

Global Food Security: Prospects and the Role of Food Aid

All ERS food security indicators show weather-related improvement in food availability in 2003 relative to 2002. Food aid continues to play an important role in alleviating hunger and famine across the world. In light of the 50-year anniversary of the U.S. food aid program in 2004, this section (in addition to reviewing food security in the 70 countries) evaluates the recent accomplishments and future challenges facing food aid programs. [Shahla Shapouri and Stacey Rosen]

Some Improvement In Food Security Is Projected, But ...

According to the estimated indicators, the food security situation improved slightly in 2003 relative to 2002 in the 70 study countries with respect to the number of hungry people. Nevertheless, food consumption in some countries declined relative to the recent past (2000-02 average), leading to status quo food gaps of about 7.2 million tons, exceeding the gaps estimated for 2002 (table 1).

The nutritional food gap (national level) increased nearly 2 million tons to more than 18 million tons in 2003 relative to 2002. The other indicator of nutritional well-being, the distribution gap, shows a slight improvement in 2003 as this gap declined by more than 3 million tons to 32.5 million tons relative to 2002. This improvement in food availability at the disaggregated level translates into improved food access for roughly 120 million people, as the estimate of the number of people consuming less than the nutritionally required level fell from more than 1 billion in 2002 to a little more than 900 million in 2003. Reviewing the same indicator over the past 15 years indicates large swings in the annual estimate of the number of food insecure people¹—ranging from an increase of 150 million to a decrease of 220 million. This variability is important since it reflects the profound impact of transitory or short-term food insecurity. In fact, because of the frequent incidence of transitory hunger,² we could not identify a clear trend at the aggregate level in the number of food insecure people in the study countries. This is not to say that there are no

clear trends in specific regions or countries, but aggregate level trends are harder to discern because improvements in hunger in one country may be offset by deterioration in another. This pattern constitutes a clear challenge to meeting the stated goal of the World Food Summit—cutting the global number of hungry people in half by 2015.

What is the long-term implication of transitory food insecurity and volatility in hunger? The answer lies between the potential for improving food security in these countries and the grim reality of the past. The fundamental forces that influence food security of the study countries are all moving in a positive direction. These include domestic food production potential, available technology, and trade growth potential. There is significant potential to expand food production even in the most vulnerable countries of Sub-Saharan Africa (SSA) and Latin America. Both regions have arable land that can be brought into production, although at some cost. In regions and countries with limited arable land, more intensive agricultural production under newly available technologies provides possibilities for increased food production. Trade also can enhance countries' food availability, since these countries' share of global trade is very small and therefore has potential to expand. Declining global food prices should reduce pressure on food import bills. This positive outlook is supported by the Food and Agriculture Organization (FAO), which monitors food security of a much larger set of countries than included in this report.

The reality of the past, however, dampens the optimism. Data show that during the last two decades many countries, rather than moving along the growth path, slipped downward. Our projections show slight improvements in food security of the countries at the aggregate level for the 70 countries. The projected improvements in terms of the decline in the nutritional food gaps and number of hungry people may not be enough to withstand major short-term shocks. The

¹ A person is considered food insecure if average food availability or access to food falls below Food and Agriculture Organization recommended average calorie intake levels of approximately 2,100 calories per day, depending on the region.

² Transitory or short-term hunger as opposed to chronic hunger afflicts parts of populations usually as a result of extraordinary events, such as drought, war, or other emergencies.

Table 1—Food availability and food gaps for 70 countries

Year	Grain production	Root production (grain equiv.)	Commercial imports (grain)	Food aid receipts (grain equiv.)	Aggregate availability of all food
			1,000 tons		
1994	407,850	59,936	53,132	8,320	637,332
1995	410,833	60,742	56,731	8,301	665,744
1996	431,022	61,975	53,840	6,011	673,684
1997	429,233	63,587	57,878	6,009	680,706
1998	434,260	63,588	62,840	6,553	689,949
1999	455,748	69,138	67,449	8,790	721,964
2000	454,916	71,312	64,578	6,620	715,974
2001	466,605	72,655	62,584	8,422	738,886
2002	451,474	74,025	65,417	8,249	761,921
Projections					
				Food gap*	
				SQ NR	
2003	472,085	75,391	64,128	7,237 18,418	756,233
2008	538,321	82,211	76,645	4,675 13,695	859,723
2013	598,880	89,550	90,554	10,867 14,291	950,132

*SQ stands for status quo and describes the amount of grain equivalent needed to support 2000-2002 levels of per capita consumption. NR stands for nutritional requirements and describes the amount needed to support nutritional standards.

estimated reduction in the number of hungry people is roughly 40 million from 2003 to 2013, meaning that any economic instability could nearly offset the gain.

The problem lies in the growing number of shocks, both natural and manmade, which have surfaced during the last decade and have consumed large shares of resources, both internal and external. The impacts of these shocks on the social and economic structures of these countries with limited or no safety nets are severe, thereby creating anti-government sentiment. The situation in Sub-Saharan Africa is a clear example. The region has been devastated by years of political unrest and regional conflicts, and now is faced with the devastating effects of HIV/AIDS, which are almost impossible to quantify. Therefore, as indicated in previous reports, in the absence of a major effort to buffer the impact of shocks, resources that could otherwise be invested to stimulate long-term growth and food security will be used to respond to individual crises.

Food aid is limited relative to needs, but it has reduced suffering and prevented many deaths. However, it also has been controversial in terms of its effectiveness in improving global food security. The

following section provides an overview of food aid's role and its impact on food security in the study countries since 1990.

What Is In This Report?

All historical and projected data are updated relative to the 2002 Food Security Assessment (FSA) report. The food production estimates for 2003 are based on USDA data as of October 2003 with supplemental data from the FAO and the World Food Program (WFP). 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. There are 70 countries covered in this report. The projections/estimates of food availability include food aid, with the assumption that each country will receive the 2000-2002 average level of food aid throughout the next decade.

In light of the 50-year anniversary of U.S. food aid programs in 2004, we focus on evaluating the recent accomplishments and future challenges facing food aid programs. We calibrated the FSA model to estimate

historical indicators of food security including estimations of food gaps and the number of hungry people. This allowed us to evaluate the effectiveness of food aid in improving food security of the study countries since 1990.

This report includes two special articles. “Brazil’s Food Security and Food Assistance Programs to Reduce Poverty” claims that due to chronic food insecurity of the poorest segments of the population, successive Brazilian governments have implemented a range of food assistance, anti-poverty and well-being programs and policies over the past 50 years. The article examines policy alternatives and concludes that improved targeting, combined with greater operational efficiency and size, could significantly enhance the effectiveness of Brazil’s food safety net programs.

“Food Security in Russia: Economic Growth and Rising Incomes are Reducing Insecurity” argues that despite adequate availability of food at the country level, access to food remains a problem. However, Russia’s improved macroeconomic performance since 1999, with GDP growing at an average annual rate of about 6 percent, has substantially reduced poverty, and thereby reduced the number of food-insecure households.

Food Security: Regional and Country Perspectives

In all regions covered in this report, food security is projected to improve in the next decade, but the rates of improvement vary. The most significant improvement is expected to take place in **Asia**, followed by **Latin America and the Caribbean (LAC)**. In **Sub-Saharan Africa (SSA)**, with the largest number of countries (37) there will be some improvement in per capita consumption and nutritional adequacy at the aggregate national level. However, the deep poverty that leads to hunger among the lower income population will remain unchanged.

The 2003 data indicate improvements in per capita consumption relative to the base year average (2000-02) in all countries of North Africa, LAC, and the Commonwealth of Independent States (CIS). Therefore, status quo food gaps in those countries are zero. This is not the case in SSA and Asia. Per capita consumption in 25 of the 47 countries in these regions is estimated to decline relative to average consumption in 2000-02. The four countries with the largest volume of status quo food gaps in 2003 are in Sub-Saharan

Africa: Ethiopia followed by Zimbabwe, the Democratic Republic of Congo and Uganda.

The indicator of national per capita consumption relative to the nutritional requirement showed that all countries in the regions of North Africa, Asia, and CIS had nutritionally adequate food in 2003. However, in 24 countries in SSA and LAC, average consumption falls short of the nutritional requirement. Nineteen of these countries are in SSA and 5 are in LAC. Similar to the case with the status quo gaps, the countries with the largest nutritional gaps are in SSA—Ethiopia, the Democratic Republic of Congo, Zimbabwe, Tanzania, and Somalia.

When income inequality is taken into account, the number of countries as well as the size of food gaps increase dramatically. In 2003, the distribution gap was estimated at 77 percent greater than the average national nutritional gap. In 49 of the 70 countries, more than 10 percent of the population was vulnerable to the threat of hunger. North African countries, however, are the least vulnerable to food insecurity compared with the other countries. The average calorie consumption in these countries is comparable to countries in Europe with much higher incomes. In fact, food consumption in the lowest 10-percent income quintile is estimated to be about 13 percent above the requirement. This means there is a very low level of hunger in this region even when the skewed distribution of purchasing power is taken into account.

For the Asian countries, the estimated distribution gap is more than 5.9 million tons in 2003 (note that they showed no nutritional food gap, on average, at the national level). In the LAC countries, highly skewed income distribution is the reason for a distribution gap 2.5 times larger than the average national nutritional food gap in 2003. In the CIS countries, with no average nutritional food gap, skewed purchasing power results in inadequate consumption for 20-60 percent of the population in four countries: Armenia, Georgia, Tajikistan, and Uzbekistan. In SSA, the difference between nutritional food gaps at the national average level and disaggregated level (which reflects purchasing power) is not very large, 17 million tons versus 23 million tons. The reason for these results is the deep poverty that encompasses the majority of the population in the region. Average food consumption of the region exceeds nutritional requirements by only less than 2 percent (2,135 versus 2,100 calories per day in 2003), and while the

skewed purchasing power adds to the problem, it does not alter the picture significantly.

The largest distribution gaps in 2003 are in Ethiopia, followed by the Democratic Republic of Congo, India, Bangladesh, Zimbabwe, and Tanzania. Note that a large gap in a country does not necessarily mean a deep level of nutritional vulnerability. In most cases, a large nutritional food gap in a country in volume terms is correlated with population size. For example, food consumption in the lowest (20-percent) income quintile in Burundi is estimated to be 54 percent lower than the same group in Bangladesh, but Burundi's nutritional food gap is ranked seventeenth while Bangladesh's is fourth.

Despite the low level of food availability and the deep poverty in SSA, Asia has the most hungry people. The estimate for 2003 is 440 million in Asia versus 381 million in SSA. The picture is projected to be reversed in the next decade, when there are expected to be 490 million hungry people in SSA and 308 million in Asia in 2013. This change is due to a projected high economic growth rate in Asia, while SSA economies are projected to improve slightly, but not enough to prevent growing hunger. In LAC, food security is expected to improve during the next decade, cutting the number of hungry people by more than half, but the improvement is not expected to be uniform across countries. The number of hungry people is projected to increase for the CIS countries. In North Africa, only the lowest income groups in Algeria, Egypt, and Morocco could face food insecurity.

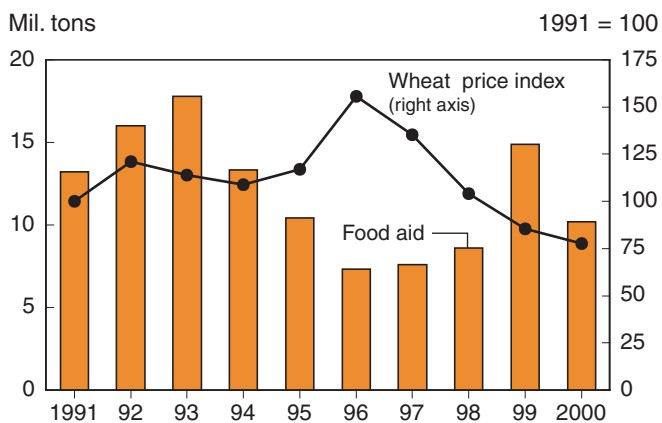
Food security estimates, as mentioned earlier, are based on the assumption of food aid flows continuing at the same level and allocation as the 2000-02 average. Based on this assumption, the food gaps are estimated to be 4.5-5 million tons smaller in 2003 than they would have been without food aid. As a result of food aid, consumption for 91 million people rises above the nutritionally required level. In Asia, food aid is expected to raise consumption above the target level for 64 million people—in the absence of food aid, these people would have been considered hungry. In SSA, food aid had a similar impact for 17 million people, and in LAC, 9 million people. Food aid is not expected to change food security of the North Africa and CIS regions in part because of their declining share of total food aid received (see the following section) and because their diets are already higher than the nutritionally required levels.

Food Aid Donations Are Declining

Food aid has been a major tool used by 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 the goal of many different projects has been to enhance long-term food security. The quantities of food aid and their distribution to recipient countries vary annually depending on donors' budgets and policies as well as emergency needs. Fourteen million tons of food aid (in grain equivalent) (see box, "How Food Security is Assessed") was shipped to the study countries in 1988. This declined to 8.7 million tons in 2002. The high level of food aid in 1999 featured a significant increase in food aid shipments to Indonesia in response to the Asian financial crisis. In addition, since the late 1980s, food aid to North African countries, which had been among the major recipients, declined sharply from more than 2 million tons in 1988 to about 74,000 tons in 2002. Another development during the 1990s was related to the CIS countries that gained independence and subsequently joined the list of food aid recipients. Food aid received by CIS countries peaked in the mid 1990s at nearly 2 million tons, but has declined since then to about half a million tons as their economies improved.

Cereal food aid shipments to the study countries varied annually with a declining trend during the last 15 years. The variation was counter cyclical (i.e., when food prices were up and food aid demand was high, the quantities declined; fig.1). Cereal aid was about 14 million tons in 1988, then declined to its lowest level of 5.5

Figure 1
Volume of food aid is inversely related to price trends



Source: USDA Baseline, ERS calculations.

How Food Security is Assessed: Methods and Definitions

Commodities covered in this report include grains, root crops, and a group called “other.” The three commodity groups account for 100 percent of all calories consumed in the study countries and are expressed in grain equivalent. The conversion is based on calorie content. For example: grain has roughly 3.5 calories per gram and tubers have about 1 calorie per gram. One ton of tubers is therefore equivalent to 0.29 tons of grain (1 divided by 3.5), and one ton of vegetable oil (8 calories per gram) is equivalent to 2.29 tons of grain (8 divided by 3.5).

Food consumption and food access are projected in 70 lower income developing countries—37 in Sub-Saharan Africa, 4 in North Africa, 11 in Latin America and the Caribbean, 10 in Asia, and 8 in the Commonwealth of Independent States (see Appendix 1 for a detailed description of the methodology and definitions of terms and Appendix 2 for a list of countries). The projections are based on 2000-2002 data. The periods covered are 2003 (current), 2008 (5-year forecast), and 2013 (10-year forecast). Projections of food gaps for the study countries through 2013 are based on differences between consumption targets and estimates of food availability, which is domestic supply (production plus commercial and food aid imports) minus nonfood use. The estimated gaps are used to evaluate food security of the study 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 2000-2002 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 Appendix 1). 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 food consumption of 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 and food aid 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.

million tons in 1996, before increasing to about 8 million tons during the 2000s. Most food aid is in the form of cereals, but the share of non-cereal food aid is on the rise. The share of non-cereal food items was in the range of 13-19 percent during the 1990s, but increased to 23 percent in 2002. The commodity mix of non-cereal foods varies annually and includes vegetable oils, pulses, fresh vegetables, and meat and fish products. Processed products include commodities such as cheese, butter, and pasta. Among the commodity groups in 2002, vegetable oils (more than 800,000 tons) and pulses (more than 350,000 tons) had the largest shares.

It should be noted that not all of the available food aid is sent to the study countries. During 1988-2002, the share of food aid sent to these countries was in the range of 58

to 90 percent. Russia was the largest single recipient of food aid in 1993 (3.5 million tons) and in 1999 (4.3 million tons).

Food aid is used for a variety of purposes and goals, but its principal mission is to fight hunger. The main food aid categories in terms of distribution and mission are program, project, and emergency aid. Program food aid is distributed bilaterally, i.e., as government-to-government donations, often responding to economic problems of the recipients. Multilateral and bilateral organizations donate project and emergency food aid, but most projects are operated by nongovernmental organizations. The goal of project food aid, with the exception of food for work, is similar to that of financial development aid projects and has no specific boundary in terms of the scope

of activities. During 2000-02, about 25 percent of food aid was program aid, 25 percent was project aid, and the remainder was used for emergencies. During the same period, about 40 percent of food aid was sold in the recipients' markets (i.e., sold for cash) to finance projects.

U.S. food aid programs began under the Agricultural Trade Development and Assistance Act of 1954 commonly referred to as Public Law (P.L.) 480 (see box, "How P.L. 480 Helps Supplement Food Supplies"). At that time, food aid was a feasible option for the disposal of rising U.S. agricultural commodity surpluses. Through time, however, the focus of U.S. policy has changed, responding to domestic and international conditions. The emphasis shifted from among several objectives, relative to the strength of domestic and international pressures at a given time: surplus disposal, humanitarian goals, market development, and foreign political support.

The United States Remains the Dominant Donor

Since 1954, U.S. food aid efforts reflected the interaction between domestic agricultural interests and foreign policy interests. In the early years, the objective of the food aid program was to dispose of surplus domestic production and raise prices. At that time, food aid accounted for more than half of U.S. grain exports, and at its peak equaled about 17 million tons (1965-66). The quantity of U.S. food aid has remained stable in recent years (5-6 million tons). The decline in U.S. food aid, however, has been partially offset by an increase in donations by other countries. In the early 1990s, the major donors of food aid were the United States, Europe, Canada, and Japan, with shares of 59 percent, 29 percent, 7 percent, and 3.5 percent, respectively (fig. 2). During 2000-02, the U.S. share increased to more than 62 percent while Europe's share declined to less than 17 percent and Canada's share to less than 3 percent. The U.S. share of global cereal aid was 60 percent, while the share of non-cereal aid was 75 percent.

Food Aid: Who Receives the Most?

Regionally, SSA and Asian countries have been by far the largest recipients of food aid, receiving about 60-80 percent of the volume of food aid going to the study regions during the last 15 years. Depending on the economic and political developments in their

How P.L. 480 Helps Supplement Food Supplies

The U.S. provides food aid under three programs: P.L. 480, Section 416(b), and Food for Progress (FFP). The Section 416(b) program provides for donations to developing countries of surplus commodities owned by the Commodity Credit Corporation (CCC). The FFP program authorizes the sale or donation of U.S. agricultural commodities to support developing countries or emerging democracies. FFP can be funded through CCC or P.L. 480 Title I. To date, all food aid provided under this program has been by donation. The P.L. 480 food aid program is the principal vehicle for U.S. food aid and it is comprised of three titles:

- **Title I** consists of government-to-government commodity sales and sales to private entities under long-term, low-interest credit arrangements (also includes Title I FFP grants).
- **Title II** provides for donations of commodities to meet humanitarian and economic development needs.
- **Title III** provides for government-to-government grants to support economic development for the least developed countries.

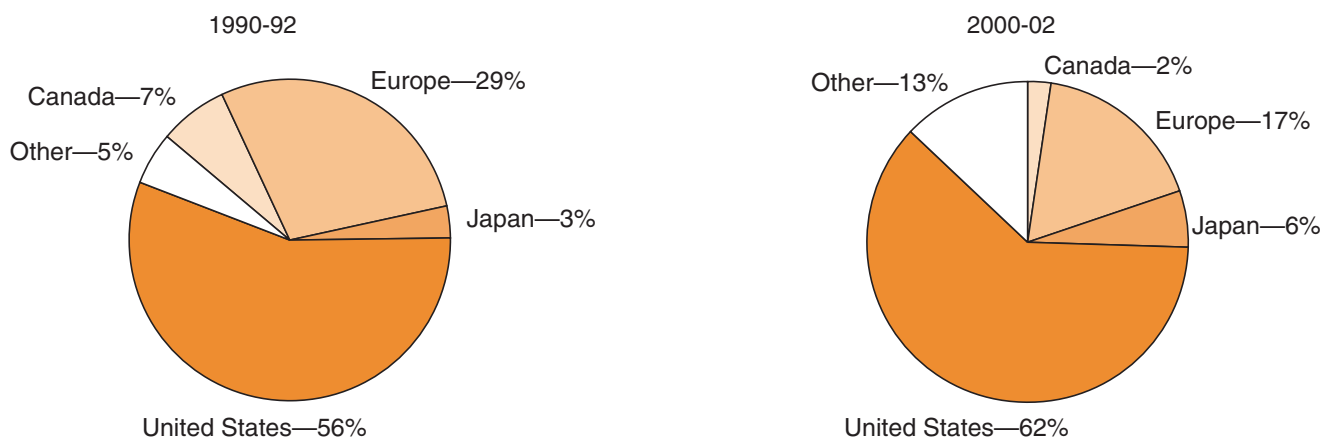
Through the 1990s, changes in appropriations for the P.L. 480 programs reflect the emphasis toward humanitarian rather than market development goals. In fiscal year 2001, 86 percent of the value of U.S. food aid appropriations fell under the Title II program, compared with 50 percent in the early 1990s.

On the other hand, the allocation levels of Title I fell steadily during the 1990s, averaging over \$400 million per year early in the decade to roughly \$140 million in 2001. Title II varied marginally during the same time period, exceeding \$800 million in most years. Title III was always significantly smaller than the other two programs, and since 2001 has received no funding.

respective countries, the food aid share of the two regions has changed over time. Severe droughts in the early 1990s and 2000s resulted in higher food aid shipments to SSA, while political, financial, and natural disasters in the late 1990s shifted donations to Asia. On a per capita basis, however, the SSA share is much

Figure 2

U.S. share of global food aid rose during last decade



Source: World Food Program, ERS calculations.

higher than Asia’s because of the differences in population size: SSA countries have less than 40 percent the population of the Asian study countries.

Latin American countries’ share of food aid peaked in 1990 at about 20 percent of the total, but since then has ranged from 10-14 percent. The CIS countries had their highest food aid share in 1995 (21 percent), but this share has declined to 3-6 percent in recent years. Improvements in the economies and food supplies of the two regions explain part of this trend. These declines in shares are not as sharp when expressed in dollar terms as opposed to quantity because of the non-cereal food aid component of food aid. The reason is simply because non-cereal commodities have a greater per unit value than cereals and account for a significant share of the food aid received by the two regions. During 1998-2000, the share of non-cereal food aid to total food aid received by the CIS countries was in the range of 32-72 percent, and in LAC it was 27-42 percent. To demonstrate the importance of non-cereal aid as a share of the total value of food aid, one can simply compare the caloric content and prices of wheat and poultry meat. Every 100 grams of wheat has 350 calories, while poultry meat has less than half that. However, a metric ton of poultry meat costs over 10 times more than a metric ton of wheat in the international market. Even when nutritional attributes such as protein content are taken into account, cereals are the most cost effective. The protein content of poultry meat is only three times higher than cereals, not enough to justify the higher cost. The growing share of non-cereals, if not adjusted in donor budgets, will

absorb a large share of food aid outlays, and reduce the caloric availability of food aid to the most vulnerable.

How Effective is Food Aid in Improving Food Security?

Despite a wide-ranging debate on the positive (additional supplies) and negative (production disincentive due to the decline in local prices) effects of food aid, the consensus is that food aid is beneficial for relieving transitory and emergency food insecurity. The question we examine is the degree to which food aid contributed to increasing consumption in food insecure countries and how effectively food aid responded to fluctuations in needs. In other words, has food aid reduced consumption instability over time? Since the quantities of food aid fall short of the aggregate needs of the study countries, the next question is whether food aid has responded effectively to specific country food needs (i.e., is it provided to those that need it the most?).

Food aid contribution to consumption—The overall contribution of food aid to total food consumption in the study countries is small, but the importance of food aid is more pronounced when it is measured at the country level at particular points in time. Food aid, on average, provided less than 4 percent of food consumption (grain equivalent) for the 70 countries in the last decade, but the share varied greatly by country and tended to be significant during emergencies. During the 1992-93 civil war, food aid contributed to about 70 percent of Somalia’s consumption. Also, when Mozambique was

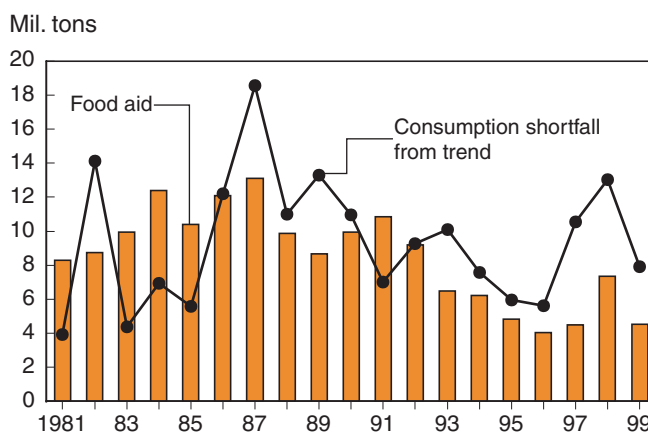
faced with prolonged economic and political difficulties, it often relied on food aid to supplement more than one-third of its food consumption. Similarly, in Rwanda during 1997-99, food aid contributed to more than one-third of food consumption. Since 2000, Eritrea has relied on food aid for about half of its consumption. During 2000-02, the largest recipients of food aid were North Korea (4.2 million tons), Ethiopia (4 million tons), Bangladesh (1.4 million tons), and Afghanistan (1.1 million tons). In North Korea, food aid contributed to about 20 percent of food consumption, and in Ethiopia and Bangladesh less than 10 percent.

Food aid to stabilize consumption—During the last two decades, food aid clearly had a significant role in reducing loss of life during food emergencies in countries such as Ethiopia, Sudan, Somalia, Afghanistan, Rwanda, and Haiti. However, to measure how food aid has responded to short-term food insecurity over time and by country, we examined food consumption (grain only) in 62 of the study countries: 41 in Africa, 10 in Asia, and 11 in Latin America—CIS countries are excluded. We calculated the annual changes in consumption shortfalls in each country, or the amount by which consumption (excluding food aid) fell below the 1981-2000 trend (these shortfalls are often called “transitory food insecurity”). The summation of the shortfalls across countries is the amount of food that was required to stabilize food consumption of the countries.

Comparing these shortfalls with quantities of food aid received showed that food aid covered about 92 percent of the shortfalls, on average (see fig. 3). This means that the cumulative quantity of food aid received during 1981-2000 was equal to 92 percent of all consumption shortfalls. Ideally, the volume of food aid would have matched the magnitude of the transitory food insecurity. In practice, however, food aid followed a declining trend while consumption shortfalls varied annually. For example, in 1981 and 1983, food aid was double the amount of consumption shortfalls, while in 1997 it was less than half of the shortfalls. The overall level of food aid trended downward after 1991 and covered less than 60 percent of the consumption shortfalls from 1991-2000. In sum, in 6 of the 20 years covered, food aid exceeded the consumption shortfalls; in 12 of the years, it was less than the shortfalls; and only in 2 years (1986 and 1992) did the quantities match closely. The comparisons are much more uneven at the country level.

Food Aid Responding to Needs—Food aid clearly falls short of needs, especially given the broad goals of

Figure 3
Imbalances between food aid supplies and short-term consumption shortfalls



Source: World Food Program, ERS calculations.

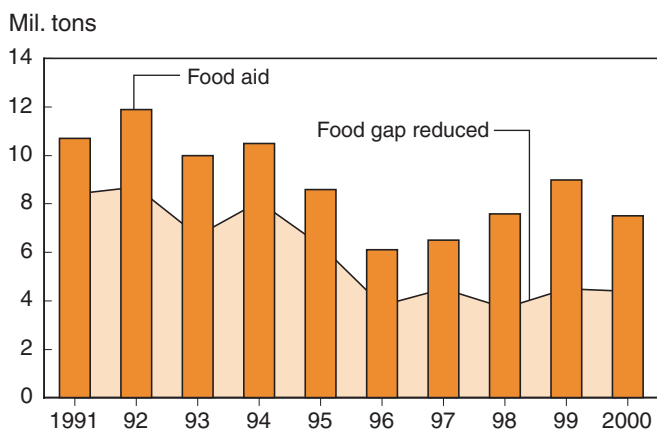
donors, including both humanitarian (relief of chronic and transitory hunger) and development aims. In this section, we examine the efficiency of food aid by exploring whether it is provided to those that need it most. The distribution gap represents the amount of food needed to raise food consumption for each income group within a country to the level that meets nutritional requirements. This indicator captures the impact of unequal purchasing power on food access. We used the food security model to estimate food gaps with and without food aid during 1991-2002 and compared those estimates with the actual food aid received by the countries.

The results show that during 1991-95, food aid reduced food gaps by 30-41 percent, and during 1996-2000, 16-23 percent. This result, in part, is due to a nearly 30-percent decline in food aid between the two periods. However, there was also a decline in the efficiency of food aid that stems from distribution of food aid among countries. Food aid efficiency is measured on a scale of 0 to 100 percent. Food aid efficiency is 0 percent when food aid is given to a country with no needs, and 100 percent when food aid reduces a country’s food gap by its full amount (i.e. a one-to-one relationship). It is important to note that this measure is based on actual consumption as related to purchasing power within the countries at the national level, and may not capture micro-level specific programs such as food for work that could be location specific.

The results of our exercise show that in 1991, the 11 million tons of food aid received by the study countries reduced their food gaps by 8.4 million tons (78-percent efficiency) (fig. 4). In contrast, in 2000, 7.5 million tons

Figure 4

Impact of food aid: Food aid reduces nutritional food gaps but falls short of full effect



Source: World Food Program, ERS calculations.

of food aid reduced their food gap by 4.4 million tons (59-percent efficiency). During 1991-2000, the average efficiency of food aid was 66 percent, meaning that 34 percent of food aid was given to countries that either did not have food needs or given in excess of their needs based on our food gap criteria. Regionally, food aid delivery in SSA and Latin America was highly effective in reducing food gaps, averaging about 80 percent during 1991-2000. In Asia and the CIS countries, the impact of food aid in reducing food gaps was low and had declining trends. Food aid efficiency in Asia and the CIS countries averaged 40 and 46 percent, respectively, during 1991-2002.

The efficiency of food aid in meeting nutritional needs is highly dependent on how food aid is utilized. The largest nutritional gain is when food aid is targeted to the lowest income group, thus indirectly increasing their purchasing power—in either emergency situations or in support of supplementary feeding programs such as food stamps. This, in fact, will change the income distribution indirectly because it allows the lower income group to consume more than what is expected given their income level. In 2000, about half of food aid was used for emergencies, which can be categorized as a targeted program. As for the other half, it is not clear how much is targeted. With the exception of targeted direct feeding, the leakage rate³ in project and program food aid is estimated to be high and therefore those programs have a small nutritional impact. For example, when food aid is used to reduce financial constraints and to expand import capac-

³ The leakage rate refers to the share of food aid deliveries that do not reach a person living in food insecurity.

ity of a country, food is sold on the local market and is more affordable (cheaper food). But, these benefits are spread across the entire population, and do not necessarily accrue to the most food insecure people. The same situation holds when food aid is sold in the local market to finance development activities.

The growing share of non-cereal food aid products is also problematic because these commodities are not likely to reach the poorest segment of the population. The case of Georgia is a good example. In 2000, non-cereals accounted for two-thirds of Georgia's food aid package (67,739 tons in grain equivalent). The long list of commodities in this food aid package include vegetable oil, pasta, dried potatoes, dried fish, pulses, sugar, and fresh vegetables. The high cost of these commodities makes them less likely to be consumed by the poor. In addition, the large number of donors and projects adds to the uncertainty of food security and nutritional accomplishments of food aid in these circumstances. In 2002, 12 national donors supplied food aid to Georgia in support of 45 projects, all with different objectives and goals.

Improving Effectiveness of Food Aid

There are many unresolved issues as to how to improve effectiveness of food aid, and how activities are undertaken and administered by donors and recipient countries. For example, it is not known which programs work and under what circumstances. Also, eligibility criteria are not clearly defined. The question remains as to when a country is eligible and when an activity stops and why. There are countries that receive food aid for reasons that are not clear. The example is China, which in 2000-02 received wheat as food aid for development projects, but donated food (wheat, rice, maize, oils) to North Korea and several African countries during the same period.

It is not known how activities shift from the use of food aid for development purposes to emergency relief (or vice versa) and how these changes influence (positively or negatively) coordination and management of food aid between donors and recipients. Also, it is unclear how markets react when food aid commodities are sold in the recipient markets to finance development projects. In each case, it is difficult to measure which potential goals are met (cost effectiveness, meeting recipient needs) and to what extent. Compounding the problem are the dramatic changes in annual availability of food aid. The question remains as to whether a program with this type

of characteristic can provide a reliable food safety net, let alone a reliable source of development.

Managing the U.S. food aid program has become complicated by the growing range of objectives—and in some cases, overlapping and/or inconsistent goals—and the growing number of institutions and players. Many donors have attempted to streamline their operations, but with mixed results. For example, the Food Aid Consultative Group meets regularly (semi-annually) to improve the effectiveness of the Title II program (a subset of the U.S. food aid program) to make the program interactive and less isolated operationally. The group includes U.S. government representatives (USDA and USAID), private volunteer organizations (PVOs), and commodity producer groups. However, the overall coordination and transparency of policies are still uneven and not streamlined. Problems arise from intersecting sets of goals and an increasing number of players, thereby raising the transaction costs of the operation. According to USAID, 46 PVOs oversee food aid program (P.L. 480) activities. In addition, there are more than 500 national PVOs registered to collaborate with USAID, and these PVOs work with hundreds of private international organizations. The goals of PVOs are not uniform and not all of their activities are focused on nutritional improvement. The problem is not limited to USAID; other donors and their operating PVO associates also have diverse interests. In 2000, at the global level, there were 944 food aid projects in 74 countries with resources equal to 2.7 million tons of grain equivalent. Again, these projects are in addition to emergency projects and program food aid (government to government food aid donations). While these projects are useful and necessary, conflicting interests and goals can degrade nutritional effectiveness and accountability.

Improving the management of these programs could be expensive, both for donors and recipients. In Madagascar, food aid equaled about 59,500 tons in 2000, almost doubled in 2001, and then declined by half in 2002. In 2001, when the donation level was highest, food aid was used in 46 activities carried out by 10 donors implemented by unknown numbers of PVOs. The commodities included in each activity varied and included 4 tons of sugar, 11 tons of cheese, and 21,000 tons of vegetable oils (the largest quantity of food aid in one activity, which was sold on the local market to finance a project). Large variations in the

annual amount of food aid and fragmented projects that are managed by different donors can distort the market, raise transaction costs, lower the effectiveness, and raise questions about the impact and sustainability of such efforts. It should be noted that these problems are not unique, as financial aid is faced with similar and perhaps even additional problems, according to a 2003 World Bank Development Report. The report argues that donors with small projects tend to focus on positive results of their project rather than overall improvements of the situation of the aid recipient country. They often bypass local institutions and instead run their own project implementation units for which they hire the best qualified staff, which can undermine the institutional capacity of recipient countries' governments. Another important challenge is the sustainability of projects without a centralized system involved. High project fragmentation is more problematic for the lower income countries with weak institutional capacity. According to the World Bank report, Tanzania's government must prepare about 2,000 reports for donors on an annual basis and receive more than 1,000 donor delegations.

The United States plays a pivotal role within the international food aid system, and its actions have a profound effect on the actions of other donors and the system as a whole. The U.S. Action Plan on Food Security, released in March 1999, outlines policies and actions aimed at alleviating hunger at home and abroad. In order to improve the effectiveness of the international food assistance program, the Action Plan places priority focus on the most food insecure countries. The 50th anniversary of the U.S. food aid program in 2004 is a timely point at which to pause and offer a retrospective of past issues and reexamine plans for future.

There are lessons from the past that could be useful for the future. For example, there is adequate historical evidence that emergency food aid has been successful in saving lives. There are also fewer disputes on the use of food aid in post-emergency situations. Other uses of food aid, however, have had mixed results. One important concern is the "program food aid"—that is, government-to-government donations—commonly sold in the recipient markets. Developing countries are moving toward privatization and any injection of commodities can disrupt markets. Overall, any step towards transparent criteria for food aid eligibility, length of the program, and type of program should enhance its effectiveness and pave the road to improved coordination among donors.

Iraq

Prior to the Persian Gulf War in 1991, daily per capita calorie consumption in Iraq was comparable to that in industrialized countries—averaging 3,400 calories in 1988-1990. Immediately following the war, calorie consumption dipped significantly and has not recovered. In 2000, per capita consumption was 2,197 calories per day. This intake level is roughly equal to that of Sub-Saharan Africa, the poorest region in the world. The Iraqi diet is also similar in composition to low-income, developing countries. Grains comprise nearly two-thirds of the diet, while meat accounts for less than 2 percent.

Prior to the 1991 war, Iraq's agricultural imports averaged more than \$2 billion annually. In 1991, these imports fell by more than half as a result of sanctions imposed (in August 1990) by the United Nations (UN) Security Council. In May 1996, in response to the country's humanitarian crisis, the Iraqi government and the UN reached an agreement on an oil-for-food program. The program was designed to reverse the economic downturn by providing food and allowing for strategic imports. The first shipment of oil under the program was exported in December 1996 and the first shipments of food were received in March 1997. In the early stages of the agreement, a limit was imposed on the amount of oil Iraq could export within a certain time period. However, at the end of 1999, this ceiling was removed.

The program continued after the U.S.-led invasion of March 2003, and as of May 2003, roughly \$28 billion of humanitarian supplies and equipment were delivered to Iraq under the program. The program expanded beyond its original emphasis on food and medicines to include infrastructure rehabilitation. Reports have indicated that the overall socioeconomic condition of the population improved as a result of this program. Real gross domestic product rose 28 percent in 1997, 35 percent in 1998, 40 percent in 1999, and 15 percent in 2000.

In addition, malnutrition rates among young children have dropped significantly; incidents of diseases such as cholera, malaria, and measles have declined; and the road and transportation network has improved. The program was suspended in November 2003. Furthermore, as mentioned above, overall calorie consumption remains more than a third below pre-

1991 levels. This means that much of the population remains in a precarious nutritional situation.

Recent cereal production has averaged about half the pre-Gulf War level. Output has been constrained by lack of investment, input shortages, and deteriorating irrigation infrastructure. Drought from 1999 to 2001 also limited output. The food supply situation was boosted by the UN oil-for-food program as imports, once again, played a significant role in Iraq's food supplies. For staple foods, imports account for almost two-thirds of consumption. Cereal imports ranged from 4-4.5 million tons per year in 2000-2002. As for other major consumables, Iraq is almost entirely dependent on imports for its sugar consumption, and for more than 90 percent of vegetable oils. Imports of other essential food items such as dairy products and meat are quite small—contributing to 6 percent of dairy and 2 percent of meat consumption.

USDA estimates a 12.5-percent increase in grain production for 2003 due to good rains in the northern part of the country and an adequate supply of inputs for the irrigated grain sector. The effects of the 2003 war were less than expected. Agriculture in the northern part of the country was uninterrupted, while planting in other areas was completed prior to the war. The war ended before harvesting had begun. Summer crop production, however, was adversely affected. Reduced power supplies for irrigation and insufficient supplies of fertilizers constrained output.

Improved production, coupled with the lifting of economic sanctions, has certainly augmented food supplies. However, high rates of unemployment—estimated at 60 percent by the UN Food and Agriculture Organization—limit economic access to food and perpetuate a dependence upon the public distribution system. The system was operated under the oil-for-food program and provided food for the entire population. However, food rations available under the system lacked nutritional diversity and had insufficient proteins and micronutrients. An improvement in the nutritional situation of the country will depend upon the rehabilitation of the agricultural sector, improved domestic security and stability, and a general economic recovery to enhance the purchasing power of the poorer segments of the population.