from hunger.<sup>92</sup> Estimates of the number of undernourished (NoU) – calculated by multiplying the PoU by the size of the reference population – are used to monitor progress towards the World Food Summit goal of reducing by half the *number* of people suffering from undernourishment.<sup>93</sup>

The PoU indicator measures the probability that a randomly selected individual from the reference population is found to consume less than his/her calorie requirement for an active and healthy life. It is written as:

$$PoU \equiv \int_{x < MDER} f(x) dx$$

where  $f(x)$  is the probability density function of per capita calorie consumption. The probability distribution used to infer the habitual levels of dietary energy consumption in a population,  $f(x)$ , refers to a typical level of daily energy consumption during a year. As such,  $f(x)$  does not reflect the possible implications of insufficient food consumption levels that may prevail over shorter periods. The probability distribution  $f(x)$  and the minimum dietary energy requirement (MDER) are associated with a representative individual of the population, of average age, sex, stature and physical activity level.

Estimating the PoU requires the identification of a functional form for  $f(x)$ , chosen from a parametric family. The parameters that characterize  $f(x)$  are the mean level of per capita dietary energy consumption (DEC) in calories; the MDER; the coefficient of variation (CV) as a parameter accounting for inequality in food consumption; and a skewness (SK) parameter accounting for asymmetry in the distribution.

To implement this methodology it is necessary to: (i) choose a functional form for the distribution of food consumption  $f(x)$ ; (ii) identify values for the three parameters, that is, for mean food consumption (DEC), its variability (CV) and its asymmetry (SK); and (iii) compute the MDER threshold.

### ■ The choice of a functional form for the distribution

Starting from the Sixth World Food Survey in 1996,<sup>94</sup> the distribution was assumed to be lognormal. This model is very convenient for analytical purposes, but has limited flexibility, especially in capturing the skewness of the distribution.

As part of the revisions made for the 2012 edition *The State of Food Insecurity in the World*, the methodology moved away from the exclusive use of the two-parameter lognormal distribution to adopt the more flexible three-parameter skew-normal and skew-lognormal families.<sup>95</sup> The flexibility gained from the additional parameter allows for independent characterization of the asymmetry of the distribution.

As a further refinement, the data themselves are used in this report to inform the decision regarding the appropriate distributional form. In this way, the empirical skewness from

the distribution of per capita calorie consumption derived from national household surveys (NHS)<sup>96</sup> is applied as a selection criterion. Using the skewness implied by the lognormal as an upper limit for the level of asymmetry, the skew-lognormal, which embeds the lognormal as a special case, is used as an intermediate step to the skew-normal distribution, which itself is a more general form of the normal distribution. The resulting model makes it possible to account for reductions in inequality of food consumption, such as those made by targeted food intervention programmes, ensuring a smooth transition towards a distribution in which food consumption is symmetric.

### ■ Estimating and projecting mean food consumption

To compute per capita DEC in a country, FAO has traditionally relied on food balance sheets, which are available for more than 180 countries. In most countries this choice was due mainly to the lack of suitable surveys conducted regularly. Through data on production, trade and utilization of food commodities, the total amount of dietary energy available for human consumption in a country for a one-year period is derived using food composition data, allowing computation of an estimate of per capita dietary energy supply.

During the revision for *The State of Food Insecurity in the World 2012* a parameter that captures food losses during distribution at the retail level was introduced in an attempt to obtain more accurate values of per capita consumption. Region-specific calorie losses were estimated from data provided in a recent FAO study<sup>97</sup> and ranged from 2 percent of the quantity distributed for dry grains, to 10 percent for perishable products such as fresh fruits and vegetables.

The latest data from food balance sheets refer to 2011; therefore, additional sources were needed to estimate the DEC for the last three years, 2012–14. The main source for 2012 and 2013 estimates was projections prepared by the Trade and Market Division of FAO. The Holt-Winters distributed lag model was used to project the DEC for 2014; in some cases, this model was also applied to compute projections for 2012 and 2013, when data from the Trade and Market Division were not available or unreliable. The Holt-Winters model uses a process known as exponential smoothing, which attributes higher weights to more recent data and progressively less weight to older observations. Weights decrease in each period by a constant amount, which lies on an exponential curve. For countries showing peculiar patterns, other simpler forecasting models were used, such as linear or exponential trends.

### ■ Estimating coefficients of variation and skewness

#### A new data treatment method

Variability (CV) and skewness (SK) parameters are derived from NHS wherever they are available and reliable. These surveys typically collect information on food as part of the expenditure module. Data from these surveys, when taken as observations of individual habitual consumption, are affected by high variability. It is therefore essential to apply data treatment methods before

parameters are estimated. This is especially the case for the SK parameter, which is sensitive to the presence of extreme values.<sup>98</sup>

The method applied in this edition of *The State of Food Insecurity in the World* to assess the robustness of statistics for a sample is known as the “leave-out-one cross-validation” approach. With this approach, for a sample of size  $n$ , subsamples of size  $(n - 1)$  are created in which each observation is systematically left out of one subsample. For each subsample, the sensitivity of the statistic of interest – in this case, the SK parameter – to the excluded observation can be analysed, and observations that have a large impact are removed. The method allows a robust calculation of the SK parameter that is insensitive to any single observation found in the dataset.

### Controlling for excess variability

As the original purpose of NHS is to measure the levels and changes in living conditions of the population, the data collected typically pertain to food acquisition over a given reference period. However, the aim of the food security analyses in this report is to capture habitual food consumption, which is expected to be less variable than food acquisition. Therefore, excess variability is controlled by assuming a stable relationship between income and consumption in calories, which nets out excess variability caused by some households boosting their food stocks while other households deplete theirs. In the past, this control for excess variability has been accomplished by grouping household food consumption levels according to income deciles.<sup>99</sup>

In this edition of *The State of Food Insecurity in the World* an extension of the method described above is used, based on a linear regression linking the log of per capita income to per capita calorie consumption, along with indicator variables for the month in which the survey was conducted, to control for seasonality. The regression can be written as:

$$PPC_i = \beta_0 + \beta_1 * \log(inc_i) + \beta_2 Month_{1,i} + \beta_3 Month_{2,i} + \dots + \beta_m Month_{m-1,i}$$

where  $PPC_i$  is the per capita calorie consumption for household  $i$ ,  $\beta_0$  is an intercept term,  $\beta_1$  is a regression parameter defining the linear relationship between the log of income and food consumption, and  $Month_{j,i}$  is an indicator variable with value 1 if the survey for household  $i$  took place in month  $j$ . The variability in food consumption due to income is then calculated from the fitted values of the regression adjusted for seasonality.

### A new estimation of indirect CVs

The procedure described so far is employed in countries where one or more reliable NHS are available. Where this is not the case, so-called indirect estimates for the variability in food consumption are used. Indirect CVs were estimated by using the relationships between the CVs obtained from available household survey data and some key macroeconomic variables. In the past, the PoU indicator methodology was frequently criticized for holding CVs – which account for inequality in food consumption – constant over time for most countries.<sup>100</sup> This practice does not take into account economic progress within a country and changes in the distribution of food consumption. To address this issue, in this report, indirect estimates have been updated from 2000 onwards by using a revised

relationship among the CVs due to income and macroeconomic variables that also takes into account changes in food prices.

To fully investigate the effects of food prices changes on food access, measures of national prices should be used. In collaboration with the World Bank, FAO has developed a relative price of food indicator using data from the International Comparison Program<sup>101</sup> and consumer food price indices available on FAOSTAT.<sup>102</sup> The indicator is designed to capture changes in domestic food prices that are comparable over time and among countries. The ratio of food and general consumption in purchasing power parity (PPP) terms is projected forwards and backwards in time using the ratio of the country's consumer food price index to the country's general consumer price index, relative to that of the United States of America.

Using the most comprehensive dataset of Gini coefficients available,<sup>103</sup> a regression has been used to relate the variability in food consumption due to income to the log of GDP, the Gini coefficient, and the log of the relative price of food indicator. The GDP and relative price of food indicators are included on the log-scale, implying that changes in these variables at low values will have a larger impact on the CV due to income. To ensure cross-country comparability at different points in time, per capita GDP in constant 2005 international dollars in PPP terms, calculated by the World Bank, has been used. Regional indicators have been included for Africa, the Americas, Asia, and Western Asia. An interaction term between the GDP and the relative food price indicator has been included to allow for differential effects of the price of food at different levels of GDP. As there are multiple observations – more than one survey – for some countries, a weighted regression was used in which each observation is weighted by one over the number of surveys for that country.

With the parameters from the regression described above, the variability in food consumption due to income has been updated for countries with available Gini coefficients and available data on the relative price of food and GDP. Note that the Gini coefficients in the World Bank database differ in terms of whether they are calculated with reference to the household or the individual, consumption or expenditure, and gross or net income – these differences can make comparability across different types of Gini coefficients difficult.<sup>104</sup> For this reason, care was taken to ensure that the same type of Gini calculation was used within a single country and, to maintain cross-country comparability, only relative changes in the predicted values from the regression were used to update the CV parameter. The resulting updates take into account economic progress in a country as well as changes in relative food prices, allowing for a more complete picture of inequality in food consumption.

### A new computation of variability due to requirement

To obtain the total variability in food consumption used to calculate the PoU, the variability that is due to income ( $CV|y$ ) is added to the variability due to all other factors that are not correlated with income ( $CV|r$ ):

$$CV(x) = \sqrt{(CV|y)^2 + (CV|r)^2}$$

Much of the variability orthogonal to income is due to differences in energy requirement, which are in turn largely

determined by population structure as well as by physical activity levels, life styles, access to safe drinking-water, and progress in health care and disease reduction. Previous analyses showed small variability in this subcomponent across countries and over time, compared with the income component, and the variability due to requirement has been maintained at a fixed value.

To take into account the world's rapidly changing population structure,<sup>105</sup> time-varying country estimates for the variability in food consumption due to requirement have been calculated. Using estimates for the average dietary energy requirement by sex and age class<sup>106</sup> and corresponding population ratios<sup>107</sup> as weights, the variance due to requirement is estimated for a given country in a given year. Further work is under way to capture the rest of the variability that is orthogonal to income. The revision discussed here allows estimates of the variability in food consumption to reflect more accurately demographic differences across countries and demographic evolution within a country.

## ■ Estimating the MDER threshold

To calculate the MDER threshold, FAO employs normative energy requirement standards from a joint FAO/WHO/United Nations University expert consultation in 2001. These standards are obtained by calculating the needs for basic metabolism – that is, the energy expended by the human body in a state of rest – and multiplying them by a factor that takes into account physical activity, referred to as the physical activity level (PAL) index.

As individual metabolic efficiency and physical activity levels vary within population groups of the same age and sex, energy requirements are expressed as ranges for such groups. To derive the MDER threshold, the minimum of each range for adults and adolescents is specified on the basis of the distribution of ideal body weights and the mid-point of the values of the PAL index associated with a sedentary lifestyle (1.55). The lowest body weight for a given height that is compatible with good health is estimated from the fifth percentile of the distribution of body mass indices in healthy populations.

Once the minimum requirement for each sex-age group has been established, the population-level MDER threshold is obtained as a weighted average, considering the relative frequency of individuals in each group as weights. The threshold is determined with reference to light physical activity, normally associated with a sedentary lifestyle. However, this does not negate the fact that the population also includes individuals engaged in moderate and intense physical activity. It is just one way of avoiding the overestimation of food inadequacy when only food consumption levels are observed that cannot be individually matched to the varying requirements.

A frequent misconception when assessing food inadequacy based on observed food consumption data is to refer to the mid-point in the overall range of requirements as a threshold for identifying inadequate energy consumption in the population. This would lead to significantly biased estimates: even in groups composed of only well-nourished people, roughly half of these individuals will have intake levels below mean requirements, as the group will include people engaged in low physical activity. Using the mean requirement as a threshold would certainly produce an

overestimate, as all adequately nourished individuals with less than average requirements would be misclassified as undernourished.<sup>108</sup>

MDER thresholds are updated every two years based on regular revisions of the population assessments of the United Nations Population Division and data on population heights from various sources, most notably the Monitoring and Evaluation to Assess and Use Results of Demographic and Health Surveys project coordinated by the United States Agency for International Development (USAID). This edition of *The State of Food Insecurity in the World* uses updated population estimates from the 2012 revision published by the United Nations Population Division in June 2013. When data on population heights are not available, reference is made either to data on heights from countries where similar ethnicities prevail, or to models that use partial information to estimate heights for various sex and age classes.

## ■ Limitations of the methodology and frequent critiques

The FAO methodology for estimating undernourishment has been subject to long-standing and wide debate. The methodology suffers from several limitations, which need to be acknowledged and taken into account when analysing the results presented in this report.

First, the indicator is based on a narrow definition of hunger, covering only chronically inadequate dietary energy intake lasting for over one year. Energy intake is a very specific aspect of food insecurity, which applies where conditions are more severe. Individuals experiencing difficulties in obtaining enough food are likely to switch towards cheaper sources of energy and to compromise the quality of their food intake in a way that can create substantial damage.<sup>109</sup> To address this limitation, the FAO suite of food security indicators has been presented since the 2012 edition of *The State of Food Insecurity in the World*. The suite comprises indicators that reflect a broader concept of food insecurity and hunger and allows consideration of their multifaceted nature.

Second, the PoU indicator cannot capture within-year fluctuations in the capacity to acquire enough energy from food, which may themselves be causes of significant stresses for the population. Within-year fluctuations can also affect the quality of the diet, as consumers will resort to cheaper foods during periods when access becomes more difficult.

Third, the FAO methodology for computing undernourishment cannot take into account any bias that may exist in intra-household distribution of foods,<sup>110</sup> such as that arising from cultural habits or gender-based habits and beliefs. As seen, the parameters that describe the distribution of food across the population are derived from household-level surveys, rather than from information that refers to individuals.

A final and significant limitation of the FAO methodology for computing the prevalence of undernourishment is that it does not provide information on the degree of severity of the food insecurity conditions experienced by a population. The parametric model described in this annex only allows for estimates of the undernourished share in a population, but is essentially silent

about the composition of undernourishment within that part of the population.

In the debate on measuring undernourishment, the FAO methodology has frequently attracted two criticisms:

- The indicator underestimates undernourishment, as it assumes a level of physical activity associated with a sedentary lifestyle, while poor people are often engaged in physically demanding activities.
- The methodology is based on macrodata, whereas microdata from surveys allow accurate measurement of food consumption.

On the first criticism, ideally, undernourishment should be assessed at the individual level by comparing individual energy requirements with individual energy intakes. This would enable the classification of each person in the population as undernourished or not. However, this approach is not feasible for two reasons: individual energy requirements are practically unobservable with standard data collection methods; and individual food consumption is currently measured with precision in only a few countries and for relatively limited samples. The individual-level consumption data that can be estimated from NHS are largely approximated owing to disparities in intra-household food allocation, the variability of individual energy requirements, and the day-to-day variability of food consumption that can arise for reasons independent of food insecurity. The solution adopted by FAO has been to estimate the PoU with reference to the population as a whole, summarized through a representative individual, and to combine available microdata on food consumption with macrodata. Within the population, there is a range of values for energy requirements that are compatible with healthy status, given that body weight, metabolic efficiency and physical activity levels vary. It follows that only values below the minimum of such a range can be associated with undernourishment, in a probabilistic sense. Hence, for the PoU to

indicate that a randomly selected individual in a population is undernourished, the appropriate threshold is the lower end of the range of energy requirements.

As for the second criticism, the FAO methodology in fact combines available microdata on food consumption derived from surveys with macrodata from food balance sheets. Food balance sheets provide information on the amount of food that is available for consumption after taking into account all the possible alternative uses of the food items; hence, they provide approximate measures of per capita consumption, which are available for a large number of countries and are comparable. The methodology adopted for computing these data is currently under revision, together with the estimates of waste parameters employed to derive the DEC, so the level of accuracy is expected to increase in the next few years. Survey data, where available and reliable, are employed in the FAO methodology to compute the variability (CV) and skewness (SK) parameters that characterize the distribution of food consumption  $f(x)$ . It is therefore essential that household surveys collecting food consumption data are improved to obtain more accurate measures of undernourishment. Such improvements will require both promoting greater standardization across NHS, and conducting more refined surveys that capture food intake at the individual level. At the moment, few surveys accurately capture habitual food consumption at the individual level and collect sufficient information on the anthropometric characteristics and activity levels of each surveyed individual; in other words, very few surveys would allow for an estimation of the relevant energy requirement threshold at the individual level.

To conclude, the quality of the PoU estimates depends heavily on the quality of the background data employed in the estimation. Hence, to obtain better estimates on undernourishment it is important to improve food consumption data through the design and implementation of high-quality nationally representative surveys that are comparable over time and across countries.

## Glossary of selected terms used in the report

**Anthropometry.** Use of human body measurements to obtain information about nutritional status.

**Body mass index (BMI).** The ratio of weight-for-height measured as the weight in kilograms divided by the square of height in metres.

**Dietary energy intake.** The energy content of food consumed.

**Dietary energy requirement (DER).** The amount of dietary energy required by an individual to maintain body functions, health and normal activity.

**Dietary energy supply (DES).** Food available for human consumption, expressed in kilocalories per person per day (kcal/person/day). At country level, it is calculated as the food remaining for human use after deduction of all non-food utilizations (i.e. food = production + imports + stock withdrawals – exports – industrial use – animal feed – seed – wastage – additions to stock). Wastage includes losses of usable products occurring along distribution chains from farm gate (or port of import) up to the retail level.

**Dietary energy supply adequacy.** Dietary energy supply as a percentage of the average dietary energy requirement.

**Food insecurity.** A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution or inadequate use of food at the household level. Food insecurity, poor conditions of health and sanitation and inappropriate care and feeding practices are the major causes of poor nutritional status. Food insecurity may be chronic, seasonal or transitory.

**Food security.** A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Based on this definition, four food security dimensions can be identified: food availability, economic and physical access to food, food utilization and stability over time.

**Hunger.** In this report the term hunger is used as being synonymous with chronic undernourishment.

**Kilocalorie (kcal).** A unit of measurement of energy. One kilocalorie equals 1 000 calories. In the International System of Units (SI), the universal unit of energy is the joule (J). One kilocalorie = 4.184 kilojoules (kJ).

**Macronutrients.** In this document, the proteins, carbohydrates and fats that are available to be used for energy. They are measured in grams.

**Malnutrition.** An abnormal physiological condition caused by inadequate, unbalanced or excessive consumption of macronutrients and/or micronutrients. Malnutrition includes undernutrition and overnutrition as well as micronutrient deficiencies.

**Micronutrients.** Vitamins, minerals and certain other substances that are required by the body in small amounts. They are measured in milligrams or micrograms.

**Minimum dietary energy requirement (MDER).** In a specified age/sex category, the minimum amount of dietary energy per person that is considered adequate to meet the energy needs at a minimum acceptable BMI of an individual engaged in low physical activity. If referring to an entire population, the minimum energy requirement is the weighted average of the minimum energy requirements of the different age/sex groups. It is expressed as kilocalories per person per day.

**Nutrition security.** A situation that exists when secure access to an appropriately nutritious diet is coupled with a sanitary environment, adequate health services and care, in order to ensure a healthy and active life for all household members. Nutrition security differs from food security in that it also considers the aspects of adequate caring practices, health and hygiene in addition to dietary adequacy.

**Nutrition-sensitive intervention.** Interventions designed to address the underlying determinants of nutrition (which include household food security, care for mothers and children and primary health care services and sanitation) but not necessarily having nutrition as the predominant goal.

**Nutritional status.** The physiological state of an individual that results from the relationship between nutrient intake and requirements and from the body's ability to digest, absorb and use these nutrients.

**Overnourishment.** Food intake that is continuously in excess of dietary energy requirements.

**Overnutrition.** A result of excessive food intake relative to dietary nutrient requirements.

**Overweight and obesity.** Body weight that is above normal for height as a result of an excessive accumulation of fat. It is usually a manifestation of overnourishment. Overweight is defined as a BMI of more than 25 but less than 30 and obesity as a BMI of 30 or more.

**Stunting.** Low height for age, reflecting a past episode or episodes of sustained undernutrition.

**Undernourishment.** A state, lasting for at least one year, of inability to acquire enough food, defined as a level of food intake insufficient to meet dietary energy requirements. For the purposes of this report, hunger was defined as being synonymous with chronic undernourishment.

**Undernutrition.** The outcome of undernourishment, and/or poor absorption and/or poor biological use of nutrients consumed as a result of repeated infectious disease. It includes being underweight for one's age, too short for one's age (stunted), dangerously thin for one's height (wasted) and deficient in vitamins and minerals (micronutrient malnutrition).

**Underweight.** Low weight for age in children, and BMI of less than 18.5 in adults, reflecting a current condition resulting from inadequate food intake, past episodes of undernutrition or poor health conditions.

**Wasting.** Low weight for height, generally the result of weight loss associated with a recent period of starvation or disease.



- 1 The country classification adopted in this report is the United Nations M49 classification (<http://unstats.un.org/unsd/methods/m49/m49.htm>). Following the creation of the Republic of South Sudan in July 2011, the M49 classification considered the Sudan as part of the Northern Africa region, and South Sudan as part of Eastern Africa. In this report, data for the Sudan are therefore included in the Northern Africa region.
- 2 The suite of indicators was developed by FAO in response to a request of the Committee on World Food Security expressed at a round table to review the methods used to estimate the number of hungry people (available at <http://www.fao.org/cfs/cfs-home/cfsroundtable1/en/>). A comprehensive description of the methodology used to obtain this indicator and its limitations is included in Annex 2.
- 3 Data coverage for these indicators is limited to a few countries and years. Data limitations are flagged in the metadata file accompanying the suite of indicators. The limited availability of data also prevents the inclusion of other important factors of food utilization, such as changing diets, dietary diversity, breastfeeding practices or maternal education.
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- 5 For more details on the methodology, see <http://www.fao.org/economic/ess/ess-publications/workingpapers/en/>
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## Notes for Annex 1

Countries revise their official statistics regularly for the past as well as the latest reported period. The same holds for population data of the United Nations. Whenever this happens, FAO revises its estimates of undernourishment accordingly. Therefore, users are advised to refer to changes in estimates over time only within the same edition of *The State of Food Insecurity in the World* and refrain from comparing data published in editions for different years.

Countries, areas and territories for which there were insufficient or not reliable data to conduct the assessment are not reported. These include: American Samoa, Andorra, Anguilla, Aruba, Bahrain, Bhutan, British Virgin Islands, Burundi, Canton and Enderbury Islands, Cayman Islands, Christmas Island, Cocos (Keeling) Islands, Cook Islands, Comoros, Democratic Republic of the Congo, Dominica, Equatorial Guinea, Eritrea, Faeroe Islands, French Guiana, French Polynesia, Greenland, Guadeloupe, Guam, Holy See, Johnston Island, Libya, Liechtenstein, Marshall Islands, Martinique, Micronesia (Federated States of), Midway Islands, Monaco, Nauru, Netherlands Antilles, New Caledonia, Niue, Norfolk Island, Northern Mariana Islands, Oman, Palau, Papua New Guinea, Pitcairn Islands, Puerto Rico, Qatar, Réunion, Saint Helena, Saint Pierre and Miquelon, Saint Kitts and Nevis, San Marino, Seychelles, Singapore, Somalia (the Federal Republic of), Syrian Arab Republic, Tokelau, Tonga, Turks and Caicos Islands, Tuvalu, United States Virgin Islands, Wake Island, Wallis and Futuna Islands, Western Sahara.

- World Food Summit goal: halve, between 1990–92 and 2015, the number of people undernourished.
- Millennium Development Goal 1, target 1C: halve, between 1990–92 and 2015, the proportion of people suffering from undernourishment, or reduce this proportion below 5 percent. Indicator 1.9 measures the proportion of population below minimum level of dietary energy consumption (undernourishment). The results are obtained following a harmonized methodology and are based on the latest globally available data averaged over three years. Some countries may have more recent data which, if used, could lead to different estimates of the prevalence of undernourishment and consequently of the progress achieved.
- Projection.
- Change from the 1990–92 baseline. For countries that did not exist in the baseline period, the 1990–92 proportion of undernourished is based on the 1993–95 proportion, while the number of people undernourished is based on this proportion of their 1990–92 population. For countries where the prevalence of undernourishment is estimated to be below 5 percent, the change in the number of people undernourished since the 1990–92 baseline is only assessed as: achieving the WFS target, i.e. reducing the number by more than half (<–50.0%); progress, but insufficient to achieve the WFS target, i.e. reducing the number by less than half (>–5.0%); or an increase in the number of people undernourished (>0.0%).
- The color indicator shows the progress that is projected to be achieved by year 2015, if observed trends continue:

WFS target	MDG target
▲ No progress, or deterioration	■ No progress, or deterioration
◀▶ Progress insufficient to reach the WFS target if observed trends persist	■ Progress insufficient to reach the MDG target 1C if observed trends persist
▼ WFS target expected to be met by 2015 if observed trends persist	■ MDG target 1C expected to be met by 2015 if observed trends persist
* WFS target already achieved	* MDG target 1C already achieved

### Country composition of the special groupings:

- Includes: Afghanistan, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Sudan, United Republic of Tanzania, Timor-Leste, Togo, Uganda, Vanuatu, Yemen, Zambia.
- Includes: Afghanistan, Armenia, Azerbaijan, Bolivia (Plurinational State of), Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Ethiopia, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Lesotho, Macedonia (The former Yugoslav Republic), Malawi, Mali, Mongolia, Nepal, Niger, Paraguay, Republic of Moldova, Rwanda, Swaziland, Tajikistan, Turkmenistan, Uganda, Uzbekistan, Zambia, Zimbabwe.
- Includes: Antigua and Barbuda, Bahamas, Barbados, Belize, Cabo Verde, Comoros, Cuba, Dominica, Dominican Republic, Fiji Islands, Grenada, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Mauritius, Netherlands Antilles, New Caledonia, Papua New Guinea, Saint Kitts and Nevis, Saint Lucia, Saint Vincent/Grenadines, Samoa, Sao Tome and Principe, Seychelles, Solomon Islands, Suriname, Timor-Leste, Trinidad and Tobago, Vanuatu.

- Includes: Afghanistan, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic People's Republic of Korea, Democratic Republic of the Congo, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Myanmar, Nepal, Niger, Rwanda, Sierra Leone, Somalia, Tajikistan, Tanzania, Togo, Uganda, Zimbabwe.
- Includes: Armenia, Bolivia (Plurinational State of), Cameroon, Cabo Verde, Congo, Côte d'Ivoire, Djibouti, Egypt, El Salvador, Georgia, Ghana, Guatemala, Guyana, Honduras, India, Indonesia, Kiribati, Kosovo, Kyrgyzstan, Lao People's Democratic Republic, Lesotho, Mauritania, Republic of Moldova, Mongolia, Morocco, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Paraguay, Philippines, Samoa, Sao Tome and Principe, Senegal, Solomon Islands, South Sudan, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Timor-Leste, Ukraine, Uzbekistan, Vanuatu, Viet Nam, West Bank and Gaza Strip, Yemen, Zambia.
- Includes: Afghanistan, Bangladesh, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, Democratic People's Republic of Korea, Democratic Republic of the Congo, Côte d'Ivoire, Djibouti, Eritrea, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Honduras, India, Kenya, Kyrgyzstan, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mongolia, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Papua New Guinea, Philippines, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Sri Lanka, Sudan, Tajikistan, Tanzania, Togo, Uganda, Uzbekistan, Yemen, Zimbabwe.
- "Africa" includes developing countries falling under the responsibility of the FAO Regional Office RAF: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan (former) (up to 2011), South Sudan (from 2012), Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.
- "Asia and the Pacific" includes developing countries falling under the responsibility of the FAO Regional Office RAP: Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Fiji, India, Indonesia, Iran (Islamic Republic of), Kazakhstan, Kiribati, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Uzbekistan, Vanuatu, Viet Nam.
- "Europe and Central Asia" includes developing countries falling under the responsibility of the FAO Regional Office REU: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan, Uzbekistan.
- "Latin America and the Caribbean" includes developing countries falling under the responsibility of the FAO Regional Office RLC: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational state of), Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela (Bolivarian Republic of).
- "Near East and North Africa" includes developing countries falling under the responsibility of the FAO Regional Office RNE: Algeria, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Saudi Arabia, Sudan (from 2012), Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen.
- In addition to the countries listed in the table, includes Libya. The value for 2012–14 includes an estimate for the new Sudan, formed after the independence of South Sudan, in July 2011. For this reason the estimate for 2012–14 cannot be compared with those of previous periods, and the change with respect to the 1990–92 baseline cannot be assessed.
- In addition to the countries listed in the table, includes: Burundi, Comoros, Democratic Republic of the Congo, Eritrea, Seychelles, Somalia. 2012–14 includes an estimate for South Sudan.
- Sudan (former) refers to the former sovereign state of Sudan prior to July 2011, when South Sudan declared its independence. Data for South Sudan and Sudan for the years 2012–14 are not reliable and are not reported.
- In addition to the countries listed in the table, includes: Syrian Arab Republic, West Bank and Gaza Strip.
- In addition to the countries listed in the table, includes: Antigua and Barbuda, Bahamas, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, Netherlands Antilles.
- In addition to the countries listed in the table includes: French Polynesia, New Caledonia, Papua New Guinea.

### KEY

- <5.0 proportion of undernourished less than 5 percent
- <0.1 less than 100 000 people undernourished
- na not applicable
- ns not statistically significant

Source: FAO estimates.

# 2014

## The State of Food Insecurity in the World **Strengthening the enabling environment for food security and nutrition**

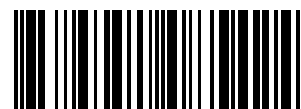
*The State of Food Insecurity in the World 2014* presents updated estimates of undernourishment and progress towards the Millennium Development Goal (MDG) and World Food Summit (WFS) hunger targets. A stock-taking of where we stand on reducing hunger and malnutrition shows that progress in hunger reduction at the global level and in many countries has continued but that substantial additional effort is needed in others.

The 2014 report also presents further insights into the suite of food security indicators introduced in 2013 and analyses in greater depth the dimensions of food security – availability, access, stability and utilization. By measuring food security across these dimensions, the suite of indicators can provide a detailed picture of the food security and nutrition challenges in a country, thus assisting in the design of targeted food security and nutrition interventions.

Sustained political commitment at the highest level is a prerequisite for hunger eradication. It entails placing food security and nutrition at the top of the political agenda and creating an enabling environment for improving food security and nutrition. This year's report examines the diverse experiences of seven countries, with a specific focus on the enabling environment for food security and nutrition that reflects commitment and capacities across four dimensions: policies, programmes and legal frameworks; mobilization of human and financial resources; coordination mechanisms and partnerships; and evidence-based decision-making.



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