

# Food Security: Vulnerability Despite Abundance

## Coping with Crisis

Working Paper Series

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**Cover Photo:** Children with gourds wait for permission to gather the spilled grain from air-drops by World Food Programme (WFP) aircraft near Thiekthou, Sudan. © UN/DPI.

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## Foreword

Terje Rød-Larsen

*President, International Peace Academy*

The International Peace Academy (IPA) is pleased to introduce a new series of Working Papers within the program *Coping with Crisis, Conflict, and Change: The United Nations and Evolving Capacities for Managing Global Crises*, a four-year research and policy-facilitation program designed to generate fresh thinking about global crises and capacities for effective prevention and response.

In this series of Working Papers, IPA has asked leading experts to undertake a mapping exercise, presenting an assessment of critical challenges to human and international security. A first group of papers provides a horizontal perspective, examining the intersection of multiple challenges in specific regions of the world. A second group takes a vertical approach, providing in-depth analysis of global challenges relating to organized violence, poverty, population trends, public health, and climate change, among other topics. The Working Papers have three main objectives: to advance the understanding of these critical challenges and their interlinkages; to assess capacities to cope with these challenges and to draw scenarios for plausible future developments; and to offer a baseline for longer-term research and policy development.

Out of these initial Working Papers, a grave picture already emerges. The Papers make clear that common challenges take different forms in different regions of the world. At the same time, they show that complexity and interconnectedness will be a crucial attribute of crises in the foreseeable future.

First, new challenges are emerging, such as climate change and demographic trends. At least two billion additional inhabitants, and perhaps closer to three billion, will be added to the world over the next five decades, virtually all in the less developed regions, especially among the poorest countries in Africa and Asia. As a result of climate change, the magnitude and frequency of floods may increase in many regions; floods in coastal Bangladesh and India, for example, are expected to affect several million people. The demand for natural resources—notably water—will increase as a result of population growth and economic development; but some areas may have diminished access to clean water.

Second, some challenges are evolving in more dangerous global configurations such as transnational organized crime and terrorism. Illicit and violent organizations are gaining increasing control over territory, markets, and populations around the world. Non-state armed groups complicate peacemaking efforts due to their continued access to global commodity and arms markets. Many countries, even if they are not directly affected, can suffer from the economic impact of a major terrorist attack. States with ineffective and corrupted institutions may prove to be weak links in global arrangements to deal with threats ranging from the avian flu to transnational terrorism.

Finally, as these complex challenges emerge and evolve, “old” problems still persist. While the number of violent conflicts waged around the world has recently declined, inequality—particularly between groups within the same country—is on the rise. When this intergroup inequality aligns with religious, ethnic, racial and language divides, the prospect of tension rises. Meanwhile, at the state level, the number of actual and aspirant nuclear-armed countries is growing, as is their ability to acquire weapons through illicit global trade.

As the international institutions created in the aftermath of World War II enter their seventh decade, their capacity to cope with this complex, rapidly evolving and interconnected security landscape is being sharply tested. The United Nations has made important progress in some of its core functions—“keeping the peace,” providing humanitarian relief, and helping advance human development and security. However, there are

reasons to question whether the broad UN crisis management system for prevention and response is up to the test.

Not only the UN, but also regional and state mechanisms are challenged by this complex landscape and the nature and scale of crises. In the Middle East, for example, interlinked conflicts are complicated by demographic and socioeconomic trends and regional institutions capable of coping with crisis are lacking. In both Latin America and Africa, “old” problems of domestic insecurity arising from weak institutions and incomplete democratization intersect with “new” transnational challenges such as organized crime. Overall, there is reason for concern about net global capacities to cope with these challenges, generating a growing sense of global crisis.

Reading these Working Papers, the first step in a four-year research program, one is left with a sense of urgency about the need for action and change: action where policies and mechanisms have already been identified; change where institutions are deemed inadequate and require innovation. The diversity of challenges suggests that solutions cannot rest in one actor or mechanism alone. For example, greater multilateral engagement can produce a regulatory framework to combat small arms proliferation and misuse, while private actors, including both industry and local communities, will need to play indispensable roles in forging global solutions to public health provision and food security. At the same time, the complexity and intertwined nature of the challenges require solutions at multiple levels. For example, governments will need to confront the realities that demographic change will impose on them in coming years, while international organizations such as the UN have a key role to play in technical assistance and norm-setting in areas as diverse as education, urban planning and environmental control.

That the world is changing is hardly news. What is new is a faster rate of change than ever before and an unprecedented interconnectedness between different domains of human activity—and the crises they can precipitate. This series of Working Papers aims to contribute to understanding these complexities and the responses that are needed from institutions and decision-makers to cope with these crises, challenges and change.



Terje Rød-Larsen

## Introduction

Food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life.<sup>1</sup> It has three facets: food availability, access to food, and food utilization. The last aspect refers to proper use of food, including adequate nutrition knowledge and practices. The reference to food preferences acknowledges that in extreme circumstances, people may eat otherwise unacceptable foods; however, such circumstances do not represent food security.

Food security is an important component of human security, and is one of the seven pillars of the UN Development Programme's original concept of human security, along with economic, health, environmental, personal, community, and political security. More recent human security thinking links "freedom from want" and "freedom from fear." Living in food insecurity is the quintessential state of both want and fear. As US Secretary of State Henry Kissinger put it at the 1974 World Food Conference, ending hunger would mean that "no child will go to bed hungry, no family will fear for its next day's bread...."

The world has made significant progress against food insecurity over the past 35 years, thanks to investments in agricultural productivity, infrastructure, health, education, and food-related social programs.

However, since 1995, food insecurity has increased in developing countries. With business as usual, there is no chance of meeting the 1996 World Food Summit target of cutting hunger in half from 1990 levels by 2015. Depending on the patterns of global policy, public investment, and institutional development, the prospects for food security may remain dim well beyond that year. This has serious implications for global security, particularly human security.

## Current Thinking and Debate

### State of Global Food Security: What We Know

Global food availability is more than adequate to provide everyone with her or his minimum requirements of 2,200 calories per day, and is projected to remain so in all developing regions through 2015 (Figure 1). During the present decade, world harvests and stocks of cereals—the main source of calories—have stayed abundant, with all-time record output in 2004. Supplies of root and tuber crops—key staples for the poorest people in the low-income countries—are likewise favorable.

The equal access to food picture is far less rosy: hundreds of millions of people in developing countries consume less than their minimum calorie requirements, because they lack either the income to buy available food or the resources to produce food

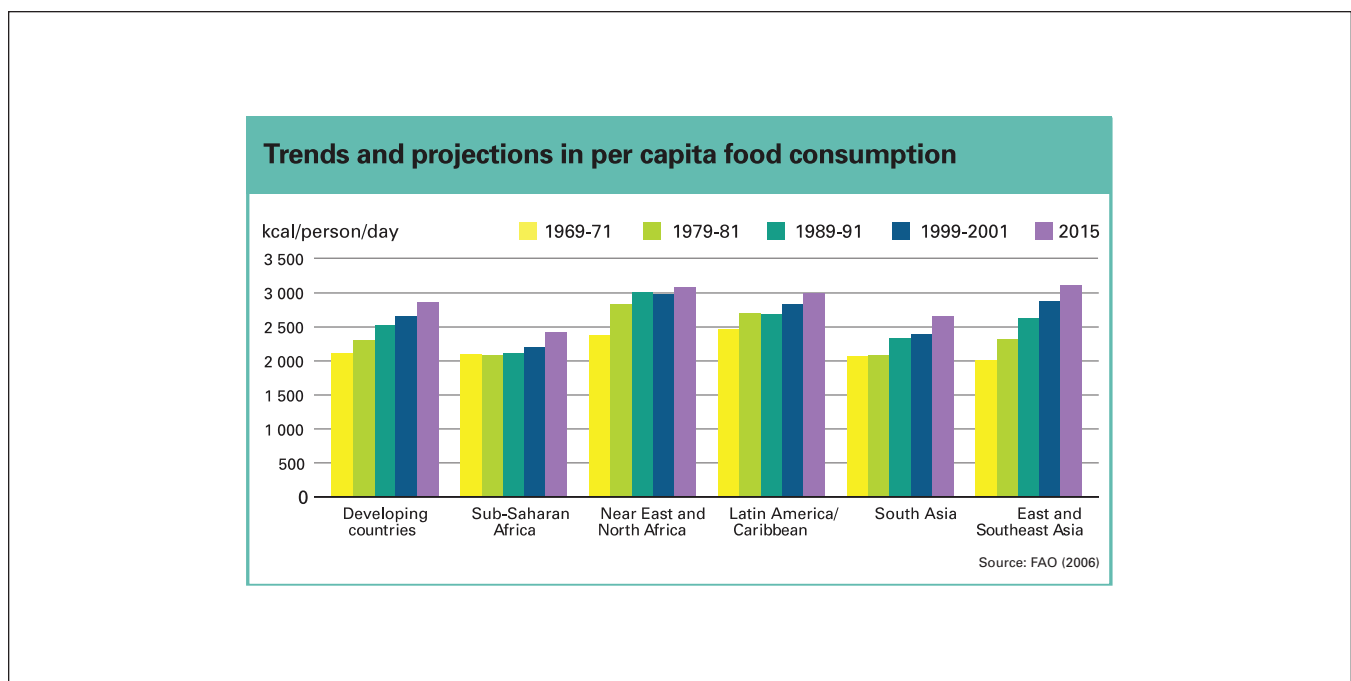


Figure 1

<sup>1</sup> This is the definition adopted at the 1996 World Food Summit.

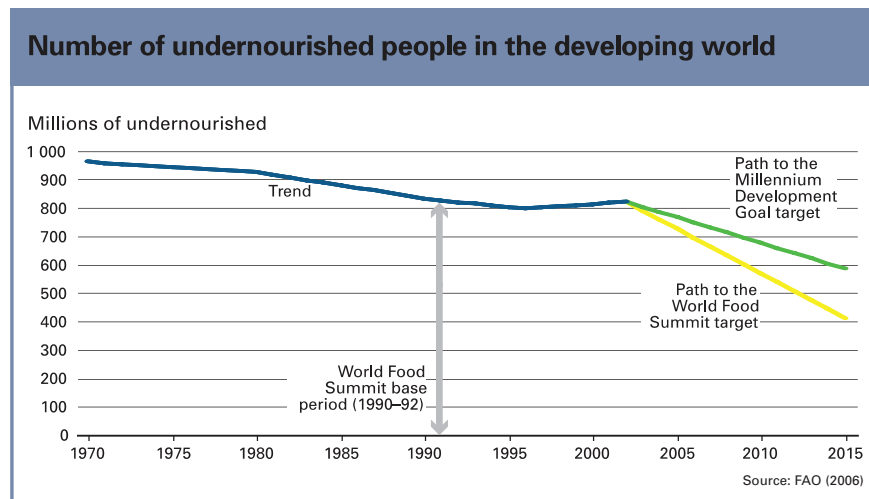


Figure 2

for themselves. According to the Food and Agriculture Organization of the United Nations (FAO), in 2003, the last year for which data is available, 820 million people in developing countries experienced food insecurity. Another 25 million food-insecure people live in countries in transition from centrally planned to market economies and 9 million reside in developed nations. Sub-Saharan Africa and South Asia, home to over 60 percent of the developing world's food-insecure people, constitute hunger's center of

gravity. Despite the increase in the number of food-insecure people in the developing world since 1995, the proportion dropped slightly, from 20 to 17 percent, between 1990 and 2003 (see Figure 2 and Table 1).

According to the UN Millennium Project's Hunger Taskforce (2005), 80 percent of food-insecure people live in rural areas. Ironically, fully half are smallholder farmers. Because of the many constraints they face, such as lack of credit, poor roads, poor access

**Food Insecurity in Developing Countries, 1990-2015**  
(million people/percent of population)

Developing Region	Food Insecure Population			WFS Target	Food Insecure % of Population			MDG Target
	1990	2003	2015 (projected)	2015	1990	2003	2015 (projected)	2015
Sub-Saharan Africa	169	206	179	85	35	32	21	18
Near E./N. Africa	25	38	36	1	8	9	7	4
Latin America	59	52	41	30	13	10	7	7
South Asia	290	299	203	146	26	22	12	13
East & Southeast Asia	279	225	123	139	17	12	6	8
Developing World	823	820	582	412	20	17	10	10

Source: FAO (2006)

Table 1



to government services (health, education, agricultural research and extension), difficult environmental conditions, and natural resource degradation, they often do not produce enough to meet their own families' needs, and may have to spend much of their meager incomes on food. Another 20 percent are landless rural laborers, while 10 percent are pastoralists, fisherfolk, and forest users. Thus, despite present food supply abundance, continued gains in agricultural productivity in developing countries are essential to reduce food insecurity.

Low-income city dwellers account for the remaining 20 percent of the food-insecure population. They tend to depend on money income for access to food, as they have fewer opportunities than rural people to grow food, and generally need access to child care. Their diets usually shift toward greater consumption of animal products and processed foods. Despite rapid urbanization in developing countries,<sup>2</sup> poverty and food insecurity will remain predomi-

nantly rural for at least the next twenty-five years.<sup>3</sup> Latin America is already experiencing a rural concentration of poverty and hunger within a mostly urbanized population.

### Child Malnutrition

Turning to food utilization, as Figure 3 indicates, inadequate dietary intake is one of two immediate causes of child malnutrition. The other is disease, and these interact in a vicious downward spiral, with inadequate food intake heightening vulnerability to infectious diseases, while infections, particularly malaria, measles, persistent diarrhea, and pneumonia, can undermine absorption of nutrients. These immediate causes, in turn, stem from a complex set of underlying causes at the household level: insufficient access to food—one aspect of food insecurity—poor maternal and child caring practices, and inadequate access to clean drinking water, safe sanitation, and

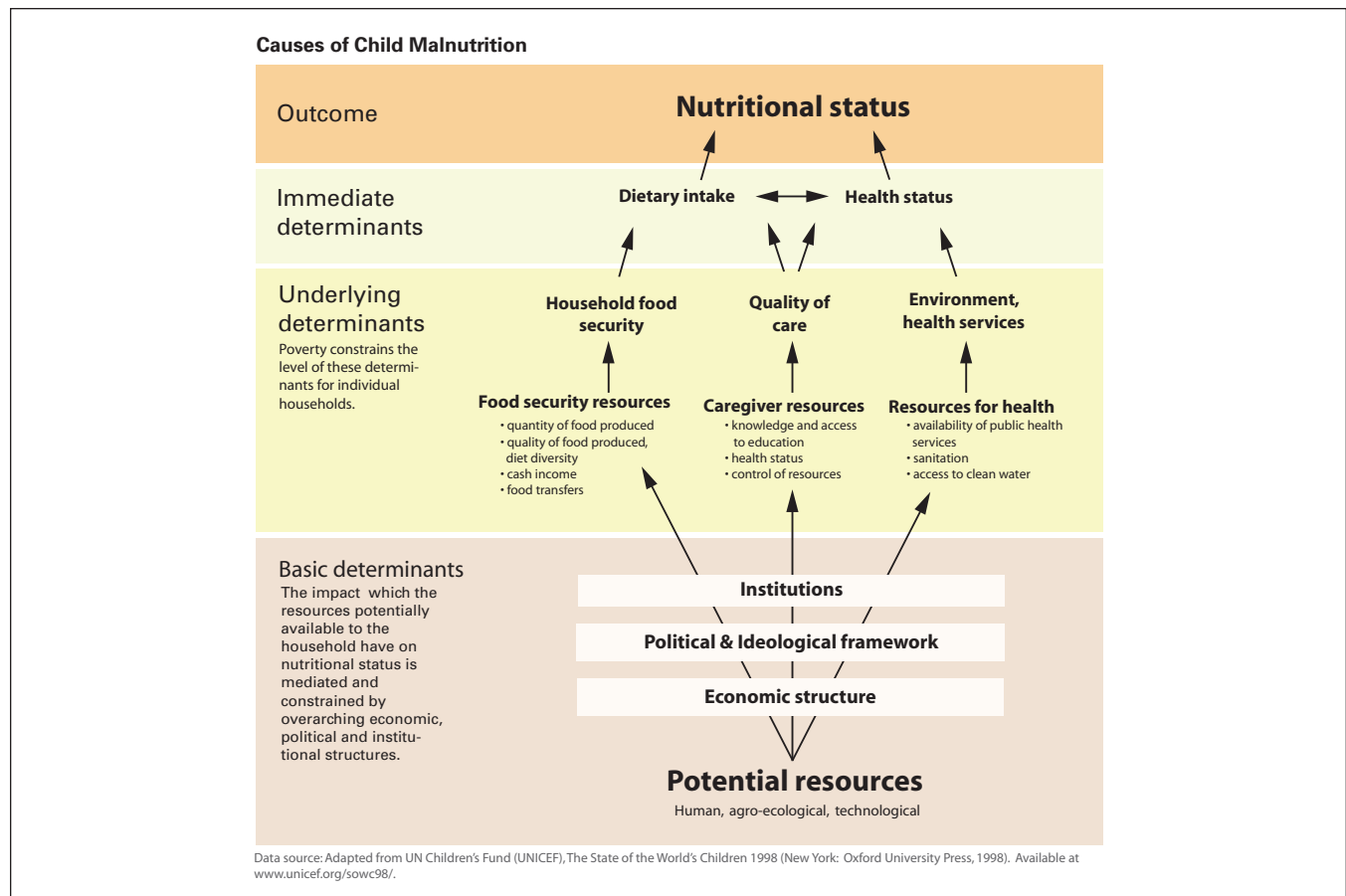


Figure 3

<sup>2</sup> See Joseph Chamie, "Population Trends: Humanity in Transition," *Coping with Crisis Working Paper Series*, International Peace Academy, New York, June 2007, for further discussion of rapid urbanization in developing countries.

<sup>3</sup> International Fund for Agricultural Development (IFAD), *Rural Poverty Report 2001* (New York: Oxford University Press, 2001), available at [www.ifad.org/poverty/index.htm](http://www.ifad.org/poverty/index.htm).



**Estimated prevalence and number of underweight<sup>a</sup> children 0-5 years old**  
1990-2005 (by UN region and subregion)

UN region & subregion	Prevalence (percent)				Numbers (million)			
	1990	1995	2000	2005	1990	1995	2000	2005
<i>Africa</i>	23.6	23.9	24.2	24.5	25.3	27.8	30.9	34.5
Eastern	26.7	27.9	29.2	30.6	9.5	10.9	12.8	14.8
Middle	27.8	26.9	26.1	25.3	3.7	4.2	4.7	5.3
Northern	12.3	10.9	9.7	8.6	2.6	2.3	2.1	1.9
Southern	14.0	13.9	13.7	13.6	0.8	0.8	0.8	0.8
Western	27.8	27.5	27.1	26.8	8.8	9.6	10.5	11.7
<i>Asia</i>	35.1	31.5	27.9	24.8	131.9	116.3	101.2	89.2
Eastern	18.5	13.2	9.3	6.5	23.1	14.5	9.5	6.1
South-Central	49.6	45.2	40.8	36.5	86.0	80.9	73.4	67.1
South-East	35.2	31.2	27.4	23.9	20.2	18.1	15.5	13.2
Western	12.9	12.1	11.3	10.6	2.7	2.8	2.8	2.7
<i>Latin-America &amp; Caribbean</i>	8.7	7.3	6.1	5.0	4.8	4.0	3.4	2.8
Caribbean	10.0	7.8	6.1	4.7	0.4	0.3	0.2	0.2
Central America	12.4	10.7	9.2	7.9	1.9	1.7	1.5	1.3
South America	7.0	5.7	4.6	3.7	2.5	2.0	1.6	1.3
<i>Oceania</i>	n/a <sup>b</sup>	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>All developing countries</i>	30.1	27.3	24.8	22.7	162.2	148.2	135.5	126.5

Notes: <sup>a</sup> Underweight is defined as <-2 standard deviations of the weight-for-age median value of the NCHS/WHO international reference data.

<sup>b</sup> not available.

2005 figures are projections.

Source: SCN (2004) (see note 6).

**Table 2**

health services. Ultimately, these factors are embedded in households' political, economic, social, and cultural environment.

At present, approximately 127 million preschool children in developing countries are malnourished, with weights below those expected for their age. They account for 23 percent of the children under the age of five in developing countries (see Table 2). Children are underweight as a result of either chronic or acute malnutrition. Malnutrition is a factor in 5.6 million preschooler deaths annually (equivalent to the loss of the entire population of Denmark), because malnutrition heightens vulnerability to infectious diseases.<sup>4</sup> Those who survive face impaired physical and mental development. Malnutrition deprives humanity of scientists, creative artists, community and national leaders, and productive workers.

Child malnutrition increased in sub-Saharan Africa during 2000-2005 while it declined in the rest of the developing world (Table 2). However, both the number (67 million) and proportion (37 percent) of

malnourished children in South-Central Asia exceed African levels (34.5 million and 25 percent, including North Africa). This is the Asian enigma: on most indicators of human security (e.g., access to safe water, school enrollment, food availability, income per person, and degree of democratic governance) South Asians fare better than Africans. But the female-to-male life expectancy ratio—a good measure of women's social status relative to that of men—is higher in Africa than in South Asia, which also has less favorable climate conditions and population density.<sup>5</sup> Malnourished girls grow up to become malnourished mothers, who are very likely to have low birthweight babies. In effect, they pass their malnutrition on to the next generation. Babies weighing less than 2.5 kilograms at birth are four times more likely to die than normal-weight newborns, and if they survive, they have much higher rates of malnutrition in both childhood and as adults. 17 percent of developing-country babies have low birthweights; in South Asia, the figure is 30 percent.

<sup>4</sup> See Margaret Kruk, "Global Public Health and Biosecurity: Managing Twenty-First Century Risks," *Coping with Crisis Working Paper Series*, International Peace Academy, New York, July 2007, for further discussion of food security-nutrition-health links.

<sup>5</sup> Lisa C. Smith and Lawrence Haddad, "Explaining Child Malnutrition in Developing Countries: A Cross-country Analysis," *Research Report No. 111* (Washington, DC: IFPRI, 2000), available at [www.ifpri.org/pubs/abstract/111/rr111.pdf](http://www.ifpri.org/pubs/abstract/111/rr111.pdf).

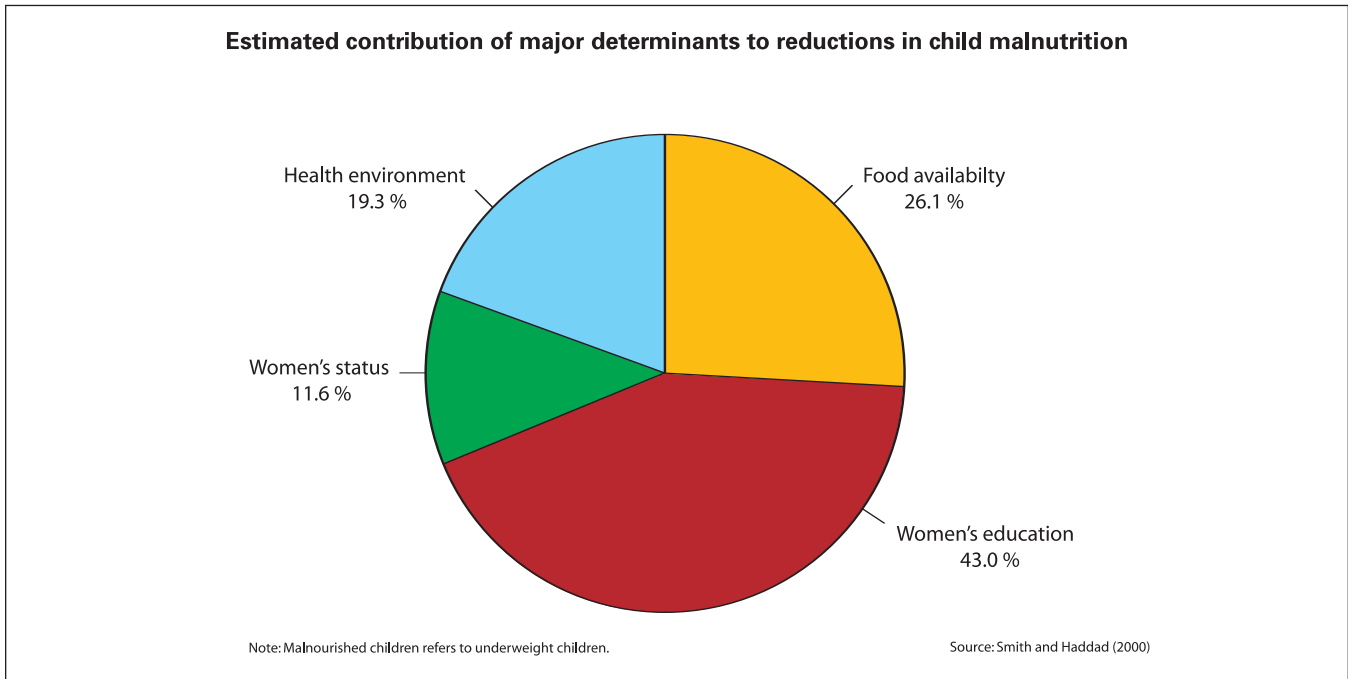


Figure 4

Research by the International Food Policy Research Institute (IFPRI) has found four drivers of reduction in child malnutrition in developing countries during 1970-1995 (Figure 4). Improvements in female education had the biggest impact, followed by increases in food availability, improvements in the health environment, and improvements in women’s social status.<sup>6</sup> Accelerated progress against child malnutrition will require changes in policy and practices that discriminate against women, as well as investment in agricultural and rural development and increased public expenditures to assure access to health care and universal primary education.

### Hidden Hunger

Nutritionists generally agree that if a person takes in enough calories, he or she is likely to get the necessary protein. But this does not guarantee adequate intake of micronutrients—vitamins, minerals, and trace elements. Micronutrient malnutrition—often called hidden hunger—afflicts a far greater swath of humanity than insufficient calorie intake (see Table 3), and the two frequently go hand-in-hand. Micronutrient-deficient diets can lead to grave public health consequences.

For example, UN agencies estimate that 4 to 5

Problem	Causes	People Affected
Hunger	Insufficient calorie consumption	0.9 billion
Underweight children	Inadequate food intake, illness, poor caring practices	127 million
Micronutrient malnutrition	Poor quality diets, insufficient coverage of supplementation	Over 2 billion
Overweight	Unhealthy diets and lifestyles	Increasing among poor people in the Global South

Sources: FAO (2004); SCN (2004) (see note 6); Micronutrient Initiative and UNICEF (2005) (see Figure 5).

Table 3

<sup>6</sup> Smith and Haddad, “Explaining Child Malnutrition.”

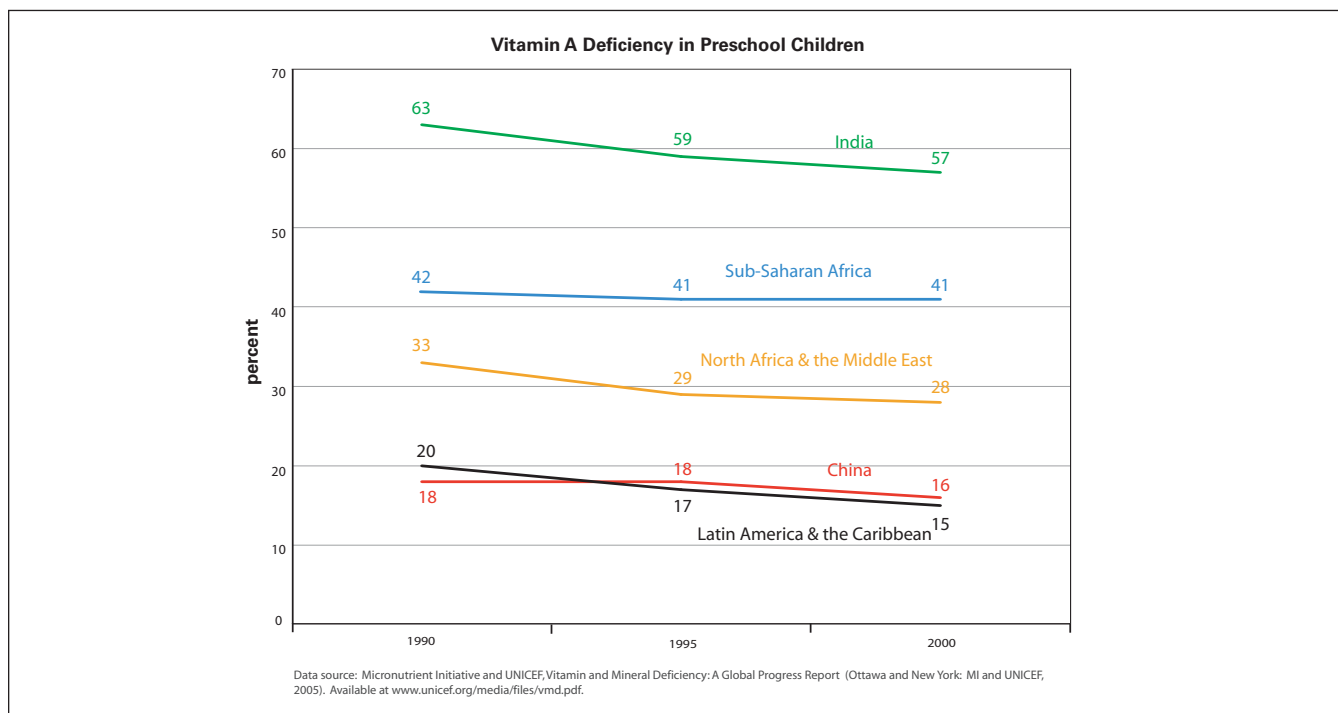


Figure 5

billion people (61–76 percent of the world’s populace) consume iron-deficient diets. 2 billion suffer from anemia, often as a result of inadequate iron intake. Anemic pregnant women face increased risk of maternal mortality and having low birthweight babies. Anemia also impairs child health and development, learning capacity, and immune systems. Iron deficiency can reduce work performance even when it does not result in anemia.

Vitamin A deficiency (VAD) among developing-country children causes blindness and a million deaths each year. Pregnant women with VAD face increased mortality risks. About forty percent of developing-country preschoolers suffer from VAD, but in India, the figure is almost 60 percent. VAD prevalence declined in all developing regions during the 1990s, but at extremely slow rates, and the figure for sub-Saharan Africa has not changed since the mid-1990s (Figure 5).

### HIV/AIDS and Food and Nutrition Security

IFPRI research has found that poor nutrition can accelerate the spread of HIV, both by increasing exposure to the virus and by increasing the risk of infection following exposure. Pregnant women living with VAD and HIV are more likely to pass the infection on to their babies. HIV infection can, in turn, lead to nutritional deficiencies through decreased food intake and malabsorption, which hasten the onset of AIDS. The disease impairs the

immune system, and so can lead to additional infections that worsen nutritional status. Malnutrition reduces coping capacity and makes antiretroviral treatment less effective. People living with HIV/AIDS typically require 10–30 percent more calories. The disease also takes productive workers out of agriculture, impedes intergenerational transmission of agricultural knowledge, and undermines households’ resilience in the face of crisis. Farmers living with HIV/AIDS are likely to cultivate crops requiring less labor, which may be less nutritious. Treatment strategies should include nutrition support as well as drugs. Design of agricultural development programs must employ an HIV/AIDS lens: for example, by seeking to preserve agricultural knowledge and encourage community labor and childcare pooling to ensure efficient use of remaining labor capacity.

### Double Burden

Globally, more than a billion adults are overweight, with 300 million of them clinically obese. In Latin America, over 30 percent of children aged five to seventeen years are overweight, and in Asia, the figure is 10 percent. Obesity greatly increases the risk of contracting nutrition-related chronic diseases, such as heart disease, stroke, cancer, and diabetes. Undernutrition and overweight increasingly co-exist in communities, and even households, including many poor households, in both developed and developing countries (see Table 3); this is the double burden of

malnutrition. Overweight and obesity stem mainly from increased consumption of energy-dense, nutrient-poor foods that are high in saturated fats and sugars, and reduced physical activity. Increases in the supply of and demand for these foods are associated with globalization and urbanization.

### Food Security Crises

According to the UN Millennium Project's Taskforce on Hunger (2005), people living with chronic food insecurity account for about 90 percent of the world's food-insecure population. Yet, humanitarian emergencies such as the 2004 Indian Ocean tsunami generally receive more media attention. For 2006, the United Nations appealed for \$4.7 billion dollars in food and other emergency aid for 30.6 million people affected by violent conflicts and their aftermath, natural disasters, economic crises, or some combination, in addition to the humanitarian crises in Iraq, Afghanistan, and the Horn of Africa. In 2005, approximately 33 million people had become refugees, were internally displaced within their own countries, or lived in "refugee-like conditions" due to war or political repression. Many spend years in camps, and most depend on humanitarian assistance. When people leave their homes, they usually have depleted their assets and exhausted their coping strategies. They may, therefore, have difficulty returning to their previous livelihoods when the crisis has ended. Humanitarian assistance strategies need to place greater emphasis on maintaining livelihoods and keeping communities intact.

Emergency rations are often inadequate in both quantity and quality. According to the UN High Commissioner for Refugees and the World Food Programme (WFP), in 2005, over 20 percent of East African refugees suffered acute malnutrition. Unbalanced rations cause widespread micronutrient deficiencies among uprooted people.<sup>7</sup>

War is increasingly responsible for hunger crises, notwithstanding the major natural disasters in 2004–2006 that resulted in food emergencies, including the tsunami, drought and locusts in West Africa, severe drought in the Horn, and the Pakistani earthquake.

Violent conflict (whether interstate or intrastate) devastates food security via the destruction of crops and livestock, the decimation of farming populations through death and displacement, the sowing of landmines (rendering food production dangerous even after the fighting ends), damage to infrastructure, and the disruption of health and education. The FAO found that in the 1980s and 1990s, agricultural losses attributable to conflict in sub-Saharan Africa equaled 50 percent of aid receipts and greatly exceeded flows of foreign direct investment.<sup>8</sup>

The conflict in Darfur, Sudan is typical of contemporary food wars.<sup>9</sup> Armed parties have not only obliterated rural livelihoods; they have also blocked relief and turned food itself into a weapon to reward allies and starve enemies.

### The Costs of Food Insecurity

Food insecurity and malnutrition cost hundreds of billions of dollars annually. Beyond unrealized human potential, the health costs resulting from difficult pregnancies and the illnesses experienced by malnourished mothers and their children total \$30 billion each year. Indirect costs are much higher, and include lost productivity and income as a result of early deaths, disability, absenteeism, and poor school performance. According to the Standing Committee on Nutrition of the UN System (SCN), income losses attributable to iron deficiency alone are as high as 8 percent of GDP in Bangladesh, and 2 percent in Honduras.<sup>10</sup> Hence, poverty is a consequence of food insecurity as well as its principal cause. Discussion of the costs of achieving food security must recognize that failing to address food insecurity is very expensive indeed.

### Controversies and Knowledge Gaps

Disagreement among analysts and policymakers and lack of knowledge in seven important areas have crucial implications for future food security in both the short- and long-term and for understanding the links between food security on the one hand and human and international security on the other:

<sup>7</sup> As noted in Andrew Mack, "Global Political Violence: Explaining the Post-Cold War Decline," *Coping with Crisis Working Paper Series*, International Peace Academy, New York, March 2007, the value of humanitarian assistance has doubled since 1992, and this has undoubtedly reduced mortality rates from war-exacerbated malnutrition and disease. Nevertheless, there is considerable room for improvement in humanitarian assistance, in terms of timely delivery and quantity and quality, as discussed further below.

<sup>8</sup> Ellen Messer and Marc J. Cohen, "Conflict, Food Insecurity, and Globalization," *Food Consumption and Nutrition Division Discussion Paper No. 206* (Washington, DC: IFPRI, 2006), available at [www.ifpri.org/divs/fcnd/dp/papers/fcndp206.pdf](http://www.ifpri.org/divs/fcnd/dp/papers/fcndp206.pdf).

<sup>9</sup> *Ibid.*

<sup>10</sup> SCN, *Fifth Report on the World Nutrition Situation* (Geneva: SCN, 2004), p. 14, available at [www.unsystem.org/scn/Publications/AnnualMeeting/SCN31/SCN5Report.pdf](http://www.unsystem.org/scn/Publications/AnnualMeeting/SCN31/SCN5Report.pdf).

- Measurement of food insecurity;
- Appropriate agricultural and rural development strategies;
- Food and nutrition policy priorities;
- Globalization and food security;
- Design of international food aid;
- The right to food; and
- Whether food insecurity is a cause, as well as an effect, of conflict.

Each of these areas is considered briefly below.

### **Measuring Food Insecurity**

Lack of agreement on how best to determine how many people live in food insecurity—and where—undermines global capacity to respond and measure progress. FAO data is used widely in discussions of food insecurity, and FAO also hosts the Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS), composed of UN and intergovernmental organizations, NGOs, and national government statistical units. FIVIMS seeks to improve the quality, scope, and dissemination of food security data. At present, FAO estimates food-insecure populations by calculating the calories available in a country, the calories required based on demographic data, and inequality of access to food. But FAO must rely on statistical reports from its member states, and most governments are not eager to show that they have a hunger problem. FAO's reports cover a limited number of nations: ninety-four developing and twenty-seven transition countries, along with an aggregate developed-country figure. There is no subnational breakdown, although in many countries, there are substantial internal differences in the incidence of food insecurity. Nor does FAO report on food problems in non-self-governing or disputed areas, such as the Palestinian Territories. Critics argue that FAO's methodology is biased toward estimates of national food availability, and does not fully account for effects of poverty on access to food. Despite these limitations, the FAO's data set is presently the most complete and comprehensive one available.

### **Paths to Agricultural and Rural Development**

There is some degree of agreement on what must be done to achieve sustainable food security. Since the

overwhelming majority of the world's poor and food-insecure people live in the rural areas of the developing world, and depend on agriculture and closely related activities for their livelihoods, it is clear to many analysts that agricultural and rural development are central to poverty reduction and food security. However, others insist that sub-Saharan Africa's poor agricultural performance—cereal production has not kept pace with population growth since the late 1960s—requires a development strategy of pro-poor urbanization. Yet even those who favor rural-focused strategies disagree; some advocate developing the non-farm rural economy over agriculture. Those who stress farming debate whether to accentuate smallholder cultivation and agrarian reform, or consolidation of small plots, and whether to produce staple food crops for local consumption or high-value commercial crops such as fruits and vegetables for export.

An acrimonious debate has raged over whether agricultural biotechnology has a role to play in food security. In 2005, large-scale commercial farmers in the United States, Argentina, Brazil, and Canada planted 90 percent of the world's genetically modified crops, but smallholders in China, India, and South Africa cultivated a significant area of herbicide-tolerant or insect-resistant varieties. There is evidence of income gains, reduced pesticide use, and health improvements, but there is also evidence of other environmental problems, such as resistance development among target pests and harm to non-target species. Farmers have yet to plant genetically modified crops that are still under development and would have clear benefits for poor farmers and consumers in developing countries, such as drought-tolerant staples or pro-vitamin A rice (*Golden® Rice*). Critics seek more emphasis on conventional crop breeding and organic farming.

There is similar longstanding disagreement over the importance of family planning for food security. Neo-Malthusians assert that human numbers have outstripped the earth's carrying capacity. Proponents of induced innovation theory retort that population growth spurs appropriate institutional and technological change. The empirical evidence to support either perspective is decidedly mixed. Radical critics cast a pox upon both sides, arguing that population growth and food insecurity both result from inequitable distributions of wealth and power that deprive poor people of economic opportunity and security.<sup>11</sup>

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<sup>11</sup> Frances Moore Lappé, Joseph Collins, and Peter Rosset, *World Hunger: 12 Myths*. 2nd Edition (New York: Grove/Atlantic, 1998). A short 2006 update is also available at [www.foodfirst.org/12myths](http://www.foodfirst.org/12myths).



## Food and Nutrition Policy Priorities

There is also considerable debate about food and nutrition policy and program priorities. There is widespread recognition that economic growth is necessary for sustainable food security and that investment in health and education contributes to poverty reduction, food security, and growth.<sup>12</sup> But there is disagreement about the specific government programs that can best help to foster such anti-poverty growth, and there does not seem to be a blueprint that fits all places or circumstances. In India and China, public investments in rural roads, agricultural research, and education have the biggest impact on both growth and poverty reduction, but in Uganda, education, health care, and electricity expenditures offer the greatest returns.<sup>13</sup>

Recent research suggests that state-sponsored social assistance and social insurance programs (social protection) are an important complement to efforts to achieve growth. These provide cash, food, vouchers for services, price subsidies on necessities, or some combination. Such programs frequently provide resources to women, who are more likely to invest in family well-being than men. There is debate on whether resource transfers should impose conditions, such as enrolling children in school, sending them to health clinics, and/or participation in nutrition education. Also controversial is whether to target programs to vulnerable people or make them universally available.

Controversy surrounds nutrition programs as well. Malnutrition can cause irreversible damage to a child's physical and cognitive development during the first two years of life. The World Bank encourages developing countries to focus interventions on this period, and deemphasize school feeding. But school meals and take-home rations induce poor families to send children, including girls, to school. Female education has positive impacts on child nutrition, health, fertility, economic growth, and political participation. Whether school feeding directly improves nutrition remains unsettled.

A number of approaches are effective in combating micronutrient malnutrition: nutrition education to promote balanced diets, fortification (e.g., salt iodization), supplementation (often integrated into maternal and child health programs),

and breeding micronutrient-dense staples. However, given the scarcity of resources, there is a tendency to view these approaches as competitive rather than complementary. National governments, aid donors, and the nutrition community have not arrived at a consensus on how to set priorities, and each approach has an advocacy constituency.

## Globalization and Food Security

Another area of debate is whether globalization (i.e., global integration of markets for goods, services, capital, and labor) contributes to or undermines food security. The World Bank has found that developing countries that integrate into the world economy achieve higher income growth, longer life expectancy, and better schooling, i.e., they gain on all measures of the human development index. Critics argue that transnational corporations dominate the world economy and benefit at the expense of working people and the environment. Most analysts between these poles join Nobel Laureate Joseph Stiglitz in contending that globalization is likely to generate winners and losers, so it is essential to manage the process, compensate those who are harmed, and institute policies in developing countries (e.g., human capital investment) to ensure that more people can take advantage of opportunities. There is widespread consensus that current global agricultural trade practices are biased against developing countries, many of which depend heavily on agriculture for foreign exchange, but which face trade barriers in developed-country markets—including higher tariffs on higher-value processed products than on bulk commodities—and subsidized competition from developed-country exports. Developed-country governments pay their own farmers over \$300 billion annually, creating price-depressing surpluses.

## Design of International Food Aid

Sharp debate has swirled around international food aid—particularly US food aid—for fifty years. One objection is that external food aid tends to undercut recipient-country food production. Critics charge that donors provide food aid to keep their own subsidized surpluses off domestic markets, as well as to develop export opportunities. Domestic processors and

<sup>12</sup> Jean Drèze and Amartya Sen, *Hunger and Public Action* (Oxford: Clarendon Press, 1989).

<sup>13</sup> Shenggen Fan, Peter B.R. Hazell, and Sukhadeo Thorat, "Government Spending, Growth, and Poverty in Rural India," *American Journal of Agricultural Economics* 82, no. 4 (2000): 1038-1051; Shenggen Fan, Linxiu Zhang, and Xiaobo Zhang, "How Does Public Spending Affect Growth and Poverty in China?" *China and World Economy* 9, no.4 (2001): Special Report; Klaus Deininger and J. Okidi, "Growth and Poverty Reduction in Uganda, 1992-2000: Panel Data Evidence," *Development Policy Review* 21, no. 4 (2003): 481-509.

shippers also benefit. Emergency food aid often fails to arrive on time, and both emergency and development food aid can distort recipient country consumption patterns. It would be preferable to provide cash, whether to purchase food in the recipient or neighboring developing countries, or for other development purposes. NGOs often sell food aid commodities on recipient country markets to raise cash. Food aid tends to have little nutritional benefit. Proponents counter that good management, such as delivering food during the pre-harvest “lean season,” can avoid disruption of local production; food aid commodities are increasingly micronutrient-fortified, enhancing their nutritional impact; and pre-positioning supplies near likely crisis points can ensure timely delivery. Providing benefits to donor-country interest groups and monetization ensure political support, and donor-country taxpayers are unlikely to replace food with cash. There is general consensus that procurement in developing countries would be valuable (and donors other than the United States, including WFP, increasingly do this), but, again, it would be less popular among US taxpayers, particularly those with vested interests. Just as an influx of external food might lower recipient-country prices, an infusion of cash to buy food could bid prices up, harming poor consumers. Despite this debate’s longevity, the empirical evidence is scanty and ambiguous.

### **Rights or Needs?**

There is serious disagreement as to whether national governments and the international community should seek to achieve food security as a matter of human rights or on purely pragmatic grounds. International human rights law explicitly includes the right to adequate food and the right to be free from hunger (i.e., the minimal right not to starve). High-level government representatives have repeatedly reaffirmed their support for these rights, e.g., at the 1996 World Food Summit and its five-year follow-up. In 2004, FAO’s intergovernmental council unanimously endorsed a set of voluntary guidelines for states to use to progressively realize the right to food.<sup>14</sup> Citizens and public prosecutors in Brazil and India have

successfully used courts to advance food security based on legal recognition of this right. Yet some aid donors—notably the US government—insist that adopting food security policies is more important than legal instruments.

In contrast, there is broad consensus that protection and promotion of human rights more generally can advance food security, as the World Food Summit Plan of Action notes (language included at the behest of the United States). Nobel Laureate Amartya Sen has repeatedly emphasized the role of freedom of expression and democratic rule in preventing famines, as opposition parties, the media, and civil society press governments to act.

### **Does Food Insecurity Cause Conflict?**

Although there is clear consensus on the impact of conflict on food security, no such agreement exists as to whether food insecurity, in turn, causes conflict. Case study and econometric evidence suggests a correlation between civil war and either food insecurity or closely related factors, such as high levels of infant mortality, low per capita income, economic decline, and slow growth in food production per capita. But this literature does not specify the precise circumstances under which these elements of human ill-being lead to conflict, and there are many locales where such factors are present without civil war. Other case study and econometric evidence suggests that causes other than food insecurity are decisive, such as competition for resources and power, often among different ethnic groups.<sup>15</sup> One study concluded the following:

Conflict is not an inevitable outcome of environmental scarcities and food insecurity. For conflict to occur there must be present additional forces: (1) human rights violations; (2) oppressive social inequalities; and (3) cultural values that legitimate violent resistance as an appropriate response to unjust or intolerable conditions, especially those that deny affected populations access to food... [C]onflict arises as much from perceptions of unfairness as from absolute shortages.<sup>16</sup>

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<sup>14</sup> FAO, *Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security* (Rome: FAO, 2005), available at [www.fao.org/docrep/meeting/009/y9825e/y9825e00.HTM](http://www.fao.org/docrep/meeting/009/y9825e/y9825e00.HTM).

<sup>15</sup> Messer and Cohen, “Conflict, Food Insecurity, and Globalization.”

<sup>16</sup> Ellen Messer, Marc J. Cohen, and Thomas Marchione, “Conflict: A Cause and Effect of Hunger,” *Environmental Change and Security Project Report No. 7* (2001): 7, available at [www.wilsoncenter.org/topics/pubs/ACF23E.pdf](http://www.wilsoncenter.org/topics/pubs/ACF23E.pdf).



## Key Medium- and Long-Term Challenges

As Table 1 indicates, at the current rate of progress, it is not possible to meet the World Food Summit goal of reducing by half (from 1990 levels) the number of food-insecure people in the developing world by 2015. The prospects look better for attaining the Millennium Development Goal (MDG) target of halving the food-insecure proportion of the population of developing countries. However, while Asia and Latin America should meet or exceed the MDG target, sub-Saharan Africa and the Near East and North Africa are projected to fall short.

Looking beyond 2015, the FAO has estimated that if hunger reduction does not accelerate, the food insecure population of the developing world will not fall to 400 million (the World Food Summit target) until 2061 at the earliest. As discussed below, IFPRI studies indicate that a number of factors could result in continued increases in food insecurity in sub-Saharan Africa through at least 2030 (the “catastrophic scenarios”), with significantly slower progress throughout the developing world.<sup>17</sup>

Climate change poses an ominous threat to food security over the medium- and long-term. It is already leading to higher average temperatures and sea levels and to less stable weather patterns, including more frequent and severe droughts and flooding. It will likely create greater emergency food aid needs in the future. It poses a serious threat to the livelihoods of small farmers, who are already vulnerable to food insecurity, as it may reduce tropical farm yields substantially.<sup>18</sup> According to the Intergovernmental Panel on Climate Change, drier soils and increased heat could also reduce crop production in some parts of North America. Agriculture contributes to climate change, producing 20 percent of the greenhouse gases that lead to global warming, but agricultural practices can also mitigate climate change. Increased levels of carbon dioxide, which contribute to warming, may lead to improvements in plant growth. Small farmers can help reduce warming by sequestering carbon

through practices that improve soil organic matter and nitrogen-use efficiency; reducing nitrous oxide emissions; and improving water-use efficiency. Avoiding deforestation and tree planting both offer potential carbon gains. Improved livestock feeds can reduce animals’ methane emissions while enhancing meat and milk output, although feed production may require increased fertilizer use and generate more CO<sub>2</sub>. Policies and institutions are needed to encourage farmers to adopt these practices.

According to UN data, the rate of population growth has slowed in recent years, unfortunately due in part to the impact of HIV/AIDS on sub-Saharan Africa. Global population is expected to reach 8 billion by 2025, up from the current 6.6 billion. Most of the growth will occur in the developing world.<sup>19</sup> Overall population growth will mean increased demand for food grains, and urbanization will result in higher meat demand, which will require increased feedgrains production. Developing-country cereal output will not keep pace with demand, so developed countries will supply a substantial share of the grain.<sup>20</sup> Given limited ability to expand agricultural area, yields will have to increase. Without investment in research and development (R&D) and appropriate natural resource management, however, the supply will not emerge, and food prices will rise.

Insufficient policy attention to efficient water use and investment in water-related policies and institutions could also have negative impacts on food security. Although agriculture accounts for most water use, there is growing demand for water for industry, household use, and ecosystem services. If there is insufficient agricultural water available, yields will decline, leading to significant cereal price increases. This would hurt low-income urban dwellers and rural net purchasers of food, and would also dampen demand for meat as feedgrain prices shoot upwards.

Increasingly, plants and other renewable biological resources are offering an attractive, affordable alternative to fossil fuels. Increased production of biofuel crops<sup>21</sup> may reduce energy bills and greenhouse gas emissions, while benefiting developing-country

<sup>17</sup> Joachim Von Braun, Mark W. Rosegrant, Rajul Pandya-Lorch, Marc J. Cohen, Sarah A. Cline, Mary Ashby Brown, and María Soledad Bos, “New Risks and Opportunities for Food Security: Scenario Analyses for 2015 and 2050,” *2020 Vision for Food, Agriculture, and the Environment Discussion Paper No. 39* (Washington, DC: IFPRI, 2005), available at [www.ifpri.org/2020/dp/dp39/2020dp39.pdf](http://www.ifpri.org/2020/dp/dp39/2020dp39.pdf). This study lays out some plausible scenarios of the future world food system and future food insecurity using IFPRI’s International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT). See the paper’s technical appendix for details on the model.

<sup>18</sup> For further discussion of the likely impacts on agriculture, see Nils Petter Gleditsch, Ragnhild Nordås, and Idean Salehyan, “Climate Change and Conflict: The Migration Link,” *Coping with Crisis Working Paper Series*, International Peace Academy, New York, May 2007.

<sup>19</sup> See Chamie, “Population Trends,” for more detail on these trends.

<sup>20</sup> See Mark W. Rosegrant, Michael S. Paisner, Siet Meijer, and Julie Witcover, *Global Food Projections to 2020: Emerging Trends and Alternative Futures* (Washington, DC: IFPRI, 2001), available at [www.ifpri.org/pubs/books/gfp/gfp.pdf/](http://www.ifpri.org/pubs/books/gfp/gfp.pdf/).

<sup>21</sup> Note that Fatih Birol expresses considerable skepticism about the growth of such crops as an energy source in comparison to fossil fuels. See Fatih Birol, “Energy Security: Investment or Insecurity” *Coping with Crisis Working Paper Series*, International Peace Academy, New York, May 2007.

agriculture, but diversion of land and water away from food and feed production may well mean higher food prices.

The current impasse in global trade negotiations, due primarily to transatlantic and North–South agricultural disagreements, may have significant negative impacts on food security in both the medium- and long-term. Developed countries' trade barriers and price-depressing subsidies will continue to have negative effects on developing-country export revenues and deprive small farmers of opportunities. The lack of a comprehensive agreement may also lead to a trade Balkanization of competing regional blocs and increased global protectionism. This might result in heightened political tensions, as during the years between the World Wars.

The extent of violent conflict also has a bearing on future food security. The number of armed conflicts has declined significantly since 1992,<sup>22</sup> and the prospects for peace have brightened even in Africa with the North–South peace agreement in Sudan, the ceasefire in Burundi, and promising peace talks in Uganda. However, wars continue to rage in Colombia, Darfur, the Democratic Republic of the Congo, and Kashmir, with no clear end in sight. Outright conflict and serious instability persist from the Levant to the Khyber Pass. Moreover, it is not so clear that peace is sustainable on all of Africa's former battlefields. Conflict may reemerge in Liberia or Angola, and intensify in Côte d'Ivoire or Nigeria. Conflicts could flare back up outside of sub-Saharan Africa as well, e.g., in Haiti, and scale up from lower intensity in Algeria or the Philippines.<sup>23</sup> Even if peace prevails in onetime combat zones, the damage of high-intensity conflicts takes many years to repair; IFPRI has found that in Mozambique, after a dozen years of peace, damage to roads, schools, clinics, and people continues to impede food security. As for the Middle East and Afghanistan, war and instability are likely to persist well beyond the next five years, leaving vulnerable civilians in need of food aid.

Success in resolving, preventing, and effectively managing conflicts will contribute to food security. Related to this, improved understanding of the ways in which food insecurity can serve as a trigger factor for conflict will contribute to better peacemaking.<sup>24</sup>

## Capacity for Coping with Challenges

Beginning with the 1974 World Food Conference, the international community has repeatedly pledged concerted action to achieve food security. During the 1970s and 1980s, there were efforts to strengthen the institutional framework at the global, regional, and national levels to achieve these pledges, and donors and national governments alike devoted policy attention and resources. Efforts stalled during the 1990s, as action and adequate resources increasingly failed to materialize. Incoherent policies, insufficient political will, and weak and failing institutions have all slowed progress, and the pursuit of business as usual bodes ill for the future. However, there are signs in the present decade of renewed attention to food security.

### International Institutions

Both the UN system and the Multilateral Development Banks (MDBs) have historically played important roles in efforts to achieve food security. The 1974 Conference created several new institutions to bolster this effort, including the International Fund for Agricultural Development (IFAD), which has proved to be a small but strategic international financial institution supporting rural development; and the Global Information and Early Warning System, housed at FAO, which monitors world crop conditions and food emergencies. It also produced a commitment to provide a minimum of ten million metric tons of food aid annually. Some other ideas agreed to at the Conference were never implemented, such as a transfer of resources from military spending to food and agriculture and the creation of a global grain reserve system.

During the first half of the 1980s, agriculture, forestry, and fishing were major priorities of the MDBs, accounting for 36 and almost 40 percent, respectively, of World Bank and Asian Development Bank (AsDB) soft loans to poor countries, and fully one-third of all multilateral assistance. But by the second half of the 1990s, the shares had fallen to 12 and 11 percent for World Bank and AsDB soft loans, and 11 percent of all multilateral aid. In the case of the

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<sup>22</sup> On both the declining number of conflicts and the likelihood that indirect as well as direct deaths have declined, due to less widespread and intense fighting and increased humanitarian assistance, see Mack, "Global Political Violence."

<sup>23</sup> For a detailed discussion of the issues involved in sustaining peace see Charles T. Call and Elizabeth Cousens, "Ending Wars and Building Peace," *Coping with Crisis* Working Paper Series, International Peace Academy, New York, March 2007.

<sup>24</sup> For further discussion of the issues involved see Chester A. Crocker, "Peacemaking and Mediation: Dynamics of a Changing Field," *Coping with Crisis* Working Paper Series, International Peace Academy, New York, March 2007. As a group, the Mack, Call and Cousens, and Crocker papers discuss various aspects of addressing conflict.

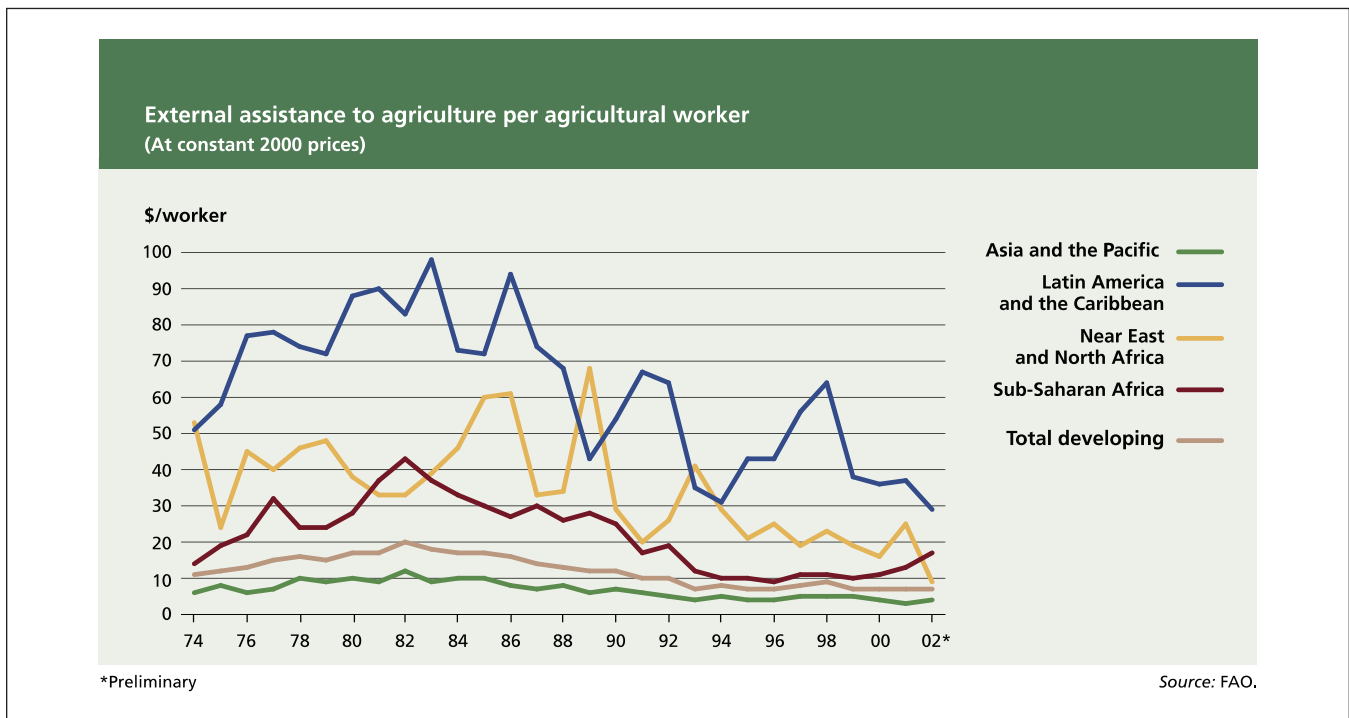


Figure 6

European Commission, the share declined from 25 to just 4 percent of aid. Bilateral aid to agriculture likewise fell, from an average of 11 percent for the members of the Organisation for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC) during 1980-1984 to 7 percent over 1996-2000.

Several factors accounted for this shift: The World Bank and International Monetary Fund emphasis on structural adjustment and market-led development meant less lending to large-scale, state-led rural development. Bilateral donors—who hold the controlling votes in these Bretton Woods institutions—made a similar shift in emphasis. Also, donor priorities changed focus to child survival, environmental protection, and the role of women in development, with program design often ignoring the agricultural and rural context in which these issues are embedded in most developing countries.

As Figure 6 indicates, in 2002, official development assistance (multilateral and bilateral) to agriculture per agricultural worker was less than half the level of twenty years earlier in real terms. Donor support for international agricultural research centers that breed high-yielding crop varieties has stagnated since 1990.

In the 2000s, donors have again made agriculture

and broader rural development major concerns, as seen in the World Bank's 2003 rural strategy and the prominence of African agriculture on the G8 agenda in 2005.<sup>25</sup> Figure 6 shows an upturn in aid to sub-Saharan African agriculture per agricultural worker during 2000-2002. Whether resources and policy implementation will sustainably accompany the rhetoric remains to be seen.

Another recent positive development is that both bilateral and multilateral donors have devoted attention to conflict-sensitive development. However, this has not focused much on the role of agricultural and rural development in conflict prevention or post-conflict reconstruction.

An end to the current stalemate in World Trade Organization negotiations could contribute to food security. Most research indicates that developing countries would achieve real, albeit modest, gains in income from agricultural trade liberalization. The precise food security impact depends on specific circumstances. For example, in West Africa, where many smallholder farmers depend on cotton for their livelihoods, an end to US government payments to domestic cotton farmers, which significantly depress global prices, could boost incomes and reduce food aid needs.

An additional factor that impinges on global

<sup>25</sup> Csaba Csaki, *Reaching the Rural Poor: A Renewed Strategy for Rural Development* (Washington, DC: The World Bank, 2003). Executive Summary available at <http://siteresources.worldbank.org/INTARD/Strategy/20436714/ReachingRuralPoor-execsummary.pdf>.

development institutions is the proliferation of humanitarian emergencies. Humanitarian assistance accounted for just 3 percent of all aid in the 1970s and 1980s, but jumped to 10 percent in the present decade. However, the global humanitarian response system is itself in crisis. Donors routinely fail to provide all of the resources called for in UN humanitarian appeals. In 2005, donors provided just 68 percent of the total amount requested in the Consolidated Appeal for complex emergencies. The food aid response was somewhat better at 73 percent.<sup>26</sup> The international community's failure to respond in a timely manner to appeals for assistance to Niger in 2004–2005 turned a bad food situation into a crisis. In April 2006, WFP announced that it would have to cut daily rations in half, to 1,000 calories, for people affected by fighting in Darfur and other parts of Sudan, due to insufficient response to appeals. The creation of a UN Central Emergency Response Fund has proved useful in the short-term, especially for smaller natural disasters, but it simply moves the problem to a different level. Donors still have to fill and replenish the Fund. As former UN Humanitarian Coordinator Jan Egeland has put it, the system is analogous to having to appeal to the fire brigade when one's house is burning. It is based neither on the notion of a right to humanitarian assistance nor on insurance principles, where national social protection programs would be backed up by the UN system and ultimately by commercial reinsurance. WFP has instituted a pilot drought insurance scheme in Ethiopia operating along the latter lines.

### **Incoherent Donor-Country Policies**

Unfortunately, other Northern policies frequently undercut both development cooperation and Southern efforts to achieve food security. Agricultural trade policies are but one obvious example. Despite debt relief initiatives, developing-country governments still owe external creditors nearly \$1.5 trillion.<sup>27</sup> For many developing countries, debt service obligations exceed the volume of aid received and gobble up scarce resources that might otherwise advance food security. For example, Brazil's debt service payments take 47 percent of export earnings. Developed countries' arms sales also can undercut development

cooperation. The five permanent members of the UN Security Council provide over 60 percent of the legal arms transfers to Africa, contributing to conflict, instability, and food insecurity.<sup>28</sup>

### **Regional Institutions: Tackling Food Insecurity in Sub-Saharan Africa**

Regional cooperation offers some promise for improving food security in sub-Saharan Africa. Through the New Partnership for Africa's Development (NEPAD) framework, African governments have pledged to boost budgetary allocations to agriculture to ten percent by 2008. With FAO assistance, NEPAD has developed a Comprehensive Africa Agriculture Development Program to boost agricultural growth to 6 percent per year. These goals are ambitious, particularly in light of the financial, security, health, and environmental constraints. The NEPAD framework includes a peer-review mechanism that offers additional incentives for progress, but development assistance is also needed.

### **National Governments in Developing Countries**

On average, low-income developing countries devote less than 5 percent of public expenditures to agriculture, despite the centrality of agriculture in employment, GDP, and exports. Public agricultural research is particularly important for addressing the problems that poor farmers and consumers face. Research on cassava in West Africa and hybrid maize in eastern and southern Africa, for example, has led to sustained gains in production and lower food prices. Yet public research spending in sub-Saharan Africa grew by just 1 percent annually in the 1990s, and in several African countries, expenditures in 2000 were below those of 10 years earlier.<sup>29</sup>

Beyond the question of public spending priorities, gender discrimination is an important factor in food insecurity, and one that development policies have inadequately addressed. Throughout the developing world, women play important roles in food security as producers, natural resource managers, earners of income, and household providers of food and care. Yet they face discrimination in access to resources and services such as land, water, credit, farm inputs,

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<sup>26</sup> See "Consolidated and Flash Appeals 2005: Global Requirements and Funding Per Sector as of 11 July 2007" (Table Ref: R30), available at [www.reliefweb.int](http://www.reliefweb.int).

<sup>27</sup> World Bank, *Global Development Finance 2006*, (Washington, DC: The World Bank, 2006).

<sup>28</sup> See the Stockholm International Peace Research Institute's reports and data available at [www.sipri.org](http://www.sipri.org); see also Keith Krause, "Small Arms and Light Weapons: Towards Global Public Policy," *Coping with Crisis Working Paper Series*, International Peace Academy, New York, March 2007.

<sup>29</sup> See [www.asti.cgiar.org](http://www.asti.cgiar.org) for extensive data on public agricultural research in developing countries.



agricultural extension, and education. IFPRI Research has shown that when female and male farmers receive equal access to resources, food production increases significantly.

Governments do not fail to make food security a high policy priority because they wish to perpetuate food insecurity and malnutrition; rather, they put a higher value on other items on the policy agenda. For example, according to the World Bank, low-income-country governments devote an average of nearly 16 percent of their budgets to the military. This powerful constituency then works to maintain the status quo, often to the detriment of public investment in food security and human security more generally.

Despite these powerful barriers to policy change, national government action is absolutely essential to achieving food security. In Thailand, for example, government-funded, community-based health and nutrition centers have spurred significant reductions in child malnutrition. In South Asia, public agricultural research and strong governmental commitment to agricultural development has meant substantial increases in farm productivity and food output, with lower food prices, meaning more rural employment and less food insecurity. In Brazil, the government's *Fome Zero* (zero hunger) program seeks to reduce poverty through a variety of interventions, thereby reducing malnutrition over the longer term. Its centerpiece is an income transfer to poor families that has boosted purchasing power for many households. The government also provides free meals in all public schools, promotes nutrition education and awareness of the right to food through the curriculum, and procures food from local smallholders. All wheat and corn flour is fortified to combat anemia. The Brazilian government devotes 6 percent of its expenditures to health and another 6 percent to education, compared to just 3 percent for the military.

### The Private Sector

Most of the world's 450 million farmers are smallholders: 85 percent cultivate less than two hectares. A like number of people work for wages on farms. Small-farm agriculture is thus a key private sector food security activity. But smallholders often have limited or inequitable access to markets: this influences what they produce; their incomes and ability to pay wages; their ability to acquire farm inputs, consumer goods, and cash; and their capacity to

accumulate assets.<sup>30</sup>

In contrast to the large number of smallholders, many other parts of the global food system are characterized by large-scale operations and high concentration: the top ten seed companies control almost half of the \$21 billion global commercial market; the ten leading pesticide firms control 84 percent of the \$35 billion market; the ten largest processors account for 24 percent of the \$1.3 trillion global packaged food market; and the ten leading retailers command a like share of the \$3.5 trillion world market, with the five leading retailers enjoying a 14 percent share. Given such an unlevel global playing field, smallholders may have difficulty capturing a fair share from value chains (notwithstanding growth of 8 to 10 percent per year) in markets for such high-value agricultural products as fruits, vegetables, fish, and meat and new opportunities for both increased incomes and employment in production, processing, and marketing. Nevertheless, collective action, through farmer associations and cooperatives, has allowed smallholders from Guatemala, Uganda, and Vietnam to gain footholds.

Socially responsible business practices can make a difference for food security. For example, transnational seed companies waived their patent royalty claims over the technologies involved in creating *Golden® Rice*. The UN Global Compact is a major vehicle for encouraging corporate social responsibility.

As Figure 7 indicates, since the mid-1990s, private foreign direct investment (FDI) and overseas remittances have significantly overshadowed official development assistance. Remittances often play a major role in improving human security for poor households. However, the bulk of FDI continues to go to a small number of fast-growing, higher-income developing countries, and in poorer countries, foreign investment is concentrated in extractive industries such as petroleum and mining. Nevertheless, there is considerable scope to develop public-private partnerships for development; a public sector or private non-profit role remains essential in such ventures, as market signals and the profit motive alone are unlikely to direct substantial resources to development activities that benefit the poor. Such partnerships have already had some success in the health field and, to a lesser extent, in agricultural R&D.

Private philanthropy is taking on a more prominent role in advancing global food security. In 2006, the Gates and Rockefeller Foundations

<sup>30</sup> IFAD (International Fund for Agricultural Development), *Rural Poverty Report 2001*, New York: Oxford University Press, 2001. Available at [www.ifad.org/poverty/index.htm](http://www.ifad.org/poverty/index.htm).

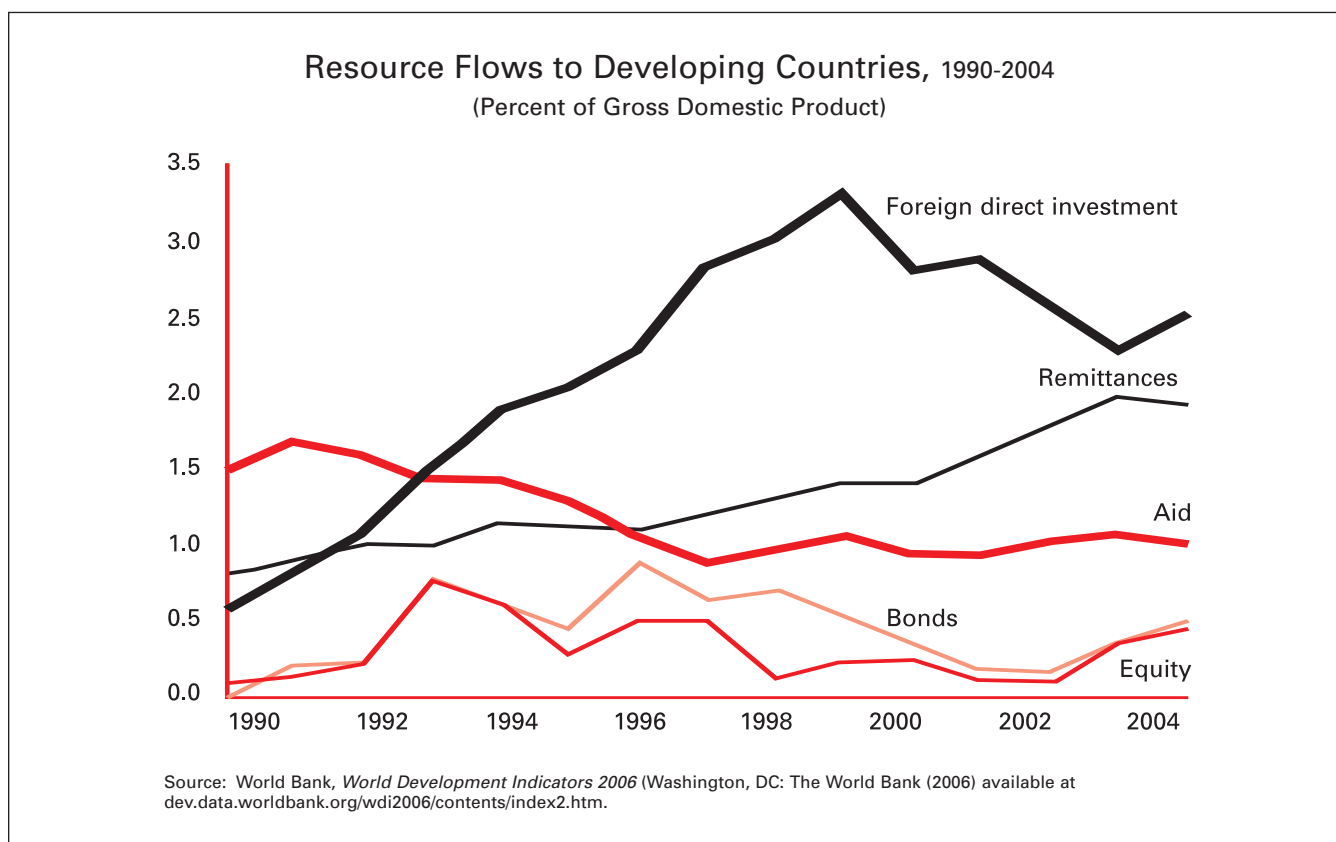


Figure 7

launched a major initiative on agricultural development in sub-Saharan Africa.

Large companies have often played a significant role in responding to humanitarian emergencies, e.g., Wal-Mart's delivery of food following Hurricane Katrina in New Orleans, or Cargill's relief activities focused on employee communities following Hurricane Mitch in Central America. However, emergency assistance is not a core private-sector activity, and here, too, public-private partnerships offer a vehicle for synergies between the logistical and managerial strengths of the private sector and the necessary public goods and pro-poor orientation of the public and nonprofit sectors.

### Civil Society

Particularly since the era of structural adjustment, civil society organizations have taken on important roles in providing services and managing humanitarian, food, nutrition, and agricultural and rural development programs, even when these remain government-funded. These roles are likely to remain important, and

research has shown that nongovernmental programs are often quite efficient and have a significant focus on beneficiary engagement in design, implementation, and evaluation.

Civil society advocacy efforts can do a great deal to change government priorities and foster adequate political will to implement decades of declarations on the need to eradicate hunger. For example, long before the Brazilian government launched *Fome Zero*, there was an active anti-hunger movement that pressed to put food security on the front policy burner, while also providing services to food-insecure Brazilians. Civil society organizations remain actively engaged in food security policy advocacy, and food security councils with government and civil society representatives can shape policy and programs at the local, state, and national levels.

### Scenarios and Recommendations<sup>31</sup>

Plausible scenarios of future food security include both substantial improvement and a considerably

<sup>31</sup> These scenarios are based on Joachim Von Braun, Mark W. Rosegrant, Rajul Pandya-Lorch, Marc J. Cohen, Sarah A. Cline, Mary Ashby Brown, and María Soledad Bos, "New Risks and Opportunities for Food Security: Scenario Analyses for 2015 and 2050," 2020 *Vision for Food, Agriculture, and the Environment Discussion Paper No. 39*, Washington, DC: IFPRI, 2005. Available at [www.ifpri.org/2020/dp/dp39/2020dp39.pdf](http://www.ifpri.org/2020/dp/dp39/2020dp39.pdf).

worse outcome than what is likely with business as usual. Maintaining the status quo will result in a “muddling through” scenario, with hundreds of millions of people left food insecure well into the future.

**Catastrophic Scenarios**

The worst case scenario for future food security would be one in which water mismanagement, declining irrigation efficiency, lack of adaptation to climate change, and pest problems in agriculture abound. Cereal yields fall precipitously, and farmers move onto more marginal land. This does not compensate for reduced yields, but seriously degrades the environment. Maize prices rise through 2030, leading to higher meat prices. Per capita calorie availability does not improve in developing countries, remaining barely adequate. Unequal food access also does not improve, leaving a substantial population food-insecure. In sub-Saharan Africa, the number of malnourished preschool children rises steeply through 2015, and continues to rise at a slower pace for at least the next thirty-five years (Figure 8).

A variation on this scenario that results in slightly less food insecurity involves continuing trade and political conflicts into the future. Conflict and HIV/AIDS worsen in the developing world. Unfavorable terms of trade slow income growth in developing countries, due to dependence on export

agriculture. Average per capita calorie availability stagnates until 2030. Governments fail to make adequate investments in agriculture, education, clean water, other rural development, and poverty alleviation. Crop area expands in the face of relatively rapid population growth in developing countries and inadequate yield expansion. Cereal prices and meat demand remain flat. Child malnutrition rises in Africa as in the preceding scenario through 2015, but after that the rate of increase is less.

**Muddling Through**

This is the status quo scenario depicted in Table 1: nearly 600 million people in the developing world remain food-insecure in 2015, far more than envisioned by the World Food Summit Plan of Action, and food insecurity continues to rise in sub-Saharan Africa for some time. The halving of global food insecurity from the 1990 level does not occur until well beyond the mid-twenty-first century. Ten years ago, the Rome Declaration on World Food Security, approved at the Summit, condemned this status quo as “intolerable” and “unacceptable.”

As noted earlier, there is no consensus on whether the levels of deprivation and inequality in human security that this scenario and the catastrophic scenario entail contribute directly to conflict. What is clear, however, is that these circumstances play into broader perceptions of inequality and injustice which

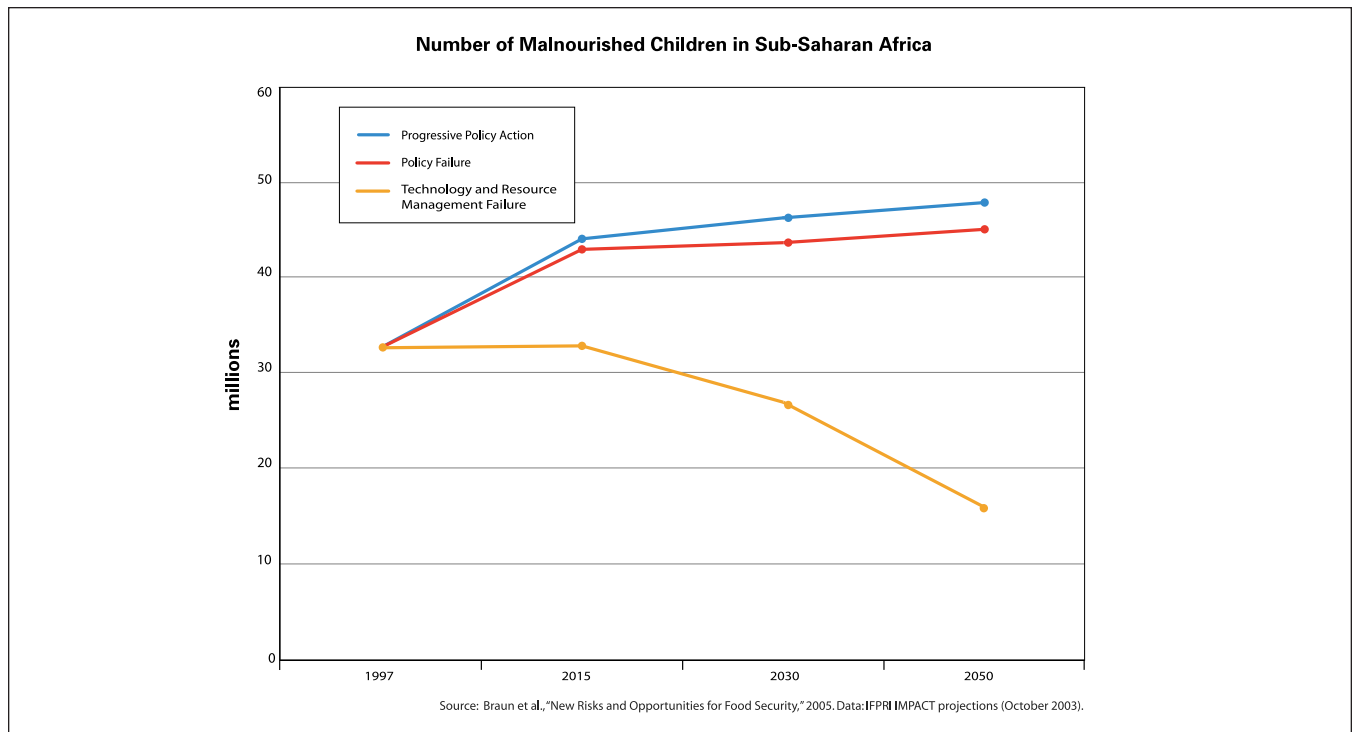


Figure 8



are harnessed by terrorists and other organizers of violence. Hence, failure to move beyond these scenarios clearly poses a threat to international security.

### **Golden Scenario**

It would be feasible to reduce the malnourished proportion of developing-country children under the age of five to 15 percent by 2015; that is a 50 percent cut in the 1990 proportion of malnourished preschoolers (a variation on the MDG hunger target). IFPRI's IMPACT model<sup>32</sup> projects that accomplishing this would require \$29.6 billion in annual investments in rural road construction, education, clean water provision, agricultural research, and irrigation over the period 1995–2015. That is about \$8 billion more per year than anticipated investments, or \$160 billion in additional spending. Such a level of public investment is unquestionably feasible in a multi-trillion dollar global economy. Achieving it depends on whether the international community—including multilateral institutions—is willing, on a sustainable basis, to make food security a higher policy priority. Making such a shift in priorities means more than just increased public expenditure; it also requires the prevention and resolution of violent conflict, the establishment of a fair and equitable global trading system, improved access to health care, changes in policies and practices that discriminate against women, and increased attention to sustainable natural resource management. Civil society advocacy can play an important role in encouraging such necessary changes.

## **Recommendations for Change in Multilateral Institutions**

Current institutional arrangements have proved inadequate to ensure progress toward food security. Instead, food insecurity has worsened since the mid-1990s. This paper has pointed to a variety of shortcomings at both the national and international level that contributed to this outcome. Four key changes at the multilateral level would help to reverse current trends and accelerate forward movement on food security.

First, a new multilateral humanitarian response system is essential. The UN system should not have to beg rich-country governments for resources on an ad hoc basis every time an emergency occurs. An

insurance-like mechanism that triggers a payout in the form of food, cash, medicine, and other necessities once a crisis occurs would be far preferable to either the status quo or the Central Emergency Fund, which still requires donors to replenish it. An insurance approach also elevates humanitarian aid to a matter of rights, rather than charity. To do this successfully will require careful design and the engagement of the private sector as well as public institutions.

Second, there needs to be a multilateral institutional mechanism that facilitates governments giving higher priority to broad-based agricultural and rural development. This must include collaboration among developing country governments. The AU and NEPAD have laid the foundation by combining the pledge to boost agriculture budgets with a peer review process whereby member states examine each others' policies and their compliance with commitments. This process could be strengthened—in particular by fostering greater public awareness of the results, so that civil society can engage policy makers in dialogue about their performance—and expanded to other developing regions.

Linked to this South-South collaboration, the mechanism must also encourage donor states to boost assistance to food security along the lines discussed in this paper, to harmonize their development cooperation policies, and to create better coherence among each donor nation's aid, trade, debt, and arms sales policies. Again, there is an existing framework: the OECD's DAC, which encourages coherence and harmonization, and regularly engages in peer review of member development cooperation programs. But here too, the results of this process need to be disseminated much more widely to the global public so that it can hold policy makers accountable for results.

A third link in the chain would be a multistakeholder forum where Northern and Southern governments, international organizations, academic experts, and civil society discuss the results of the first two elements. Bodies such as the UN System Network on Rural Development and Food Security and the Standing Committee on Nutrition provide the basis for this forum. It should be an arena where governments and international agencies are answerable for policies and food-security results. The forum's agenda would include such unresolved questions as the food insecurity-conflict nexus and priority-setting and policy coherence on nutrition issues. The forum would highlight and encourage good performance

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<sup>32</sup> See note 17, above.

and learning across national experiences, as well as offering ways to improve insufficient performance. The components of this mechanism need not be part of a super-organization; it could function as a network.

Finally, the UN system, including the World Bank and International Monetary Fund, together with the regional development banks, needs to more thoroughly integrate conflict sensitive development into programs, as do bilateral development agencies.

Development project and program design, implementation, and evaluation must consistently take the likely impact on conflict into account. In conjunction with this change, the UN system should build on recent efforts of the UN University to explore the role of agricultural and rural development in conflict prevention and post-conflict reconstruction. Such activities can help to sever the links between conflict and food insecurity once and for all.

## Further Reading

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*Examines the key drivers in reducing child malnutrition. Emphasizes the importance of female education and women's social status, as well as increased food availability and improvements in the health environment.*

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*Provides a thorough examination of the causes of food insecurity. Examines progress and trends in eliminating food insecurity. Offers a comprehensive plan to eliminate food insecurity through political action, policy reforms, increased agricultural productivity, improved nutrition, productive safety nets, improved rural incomes and markets, and restoration and conservation of natural resources.*

Von Braun, Joachim, Mark W. Rosegrant, Rajul Pandya-Lorch, Marc J. Cohen, Sarah A. Cline, Mary Ashby Brown, and María Soledad Bos. "New Risks and Opportunities for Food Security: Scenario Analyses for 2015 and 2050," *2020 Vision for Food, Agriculture, and the Environment Discussion Paper* No. 39. Washington, DC: IFPRI, 2005. Available at [www.ifpri.org/2020/dp/dp39/2020dp39.pdf](http://www.ifpri.org/2020/dp/dp39/2020dp39.pdf).

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*Seeks to elevate the place of nutrition in international development policy and strategy. Advocates a focus on the first two years of life for nutrition interventions.*

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