

Global Food Security: Overview

The 2001-2011 projection of the number of hungry people provides a positive picture with the expected absolute number of hungry people declining 1.6 percent per year. However, this rate falls short of the 3.5-percent annual decline required to meet the goal of the World Food Summit. Examination of the role of food aid reveals that while it can play a useful role in the fight against hunger, its contribution is limited and cannot be the sole remedy to the hunger problem.
[Shahla Shapouri]

Based on all the indicators developed by ERS, the aggregate food security situation of the 67 low-income countries monitored in this report deteriorated in 2001 relative to estimates in 2000. The main reason is the impact of food production shortfalls in many countries coinciding with the global economic slowdown that intensified foreign exchange constraints in these countries and limited their ability to import food. Short-term shocks that threaten food security are not uncommon. In fact, ERS' estimates of the number of hungry people in the 67 countries show a mix of success and failure at the country level since mid 1990s. This year's deterioration, coupled with slow progress in improving food security in the recent past, indicate that the World Food Summit goal to halve the number of hungry people by 2015 may not be feasible without a major effort. In fact, the ERS projections for the next decade show a 1.6-percent annual decline in the number of hungry people. This suggests that the situation will improve, but will fall short of the 3.5-percent annual decline needed to achieve the World Food Summit goal. By FAO's estimates, the rate of progress will be even less—one-third of the required rate—if the recent trend continues. According to a recent FAO report, *The State of Food Insecurity in 2001*, despite the declining trend in the aggregate number of undernourished people at the global level between 1990-92 and 1997-99, a majority of developing countries suffered significant increases.

What Is New in This Report

This report is an updated version of the 2000 Food Security Assessment report, meaning that all of the historical and projected data have been updated. The food production estimates for the year 2001 are based on USDA data as of October 2001. The financial and macroeconomic data are updated based on the latest World Bank data. The projected macroeconomic variables are either extrapolated based on calculated

growth rates for the 1990s or are World Bank projections/estimations.

This report provides an assessment of the food security situation at the country level and among income groups within countries in order to take into account both physical access (food availability) and economic access to food. Also, an attempt is made to show the distribution and depth of the problem by estimating consumption levels relative to nutritional requirements by country and region to show the vulnerability to food insecurity.

The food security situations of the 67 developing countries included in this report are evaluated by estimating and projecting the gaps between food consumption (domestic production plus commercial imports minus non-food use) and two different consumption targets through the next decade. The two consumption targets are: 1) maintaining per capita consumption at the 1998-2000 level (also referred to as the status quo target) and, 2) meeting recommended nutritional requirements (the nutrition target). It should be emphasized that the availability of food aid is excluded in these projections. The estimated nutritional gaps only measure the gap in calorie consumption and do not consider other factors, such as poor utilization of food due to inadequate consumption of micronutrients or the lack of health and sanitary facilities.

Because national-level estimates represent average food gaps and mask the impact of unequal incomes on food security, we also estimate a "distribution gap." This gap is the amount of food needed to raise food consumption for each income group to a level that meets nutritional requirements. This indicator captures the impacts of unequal purchasing power on food access. It should be emphasized again that the food security indicators for 2001 are based on actual reported USDA production data as of October 2001,

while the long-term projections do not take short-term weather shocks (such as drought or floods) into account. The long-term projections are based on changes in factors affecting food security (see Appendix) and do not attempt to capture short-term market disruptions.

This report also includes a special article titled, “Market Reform and Policy Initiatives: Rapid Growth and Food Security in China.” The core policies used to promote food security in China—grain reserves, grain marketing, and self-sufficiency—are expensive and do not effectively provide food security to poor rural households. Various policies have been implemented since the 1980s to help people out of poverty. The most effective policy seems to be the food-for-work projects coordinated by the Poor Area Development Offices. Poverty alleviation is helped by rapidly growing nonagricultural rural incomes. Job growth in this sector is likely to be spurred with China’s accession to the World Trade Organization.

Lower Population Growth Reduces the Size of Food Gaps in the Long Run

Natural disasters such as droughts and floods, in addition to political conflicts, continue to be obstacles toward food security progress, at least in the short term, in many developing countries. These factors were the major reasons for the decline in average per capita food

consumption of the 67 countries in 2001 relative to 2000. The food needed (in grain equivalent) to maintain per capita food consumption at the 1998-2000 level (status quo) is estimated at about 11 million tons in 2001, 30 percent higher than the 2000 estimates. The food gap to meet nutritional requirements is 18.3 million tons, 7 percent higher than the 2000 estimates. The distribution gap—the amount of food needed to raise consumption in each income group to meet nutritional requirements—increased by 4 million tons to 30 million tons. Finally, the number of hungry people jumped to 896 million in 2001 from 744 million in 2000. These disappointing results cut across Asia (10 lower income countries), Sub-Saharan Africa (37 countries), and Latin America (11 countries). In Sub-Saharan Africa, the food security situation deteriorated in all subregions, except Southern Africa. The food security situation improved in the New Independent States (NIS, 5 countries) and North Africa (4 countries) in 2001 relative to the earlier period. It is important to note that these results provide only an aggregate regional picture—there is significant variation among different countries’ food situations.

High production variability is the dominant characteristic of the production system of the most food insecure countries as production, in general, takes place in rain-fed areas that are subject to unpredictable weather variations. For the countries that are experiencing slow or declining production trends, especially those faced

Table 1--Food availability and food gaps for 67 countries

Year	Grain production	Root production (grain equiv.)	Commercial imports (grain equiv.)	Food aid receipts (grains)	Aggregate availability of all food
			---1,000 tons---		
1992	373,218	56,579	43,900	9,334	598,657
1993	380,760	59,340	46,033	7,323	611,206
1994	391,994	59,765	47,905	7,869	630,421
1995	397,050	61,541	54,882	6,475	658,166
1996	420,084	62,619	51,586	4,886	667,600
1997	407,482	64,735	59,311	5,037	672,701
1998	427,281	66,666	64,730	8,225	693,041
1999	436,972	68,906	67,966	6,513	712,275
2000	433,743	69,083	69,530	7,167	723,263
	Projections			Food gap*	
				SQ	NR
2001	432,464	70,774	70,388	10,883	18,296
2006	494,975	77,290	78,257	7,278	13,446
2011	542,325	84,315	87,850	11,023	16,193
					(w/o food aid)

*SQ stands for status quo and describes the amount of grain equivalent needed to support 1998-2000 levels of per capita consumption and NR stands for nutritional requirements and describes the amount needed to support minimum nutritional standards.

with political instability, weather-induced shortfalls can have serious food security implications. Food production in countries such as Afghanistan, Burundi, Rwanda, Somalia, and Haiti has declined and/or stagnated in the last decade. In Afghanistan, after years of political unrest, the country is again faced with a severe drought this year; grain production estimates are half of the 1999 level and 25 percent lower than output in 2000. A similar situation holds in several Sub-Saharan African countries that are suffering from political instability and food insecurity.

Despite these short-term setbacks, there are several factors that provide a positive outlook for the food security situation in these countries. One notable trend is the decline in the population growth rate. Population growth projections are highest in Sub-Saharan Africa, 2.4 percent per year, and lowest in the NIS, 0.8 percent per year. This simply means that less growth in food supplies is required to maintain per capita food consumption. Another positive factor is the projection of improved global economic growth for 2003 and beyond (according to the World Bank), which is expected to increase the import capacity of the countries.

However, because of the mix of performance across countries, improvements in food security will be limited. Per capita food production is projected to increase slightly at the aggregate level during the next decade. The gap to meet nutritional requirements is projected at 16 million tons in 2011, a decline of 2 million tons from 2001. The distribution gap (an indicator of food access) is projected at about 24 million tons in 2011, or 6 million tons less than 2001. The number of hungry people (consuming less than 2,100 calories per day, on average) is projected to decline to 765 million by 2011, or 1.6 percent per year.

The slow rate of improvement in food security means many countries will remain vulnerable to food insecurity over the long term. In 2001, 29 of the 67 countries consumed less than the nutritional requirement; this number is projected to decline only slightly to 23 by 2011. Food access remains a common problem among the lower income populations in almost all countries. In 51 of the study countries for 2001, 20 percent or more of the population is estimated to consume less than nutritional requirements. This number is projected to decline to 47 by 2011. For these countries, there is an urgent need for concerted efforts to reduce inequality in purchasing power and incomes. Increases in food supply also would reduce food prices and

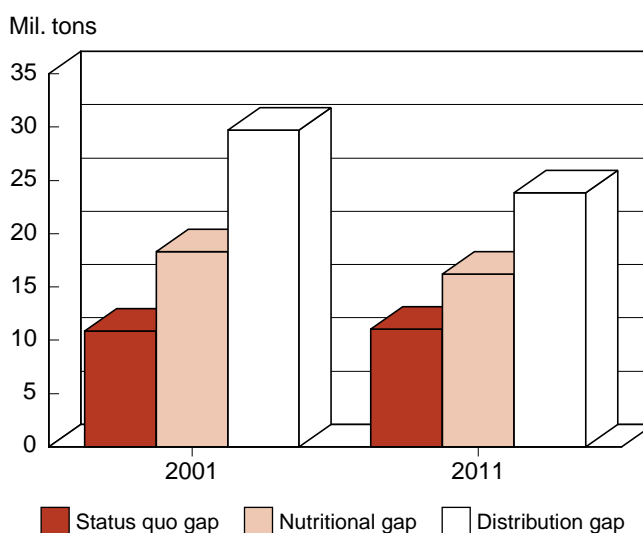
increase the real purchasing power of lower income people in the nonagricultural sector.

Slow Improvement in Sub-Saharan Africa's Food Security

Sub-Saharan Africa continues to be the most vulnerable region, accounting for 23 percent of the total population in the 67 countries examined in 2001, but 38 percent of the number of hungry people in these countries. The number of hungry people—those consuming less than the nutritional requirement in Sub-Saharan Africa—is estimated at 337 million in 2001, or about 57 percent of the total population. This number has increased by about 19 percent since mid-1990—a move in the opposite direction from the World Food Summit goal. Over the next decade, however, there is projected to be a drop in the percentage of the population classified as hungry people. The absolute number of hungry people is projected to rise to 367 million, but the growth rate is less than the growth in total population. While food supplied by domestic production and imports is sufficient to keep pace with population growth, it does not increase enough to fill the existing food gap and therefore falls short of meeting nutritional standards.

Several factors can alter the projections for the better. For example, the recent peace initiatives in countries such as the Democratic Republic of Congo and Liberia

Figure 1
Food gaps are projected to decline slightly over the next decade



Source: Economic Research Service, USDA.

could bring stability and growth not only to these countries, but also to neighboring countries that are faced with the burden of refugees. Another factor is the recent step by the international financial community to reduce the debt burden in 23 poor countries—most of which are in Sub-Saharan Africa—that is expected to free up resources for domestic investment to increase agricultural productivity.

Success Is Not Uniform Among Asian and NIS Countries

With a few exceptions, the food security situation in the lower income **Asian countries** has been improving, a trend that is expected to continue through the next decade. ERS estimates that about 510 million people were hungry (that is, they did not meet minimum nutritional requirements) in the mid-1990s. That number rose to 579 million people in 1998, but declined to 484 million people in 2001. By 2011, it is estimated that the number of hungry people will drop to around 328 million people, a decline of 3.9 percent per year—clearly more than the 3.5 percent required to meet the World Food Summit goal. The estimate of the share of hungry people in the total population of the countries studied is 30 percent in 2001, declining to 17 percent by 2011.

Not all countries in the region will equally share this success. For example, the situation is projected to deteriorate in Afghanistan. This year, there is a severe shortfall in food availability in Afghanistan and without external assistance (the availability of food aid is excluded in food gap projections) even the highest income groups in this country can barely meet minimum nutrition standards. The situation is expected to improve slowly, provided there is political stability and external assistance and investment for rebuilding.

In the **NIS countries**, the food security situation has improved since the mid-1990s. This trend also is expected to continue over the next decade. The number of people who consumed less than the nutritional requirement in 2001 was about 37 percent of the population, or 10 million. This is projected to decline to 8 million (28 percent of the population) by 2011, a decline of about 2.2 percent per year. For the most part, these positive trends reflect a continuation of political stability and economic recovery, with positive real per capita economic growth since 1996. Only Tajikistan has significant hunger problems related to both inadequate food supplies and access to food,

largely due to stagnant food production and widespread poverty. The main long-run concern in the region is related to political instability. The situation in Afghanistan and the recent tensions between Georgia and Russia could expand to other countries. On the other hand, efforts to assist the post-Taliban regime in Afghanistan could lead to external financial support and an increase in investment in the region.

Risk of Financing Imports in North Africa and Latin America

Because of the long-term consumer food price subsidies in North Africa, food consumption in the region is well above the nutritional requirement of 2,100 calories per day. The share of the population that consumes less than the nutritional requirement was less than 10 percent in 2001, much lower than in the other regions. But, this does not mean that these countries are immune from shocks that could affect food security. High production variability in Algeria, Morocco, and Tunisia often results in severe production shortfalls, which exert heavy financial pressures. Among these countries, Algeria is the most vulnerable to food insecurity because of its internal political problems, declining domestic food production (4 percent per year), and slow economic growth (1.5 percent per year) in the last decade. The country is also highly dependent on oil exports to finance food imports and declining global projected prices for oil are expected to have serious food security implications for the country in the long term.

Food security has improved in lower income countries in **Latin America and the Caribbean** over the last two decades. This trend is expected to continue in the next decade. The number of people that are consuming less than the nutritional requirement is estimated at 58 million, or about 42 percent of the population of the study countries, and this number is projected to decline to 30 million (about 18 percent of the population) by 2011. Much of this reduction is expected to occur as a result of income growth in some of the more populous countries, such as Colombia and Peru. However, progress will be uneven among countries. Economic shocks stemming from natural events or policy-related issues continue to be a threat to the food security of several countries. Another important feature of food security of most countries in the region is related to income inequality and the high level of poverty among large segments of the population. Food insecurity among the lower income population in the region is

similar or worse than South Asian countries, while the average income of the region is significantly higher.

Food Aid Donations Can Play an Important Role

Food aid has been a major way for the international community to improve food access and to reduce suffering from emergency conditions in low-income countries. In many cases, it has significantly reduced loss of life during food emergencies and through different projects also has been used to enhance long-term food security. The quantities of food aid and its distribution to recipient countries vary annually depending on donors' policies. Most food aid is in the form of cereals. Cereal food aid shipments for 2000 declined by 24 percent from the previous year to about 8.5 million tons. This decrease is entirely due to the drop in deliveries to Russia—200,000 tons in 2000 versus more than 2 million tons in each of the 2 previous years. The United States continued to be the main source of aid, providing 55 percent of the total. Japan doubled its allocation, while the European Union allocation was reduced by half. Allocations to Sub-Saharan African and Asian countries remained roughly the same as the previous year, while those to Latin American countries declined.

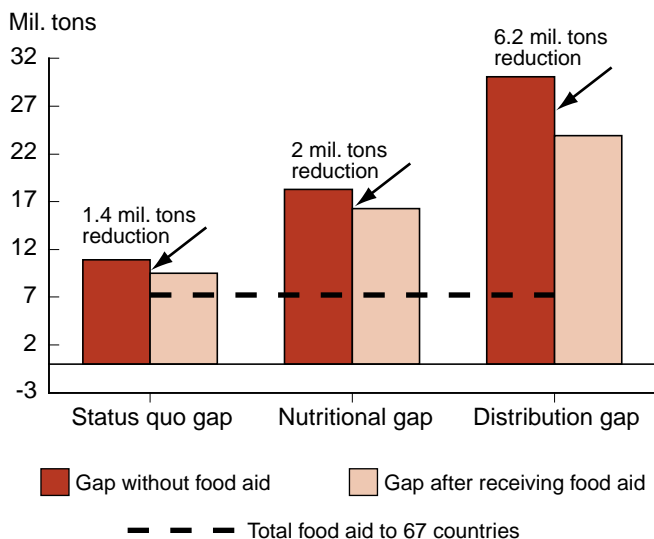
Depending upon the future availability of food aid, parts of the projected food gaps can be eliminated. If food aid shipments in 2001 were the same as in 2000, food aid would fill nearly 80 percent of the calculated

gap to maintain per capita consumption (status quo) and nearly half of the nutritional gap. In terms of the number of hungry people, if countries received the same level of food aid in 2001 as in 2000 (that is, no change in the country or quantity allocations), the estimated number of hungry people would be 843 million, rather than 896 million. In other words, based on the current level of food aid, roughly 50 million people may avoid hunger. On the other hand, this reveals that while food aid can play a useful role in the fight against hunger, its contribution is limited and cannot be the sole remedy to the hunger problem. It is important to note that not all of total food aid is going to the lowest income, food-deficit countries. For example, in 2000 about 7.2 million tons, or 85 percent of total food aid, was given to the countries analyzed in this report.

A major goal of food aid is to provide humanitarian support to critically food-deficient countries. To examine the effectiveness of food aid in the area of reducing hunger in the study countries, we used the food security model and actual data from 2000 to calculate the food gaps with and without food aid (actual level of food aid received by the countries in 2000). It is important to stress at this point that the food security model is based on the simplifying assumption that food aid is not available (since actual food aid receipts are impossible to project). In 2000, the countries received 7.2 million tons of food aid. We compared the estimated food gaps with and without food aid. Surprisingly, the analysis showed that by adding 7.2 million tons to the estimated level of availability, the estimated status quo and nutritional gaps were reduced by only 1.4 and 2 million tons, respectively. These results indicate that a relatively small share of food aid was given to those countries that, according to ERS's definitions and estimations, had average national food gaps. In other words, most of the food aid was given to countries such as India, Bangladesh, Ecuador, Guatemala, Georgia, and Azerbaijan, that did not need any food aid at the average national level according to our estimate. However, most of the food aid went to countries that had distribution gaps. When the 7.2 million tons of food aid was included in the estimation of distribution gaps, those were reduced by 6.2 million tons. This means that most of the food aid (86 percent) allocated to these countries in 2000 was used to reduce the problem of food access, as represented by the distribution gap. This is an impressive achievement at the aggregate level. This also means that countries such as India that did not have any national food gaps (based

Figure 2

Food aid reduces food gaps--but not enough



Source: Economic Research Service, USDA.

on status quo and nutritional indicators) received food aid because of the food access problems of the lower income groups.

In sum, the available food aid clearly remains less than the needs. Allocations of food aid are based on a mix of objectives. In addition to hunger, other factors such as political instability and financial difficulties play an important role in donors' decisionmaking processes. However, it should be emphasized that because of slow progress in improving global food security, and the potential and critical role of food aid and its limited quantities, it is critical to improve the targeting policies of donors to maximize its benefits in terms of alleviating hunger.

Short-term Instability Complicates Any Achievement in Food Security

While short-term shocks are recognized as an obstacle to improving food security in the short run, they affect long-term progress as well.

The vicious circle of food insecurity is well known: it reduces productivity, which in turn increases poverty. Poverty limits the ability to respond to risk and deepens the vulnerability to food insecurity. In a volatile economic environment, the challenge to break the circle is difficult.

While natural disasters, economic shocks, and political conflicts are all major sources of vulnerability to food insecurity, the nature of their damage to long-term productive capacity varies. For example, drought can result in heavy losses in crop production and livestock, while floods and earthquakes destroy market infrastructure (in addition to crops), which will have long-term economic repercussions. In Central America, for example, Hurricane Mitch had a devastating economic impact and caused heavy damage to market infrastructure. This year, several Central American countries are faced with severe drought, the impact of which has been amplified by the decline in export earnings due to low export commodity prices.

Economic crises on the other hand can have mixed results, but in general they affect the entire economy. These shocks are sometimes due to internal policies or are external, such as a decline in the terms of trade. The economic crisis in the Asian countries in 1997-98, for example, was a major shock not only to the countries that were directly affected, but also indirectly to other trading partners in the region. Income in

Indonesia, for example, declined by more than 10 percent from 1998 to 1999 and total import values declined by 6 percent for the same period. The result was deterioration in Indonesia's food security despite the receipt of more than 1 million tons of food aid.

In addition to other economic problems, many Sub-Saharan African countries are faced with political instability. Even with several peace initiatives, the economic destruction in the last decade—as evidenced by countries like the Democratic Republic of Congo, Burundi, Rwanda, and Somalia—cannot be turned around easily. In the Democratic Republic of Congo, the civil strife of the early 1990s led to an annual average decline in GDP of 5 percent during 1990-99 and a decline in total value of exports by 6 percent per year. Per capita food consumption also declined annually by 2.6 percent (in grain equivalent) during this period. Similarly, in Burundi, political upheaval and cross-border war with Rwanda led to a 3-percent annual decline in income in the last decade and a per capita food consumption decline by 2 percent per year. In general, increases in poverty and food insecurity that follow political instability inflict such damage on the economies of affected countries that, even with subsequent peace, rebuilding can take years.

There is no method to project these shocks, and there is no estimate of their global costs and their frequencies, but the sheer number of occurrences is alarming. According to a recent UN Food and Agriculture Organization (FAO) report, during October 1999 to June 2001, 22 countries were affected by drought, 17 experienced floods and hurricanes, two were hit by earthquakes, and 14 experienced political conflicts. According to the *World Bank Development Report* (2000/2001), during the last decade the number of natural disasters has increased due to both social and environmental factors. Settlements on and cultivation of marginal lands are prone to landslides and other disasters. The report also argues that the El Niño events that cause drought and floods are becoming more frequent and that the warming of the surface of the Atlantic Ocean is increasing the frequency and severity of hurricanes.

Economic shocks occur both in high- and low-income countries, but the economic and food security implications are much greater in low-income countries. To improve food security of poor countries in the long term, it is essential to reduce the economic impacts of these shocks. There are a variety of policy options that

could be adopted depending on specific risk patterns in each country. With respect to weather-related shocks, for example, building a dam can reduce the risk of flooding. Environmental policies can reduce deforestation and reduce the damage from hurricanes. Investment in research and extension will help production diversification, which reduces vulnerability to price shocks. Since domestic production plays a major role in the food security of low-income countries, efforts to improve agricultural technology could have a significant impact. Drought-resistant and high-yield crop varieties can significantly reduce annual production variability and support long-term productivity growth.

Food security safety net programs also can play a major role. The special article on food security in China indicates that targeted food programs are essen-

tial to improving food access of the poor, but most developing countries do not have such policies. Clearly, the types of policies required vary depending on a country's structure, but there is no question that frequent setbacks can weaken the food security foundation of poor people and vulnerable countries. Therefore, it is important to more fully integrate responses to short-term shocks into the longer term strategy for reducing chronic hunger. Through time, food aid and financial aid have significantly reduced loss of life during food emergencies. Integrating international and national resources in designing safety net programs can be very effective instruments for mitigating the effects of shocks, and can in this way serve as adjuncts to longer term food security strategies.

How Food Security Is Assessed: Methods and Definitions

The commodity coverage in this report includes grains, root crops, and a group called "other." The three commodity groups in total, account for 100 percent of all calories consumed in the study countries. This report projects food consumption and access in 67 lower income developing countries—37 in Sub-Saharan Africa, 4 in North Africa, 11 in Latin America and the Caribbean, 10 in Asia, and 5 in the NIS (see appendix 1 for a detailed description of the methodology and appendix 2 for a list of countries). The projections are based on 1998-2000 data. The periods covered are 2001 (current), 2006 (5 years out), and 2011 (10 years out). Projections of food gaps for the countries through 2011 are based on differences between consumption targets and estimates of food availability, which is domestic supply (production plus commercial imports) minus non-food use. The estimated gaps are used to evaluate food security of the countries.

The **food gaps are calculated using two consumption targets:** 1) maintaining base per capita consumption or status quo (SQ), which is the amount of food needed to support 1998-2000 levels of per capita consumption, and 2) meeting nutritional requirements (NR), which is the gap between available food and food needed to support a minimum per capita nutritional standard (for definitions of terms used see Methodology in appendix

2). Comparison of the two measures either for countries, regions, or the aggregate, indicates the two different aspects of food security: consumption stability and meeting the nutritional standard.

The aggregate food availability projections do not take into account food insecurity problems due to food distribution difficulties within a country. Although lack of data is a major problem, an attempt was made in this report to project food consumption by different income groups based on income distribution data for each country. The concept of the income-consumption relationship was used to allocate the projected level of food availability among different income groups. The estimated "*distribution gap*" measures the food needed to raise consumption for each income quintile to the minimum nutritional requirement. Finally, based on the projected population, the number of people who cannot meet their nutritional requirements is projected.

The common terms used in the reports are: **domestic food supply**, which is the sum of domestic production and commercial imports; **food availability**, which is food supply minus non-food use such as feed and waste; **import dependency**, which is the ratio of food imports to food supply, and **food consumption**, which is equal to food availability.