



The State of
Food Insecurity in the World
2003

monitoring progress
towards the World Food Summit and
Millennium Development Goals



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About this report

This fifth edition of *The State of Food Insecurity in the World* (SOFI) provides the latest estimates of the number of chronically hungry people in the world and reports on global and national efforts to reach the goal set by the World Food

Summit (WFS) in 1996 – to reduce that number to half the level reported at the time of the Summit by the year 2015.

The report is divided into four main sections. The first, *Undernourishment around the world*, analyses the latest data on hunger. The second

contains a special feature on international trade. The third, *Towards the Summit commitments*, discusses approaches to fulfilling the commitments in the WFS Plan of Action. Finally, tables provide detailed indicators for developing countries and countries in transition.

Food Insecurity and Vulnerability Information and Mapping Systems



On behalf of the Inter-Agency Working Group on FIVIMS (IAWG-FIVIMS), I commend FAO on the 2003 edition of *The State of Food Insecurity in the World*. This report has justifiably become a flagship report in the food security arena. Each year it clearly lays out how far we have come in achieving global food security and how far we still have to travel.

Since FIVIMS was created in 1997 we have seen the emergence of the Millennium Development Goals process, the country Poverty Reduction Strategy papers and a new emphasis on the progressive realization of the right to food, coupled with an increasingly shared vision of the causes of food insecurity and vulnerability within a livelihood framework. Recognizing these changes, the FIVIMS Initiative is currently examining what it has achieved and its strategic priorities for going forward. The inter-agency nature of FIVIMS represents one of our greatest strengths – the ability to coordinate information activities and to share relevant experiences, approaches and methodologies. Building on a collaborative assessment of our past activities, and consultations with many stakeholders, we will formulate a new, forward-looking strategic plan. I look forward to sharing the results of the assessment and strategic planning in the 2004 issue of SOFI.

I encourage all readers of SOFI to translate information into action. Use this report to shine a spotlight on food insecurity and hunger; mobilize resources and political will in your constituency – global, national, and local – to meet the challenge. We must all play our part, and on behalf of FIVIMS we commit ourselves to work in partnership with you to eliminate the scourge of hunger from our planet once and for all.

Lynn R Brown (World Bank)
Chair, IAWG-FIVIMS

IAWG-FIVIMS membership

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Australian Agency for International Development (AusAID)
Canadian International Development Agency (CIDA)
EuropeAid Co-operation Office (EuropeAid)
German Agency for Technical Cooperation (GTZ)
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The Rockefeller Foundation
Save the Children Fund UK (SCFUK)
World Resources Institute (WRI)

Regional organizations

Southern African Development Community (SADC)
Permanent Interstate Committee for Drought Control in the Sahel (CILSS)



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Towards the World Food Summit target

FIRST SOME GOOD NEWS. FAO's latest estimates show that a number of countries have reduced hunger steadily since the World Food Summit (WFS) baseline period of 1990–1992. In 19 countries, the number of chronically hungry people declined by over 80 million between 1990–1992 and 1999–2001.

The list of successful countries spans all developing regions, with one country in the Near East, five in Asia and the Pacific, six in Latin America and the Caribbean and seven in Sub-Saharan Africa. It includes both large and relatively prosperous countries like Brazil and China, where levels of under-nourishment were moderate at the outset, and smaller countries where hunger was more widespread, such as Chad, Guinea, Namibia and Sri Lanka.

Now the bad news. Unfortunately, this is not the situation in most other countries. Across the developing world as a whole, an estimated 798 million people were undernourished in 1999–2001, only 19 million fewer than during the WFS baseline period. Worse yet, it appears that the number of undernourished people in the developing world is no longer falling but climbing. During the first half of the 1990s, the number of chronically hungry people decreased by 37 million. Since 1995–1997, however, the number has increased by over 18 million.

We must ask ourselves why this has happened. Preliminary analysis does not permit any definitive answers to that question. But closer examination does identify several factors that differentiate the successful countries from those that suffered setbacks.

In general, countries that succeeded in reducing hunger were characterized by more rapid economic growth and

specifically by more rapid growth in their agricultural sectors. They also exhibited slower population growth, lower levels of HIV infection and higher ranking in the UNDP's Human Development Index.

These findings are consistent with previous analyses that helped shape the WFS Plan of Action and the anti-hunger initiative put forward by FAO at the time of the *World Food Summit: five years later*. They highlight the importance of a few key building blocks in the foundation for improving food security – rapid economic growth, better than average growth in the agricultural sector and effective social safety nets to ensure that those who cannot produce or buy adequate food still get enough to eat.

If the latest data tend to confirm our understanding of factors that contribute to food security, they also confront us with another difficult question: if we already know the basic parameters of what needs to be done, why have we allowed hundreds of millions of people to go hungry in a world that produces more than enough food for every woman, man and child?

Bluntly stated, the problem is not so much a lack of food as a lack of political will. The vast majority of the world's hungry people live in rural areas of the developing world, far from the levers of political power and beyond the range of vision of the media and the public in developed countries. Except when war or a natural calamity briefly focuses global attention and compassion, little is said and less is done to put an end to the suffering of a "continent of the hungry" whose 798 million people outnumber the population of either Latin America or sub-Saharan Africa.

Too often, eliminating hunger has been relegated to a shopping list of

development goals. All of these goals are interconnected through the fatal nexus of poverty and social exclusion. Every one of them deserves and demands our support. But we must also have the vision and the courage to set priorities, recognizing that lack of adequate food threatens people's very existence and cripples their ability both to benefit from opportunities for education, employment and political participation and to contribute to economic and social development.

This brings us back to the need for political will. And it also brings us to more of the good news in this year's report. For if we must report setbacks in reducing hunger, we can also report that we have seen many encouraging signs of growing commitment to the fight against hunger.

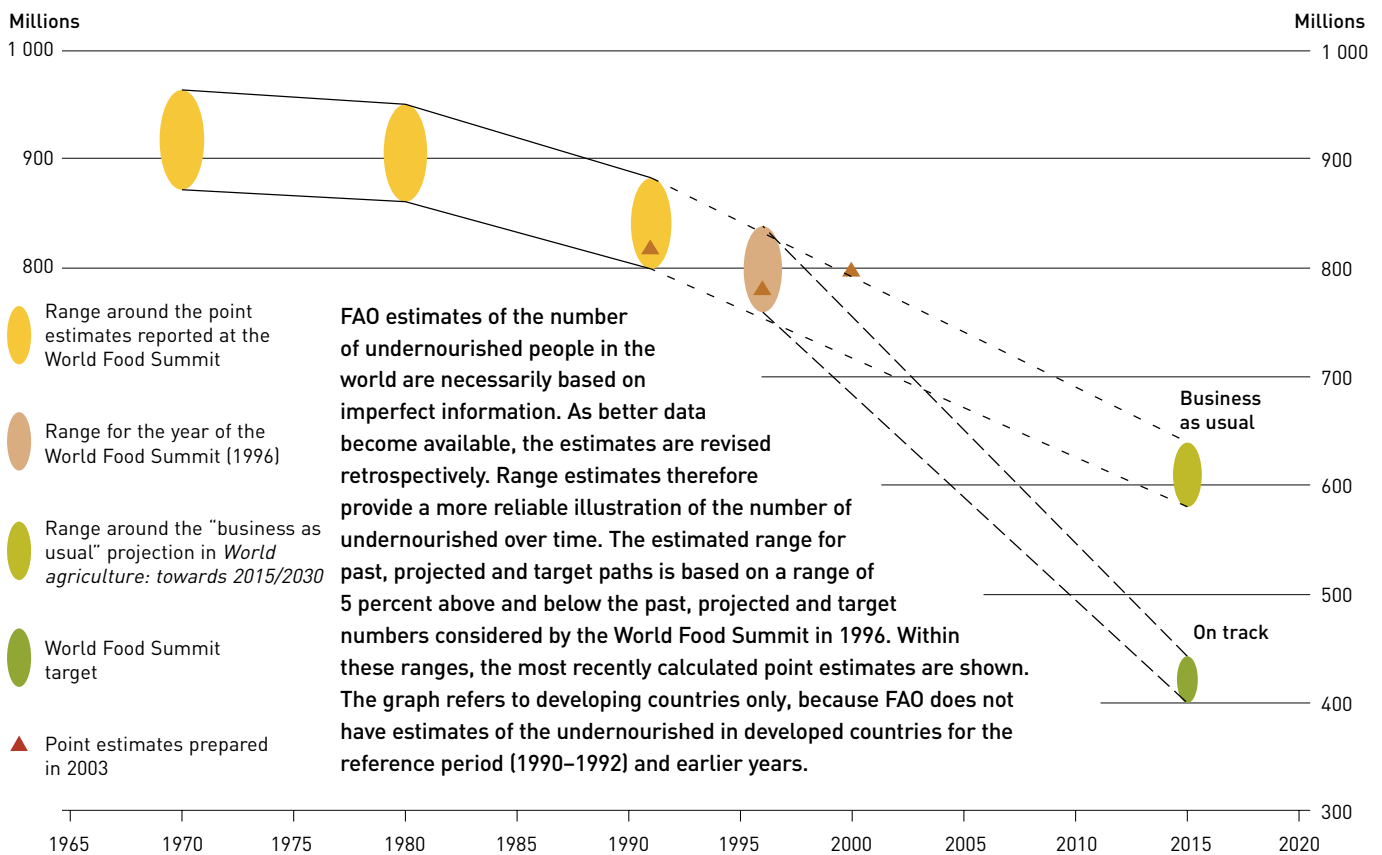
In Brazil, President Luiz Inácio Lula da Silva has pledged to eradicate hunger by the end of his four-year term. And he has backed up the pledge by launching the comprehensive Fome Zero (Zero Hunger) Project.

Over the past year, more than 20 other countries have asked FAO to help them design and carry out anti-hunger programmes. Many of these countries are relying entirely on their own resources and initiative to achieve the WFS goal within their own borders. Some have committed themselves to more ambitious goals. The government of Sierra Leone, for example, has set a bold target of eliminating hunger by the year 2007. At their recent summit in Maputo, Mozambique, the heads of state of the African Union unanimously pledged to increase agriculture's share of public expenditures to at least 10 percent within the next five years.

The fact that these countries have made eradicating hunger a top priority



Number of undernourished in the developing world: observed and projected ranges compared with the World Food Summit target



is encouraging. The way they are going about it is even more so.

The strategy adopted by Brazil's Fome Zero incorporates many of the elements in the anti-hunger initiative. Most importantly, it emphasizes a two-pronged attack on hunger that combines emergency interventions to give hungry people access to food with development initiatives to increase employment, incomes and food production in impoverished communities. Fome Zero has also forged a broad and committed national alliance against hunger, engaging the

active support and participations of unions, popular associations, non-governmental organizations, schools, universities, churches and companies.

A growing number of countries are showing the way, mustering the political will and the resources to attack the problem of hunger head on. Now it is time for the international community to follow through on the commitments made at the World Food Summit.

The task ahead of us is to create an international Alliance against Hunger that will mobilize national and global

commitment, based not on a plea for charity but on a demand for justice and an appeal to the self-interest of almost everyone, recognizing that the suffering of 800 million hungry people represents not only an unconscionable tragedy but a threat to economic growth and political stability on a global scale.

Hunger cannot wait.

Jacques Diouf
FAO Director-General

Undernourishment around the world

Counting the hungry: latest estimates

FAO'S LATEST ESTIMATES signal a setback in the war against hunger. The number of chronically hungry people in developing countries declined by only 19 million between the World Food Summit (WFS) baseline period of 1990–1992 and 1999–2001. This means that the WFS goal of reducing the number of undernourished people by half by the year 2015 can now be reached only if annual reductions can be accelerated to 26 million per year, more than 12 times the pace of 2.1 million per year achieved to date.

Analysis of more recent trends makes the prospects look even bleaker. From 1995–1997 to 1999–2001 the number of undernourished actually increased by 18 million (see page 8 for details and analysis).

Worldwide, FAO estimates that 842 million people were undernourished in 1999–2001. This includes 10 million in the industrialized countries, 34 million in countries in transition and 798 million in developing countries. At the regional level, the numbers of undernourished were reduced in Asia and the Pacific and in Latin America and the Caribbean. In contrast, the numbers continue to rise in Sub-Saharan Africa and in the Near East and North Africa.

Improving the FAO estimate of prevalence of undernourishment

In estimating the prevalence of undernourishment FAO takes into account the amount of food available per person nationally and the extent of inequality in access to food.

An International Scientific Symposium on Measurement of Food Deprivation and Undernutrition held in 2002 concluded that the method used by FAO is the only way currently available to arrive at global and regional estimates of the prevalence of undernourishment. The Symposium also called for efforts to improve both the data and the analytical approach used to derive these estimates.

In response to the Symposium's recommendations, FAO's Statistics Division

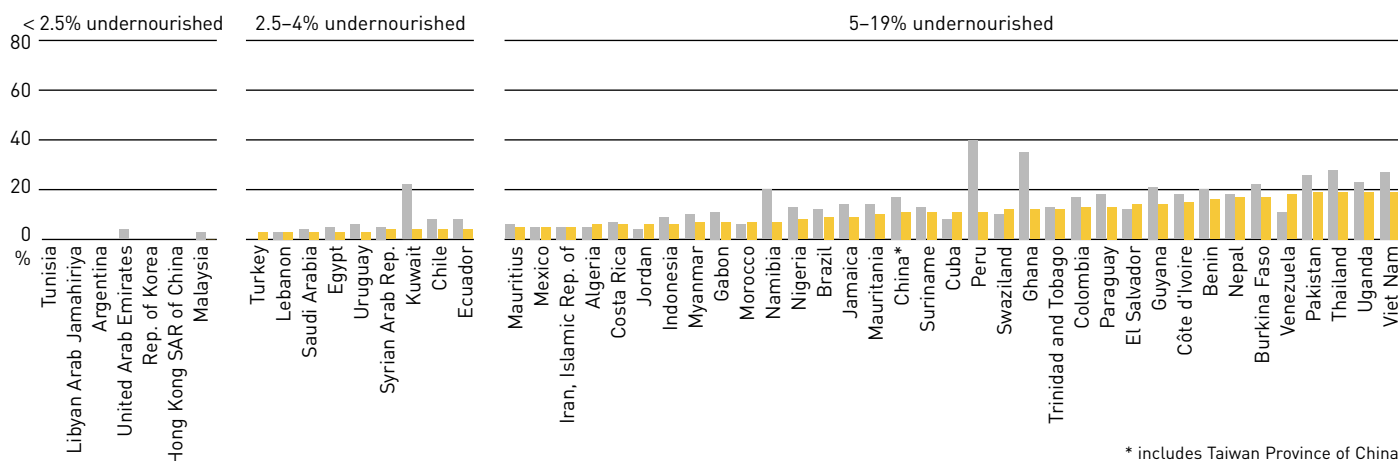
has reinforced its activities in several areas, including:

- expanding use of the FAO methodology to measure the extent of food deprivation at subnational levels, such as urban and rural areas;
- reconciling estimates of national food consumption from food balance sheets and household surveys;
- analysing trends in the inequality of access to food;
- reviewing the minimum energy requirements used to define food deprivation in light of new recommendations from an FAO/WHO/UNU Expert consultation; and
- integrating analysis of trends in food deprivation and nutritional status.

These numbers and trends are dominated by progress and setbacks in a few large countries. China alone has reduced the number of hungry people by 58 million since the World Food Summit baseline period. But progress in China has slowed as the prevalence of undernourishment

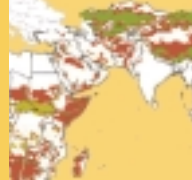
has been reduced. At the same time, India has shifted into reverse. After seeing a decline of 20 million in the number of undernourished between 1990–1992 and 1995–1997, the number of hungry people in India increased by 19 million over the following four years.

Proportions of undernourished in developing countries, 1990–1992 and 1999–2001

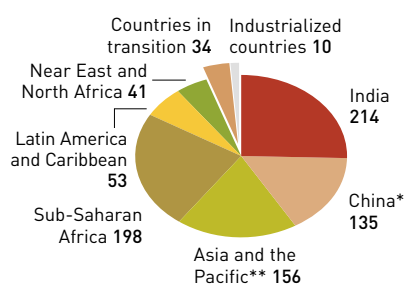


* includes Taiwan Province of China

** estimates of the proportion of undernourished for 1999–2001 are not available; estimates for 1998–2000 published in SOFI 2002 were used instead



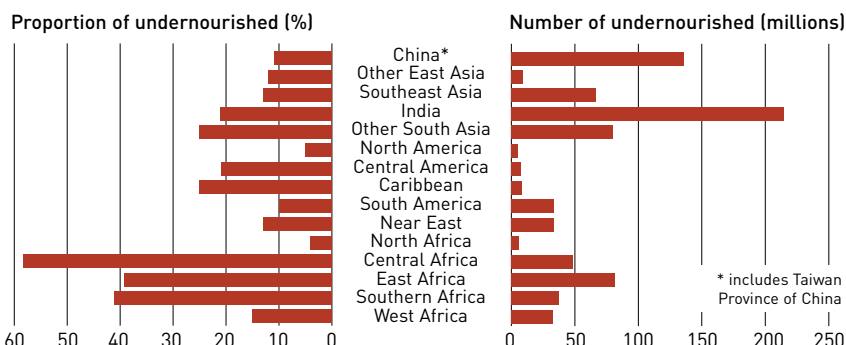
Undernourished 1999–2001 (millions)



* includes Taiwan Province of China
** excl. China and India

Source: FAO

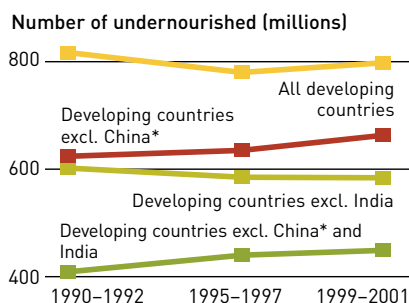
Number and proportion of undernourished, 1999–2001



* includes Taiwan Province of China

Source: FAO

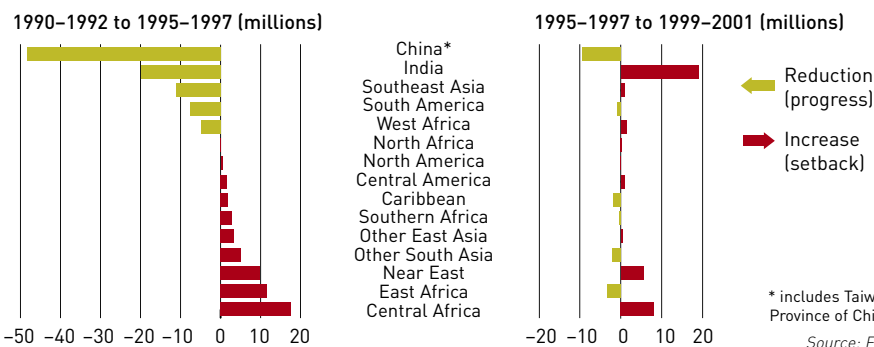
Impact of China and India on trends



* includes Taiwan Province of China

Source: FAO

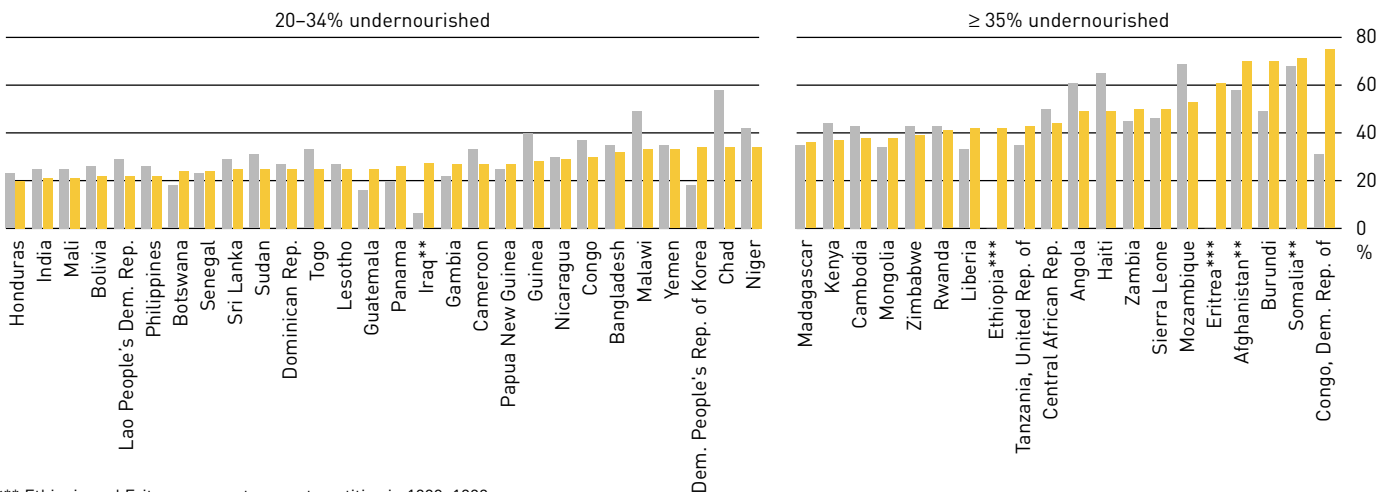
Changes in numbers of undernourished in developing subregions



* includes Taiwan Province of China

Source: FAO

Grey bars: 1990–1992 Coloured bars: 1999–2001 Countries grouped by prevalence of undernourishment in 1999–2001



*** Ethiopia and Eritrea were not separate entities in 1990-1992

Source: FAO

Undernourishment around the world

Counting the hungry: recent trends in developing countries and countries in transition

WITH THE SLOW PACE of progress achieved since 1990–1992, prospects for reaching the World Food Summit goal of halving the number of hungry people by 2015 appear increasingly remote. Closer analysis reveals that these numbers mask an even more alarming trend. If the nine-year period is divided in half, figures for the developing countries as a whole indicate that the number of undernourished people has actually increased by 4.5 million per year during the most recent subperiod from 1995–1997 to 1999–2001.

Data from individual countries show that only 19 countries succeeded in reducing the number of undernourished during both subperiods. In these successful countries, the total number of hungry people fell by over 80 million over the full nine-year period (see graph below).

At the other end of the scale are 26 countries where the number of undernourished increased in both subperiods. In most of these countries, the prevalence of undernourishment was already high (greater than 20 percent) in 1990–1992. Over the next nine years, the

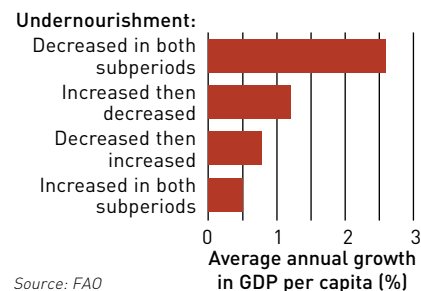
Analysing the keys to progress and reversals in reducing hunger

In attempting to analyse the factors that fuel progress in reducing hunger, a combination of six indicators proved most successful at differentiating among countries grouped according to their performance between 1990–1992 and 1999–2001. These indicators include population growth, GDP growth per person, health expenditure as a proportion of GDP, the proportion of adults infected with HIV, the number of food emergencies and the UNDP's Human Development Index (itself a composite of many economic and social indicators).

In the countries that succeeded in reducing hunger throughout the nine-year period, GDP per capita grew at an annual rate of 2.6 percent – more than five times higher than the rate in countries where undernourishment increased in both subperiods (0.5 percent). The most

successful countries also exhibited more rapid agricultural growth (3.3 percent per year compared to only 1.4 percent for the countries where hunger increased throughout the decade), lower rates of HIV infection, slower population growth and far fewer food emergencies.

Trends in undernourishment and GDP, by country grouping

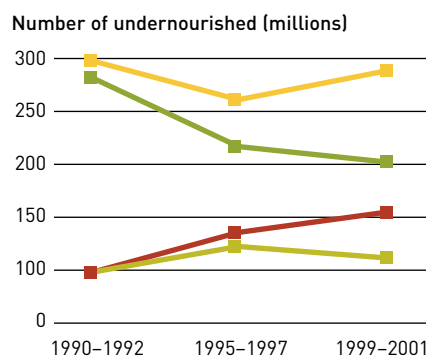


number of hungry people in these countries increased by almost 60 million.

Preliminary analysis (see box) suggests a number of factors that may have

contributed to success in some countries and setbacks in others. Not surprisingly, the countries that succeeded in reducing hunger in both sub-

Recent trends in undernourishment, by country groupings



17 countries experienced a decrease in the number of undernourished, followed by an increase

19 countries experienced a decrease over the entire period

26 countries experienced an increase over the entire period

22 countries experienced an increase followed by a decrease

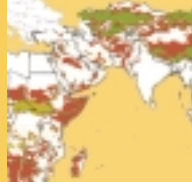
■ Including India, Pakistan, Sudan, Colombia, Indonesia, Nigeria

■ Including China, Viet Nam, Thailand, Sri Lanka, Peru, Brazil, Ghana, Namibia

■ Including Afghanistan, Dem. Rep. of Congo, Yemen, Philippines, Liberia, Kenya, Iraq

■ Including Bangladesh, Cambodia, Haiti, Nicaragua, Mozambique, Uganda

Source: FAO



periods also exhibited significantly higher economic growth. Countries where the number of hungry people increased, on the other hand, experienced more food emergencies and higher rates of HIV infection.

Not all of the news that emerges from this analysis is bad. Twenty-two countries, including Bangladesh, Haiti and Mozambique, succeeded in turning the tide against hunger, at least temporarily. In these countries, the number of undernourished declined during the second half of the decade after rising through the first five years.

In 17 other countries, however, the trend shifted in the opposite direction and the number of undernourished people, which had been falling, began to rise. This group includes a number of countries with large populations, among them India, Indonesia, Nigeria, Pakistan and Sudan.

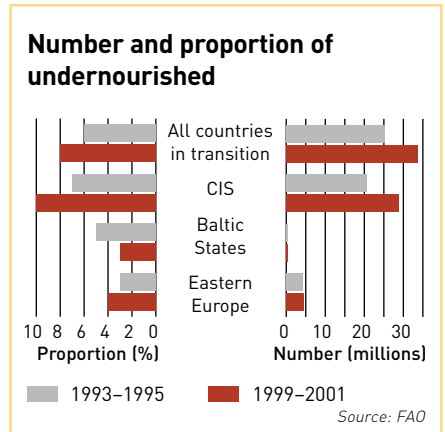
At the same time, progress has slowed in many of the countries that had scored dramatic gains during the first five-year subperiod, including China. Having reduced the prevalence of undernourishment to moderate levels (below 20 percent), these countries can no longer be expected to propel progress for the developing world.

With reversals in many large countries and progress slowing in others, the pattern of change in the developing countries as a whole shifted from a declining to a rising trend. Between 1995–1997 and 1999–2001, the number of hungry people in the developing countries increased by 18 million, wiping out almost half the decrease of 37 million achieved during the previous five years. Unless significant gains are made in large countries where progress has stalled, it will be difficult to reverse this negative trend.

Undernourishment rising in many countries in transition

FAO's first analysis of the changes that have occurred since the break-up of the Soviet Union and Yugoslavia shows that hunger is increasing in many of the countries in transition. Overall, the number of undernourished people in the countries in transition grew from 25 to 34 million between 1993–1995 and 1999–2001. These estimates must be regarded as provisional, as implementation of household sample surveys to replace the data obtained from administrative records in the centrally planned system is still at an early stage.

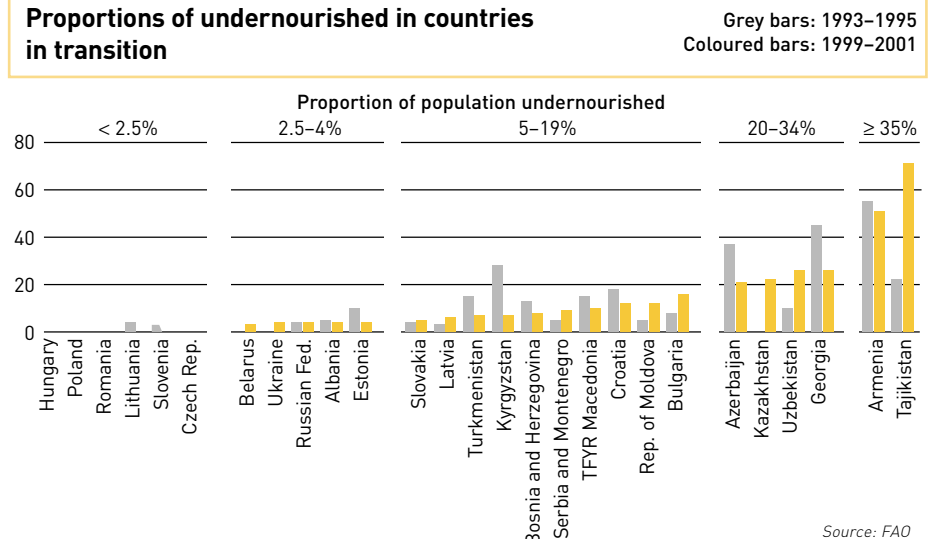
Nearly all of the increases in undernourishment took place in the Commonwealth of Independent States (CIS), where the number of hungry people rose from 20.6 to 28.8 million and the proportion increased from 7 to 10 percent. Economic transition has been accompanied by far-reaching political and administrative changes that have disrupted trade and exchange relations and led to severe foreign exchange shortages. In addition, agri-



cultural production and marketing systems have broken down.

The Baltic States and East European countries have largely avoided these problems. In most of these countries, the prevalence of undernourishment has decreased or remained stable. This has not been the case, however, in Bosnia and Herzegovina, Bulgaria, Latvia, the Former Yugoslav Republic of Macedonia, and Serbia and Montenegro, where the prevalence of undernourishment either rose or was still significant in 1999–2001.

Proportions of undernourished in countries in transition



Undernourishment around the world

Food insecurity and HIV/AIDS: when short-term emergencies intersect a long-wave crisis

SINCE THE HIV/AIDS EPIDEMIC began, 25 million people have died of the disease. Another 42 million are now infected with HIV. During this decade, AIDS is expected to claim more lives than all the wars and disasters of the past 50 years.

The food crisis that threatened more than 14 million people in southern Africa in 2002–2003 brought into sharp focus the interactions between HIV/AIDS and food security. It demonstrated that hunger cannot be combated effectively in regions ravaged by AIDS, unless interventions address the particular needs of AIDS-affected households and incorporate measures both to prevent and to mitigate the spread of HIV/AIDS.

HIV/AIDS and food crises: a chronic double emergency?

The southern African food crisis was triggered by a combination of recurring

droughts, failed economic policies and civil strife. Its impact was compounded by the devastating AIDS epidemic that had already shattered millions of families, undermined the food sector and weakened the capacity of governments to respond. In 2001 alone, the year before the crisis hit, nearly half a million people in the affected countries died of AIDS, orphaning an estimated 2.5 million children.

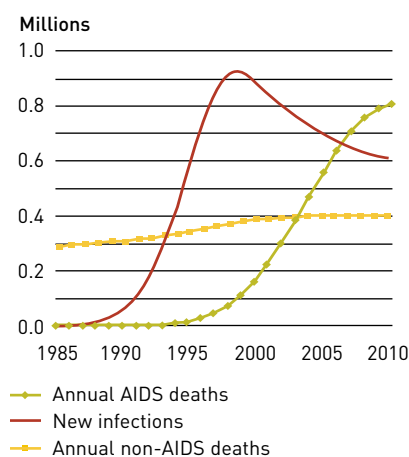
Governments and international organizations responded quickly to deploy emergency food aid. But reports from the field warned that they were facing a new kind of emergency, in which severe short-term food shortages overlap an unprecedented collapse of health, agricultural production and food security that will endure for decades. The AIDS epidemic is driven by a slow-acting virus, with an epidemic curve that stretches well into the century (see graph).

AIDS erodes food security

HIV/AIDS causes and exacerbates food insecurity in many ways. Most of its victims are young adults who fall ill and die during what should be their peak productive years. They leave behind a population overbalanced with the elderly and young, many of them orphans (see graph). The impact on farm production and food security is often devastating.

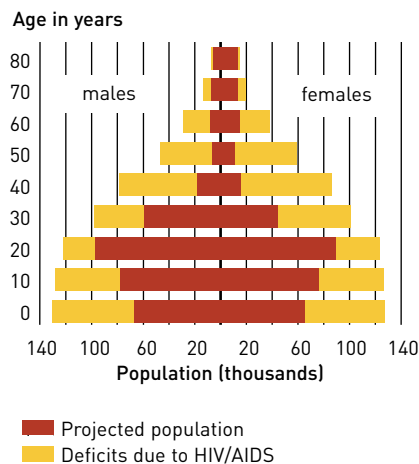
By the year 2020, the epidemic will have claimed one-fifth or more of the agricultural labour force in most southern African countries (see graph). Already, in several affected countries, 60 to 70 percent of farms have suffered labour losses as a result of HIV/AIDS. In some severely affected areas, studies have found that more than half of all households are headed by women (30 percent, mostly widows), grandparents (nearly 20 percent) and orphaned children (almost 5 percent). Lacking the labour, resources and know-how to grow staple and commercial crops, many households have shifted to cultivating

HIV infections, AIDS deaths and non-AIDS deaths, South Africa



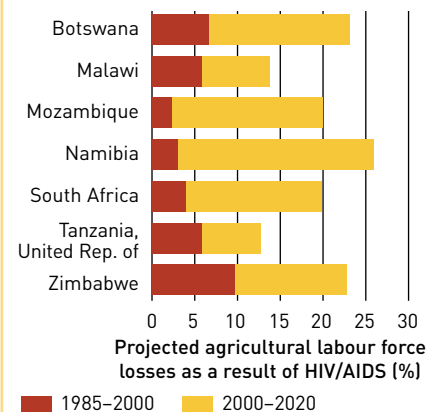
Source: Dorrington and Johnson

Projected population with and without AIDS, Botswana, 2020

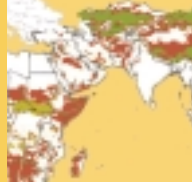


Source: US Census Bureau

Projected labour losses due to HIV/AIDS, southern Africa



Source: FAO



survival foods. Others have abandoned their fields entirely. A study of communal agriculture in Zimbabwe found that maize production fell by 61 percent in households that suffered an AIDS-related death (see graph).

And the impact will continue to be felt for generations to come. AIDS diminishes investment in agriculture. It strips households of assets as they are forced to sell off what little they have to pay for medical and funeral expenses, or simply to survive. It forces children, particularly girls, to withdraw from school to work or care for ill parents, and it cuts off the transfer of essential skills and knowledge from one generation to the next. In two districts in Kenya affected by AIDS, a study found that only 7 percent of orphans heading farm households had adequate agricultural knowledge.

UNAIDS projects that between 2000 and 2020, 55 million Africans will die earlier than they would have in the absence of AIDS – a total equivalent to the entire population of Italy. This unprecedented human catastrophe will

seriously hamper economic and social development. Recent estimates indicate that the pandemic has already reduced national economic growth rates across Africa by 2 to 4 percent a year. Data also suggest that undernourishment has continued to climb in countries where HIV/AIDS was already widespread in 1991, while declining elsewhere in sub-Saharan Africa (see graph).

Hunger fuels AIDS epidemic

While HIV/AIDS has become a major cause of hunger, the reverse is also true. Hunger accelerates both the spread of the virus and the course of the disease. Hungry people are driven to adopt risky strategies to survive. Frequently they are forced to migrate, often to urban slums where HIV infection rates are high. In desperation, women and children barter sex for money and food, exposing themselves to the risk of infection.

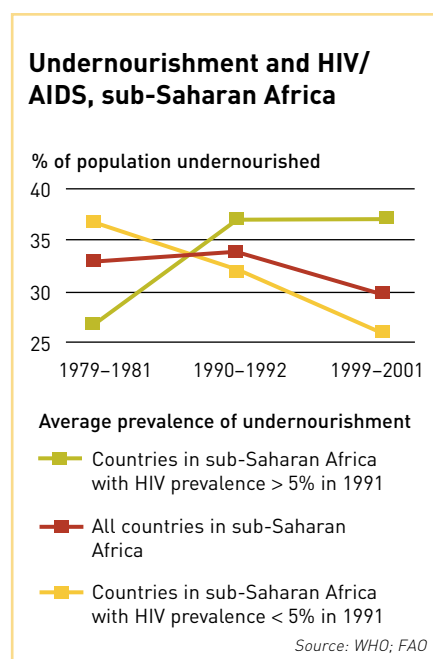
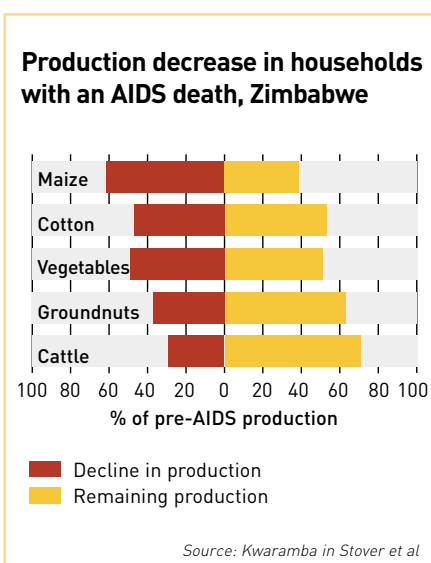
For people who have already been infected with HIV, hunger and malnutrition increase susceptibility to opportunistic infections, leading to an earlier onset of full-blown AIDS. Once the disease takes hold, nutrient absorption is reduced, appetite and metabolism are disrupted and muscles, organs and other tissues waste away. People living with HIV/AIDS need to eat considerably more food to fight the illness, counteract weight loss and extend a productive life.

Food security helps prevent AIDS

As the crisis in southern Africa has shown, food security interventions must be planned with an “HIV/AIDS lens”. Traditional food aid safety nets are not sufficient and may prove ineffective.

Families that have lost key productive members may not be able to participate in “food for work” projects, commonly used as a way to provide emergency food in exchange for labour on public works projects. To recover and achieve a degree of self-sufficiency, they need both food assistance and agricultural development programmes that address their needs by emphasizing nutritious crops that require less labour, diversification that spreads labour requirements and harvests more evenly throughout the year, and education and training for orphaned children and adolescents.

Incorporating HIV prevention, nutritional care for people living with HIV/AIDS and AIDS mitigation measures into food security and nutrition programmes can help reduce the spread and impact of HIV/AIDS. Indeed, when short-term food emergencies intersect the long-wave HIV/AIDS crisis, household food security is likely to be the single most important HIV prevention strategy and AIDS mitigation response.



Undernourishment around the world

Water and food security

WATER AND FOOD SECURITY are closely related. Agriculture is by far the biggest user of water, accounting for about 69 percent of all withdrawals worldwide and over 80 percent in developing countries. Reliable access to adequate water increases agricultural yields, providing more food and higher incomes in the rural areas that are home to three-quarters of the world's hungry people. Not surprisingly, countries with better access to water also tend to have lower levels of undernourishment (see graph).

If water is a key ingredient in food security, lack of it can be a major cause of famine and undernourishment, particularly in food-insecure rural areas where people depend on local agriculture for both food and income. Drought ranks as the single most common cause of severe food shortages in developing countries. For the three most recent years for which data are available,

drought was listed as a cause in 60 percent of food emergencies (see graph).

Africa is both the driest continent (other than Oceania) and the region where hunger is most prevalent. Within Africa, undernourishment and periodic famines have afflicted semi-arid and drought-prone areas (see map).

Even where overall water availability is adequate, erratic rainfall and access to water can cause both short-term food shortages and long-term food insecurity. Floods are another major cause of food emergencies. Sharp seasonal differences in water availability can also increase food insecurity. In India, for example, more than 70 percent of annual rainfall occurs during the three months of the monsoon, when most of it floods out to sea. Farmers who lack irrigation facilities must contend with water scarcity through much of the year and with the threat of crop failures when the monsoons fail.

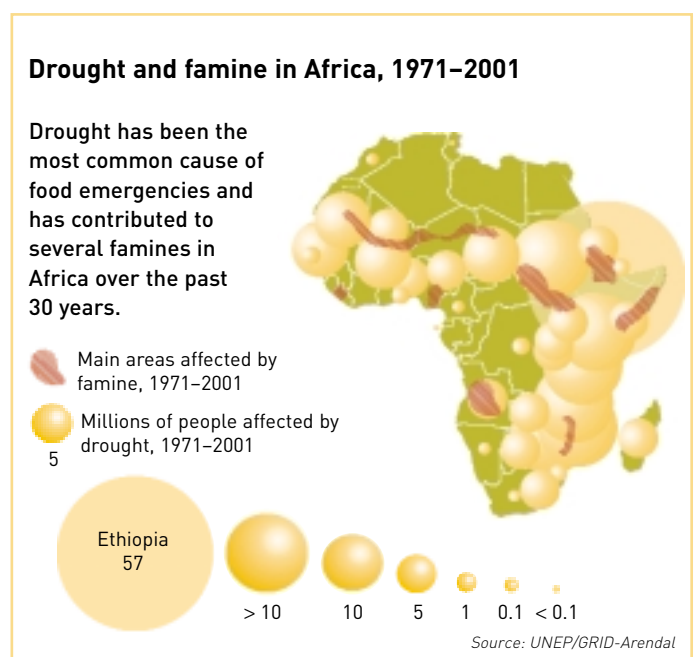
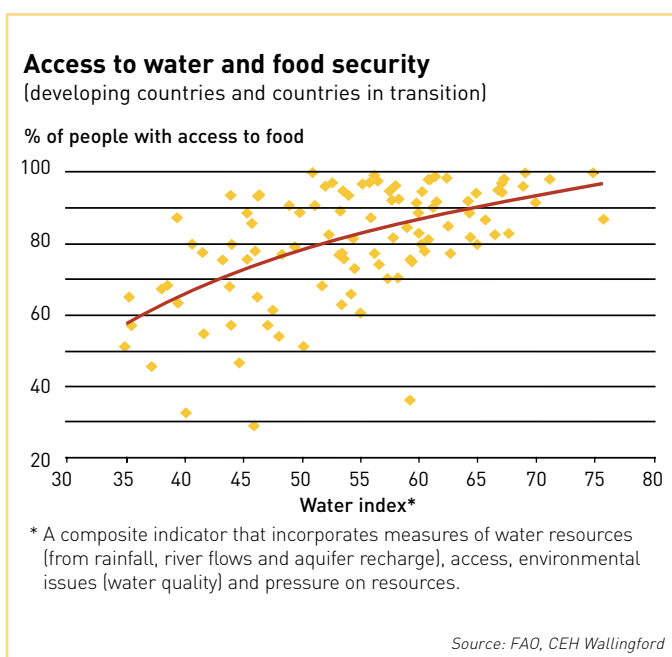
Irrigation increases yields while reducing hunger and poverty

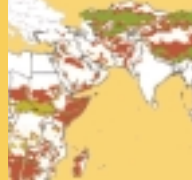
By ensuring an adequate and reliable supply of water, irrigation increases yields of most crops by 100 to 400 percent (see graph). Although only 17 percent of global cropland is irrigated, that 17 percent produces 40 percent of the world's food.

Along with higher yields, irrigation increases incomes and reduces hunger and poverty. Data show that where irrigation is widely available, undernourishment and poverty are less prevalent (see graph).

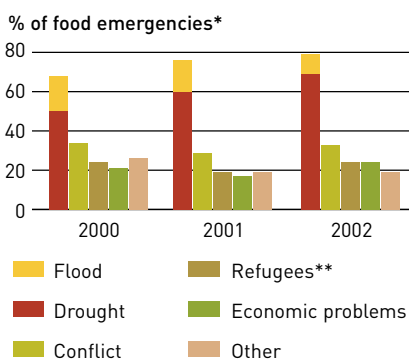
Ongoing studies in Asian countries provide evidence that irrigation alleviates both permanent and temporary poverty. In India, for example, a World Bank study found that 69 percent of people in non-irrigated districts are poor, but only 26 percent in irrigated districts.

Farmers benefit directly from irri-



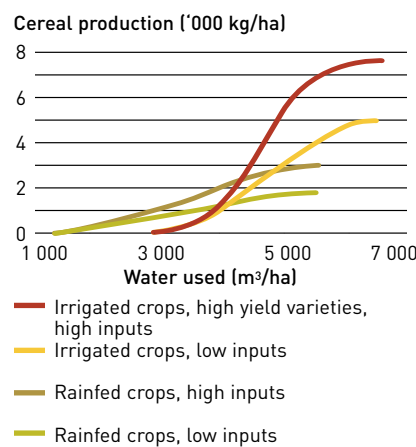


Causes of food emergencies in developing countries



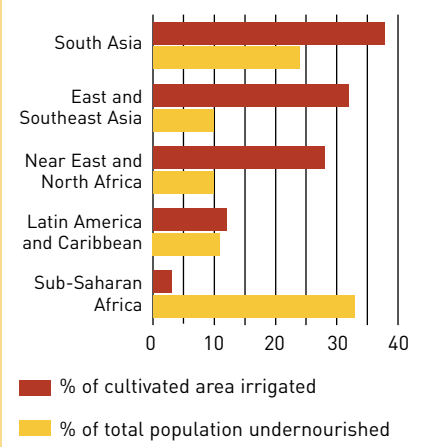
* Total exceeds 100% because of multiple causes and cited for many emergencies
 ** Includes internally displaced people
 Source: FAO

Yields and water requirements of irrigated and rainfed agriculture



Source: FAO

Irrigation and prevalence of undernourishment, 1998–2000



Source: FAO

gation through increased and more stable incomes and the higher value of irrigated land. Even landless labourers and small farmers who lack the resources to employ irrigation themselves often benefit through higher wages, lower food prices and a more varied diet. Studies in Bangladesh and India have shown that every job created in irrigated agriculture yields another job in agricultural services and the processing industry. Irrigation has the greatest impact on reducing hunger when it is labour-intensive, employs affordable, small-scale techniques and is combined with access to credit, marketing and agricultural extension services.

Looking to the future

Over the next 30 years, the world's population is expected to grow by 2 billion people. Feeding this growing population and reducing hunger will only be possible if agricultural yields can be increased significantly and sustainably.

That, in turn, will depend on increased use of irrigation and improved water management, even as a growing number of countries face water shortages.

FAO expects the irrigated area in developing countries as a whole to expand by almost 20 percent by the year 2030. By using irrigation water more efficiently and taking advantage of opportunities to grow several crops a year on irrigated land, FAO estimates that the effective irrigated area can be increased by 34 percent while using only 14 percent more water. The largest increase (44 percent) is expected in sub-Saharan Africa, where only 4 percent of arable land is irrigated today.

Large-scale irrigation is not always a viable or desirable option. In some areas, including much of Africa, rainfall patterns and the geology of river basins preclude cost-effective irrigation. In others, poorly managed irrigation and overextraction of groundwater threaten sustainability and food security. An estimated 7 to 10 percent of the world's

270 million hectares of irrigated land have been degraded by the accumulation of salts. In many areas, water is being pumped out of the ground for irrigation far faster than it can be replenished by rainwater percolating through the soil. In China, where more than half of the irrigated lands rely on tubewells, water tables have fallen by up to 50 metres over the past 30 years.

Where water is scarce and the environment fragile, achieving food security may depend on what has been called "virtual water" – foods imported from countries with an abundance of water. It takes 1 cubic metre of water to produce 1 kilogram of wheat. Extrapolating from those numbers, FAO calculated that to grow the amount of food imported by Near Eastern countries in 1994 would have required as much water as the total annual flow of the Nile at Aswan. In such conditions, it may make sense to import food and use limited water resources for other purposes, including growing high-value crops for export.

Undernourishment around the world

Hunger hotspots

AS OF JULY 2003, 36 countries around the world faced serious food emergencies requiring international food assistance. The causes of these food shortages are varied and complex. The locations, as indicated on the map, are painfully familiar. All the countries affected in 2003 had experienced food emergencies for at least two consecutive years. Many had been plagued by severe food shortages for a decade or longer.

In southern Africa, food production has started to recover from the severe drought that reduced harvests by as much as 50 percent in 2001/2002. But several countries in the region still face severe shortages and all must contend with the long-term impact of the HIV/AIDS pandemic (see pages 10–11).

Further to the north, pre-famine conditions have been reported in Eritrea and parts of Ethiopia, where crops have withered, livestock are dying from lack of water and grazing, and millions of people need emergency food aid.

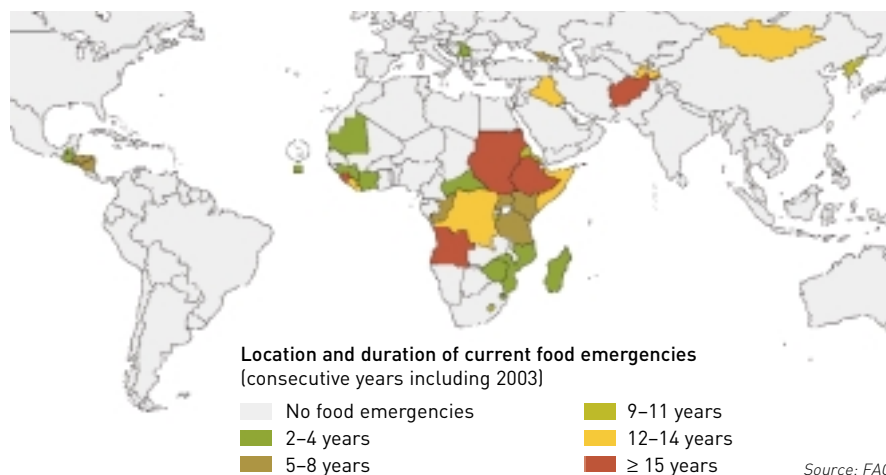
Several Asian countries have also been facing the effects of harsh weather, including drought and unusually cold, snowy winters in Mongolia.

Although drought and other natural disasters remain the most common causes of food emergencies, an increasing proportion are now human-induced. In several countries in Central and West Africa, civil strife has disrupted both food production and access to food.

Even developments in international commodity markets can trigger food crises in countries that depend heavily on agricultural exports or food imports. The collapse of coffee prices has been a major cause of increased food insecurity in Central America.

Overall, conflict and economic prob-

Countries facing food emergencies in 2003

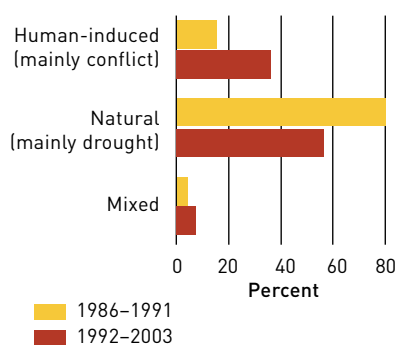


lems were cited as the main cause of more than 35 percent of food emergencies during 1992–2003 (see graph).

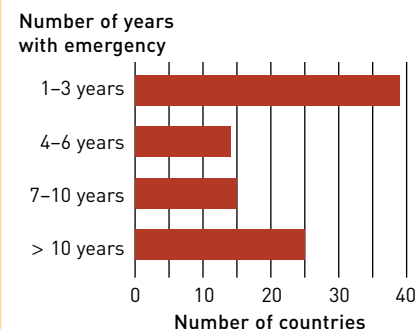
The recurrence and persistence of emergencies highlights a number of countries that could be considered as “food emergency hotspots”. Thirty-three countries experienced food emergencies

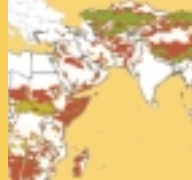
during more than half the years of the 17-year period between 1986 and 2003. Many conflict-induced complex emergencies are persistent and turn into long-term crises. Eight countries suffered emergencies during 15 or more years during 1986–2003. War or civil strife was a major factor in all eight.

Main causes of food emergencies, 1986–1991 and 1992–2003



Frequency of food emergencies in affected countries, 1986–2003





Droughts take heavy toll on livestock herding communities

Two consecutive years of severe drought have decimated both crop and livestock production in Mauritania, triggering a food emergency. In a country where less than 1 percent of the land can sustain crops, livestock accounts for 70 percent of agricultural production and 15 percent of national GDP. But lack of water has forced herders to sell or slaughter many of their animals. Distress sales sent prices plummeting by more than 50 percent in one year.

On the other side of the globe, several years of drought and harsh winters have devastated livestock production in Mongolia. Unusually heavy snowfall in 2003 killed up to 2.5 million animals, undermining the livelihood of nearly a quarter of the country's population. An estimated 80 percent of Mongolians, many of them nomadic herders, raise livestock, accounting for almost 90 percent of agricultural output.

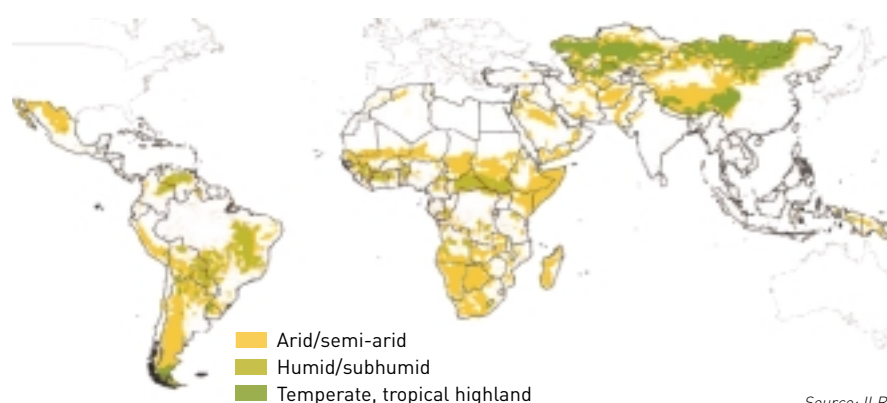
The food crises in Mauritania and Mongolia highlight the vulnerability of traditional pastoral production systems, particularly nomadic systems that are the main source of food and income in semi-arid rangelands ill suited to growing crops.

Globally, an estimated 675 million rural poor people depend on livestock for some or all of their subsistence. Other estimates suggest that as many as 70 percent of the rural poor are livestock owners. That figure includes nearly 200 million pastoralists and more than 100 million landless livestock keepers in mixed farming regions who depend almost exclusively on livestock.

Their animals and livelihoods are highly vulnerable to droughts and floods, resource degradation and outbreaks of

Where the pastoralists are: livestock-only, rangeland farming areas

Pastoral farming systems, in which people's livelihoods depend almost entirely on livestock, extend across rangelands in all developing regions.



disease. And they are coming under increasing pressure as human populations increase and grazing areas shrink.

In Afghanistan, three consecutive years of severe drought (1999–2001) led to massive distress sales and deaths of animals that reduced the livestock population by nearly 60 percent. Most nomadic Kuchis lost almost their entire herds.

In Eritrea, the worst drought in decades caused livestock losses as high as 10 to 20 percent in some areas in 2002.

The same drought also struck neighbouring Ethiopia, which has one of the largest livestock populations in Africa. The eastern pastoral areas of Afar and Somali were hardest hit. Acute shortages of water and fodder caused losses of up to 40 percent for cattle and 10 to 15 percent for goats and sheep. Livestock prices fell by up to 50 percent.

These emergencies underline the fact that traditional livestock production systems sustain some of the world's most vulnerable communities in some

of its harshest environments. They also highlight the need for emergency prevention and rehabilitation programmes to respond to the particular needs of livestock owners.

Early warning systems have had difficulties detecting the impact of drought on pastoralists and providing the information needed to help them cope and recover. Pastoral communities typically need different kinds of aid over longer periods than farmers who rely mainly on crops. When rains return after a drought, for example, farmers may require little more than seeds, fertilizer and one successful cropping season to get back on their feet. But pastoralists may need several years of assistance to weather the crisis, replenish their breeding stock and rebuild the herds that represent both their livelihoods and their life savings. In the long term, alternatives must be found for those whose livelihoods can no longer be sustained by nomadic herding.

Special feature

Trade and food security: the importance of agriculture and agricultural trade in developing countries

INTERNATIONAL TRADE can have a major impact on reducing hunger and poverty in developing countries. Participation in trade allows access to larger markets and opens up opportunities for specialization in production and economies of scale. This can be of special importance for developing countries, particularly for smaller ones where the limited size of domestic markets discourages full use of production potential.

At the same time, trade provides access to better and cheaper supplies (including food imports) and may stimulate flows of technology and investment. To the extent that international trade spurs broad-based economic growth, expanded participation in world markets can contribute to improvements in household food security.

But increased openness to international trade has its costs. It may gradually redistribute world production according to countries' comparative advantage. Inevitably this means that in some countries certain industries may shrink, either absolutely or relative to others, as cheaper imports become available. The resulting changes in the production structure and reallocation of resources may have a negative impact on food security, at least in the short term. Unemployment may rise, some productive sectors in agriculture may decline, and the food system may become increasingly concentrated, shutting out small-scale farmers and firms.

Overall, countries that are more involved in trade tend to enjoy higher rates of economic growth. But growth rates diverge widely for countries with comparable levels of trade activity, highlighting the importance of other

factors in determining economic performance. Such factors include natural resource endowments and the size, skills and training of the workforce, as well as policies and institutions.

Indeed, while there is broad agreement that openness to international trade is a fundamental component of a policy mix that can foster economic growth, it is also recognized that, on its own, openness to trade is unlikely to lead to major improvements in a country's economic performance. Nor can it be a substitute for development policies specifically aimed at reducing poverty and hunger.

The critical role of agriculture

Agriculture and agricultural trade play a particularly important role in both the national economies and the food security of developing countries.

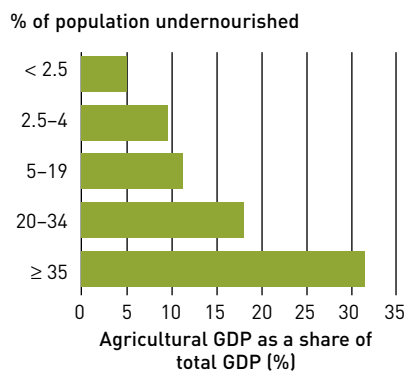
Throughout the developing world, agriculture accounts for around 9 percent of GDP and more than half of total employment. But its relative importance is far greater in those

countries where hunger is most widespread. In countries where more than 34 percent of the population are undernourished, agriculture represents 30 percent of GDP, and nearly 70 percent of the people rely on agriculture for their livelihoods (see graphs).

Today, 75 percent of poor people live in rural areas, and increases in urban poverty tend to be fuelled by people migrating to the cities to escape rural deprivation. No sustainable reduction in poverty is possible without improving livelihoods in rural areas.

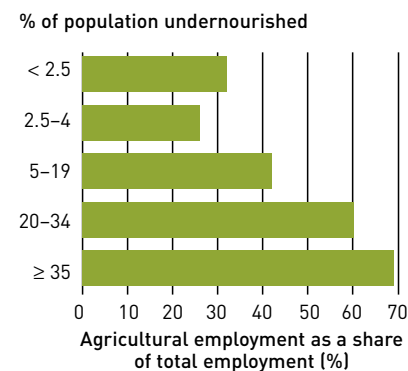
Economic growth originating in agriculture can have a particularly strong impact in reducing poverty and hunger. Increasing employment and incomes in agriculture stimulates demand for non-agricultural goods and services, providing a boost to non-farm rural incomes as well. A recent study in five countries in sub-Saharan Africa showed that adding US\$1.00 to farm incomes potentially increases total income – beyond the initial US\$1.00 – by between US\$0.96 and US\$1.88.

Agricultural GDP and undernourishment, 1996–2000



Source: FAO

Agricultural employment and undernourishment, 1996–2000



Source: FAO



The role of agricultural trade

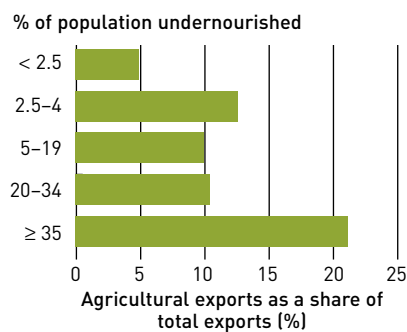
Agriculture accounts for much of the trading activity of developing countries, particularly those that are most food-insecure. For the developing countries as a whole, agricultural products represent around 8 percent of both exports and total merchandise trade. But for the countries where hunger is most prevalent, the share rises to over 20 percent (see graph).

Furthermore, while dependence on agricultural trade has been declining throughout the developing world, it has remained high and relatively stable in the most food-insecure countries. In 1996–2000 the share of agriculture in total exports in countries where more than 34 percent of the population are undernourished amounted to 22 percent (see graph), only slightly below the 24–25 percent recorded in 1981–1985.

The fact that agricultural trade represents such a large share of the trading activity of countries where hunger is widespread does not imply that agricultural trade contributes to food insecurity. These countries trade heavily in agricultural products because agriculture is the mainstay of their economies and they need to import food. But it is in the countries with the least hunger that agricultural trade looms largest in relation to the scale of their agricultural economies (see graph).

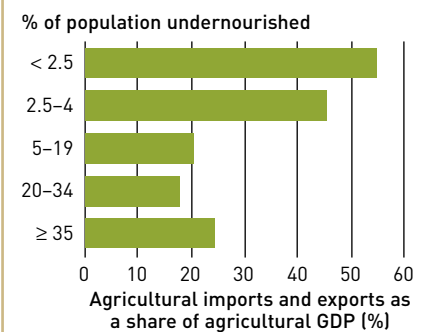
This reflects the fact that agriculture in these countries is more productive, more competitive and better integrated into world markets. And it suggests that more robust agricultural growth can contribute both to reduced hunger and to increased integration in international trade.

Importance of agricultural exports and undernourishment, 1996–2000



Source: FAO

Integration in agricultural trade and undernourishment, 1996–2000



Source: FAO

The curse of overspecialization – commodity dependence

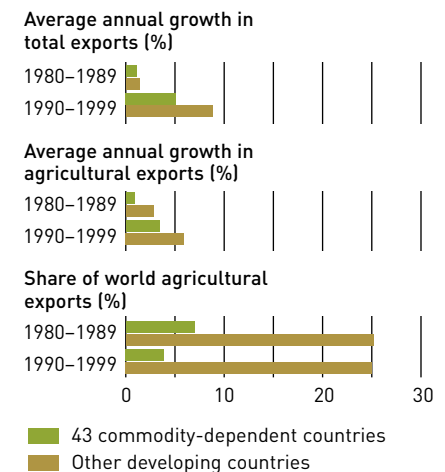
Many developing countries rely on exports of a small number of agricultural commodities for a large share of their export revenues. In many cases, they even depend on one single commodity.

As many as 43 developing countries rely on a single agricultural commodity for more than 20 percent of their total export revenues and more than half their revenue from agricultural exports. Most of these countries are in sub-Saharan Africa or Latin America and the Caribbean, and depend on exports of coffee, bananas, cotton lint or cocoa beans. High dependence on one, or a few, export commodities leaves these countries extremely vulnerable to changing market conditions.

Over the past 20 years, real prices for these commodities have been highly volatile and have fallen significantly overall. Declines and fluctuations in export earnings have taken a toll on income, investment, employment and growth. The export performance of the

43 commodity-dependent countries has been significantly poorer than that of the rest of the developing countries, both for agricultural commodities and for total merchandise trade.

Trends in exports of commodity-dependent countries



Source: FAO

Special feature

Trade and food security: does trade openness harm food security?

INCREASING INTEGRATION of international markets has stirred widespread concern that agricultural trade may jeopardize food security in developing countries. Although far from conclusive, analysis of available data suggests that, in general, engaging in agricultural trade is associated with less hunger, not more.

At a national level, the proportions of undernourished people and underweight children tend to be lower in countries where agricultural trade is large in proportion to agricultural production.

Further analysis suggests that poor access and integration with international markets limits the ability of countries where hunger is widespread to import enough food to compensate for shortfalls in domestic production. Countries where more than 15 percent of the population goes hungry spend more than twice as much of their export earnings to import food as more food-secure countries (see graph). But their

poverty and limited trading activities constrict both their export earnings and their ability to buy more food on international markets.

As a result, despite spending more than 25 percent of their export earnings on food imports, food-insecure countries depend far more heavily on homegrown food. Countries where more than 15 percent of the population goes hungry import less than 10 percent of their food, compared to more than 25 percent in more food-secure countries. Their relative isolation from international trade appears to be more a measure of vulnerability than of self-sufficiency.

Analysis also shows, however, that levels of hunger and poverty differ widely among countries with very similar levels of agricultural trade. This suggests that the impact of agricultural trade on food security is mediated by a range of other factors, including markets, institutions and policies to combat hunger.

The critical role of markets, infrastructure and policies

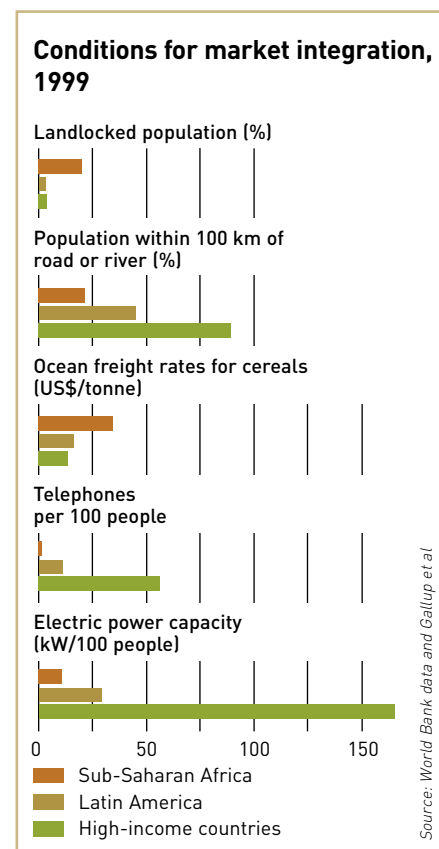
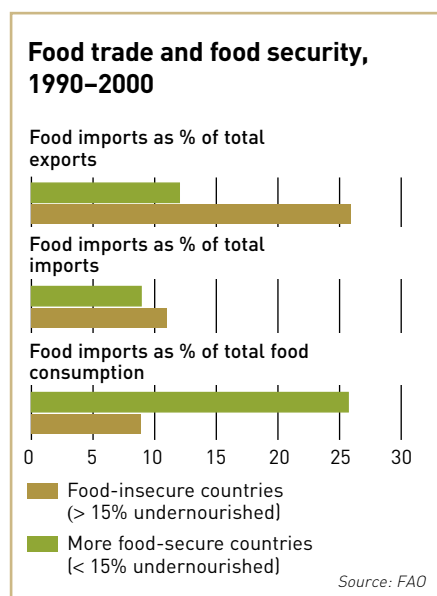
If key markets are missing or do not function properly, shifts in relative prices will not lead to a shift of production, jobs and investment into their most efficient uses, as the theory of comparative advantage assumes. Similarly, lack of good roads, ports, telecommunications and marketing infrastructure can hamper a country's ability to participate in and benefit from international trade (see graph).

Recent experience in Viet Nam offers evidence that increasing agricultural exports and integration into international markets can contribute both to economic growth and to reducing hunger, especially when combined with investments in infrastructure and poli-

cies that encourage agricultural and rural development (see box).

Where trade liberalization has not been accompanied by policy reforms and investments, on the other hand, the impact on food security has often been ambiguous or detrimental.

To cite one example, in the early 1990s Mozambique removed a ban on raw cashew exports that had been imposed to stem a fall in exports of processed nuts. About a million cashew farmers received higher prices for their products. But at least half the higher prices received for exports went not to farmers but to traders, and there was no revival in production in response to the higher prices. At the same time, Mozambican





processing plants lost their assured access to raw cashews and closed down, putting 7 000 people out of work.

It is likely that cashew production failed to revive because, at the time, Mozambique, like many other African countries, liberalized prices alone without initiating other complementary policy reforms and investments. A price reform can be easily reversed. By contrast, investing in rural infrastructure, improving rural financial markets, and regulating the activities of traders are much harder to do and much harder to reverse.

The key to improving food security for poor farmers lies in ensuring that price reforms are accompanied by policies to ensure that market opportunities are both accessible and credible.

Identifying likely winners and losers

Dismantling trade restrictions is expected to provide long-term benefits as investment and jobs shift into sectors in which countries enjoy a comparative advantage. But the adjustment process may take time and many nations and households may suffer heavy costs.

The countries most likely to benefit from trade liberalization are those whose economies are already more advanced and better integrated into international markets. But other countries and regions will have difficulty overcoming physical and infrastructural handicaps, such as inadequate rainfall, long distances from the sea and poorly developed transportation and communication networks. They run the risk of being bypassed and finding themselves trapped in a vicious circle of disadvantage.

Within countries, agricultural trade policy reform may affect households very differently. Commercial farmers with the

resources to respond to market opportunities should benefit as a result of higher commodity prices. For landless households, increased demand for rural labour, goods and services may increase incomes enough to offset the impact of higher food prices. Subsistence farmers, on the other hand, may be largely unaffected, but could face pressure from

higher prices for land, water, fertilizer, seeds and other inputs.

Expanding the circle of winners and mitigating the impact on losers will require both domestic policies and international support, including appropriate flexibility under WTO rules, to spur new economic opportunities and investments in rural areas.

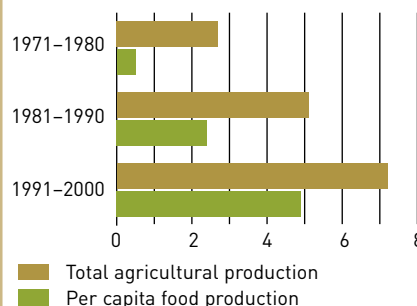
Viet Nam: agricultural trade fuels economic growth and food security

Viet Nam offers a striking example of the role agricultural trade can play in reducing poverty and food insecurity when carried out in tandem with policy reforms and investments in rural infrastructure and development. Between 1991 and 2001, Viet Nam's economy grew at a rapid annual rate of 7 percent and the proportion of undernourished people was reduced from 27 percent to 19 percent. Over the same period agricultural output grew by 6 percent per year and agricultural exports grew even faster. After seeing agricultural exports and imports roughly in balance through the late 1980s, Viet Nam generated a large agricultural trade surplus in the 1990s.

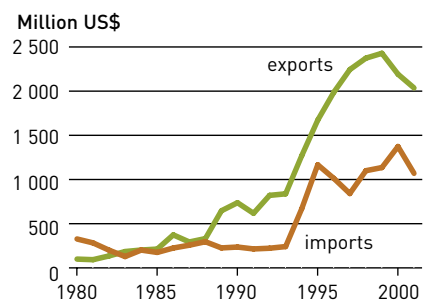
The foundations for Viet Nam's rapid agricultural growth were laid in 1986. An economic reform programme gave farmers control over land, allowed them to increase sales to the market and reduced agricultural taxation. Viet Nam's exports also benefited from enhanced market access. On the other hand, Viet Nam was slower in removing its own domestic subsidies and border protection against imports.

An aggressive poverty eradication campaign that targeted investments in rural infrastructure also contributed to boosting agricultural production and reducing hunger (see page 22).

Agricultural and food production, Viet Nam



Agricultural trade, Viet Nam



Source: FAO

Trade and food security: issues of the Doha Round and beyond

MUCH OF THE DEBATE about globalization has been centred around the World Trade Organization and the impact of international trade agreements negotiated under its auspices. And much of the concern about food security has focused on the Agreement on Agriculture (AoA) negotiated as part of the Uruguay Round agreements signed in 1994. The AoA says little explicitly about developing countries' concerns with food security. But its proclaimed goal of establishing "a fair and market-oriented agricultural trading system" by reducing tariffs and subsidies could have a significant impact on food production and security.

Liberalization of agricultural trade is expected to drive up prices for most agricultural commodities. This could have a negative impact on food security in some developing countries, as most are net importers of food. Prices are expected to rise more steeply for the food products that developing countries import than for the commodities they export.

Many developing countries are expected to benefit, however, from reductions in tariffs and subsidies in developed

countries. Improved access to markets in the industrialized countries and reduced trade distortion should boost rural incomes and employment and stimulate production and supply from local agriculture, particularly of food for domestic markets.

Overall, however, the lion's share of benefits from trade liberalization is expected to go to the developed countries themselves (see graph). That is because developed countries have applied tariffs and subsidies mainly to protect the temperate-zone commodities that they produce themselves. Developing countries that export "competing" commodities, such as rice, sugar and cotton, should benefit if those protections are reduced. But the least developed countries, very few of whom export temperate-zone or competing products, would generally be worse off. Developing countries are expected to benefit more from increased trade with each other than they do from improved access to markets in developed countries.

Tariffs and subsidies in developed countries

To date, both adherence to the AoA and its impact on food security have proven hard to measure. Agricultural tariffs remain high and complex for many products that developing countries export, including horticultural products, sugar, cereals, cotton, dairy products and meat. There is also a significant degree of tariff escalation (see box) on products processed from commodities for which many developing countries enjoy a comparative advantage, such as coffee, cocoa and oilseeds.

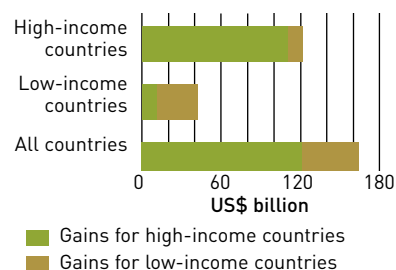
The AoA also included provisions to reduce price supports and subsidies that lead to overproduction in developed

countries and depressed prices on world markets. But transfers to agriculture in developed countries have diminished slowly, if at all (see graph). In 2002, direct support to farmers added up to US\$235 billion, almost 30 times the amount provided as aid for agricultural development in developing countries. Much of that sum subsidized the production of surpluses in commodities that many developing countries depend upon.

The United States, for example, handed out US\$3.9 billion in subsidies to 25 000 cotton farmers in 2001–2002, an amount higher than the entire GDP of Burkina Faso, where more than 2 million people depend on cotton for their livelihood. Farmers in Burkina Faso and other West African countries can produce cotton at US\$0.47 per kg, far below the US\$1.61 it costs to produce a kilo-

Potential annual welfare gains from agricultural trade liberalization

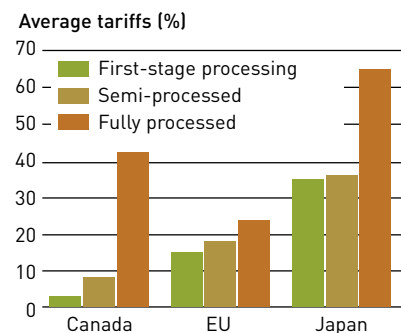
With liberalization of:



Source: Anderson et al

Tariff escalation in food products

The term "tariff escalation" refers to imposing higher tariffs on the more processed products. This can result in very significant protection for processed products, making it difficult for developing countries to escape the cycle of producing and exporting primary products.



Source: FAO



gram of cotton in the United States. But guaranteed subsidies have encouraged US cotton farmers to increase production, even as the price of cotton has collapsed, threatening the very existence of African farmers who survive by growing cotton for export. Similarly, the European Union (EU) subsidized sugar production by US\$2.3 billion in 2002. The EU has become the world's second largest sugar exporter, even though its production costs are more than double those in many developing countries.

In addition to subsidies for production, export subsidies remain high for many products, including meat, dairy products and cereals. Export subsidies distort competition on world markets and destabilize world prices and incomes. Depressed world prices create serious problems for poor farmers in developing countries who must compete in global and domestic markets with these low-priced commodities and lack safeguards against import surges (see box). Over the longer term, depressed commodity prices discourage investment in agriculture in developing countries. While consumers may benefit from low prices, rural

livelihoods and the long-run sustainability of production are jeopardized.

Food security in the Doha Round

Non-trade issues like food security and rural development, which did not receive much attention in the Uruguay Round Agreement, have gained much more prominence in the ongoing Doha Round. At Doha, WTO members committed themselves both to reducing export subsidies and domestic support and to enabling "the developing countries to effectively take account of their development needs, including food security and rural development".

How these commitments will translate into formal agreements remains hotly disputed. Many developing countries argue that the problems confronting their agricultural sectors bear little resemblance to the excessive subsidies and rising production surpluses of the developed countries. Rather, the vast majority of developing countries face problems of inadequate production and of support that falls short of what would be needed to raise agricultural productivity to levels that would meet their food needs and agricultural potential.

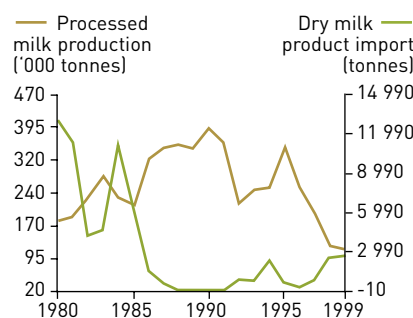
Draft proposals tabled in the current Doha Round include several measures intended to address the concerns of developing countries. On market access, one provision would allow developing countries to identify "special products" for which domestic production is critically important to food security and rural development. These products would be subject to lower tariff cuts. Another provision would establish a Special Safeguard Mechanism allowing developing countries to impose additional import duties under certain circumstances, such as to contain import surges.

While reaffirming their commitment to liberalizing trade, some WTO members have emphasized that food security, rural development and the environment cannot be addressed without maintaining and supporting domestic agricultural production. For that to happen, they argue, multilateral rules need to take into account each country's specific conditions and ensure the continued existence of various types of agriculture, not only the most productive farms in high-potential areas.

Import surges disrupt production

Falling prices can lead to import surges that displace domestic production. Kenya, for example, had more than doubled production of processed milk between 1980 and 1990. But then imports of milk powder soared, increasing from 48 tonnes in 1990 to 2 500 tonnes in 1998. At the same time, domestic production of processed milk plummeted almost 70 percent. Kenya's ability to diversify into processing was undermined and small producers bore the brunt of the decline in demand for fresh local milk.

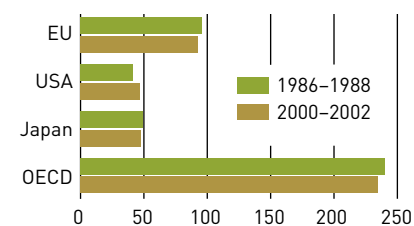
Processed milk production and dry milk imports, Kenya



Source: FAO

OECD subsidies to agriculture*

US\$ billion



* Producer Support Estimate (PSE): the annual value of transfers from consumers and taxpayers to agricultural producers, part of an estimated US\$315 billion in total transfers to agriculture in OECD countries.

Source: Organisation for Economic Co-operation and Development (OECD)

Towards the Summit commitments

Acting to combat hunger

Brazil aims for “zero hunger”

The government of Brazil has declared that the fight against hunger is its highest priority. President Luiz Inácio Lula da Silva’s government took office in January with a pledge to eradicate hunger by the end of his four-year term.

Brazil is a major exporter of crops and meat, but over 40 million of its 170 million people live on less than US\$1 per day. Hunger is greatest in rural areas of northeastern Brazil, but its incidence is rising rapidly in the cities.

To reduce hunger quickly and permanently, the government has adopted a two-pronged strategy. Projeto Fome Zero (Zero Hunger Project) combines emergency interventions to put food on

the plates of the hungry with initiatives to increase employability, reduce poverty and stimulate food production.

To provide immediate relief to the most needy families, Fome Zero issues electronic cash cards to meet food purchase needs. Hungry Brazilians will also benefit from programmes to provide free or low-cost meals through schools, workplaces and “people’s restaurants”. To avoid fostering dependency, eligibility for food assistance is tied to participation in literacy and skills training.

The long-term strategy of Fome Zero is to attack the root causes of hunger: poverty, unemployment and landlessness. The project includes measures to increase the minimum wage, speed up agrarian reform and provide a

minimum income to needy households with school-aged children.

Fome Zero aims to reduce rural poverty and hunger by using the increased demand created by food safety nets to stimulate expanded production by small and medium-sized farms. The project includes initiatives to improve access to credit, insurance and extension services for family farmers.

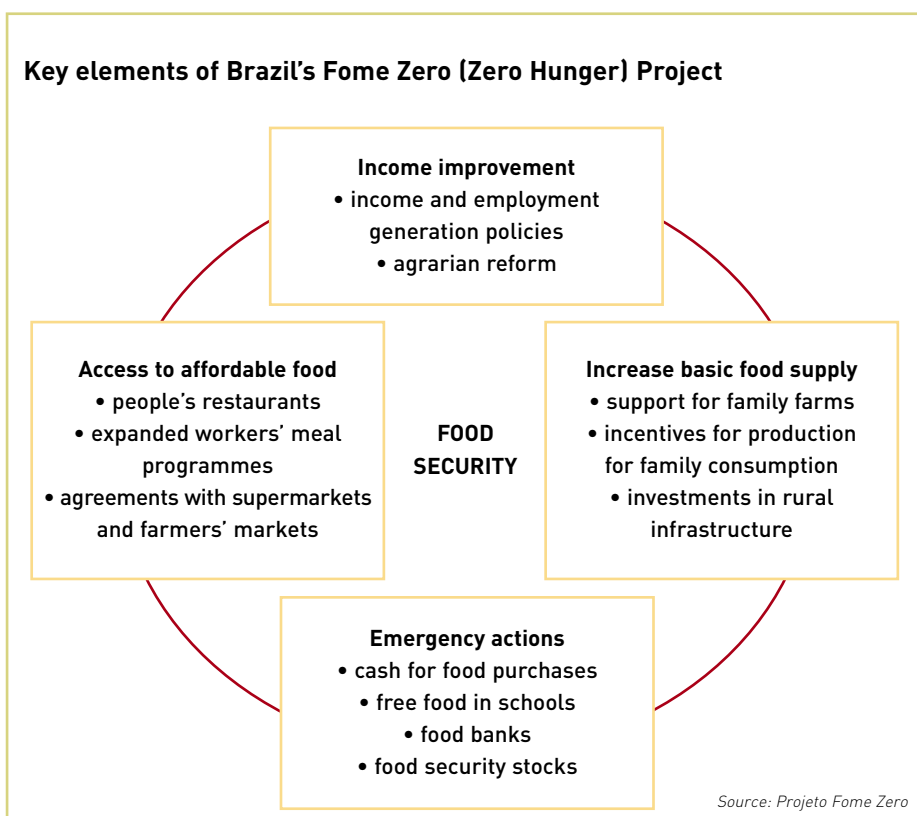
Fome Zero has got off to a fast start. By the end of May, tens of thousands of families in 181 drought-affected municipalities were receiving monthly allocations to buy food. More than 10 000 water tanks had been built to minimize the impact of drought.

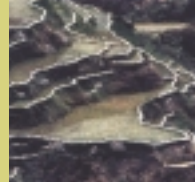
Fome Zero is overseen by a National Food Security Council, which brings together representatives from government and civil society organizations. The Project enjoys immense public support, with much of the momentum coming from non-governmental organizations, the private sector and individuals who want to help rid Brazil of hunger.

Viet Nam makes rapid progress

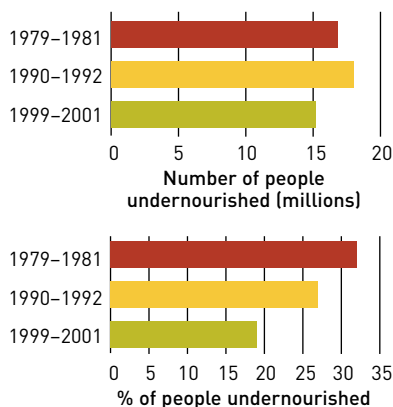
A hunger eradication programme launched at the provincial level in 1992 and extended nationwide in 1996 has helped Viet Nam make rapid progress towards its declared goal of ensuring household food security.

Spurred by rapid economic growth and investments in agriculture and rural development, Viet Nam succeeded in sharply reducing the proportion of the population who were undernourished during the 1990s (see graph). The interdisciplinary Hunger Eradication and Poverty Reduction Programme played a major part in achieving this progress and ensuring that poor and isolated communities are not left behind.





Viet Nam reduces hunger



Source: FAO

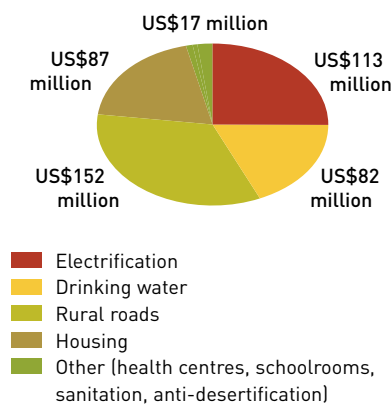
Overall, hunger and poverty have decreased dramatically in rural areas, while agricultural production has soared. But poverty rates remain almost twice as high in the countryside (11.2 percent) as in cities (6 percent). In some mountainous areas and communities of ethnic minorities, more than half the population still live in poverty.

The Hunger Eradication Programme targets the poorest communes for a range of services, including access to credit, extension and training, employment and nutrition education. In addition, it has invested an average of US\$60 000 a year in each of more than 2 000 communes, hiring local people to improve roads, bridges, irrigation facilities, schools and other infrastructure. The Programme aims to eliminate chronic hunger by 2005 and reduce poverty to below 5 percent by 2010.

Tunisia sets model for solidarity

In 1992, Tunisian President Zine El Abidine Ben Ali visited remote areas of

Tunisia invests in solidarity



Source: National Solidarity Fund

the country and saw first-hand that poor communities lacked roads, electricity, water and other basic infrastructure. Within less than a year, Tunisia enacted laws to establish a National Solidarity Fund (NSF). A decade later, the fund has distributed almost US\$450 million to 1 327 poor and isolated communities and has become a model for international efforts to eradicate poverty.

The NSF gathers funds from many sources, including individuals, businesses, the government and national and international organizations. These funds are used exclusively for projects in areas that lack resources to ensure even the minimum conditions for a decent life. Residents of the communities help set priorities, plan projects and select beneficiaries.

Through its first eight years, the fund helped bring electricity to 72 000 households, supplied drinking water for 81 000 households and helped build more than 30 000 homes and 122 health care centres. Solidarity Fund projects also helped launch nearly 60 000 small

income-generating projects and created over 17 000 jobs.

Inspired by the success of Tunisia's NSF, the World Summit on Sustainable Development in Johannesburg unanimously endorsed the creation of a global fund to reinforce the fight against poverty. In December 2002, the United Nations General Assembly adopted a resolution calling for effective and immediate implementation of the World Solidarity Fund. The Fund accepts voluntary contributions from public and private organizations and individuals and is managed by the United Nations Development Programme (UNDP).

Right to Food guidelines advance

An Intergovernmental Working Group (IGWG), established by the FAO Council and charged with developing voluntary guidelines for the progressive realization of the right to adequate food, held its first session in March 2003. FAO provides the secretariat for the IGWG, working closely with the United Nations High Commission for Human Rights. Representatives of 87 countries participated in the session. Most members confirmed their country's interest in having guidelines that would serve as a practical tool for implementing the right to food. Representatives of civil society and international organizations also stressed the urgent need for such guidelines.

A first draft of the Voluntary Guidelines has been prepared by the seven-member IGWG Bureau for submission to the Second Session of the Working Group in September 2003. The IGWG has been mandated to complete the task of elaborating guidelines before the October 2004 meeting of the Committee on Food Security (CFS).

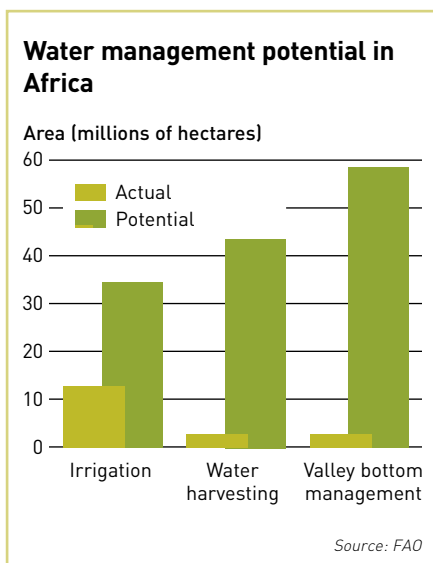
Towards the Summit commitments

Beyond irrigation: the multiple uses of water for improving both diets and incomes

IN RURAL AREAS across the developing world, water is often the key ingredient for efforts to reduce hunger. Projects and research in a number of countries have highlighted the impact reliable access to water can have on improving food production, rural incomes and nutritional status.

Where it is possible, irrigation is the best option for increasing agricultural production (see page 12). In Africa, where only 4 percent of cropland is irrigated, small-scale irrigation and rainwater harvesting projects have shown great potential for increasing yields and reducing vulnerability to erratic rainfall (see graph).

Crop production is by no means the only source of food and income that depends on water. Many poor households engage in home-based industries for which water is essential. And growing numbers of farmers, particularly in Asia, are finding that they can both increase rice yields and add a valuable source of protein and income by using the water in their rice paddies to raise fish.



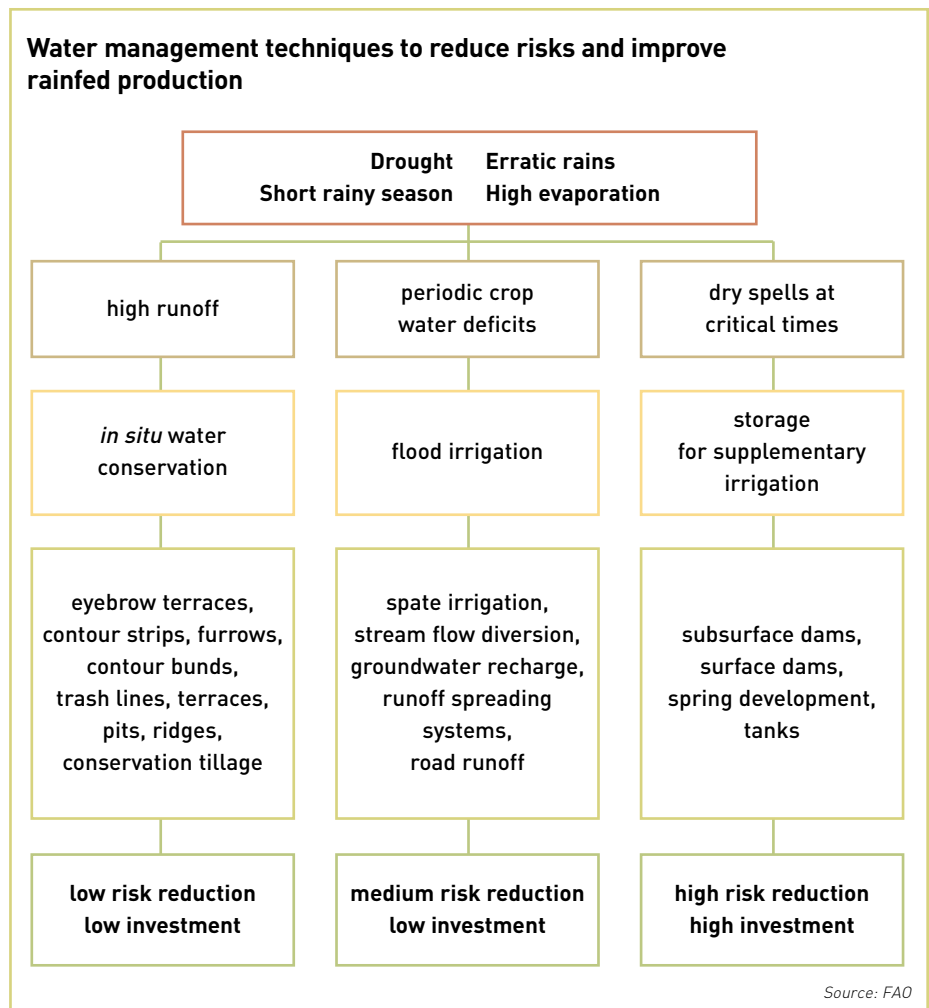
The multiple benefits of small-scale irrigation and water management

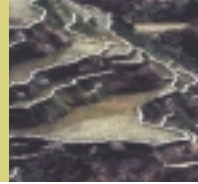
A recent FAO study of three projects in Africa found that introducing small-scale irrigation not only improved crop yields but also led directly to gains in nutrition and health.

In Mali, farmers used water from a small dam both to increase food production and to introduce new crops, including vegetables that are rich in micronutrients. In Burkina Faso, families

invested some of their increased farm income in health care. Visits to local clinics shot up by 50 percent. And in Tanzania, women who no longer had to spend hours fetching water used the time to start market gardens, improving both their incomes and their diets.

In all three countries, irrigation increased food production and incomes by enough to provide one additional meal each day, even during the "hungry season" before the harvest, when many families previously ate only once a day.





Farmers can also use a variety of simple, affordable water management techniques to increase yields and reduce vulnerability to drought (see chart). Rainwater harvesting involves collecting whatever rain does fall and delivering it when and where it is needed most. Techniques include capturing water from a wider catchment area and directing it into the field in which crops are grown. Studies in several African countries have shown that rain harvested from one area can triple or quadruple production on another area of comparable size.

Alternative forms of tillage – such as turning the soil only along plant lines or deep ploughing to break up soil crusts – can also lead to much more efficient use of limited rainfall. Studies have shown that rainwater harvesting and alternative tillage can increase yields two to three times as compared with conventional dryland farming (see graph). And rainwater harvesting provides other benefits as well. In addition to providing more water for crops, it also helps recharge groundwater and reduce soil erosion.

Allocating water for home-based productive activities

Recent studies have highlighted the importance of water to many other activities that are vital to the livelihoods of vulnerable households in rural areas.

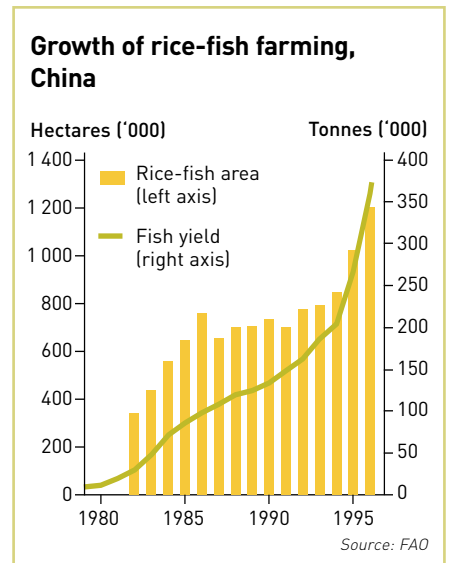
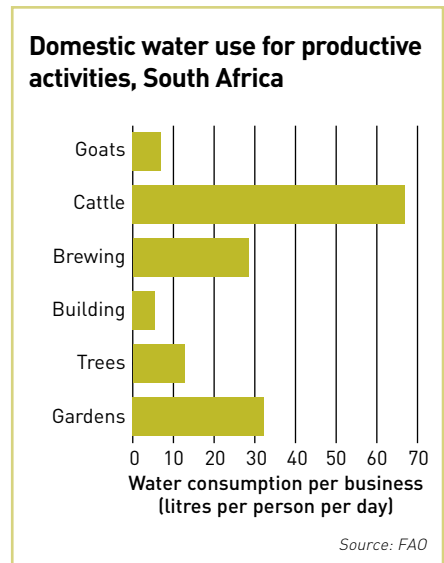
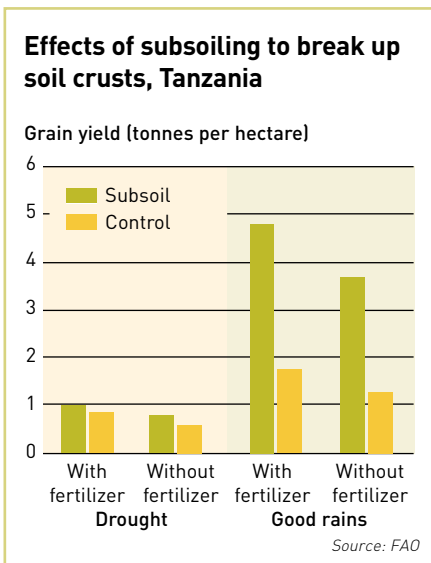
In the Bushbuckridge area in South Africa, for example, researchers found that many households relied on domestic water supplies for a wide variety of small-scale industrial and agricultural activities, including brewing, building, tending goats and cattle, and cultivating home gardens and orchards (see graph). Surveys confirmed that these activities tend to be particularly important for the poorest and most vulnerable members of the community, including many female-headed households.

As countries institute reforms intended to allocate water to different stakeholders based on assessment of their minimum needs, it is essential to increase awareness of the key role that domestic water plays in the livelihoods of poor rural households.

Rice-fish farming improves diets and incomes

Raising fish in rice fields can increase rice yields while providing a valuable source of protein and extra income. Farmers in many Asian countries have shown that a 1-hectare rice field can yield 50 to 300 kg of fish each year. Farm families usually consume most of the fish from their fields but can sell surplus to supplement their incomes.

Fish have also been found to increase rice yields by as much as 15 percent. Fish eat weeds and pests, such as insects and snails, and recycle nutrients by depositing faeces in the soil. By devouring pests, fish contribute to integrated pest management (IPM) practices that minimize the economic and environmental costs of pesticides. Studies in Indonesia have shown that use of IPM can reduce the average number of times pesticides are applied to rice fields from 4.5 to 0.5 per year, substantially cutting both costs and levels of toxic chemicals that can make fish farming impossible.



Towards the Summit commitments

Mapping poverty and hunger to help wipe them off the map

TO COMBAT HUNGER and poverty effectively, it is important to know where hungry and impoverished people are concentrated. National estimates of the number of undernourished people or the proportion of the population living on less than US\$1

per day provide useful indications of national progress over time. But they cannot be used to target specific villages and the conditions that inflict poverty and hunger on their inhabitants.

Taking advantage of recently developed techniques that generate

estimates of local poverty, a number of countries have used geographic information system (GIS) technology to construct detailed poverty maps. These maps can be combined with other geo-referenced data to highlight areas where hunger and poverty overlap with other social, economic and environmental problems. Maps can be made, for example, to show semi-arid agricultural areas with poor access to roads and high levels of goitre and female illiteracy. This information can then be used to design programmes that address specific local problems.

How poverty maps are constructed

Poverty maps are often constructed using a technique known as "small area estimation". This approach combines census data with information obtained from surveys such as the Living Standards Measurement Survey.

Taken separately, each data set offers distinct advantages and limitations. Data from population and agricultural censuses cover every household, allowing precise mapping at local levels. But censuses are conducted infrequently and rarely include the full set of indicators policy makers need. Household surveys, on the other hand, are carried out more frequently and often gather all the relevant indicators, such as household income and consumption expenditures. But they are based on small samples that are adequate to construct statistically valid national profiles but not for mapping at the village level.

The small area estimation method projects patterns visible in survey data onto demographically and socially similar groups of households that can be identified in the more comprehensive census data. These projections can then

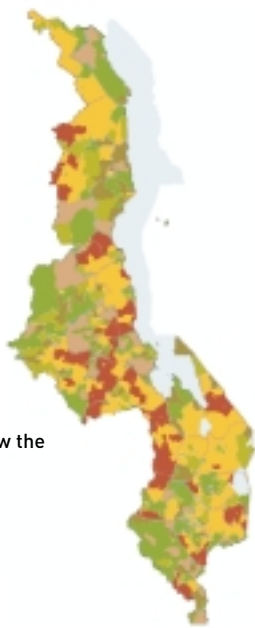
Malawi poverty maps help target public works projects

With support from the International Food Policy Research Institute (IFPRI), Malawi has produced an *Atlas of social statistics*. Poverty maps included in the atlas have been used by the World Food Programme and the Malawi Social Action Fund to target public works projects that provide employment and improve infrastructure in impoverished communities. Maps in the atlas are also expected to be used

to assist distribution of free fertilizers and seeds in Malawi's "starter pack" programme.

Combining poverty maps with maps of other socio-economic and environmental indicators may reveal factors that contribute to hunger and suggest avenues for action. Many areas in southern and central Malawi exhibit both high rates of poverty and low maize yields.

Poverty headcount

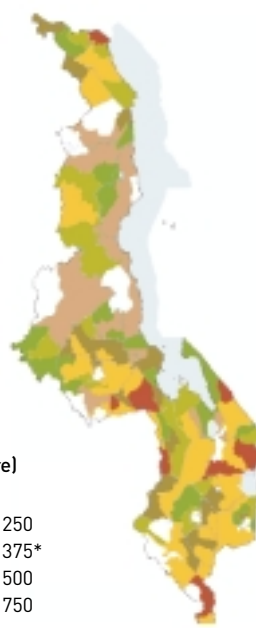


Population below the poverty line (%)

- < 50
- 50 - 60
- 60 - 64.3*
- 64.3 - 70
- 70 - 80
- > 80

*national rate

Maize yields



Average yield (kg per hectare)

- < 1 000
- 1 000 - 1 250
- 1 250 - 1 375*
- 1 375 - 1 500
- 1 500 - 1 750
- > 1 750

Source: Benson et al

be used to “predict” average poverty levels for a village or group of villages with as few as 500 households.

Using maps to fight hunger

A growing number of countries are using poverty maps to target food aid and public works projects to areas where the poorest people live (see boxes). Because this poverty mapping approach depends on census and survey data, the maps may not reflect seasonal food shortages and hardships. But they provide a valuable baseline for planning and monitoring. Experience in several countries suggests that the maps also contribute to increased awareness and participation because people find them easy to understand.

Application of the small area estimation technique for poverty mapping in developing countries is relatively new. Much of the basic work has been done by a team in the World Bank Research Department. Other pilot applications have been funded by the International Food Policy Research Institute, the Rockefeller Foundation, the British Department for International Development, Norwegian Aid and the FIVIMS Secretariat.

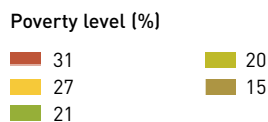
More recently, the Consultative Group on International Agricultural Research, UNEP/GRID-Arendal and FAO have launched a project to incorporate spatial analysis tools into poverty mapping. These tools will help analyse the linkages between poverty and the environment. Depicting how concentrations of poverty overlap different agroecological zones, major foodcrop production systems or fragile areas vulnerable to degradation can help shape effective, sustainable action to combat hunger.

Maps help Panama deliver school lunches to poorest children

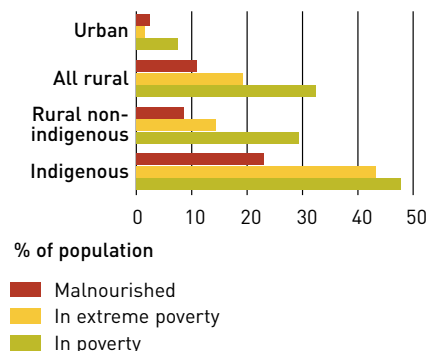
Panama has applied poverty mapping to help target US\$150 million in expenditures by its Social Investment Fund (SIF). A school lunch programme funded by SIF used the maps to reach 120 000

extremely poor children in 1 500 schools. A division of the Health Ministry is combining poverty maps with community surveys to monitor and assess nutrition programmes.

Poverty levels in San Miguelito District



Poverty and malnutrition by geographic area



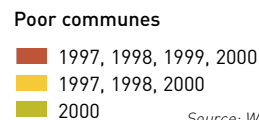
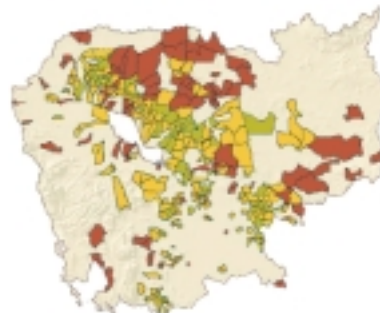
Source: Panama Ministry of Economics and Finance

“Food for work” reaches Cambodia’s poorest communes

Cambodia has launched major poverty and food insecurity mapping initiatives. The World Food Programme used a commune-level poverty map to help allocate US\$50 million in food aid. “Food

for work” jobs building roads, schools and health centres and rehabilitating irrigation facilities were targeted to the poorest communes. An interministerial FIVIMS committee is coordinating efforts to produce more detailed food insecurity maps, with participation and support from a FIVIMS network that includes major donor agencies and United Nations and non-governmental organizations. These maps will be used to plan and target a wide range of programmes to reduce hunger and poverty.

Analysis of poor communes, 1997–2000



Source: WFP; Henninger and Snel

Towards the Summit commitments

Identifying the keys to sustainable nutrition programmes

IN RECENT YEARS, many countries have implemented community-based food and nutrition programmes. The scope and objectives of these programmes vary, ranging from broadly defined efforts to improve household food security to narrowly targeted campaigns to reduce deficiencies of a single micronutrient.

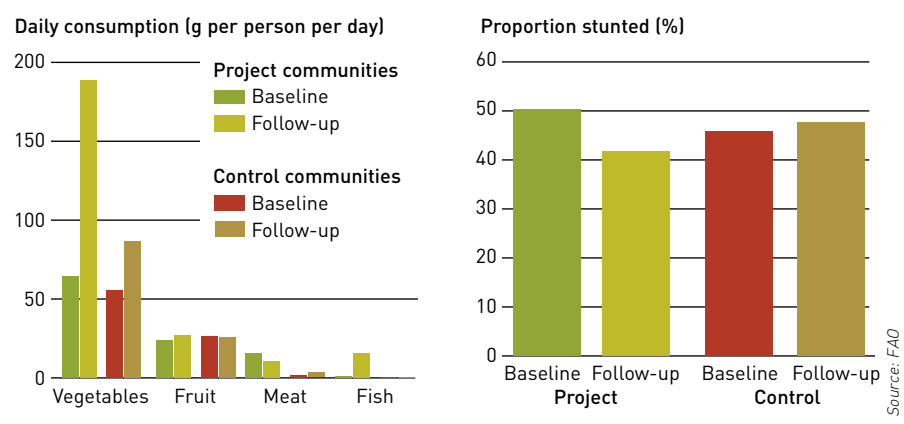
An effective nutrition programme necessarily means improved nutritional status that can be measured, for example, in lower rates of underweight children or micronutrient deficiencies. But to qualify as a success, it must also be able to sustain and extend these achievements over time.

In order to shape initiatives that will have significant and lasting impact, it is essential to understand the factors that allow some programmes to succeed where others fail. FAO recently conducted an in-depth analysis of selected programmes that have functioned for at least five years and achieved significant improvement in nutritional status. The results of that analysis highlighted a number of common factors that distinguish these successful and sustainable programmes. These factors include: strong political support, effective multisectoral collaboration, community participation and empowerment, and use of existing community structures and cultural traditions.

Viet Nam: vitamins in the garden

Over the past 20 years, Viet Nam has achieved remarkable success in reducing hunger. Between 1979–1981 and 1999–2001, the proportion of undernourished people in Viet Nam fell from 32 to 19 percent. A community nutrition project that combines home gardening with nutrition education for families with

Viet Nam: communities improve diet diversity and reduce stunting



malnourished children has made a significant contribution to that success.

The project started in 1991 with a relatively narrow focus – to reduce vitamin A deficiency among children in four communes. To accomplish that, it provided training, technology and very small grants to help families establish home gardens where they could grow nutrient-rich fruits and vegetables. At the same time, parents were taught about the importance of the “coloured bowl”, a concept used in Viet Nam to illustrate a balanced meal. The white rice or rice soup can be coloured brown by adding meat or fish, green by adding vegetables and yellow by adding eggs.

A follow-up survey conducted three years after the project was launched showed that participating communes were growing and eating more than twice as many vegetables and fruits and more than 20 times as much fish as they had previously (see graph). Daily vitamin A intake among participating children was twice that of children in a control commune. The broader nutritional impact could be measured with a ruler. The

proportion of children who were stunted had been reduced by almost 20 percent.

Based on this success, a far larger project combining home gardening and nutrition education was extended to eight provinces, beginning in 1997. An evaluation after two years found that malnutrition had been reduced by 12.8 percent in participating communities.

Panama: schools cultivate nutrition

In Panama, a project that began by teaching schoolchildren in 13 poor communities how to plant, grow and eat nutritious foods has taken root.

The project aimed to improve children’s food security and nutritional status by providing the tools and training to cultivate school gardens, including vitamin-rich vegetables and poultry. And it achieved impressive results. A follow-up survey conducted three years after the project was launched found that the proportion of children who were underweight had been reduced by almost half, from 19.9 to 10.6 percent. Indigenous communities participating in the project

showed even more dramatic improvement, with undernutrition falling by 85 percent in one case (see graph).

The training and the impact reached far beyond the students themselves to include their parents, teachers, local farm leaders and technical experts from both government ministries and non-governmental organizations. And it benefited from a multidisciplinary approach that relied on local resources and low-cost, environmentally friendly technologies. Along with seeds, tools and lessons in growing crops, the project emphasized community participation, small animal keeping, nutrition education, food processing and preservation, and agroforestry.

In most communities, the food production activities developed in the schools were adopted by the students' families and other households. In some cases, groups of households formed

voluntary associations to cultivate nutritious crops and knowledge together, as their children had in the school gardens.

Kenya: from relief to development

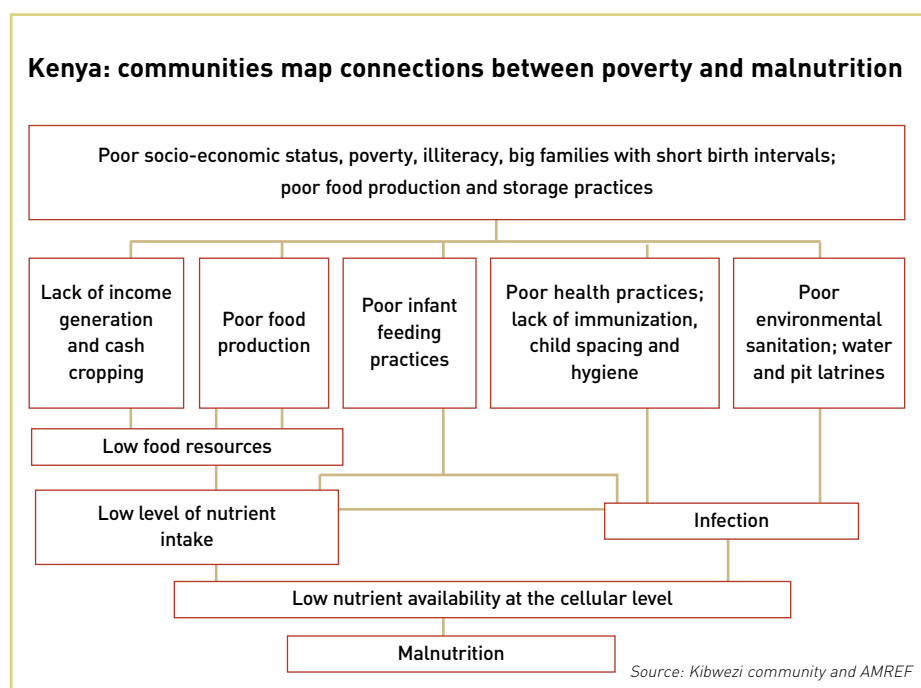
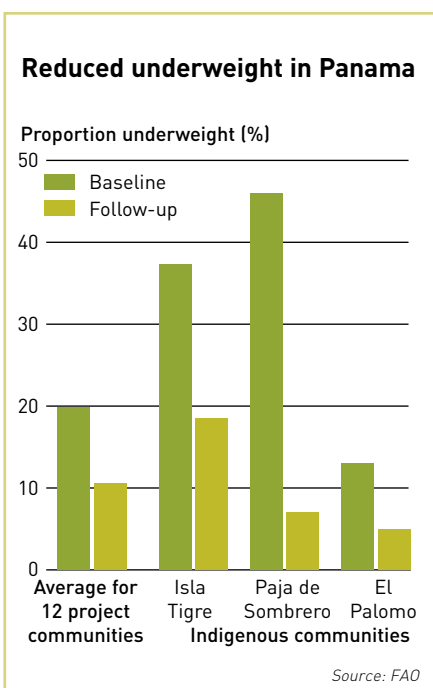
Kenya's Applied Nutrition Project was launched in 1986 on the heels of severe drought and famine in the arid Makueni District. Over more than 15 years, the project has successfully engaged local communities in all stages of evolution from emergency relief to development.

Community meetings identified four key nutrition-related problems: malnutrition among young children, poor food security at the household level, lack of income-generating activities and inadequate safe water. Villagers' understanding of the complex interactions between poverty, malnutrition and health closely matched that of project staff (see chart below). This shared

understanding helped define a variety of interventions, from nutrition education to promotion of drought-resistant crops and income-generating activities that would reduce women's workload.

The project has employed traditional women's groups, village councils and community decision-making bodies as entry points. Another key to its success and durability has been effective support from all levels of government.

Makueni District remains one of the poorest areas in Kenya, suffering from recurring drought and food shortages, as well as high levels of HIV infection. Despite these threats, the Applied Nutrition Project has helped participating communities put a halt to the deterioration of nutritional status and register some modest gains. Between 1994 and 1997, the proportion of stunted children was reduced by more than 13 percent.



Mobilizing commitment and action to combat hunger

THE DATA AND ANALYSES presented in this edition of *The State of Food Insecurity in the World* generally paint a grim picture. The number of undernourished people in the developing world decreased by less than 20 million since the 1990–1992 period used as the baseline at the World Food Summit (WFS). Worse yet, over the most recent four years for which data are available, the number of chronically hungry people actually increased at a rate of almost 5 million a year.

Only a handful of countries have succeeded in reducing hunger steadily throughout the years since the WFS baseline period. Analysing the ingredients of their success sheds some light on steps that can be taken in other countries to stimulate progress.

As might be expected, the countries that have succeeded in reducing hunger have enjoyed faster economic growth than those where progress has stalled or hunger has increased. Significantly, they have also registered more rapid agricultural growth (see graph). They are also characterized by slower population growth, lower rates of HIV infection and far fewer food emergencies.

Articles elsewhere in this report elaborate on the connections between many of these factors and food security. In every instance, they offer compelling evidence that the cause and effect relationship runs in both directions. Analysis reveals, for example, both that HIV/AIDS has become a major cause of hunger and that hunger accelerates both the spread and the lethal impact of the disease (see page 10). Similarly, reducing hunger is both a consequence and an essential precondition for more rapid economic development.

Too often, the eradication of hunger has been looked upon as a by-product

rather than an important cause of economic growth. One consequence has been a tendency to rely on the normal processes of economic development, the workings of the market and the stimulus of liberalized trade to bring about the elimination of hunger.

But widespread hunger impairs the economic performance not only of individuals and families but also of nations. As the link between more rapid agricultural growth and success in reducing hunger suggests, to ensure that development and trade lead to sustainable reductions in hunger they must be accompanied by policies and investments that provide access to food for the hungry and promote growth in the rural areas where three-quarters of the world's hungry people live.

Anti-Hunger Programme outlines twin-track campaign against hunger

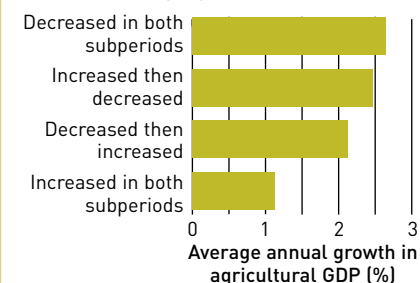
The Anti-Hunger Programme unveiled by FAO at the time of the *WFS: five years later* outlines just such a twin-track approach. It advocates measures to increase the productivity and improve the livelihoods of small-scale farmers and landless labourers. At the same time, it proposes immediate action to give hungry people access to the food they need.

The Anti-Hunger Programme paper sets out priorities and budgets for action in five areas:

- improving agricultural productivity in poor rural communities
- developing and conserving natural resources
- expanding rural infrastructure and market access
- strengthening capacity for knowledge generation and dissemination
- ensuring access to food for the most needy.

Trends in undernourishment and GDP, 1990–1992 to 1995–1997 and 1995–1997 to 1999–2001

Countries where the number of undernourished people:



Source: FAO

The FAO paper also proposes how the estimated extra public investment of US\$19 billion per year to enhance agricultural growth and productivity could be financed. Costs would be divided equally between the governments of countries where hunger is a problem and international donors. This would represent a doubling of concessional funding for agriculture from developed countries and an average increase of about 20 percent in total expenditures for agriculture by developing countries.

Ultimately the success of anti-hunger programmes will depend on winning support and commitment at both the national and international levels. To that end, FAO has endorsed proposals to forge an international Alliance against Hunger that would unite national governments, the international community, civil society organizations, the private sector and concerned individuals to mobilize the political will, technical expertise and financial resources needed to reduce the number of hungry by at least half by 2015.

Table 1. PREVALENCE OF UNDERNOURISHMENT in developing countries and countries in transition

DEVELOPING WORLD Region/subregion/country [undernourishment category]	Total population			Number of people undernourished			Proportion of undernourished in total population		
	1990–1992	1995–1997 millions	1999–2001	1990–1992	1995–1997 millions	1999–2001	1990–1992	1995–1997 %	1999–2001
DEVELOPING WORLD	4 050.0	4 418.6	4 712.2	816.6	779.7	797.9	20	18	17
ASIA AND THE PACIFIC	2 812.1	3 033.0	3 204.8	566.8	496.4	505.2	20	16	16
EAST ASIA	1 241.1	1 306.7	1 353.4	198.3	153.3	144.5	16	12	11
China* [3]	1 169.5	1 231.0	1 275.0	193.0	144.6	135.3	17	12	11
Dem. People's Rep. of Korea [4]	20.3	21.6	22.3	3.7	6.9	7.5	18	32	34
Hong Kong SAR of China [1]	5.8	6.3	6.9	0.0	0.1	0.1	—	—	—
Mongolia [5]	2.3	2.4	2.5	0.8	1.0	1.0	34	42	38
Rep. of Korea [1]	43.3	45.3	46.7	0.8	0.7	0.7	—	—	—
OCEANIA	3.9	4.4	4.8	0.9	1.2	1.3	25	27	27
Papua New Guinea [4]	3.9	4.4	4.8	0.9	1.2	1.3	25	27	27
SOUTHEAST ASIA	444.8	486.0	517.0	76.4	65.4	66.3	17	13	13
Cambodia [5]	10.0	11.7	13.1	4.3	5.2	5.0	43	45	38
Indonesia [3]	185.6	200.6	212.1	16.6	11.4	12.6	9	6	6
Lao People's Dem. Rep. [4]	4.2	4.8	5.3	1.2	1.3	1.2	29	28	22
Malaysia [1]	18.3	20.5	22.2	0.6	0.4	0.5	3	—	—
Myanmar [3]	41.3	45.1	47.7	4.0	3.3	3.2	10	7	7
Philippines [4]	62.5	69.8	75.7	16.1	16.1	16.8	26	23	22
Thailand [3]	55.5	59.5	62.8	15.6	12.3	11.9	28	21	19
Viet Nam [3]	67.5	74.0	78.1	18.1	15.3	15.1	27	21	19
SOUTH ASIA	1 122.4	1 236.0	1 329.6	291.1	276.5	293.1	26	22	22
Bangladesh [4]	112.7	126.3	137.5	39.2	47.9	44.1	35	38	32
India [4]	861.3	943.5	1 008.9	214.5	194.7	213.7	25	21	21
Nepal [3]	18.6	20.9	23.0	3.4	5.0	3.8	18	24	17
Pakistan [3]	112.5	126.9	141.3	29.0	24.1	26.8	26	19	19
Sri Lanka [4]	17.2	18.2	18.9	5.0	5.0	4.6	29	27	25
LATIN AMERICA AND THE CARIBBEAN	442.2	481.2	512.0	59.0	55.3	53.4	13	11	10
NORTH AMERICA	84.8	92.7	98.9	4.6	5.1	5.2	5	5	5
Mexico [3]	84.8	92.7	98.9	4.6	5.1	5.2	5	5	5
CENTRAL AMERICA	28.7	32.7	36.0	5.0	6.5	7.5	17	20	21
Costa Rica [3]	3.1	3.7	4.0	0.2	0.2	0.2	7	6	6
El Salvador [3]	5.2	5.8	6.3	0.6	0.8	0.8	12	14	14
Guatemala [4]	9.0	10.2	11.4	1.4	2.2	2.9	16	21	25
Honduras [4]	5.0	5.8	6.4	1.1	1.2	1.3	23	20	20
Nicaragua [4]	3.9	4.6	5.1	1.2	1.5	1.5	30	33	29
Panama [4]	2.4	2.7	2.9	0.5	0.6	0.7	20	22	26
THE CARIBBEAN	28.5	30.3	31.6	7.9	9.8	7.8	28	32	25
Cuba [3]	10.7	11.0	11.2	0.9	2.7	1.3	8	24	11
Dominican Rep. [4]	7.2	7.8	8.4	1.9	2.1	2.1	27	26	25
Haiti [5]	7.0	7.6	8.1	4.6	4.6	4.0	65	60	49
Jamaica [3]	2.4	2.5	2.6	0.3	0.3	0.2	14	11	9
Trinidad and Tobago [3]	1.2	1.3	1.3	0.2	0.2	0.2	13	14	12
SOUTH AMERICA	300.1	325.5	345.6	41.5	34.0	32.9	14	10	10
Argentina [1]	33.0	35.2	37.0	0.7	0.4	0.4	—	—	—
Bolivia [4]	6.7	7.6	8.3	1.8	1.9	1.8	26	25	22
Brazil [3]	150.3	161.7	170.4	18.6	16.7	15.6	12	10	9
Chile [2]	13.3	14.4	15.2	1.1	0.7	0.6	8	5	4
Colombia [3]	35.7	39.3	42.1	6.1	5.0	5.7	17	13	13
Ecuador [2]	10.5	11.7	12.6	0.9	0.6	0.6	8	5	4
Guyana [3]	0.7	0.7	0.8	0.2	0.1	0.1	21	12	14
Paraguay [3]	4.3	5.0	5.5	0.8	0.7	0.7	18	13	13
Peru [3]	22.0	23.9	25.7	8.9	4.2	2.9	40	18	11
Suriname [3]	0.4	0.4	0.4	0.1	0.0	0.0	13	11	11
Uruguay [2]	3.1	3.2	3.3	0.2	0.1	0.1	6	4	3
Venezuela [3]	20.0	22.3	24.2	2.3	3.5	4.4	11	16	18

Tables

Table 1 *cont.* PREVALENCE OF UNDERNOURISHMENT in developing countries and countries in transition

DEVELOPING WORLD Region/subregion/country [undernourishment category]	Total population			Number of people undernourished			Proportion of undernourished in total population		
	1990–1992	1995–1997 millions	1999–2001	1990–1992	1995–1997 millions	1999–2001	1990–1992	1995–1997 %	1999–2001
NEAR EAST AND NORTH AFRICA	321.3	361.3	392.4	25.3	35.2	40.9	8	10	10
NEAR EAST	200.6	228.3	249.6	19.6	29.4	34.8	10	13	14
Afghanistan [5]**	14.6	19.7	21.8	8.4	12.7	15.3	58	65	70
Iran, Islamic Rep. of [3]	59.9	65.8	70.3	2.8	3.0	3.8	5	5	5
Iraq [4]**	17.8	20.6	23.0	1.2	5.1	6.2	7	25	27
Jordan [3]	3.4	4.4	4.9	0.1	0.3	0.3	4	7	6
Kuwait [2]	2.1	1.7	1.9	0.5	0.1	0.1	22	4	4
Lebanon [2]	2.8	3.2	3.5	0.1	0.1	0.1	3	3	3
Saudi Arabia [2]	15.8	17.6	20.3	0.6	0.6	0.6	4	3	3
Syrian Arab Rep. [2]	12.8	14.6	16.2	0.6	0.6	0.6	5	4	4
Turkey [2]	57.2	62.6	66.7	1.0	1.5	1.8	—	—	3
United Arab Emirates [1]	2.1	2.4	2.6	0.1	0.0	0.0	4	—	—
Yemen [4]	12.2	15.6	18.4	4.2	5.4	6.1	35	35	33
NORTH AFRICA	120.7	133.0	142.8	5.7	5.8	6.1	5	4	4
Algeria [3]	25.4	28.2	30.3	1.3	1.6	1.7	5	6	6
Egypt [2]	57.4	63.2	67.9	2.7	2.3	2.3	5	4	3
Libyan Arab Jamahiriya [1]	4.4	4.9	5.3	0.0	0.0	0.0	—	—	—
Morocco [3]	25.1	27.7	29.9	1.5	1.9	2.1	6	7	7
Tunisia [1]	8.3	9.1	9.5	0.1	0.1	0.1	—	—	—
SUB-SAHARAN AFRICA	474.5	543.1	603.0	165.5	192.7	198.4	35	35	33
CENTRAL AFRICA	62.8	73.8	81.7	22.0	39.5	47.6	35	53	58
Cameroon [4]	11.9	13.6	14.9	3.9	4.5	4.0	33	33	27
Central African Rep. [5]	3.0	3.4	3.7	1.5	1.7	1.6	50	51	44
Chad [4]	6.0	7.0	7.9	3.5	3.4	2.7	58	49	34
Congo [4]	2.3	2.7	3.0	0.9	1.1	0.9	37	42	30
Dem. Rep. of the Congo [5]	38.5	46.1	51.0	12.1	28.7	38.3	31	62	75
Gabon [3]	1.0	1.1	1.2	0.1	0.1	0.1	11	9	7
EAST AFRICA	166.1	188.2	209.5	73.2	84.8	81.3	44	45	39
Burundi [5]	5.7	6.1	6.4	2.8	3.9	4.5	49	64	70
Eritrea [5]	na	3.2	3.7	na	2.0	2.2	na	63	61
Ethiopia [5]	na	56.9	62.9	na	32.2	26.4	na	57	42
Kenya [5]	24.3	28.0	30.7	10.6	11.1	11.5	44	40	37
Rwanda [5]	6.4	5.3	7.5	2.8	2.7	3.1	43	50	41
Somalia [5]**	7.2	7.6	8.8	4.9	5.5	6.2	68	73	71
Sudan [4]	25.4	28.6	31.1	7.9	6.3	7.7	31	22	25
Uganda [3]	17.8	20.7	23.3	4.1	5.3	4.5	23	25	19
United Rep. of Tanzania [5]	27.0	31.8	35.1	9.5	15.7	15.2	35	49	43
SOUTHERN AFRICA	71.0	81.0	89.2	34.2	37.1	36.8	48	46	41
Angola [5]	9.9	11.7	13.1	6.1	6.4	6.4	61	54	49
Botswana [4]	1.3	1.5	1.5	0.2	0.3	0.4	18	22	24
Lesotho [4]	1.7	1.9	2.0	0.5	0.5	0.5	27	26	25
Madagascar [5]	12.3	14.2	16.0	4.3	5.6	5.7	35	40	36
Malawi [4]	9.6	10.2	11.3	4.7	4.0	3.7	49	39	33
Mauritius [3]	1.1	1.1	1.2	0.1	0.1	0.1	6	6	5
Mozambique [5]	14.1	16.8	18.3	9.7	10.3	9.7	69	62	53
Namibia [3]	1.4	1.6	1.8	0.3	0.2	0.1	20	12	7
Swaziland [3]	0.8	0.9	0.9	0.1	0.1	0.1	10	16	12
Zambia [5]	8.3	9.5	10.4	3.7	4.4	5.2	45	47	50
Zimbabwe [5]	10.5	11.7	12.6	4.5	5.1	4.9	43	44	39
WEST AFRICA	174.7	200.1	222.6	36.2	31.3	32.7	21	16	15
Benin [3]	4.8	5.6	6.3	1.0	1.0	1.0	20	17	16
Burkina Faso [3]	9.3	10.5	11.5	2.0	1.9	1.9	22	18	17
Côte d'Ivoire [3]	13.0	14.7	16.0	2.4	2.3	2.4	18	16	15
Gambia [4]	1.0	1.2	1.3	0.2	0.4	0.4	22	32	27
Ghana [3]	15.6	17.7	19.3	5.5	2.9	2.4	35	17	12

Table 1 *cont.* PREVALENCE OF UNDERNOURISHMENT in developing countries and countries in transition

DEVELOPING WORLD Region/subregion/country [undernourishment category]	Total population			Number of people undernourished			Proportion of undernourished in total population		
	1990–1992	1995–1997 millions	1999–2001	1990–1992	1995–1997 millions	1999–2001	1990–1992	1995–1997 %	1999–2001
Guinea [4]	6.4	7.5	8.1	2.5	2.4	2.3	40	31	28
Liberia [5]	2.1	2.2	2.9	0.7	0.8	1.2	33	38	42
Mali [4]	9.0	10.2	11.4	2.2	2.7	2.4	25	27	21
Mauritania [3]	2.0	2.3	2.7	0.3	0.3	0.3	14	11	10
Niger [4]	8.0	9.4	10.8	3.3	4.0	3.7	42	43	34
Nigeria [3]	88.5	102.1	113.9	11.2	7.8	9.1	13	8	8
Senegal [4]	7.5	8.5	9.4	1.7	2.1	2.3	23	25	24
Sierra Leone [5]	4.1	4.1	4.4	1.9	1.7	2.2	46	42	50
Togo [4]	3.5	4.0	4.5	1.2	1.0	1.1	33	25	25
COUNTRIES IN TRANSITION									
Region/subregion/country [undernourishment category]	Total population millions			Number of people undernourished millions			Proportion of undernourished in total population %		
	1993–1995	1999–2001		1993–1995	1999–2001		1993–1995	1999–2001	
COUNTRIES IN TRANSITION	414.1	411.8		25.2	33.6		6	8	
COMMONWEALTH OF INDEPENDENT STATES	284.8	283.4		20.6	28.8		7	10	
Armenia [5]	3.7	3.8		2.0	1.9		55	51	
Azerbaijan [4]	7.6	8.0		2.8	1.7		37	21	
Belarus [2]	10.3	10.2		0.1	0.3		—	3	
Georgia [4]	5.4	5.3		2.4	1.4		45	26	
Kazakhstan [4]	16.7	16.2		0.2	3.5		—	22	
Kyrgyzstan [3]	4.5	4.9		1.3	0.4		28	7	
Rep. of Moldova [3]	4.3	4.3		0.2	0.5		5	12	
Russian Fed. [2]	148.4	145.5		6.4	6.2		4	4	
Tajikistan [5]	5.7	6.1		1.2	4.3		22	71	
Turkmenistan [3]	4.1	4.7		0.6	0.3		15	7	
Ukraine [2]	51.7	49.6		1.2	2.0		—	4	
Uzbekistan [4]	22.3	24.9		2.1	6.4		10	26	
BALTIC STATES	7.8	7.5		0.4	0.3		5	3	
Estonia [2]	1.5	1.4		0.2	0.1		10	4	
Latvia [3]	2.6	2.4		0.1	0.2		3	6	
Lithuania [1]	3.7	3.7		0.2	0.0		4	—	
EASTERN EUROPE	121.5	121.0		4.1	4.5		3	4	
Albania [2]	3.2	3.1		0.2	0.1		5	4	
Bosnia and Herzegovina [3]	3.6	4.0		0.5	0.3		13	8	
Bulgaria [3]	8.5	8.0		0.7	1.3		8	16	
Croatia [3]	4.6	4.7		0.8	0.5		18	12	
Czech Rep. [1]	10.3	10.3		0.2	0.2		—	—	
Hungary [1]	10.2	10.0		0.1	0.0		—	—	
TFYR Macedonia [3]	2.0	2.0		0.3	0.2		15	10	
Poland [1]	38.5	38.6		0.3	0.3		—	—	
Romania [1]	22.8	22.4		0.4	0.2		—	—	
Serbia and Montenegro [3]	10.5	10.6		0.5	0.9		5	9	
Slovakia [3]	5.3	5.4		0.2	0.2		4	5	
Slovenia [1]	2.0	2.0		0.1	0.0		3	—	

NOTES

Figures following country name refer to the prevalence categories (proportion of the population undernourished in 1999–2001):

[1] < 2.5% undernourished

[2] 2.5–4% undernourished

[3] 5–19% undernourished

[4] 20–34% undernourished

[5] ≥ 35% undernourished

Table does not include countries for which there were insufficient data

* includes Taiwan Province of China

** estimates of the proportion of undernourished for 1999–2001 are not available; estimates for 1998–2000 published in SOFI 2002 were used instead.

— proportion less than 2.5% undernourished

na not available

0.0 zero or less than half the unit shown

SOURCES

Total population : *UN Population Prospects*, 2000 revision

Undernourishment: FAO estimates

Tables

Table 2. FOOD AVAILABILITY, DIET DIVERSIFICATION, POVERTY, CHILD MORTALITY, CHILD NUTRITIONAL STATUS AND RESOURCES DIRECTED TO AGRICULTURE in developing countries and countries in transition, classified by category of prevalence of undernourishment

CATEGORY OF PREVALENCE OF UNDERNOURISHMENT in total population 1999–2001 Region and country	Food availability and diet diversification		Poverty		Child mortality	Child nutritional status	Resources directed to agriculture
	Dietary energy supply (DES) 1999–2001 kcal/day per person	Share of non-starchy food in total DES 1999–2001 %	Population below the poverty line 1990–2000 (last survey)		Under-five mortality rate 2001 per 1 000 births	Underweight children under five years of age 1995–2001 (last survey) %	External assistance 1998–2000 Constant 1995 US\$ per agricultural worker
			rural	urban			
LESS THAN 2.5% UNDERNOURISHED							
ASIA AND THE PACIFIC							
Hong Kong SAR of China	3 100	70	na	na	na	na	0
Malaysia	2 920	54	na	na	8	20	23
Rep. of Korea	3 070	50	na	na	5	na	0
LATIN AMERICA AND THE CARIBBEAN							
Argentina	3 180	65	na	30	19	5	70
NEAR EAST AND NORTH AFRICA							
Libyan Arab Jamahiriya	3 320	53	na	na	19	5	98
Tunisia	3 340	48	14	4	27	4	212
United Arab Emirates	3 330	63	na	na	9	7	1
COUNTRIES IN TRANSITION							
Czech Rep.	3 080	69	na	na	5	1*	3
Hungary	3 500	70	na	na	9	na	1
Lithuania	3 260	51	na	na	9	na	1
Poland	3 390	58	na	na	9	na	14
Romania	3 340	47	28	20	21	6*	15
Slovenia	3 060	60	na	na	5	na	42
2.5 TO 4% UNDERNOURISHED							
LATIN AMERICA AND THE CARIBBEAN							
Chile	2 850	57	na	na	12	1	6
Ecuador	2 740	64	47	25	30	14	58
Uruguay	2 840	61	na	na	16	4*	120
NEAR EAST AND NORTH AFRICA							
Egypt	3 370	35	23	23	41	4	47
Kuwait	3 150	61	na	na	10	2	0
Lebanon	3 170	62	na	na	32	3	738
Saudi Arabia	2 840	51	na	na	28	14	1
Syrian Arab Rep.	3 040	52	na	na	28	7	28
Turkey	3 360	47	na	na	43	8	0
COUNTRIES IN TRANSITION							
Albania	2 940	51	na	na	25	14	49
Belarus	2 960	53	na	na	20	na	0
Estonia	3 020	57	15	7	12	na	3
Russian Fed.	2 940	53	na	na	21	3	15
Ukraine	2 900	50	na	na	20	3	17
5 TO 19% UNDERNOURISHED							
ASIA AND THE PACIFIC							
China**	2 970	41	5	2	39	10	3
Indonesia	2 900	30	na	na	45	25	13
Myanmar	2 810	26	na	na	109	28	0
Nepal	2 440	23	44	23	91	48	15
Pakistan	2 460	49	36	24	109	38	8
Thailand	2 470	48	16	10	28	18	14
Viet Nam	2 500	26	57	26	38	34	16
LATIN AMERICA AND THE CARIBBEAN							
Brazil	3 000	66	33	13	36	6	34
Colombia	2 570	59	31	8	23	7	26
Costa Rica	2 760	62	26	19	11	5	82
Cuba	2 610	60	na	na	9	4	7
El Salvador	2 460	47	56	43	39	12	35
Guyana	2 540	48	na	na	72	12	67
Jamaica	2 690	59	25	na	20	4	98

na Data not available

0 Zero or less than half the unit shown

* Data refer to years prior to 1995

** includes Taiwan Province of China for food availability and diet

diversification; additionally includes Hong Kong SAR of China for external assistance to agriculture

*** estimates of food availability and diet diversification for 1999–2001 are not available; estimates for 1998–2000 published in SOFI 2002 were used instead.

Table 2 *cont.* FOOD AVAILABILITY, DIET DIVERSIFICATION, POVERTY, CHILD MORTALITY, CHILD NUTRITIONAL STATUS AND RESOURCES DIRECTED TO AGRICULTURE in developing countries and countries in transition, classified by category of prevalence of undernourishment

CATEGORY OF PREVALENCE OF UNDERNOURISHMENT in total population 1999–2001 Region and country	Food availability and diet diversification		Poverty		Child mortality	Child nutritional status	Resources directed to agriculture
	Dietary energy supply (DES) 1999–2001 kcal/day per person	Share of non- starchy food in total DES 1999–2001 %	Population below the poverty line 1990–2000 (last survey) rural urban %		Under-five mortality rate 2001 per 1 000 births	Underweight children under five years of age 1995–2001 (last survey) %	External assistance 1998–2000 Constant 1995 US\$ per agricultural worker
Mexico	3 150	53	na	na	29	8	54
Paraguay	2 560	59	29	20	30	4*	108
Peru	2 600	46	65	40	39	7	42
Suriname	2 630	56	na	na	32	na	519
Trinidad and Tobago	2 710	62	20	24	20	7	108
Venezuela	2 330	59	na	na	22	4	23
NEAR EAST AND NORTH AFRICA							
Algeria	2 970	40	30	15	49	6	41
Iran, Islamic Rep. of	2 930	39	na	na	42	11	0
Jordan	2 740	48	na	na	33	5	788
Morocco	3 000	36	27	12	44	10*	24
SUB-SAHARAN AFRICA							
Benin	2 480	27	na	na	158	23	36
Burkina Faso	2 460	25	51	17	197	34	19
Côte d'Ivoire	2 590	34	na	na	175	21	21
Gabon	2 580	54	na	na	90	12	29
Ghana	2 620	29	34	27	100	25	24
Mauritania	2 730	48	61	25	183	32	83
Mauritius	2 980	54	na	na	19	15	144
Namibia	2 700	34	na	na	67	26*	72
Nigeria	2 770	34	36	30	183	31	2
Swaziland	2 570	52	na	na	149	10	93
Uganda	2 370	56	na	na	124	23	18
COUNTRIES IN TRANSITION							
Bosnia and Herzegovina	2 730	48	na	na	18	4	182
Bulgaria	2 630	65	na	na	16	na	118
Croatia	2 620	63	na	na	8	1	7
Kyrgyzstan	2 860	32	70	49	61	11	175
Latvia	2 790	60	na	na	21	na	44
TFYR Macedonia	2 660	62	na	na	26	6	110
Rep. of Moldova	2 680	46	27	na	32	3	20
Serbia and Montenegro	2 720	68	na	na	19	2	4
Slovakia	2 910	63	na	na	9	na	5
Turkmenistan	2 760	37	na	na	87	12	0
20 TO 34% UNDERNOURISHED							
ASIA AND THE PACIFIC							
Bangladesh	2 160	17	37	19	77	52	13
Dem. People's Rep. of Korea	2 180	33	na	na	55	28	5
India	2 490	39	30	25	93	47	3
Lao People's Dem. Rep.	2 280	22	41	27	100	40	36
Papua New Guinea	2 180	45	41	16	94	35	10
Philippines	2 370	44	51	20	38	32	52
Sri Lanka	2 330	44	27	15	19	33	29
LATIN AMERICA AND THE CARIBBEAN							
Bolivia	2 240	49	82	na	77	8	82
Dominican Rep.	2 320	66	30	11	47	5	116
Guatemala	2 160	47	na	na	58	24	80
Honduras	2 400	54	51	57	38	17	128
Nicaragua	2 250	49	69	31	43	10	227
Panama	2 250	62	65	15	25	8	475
NEAR EAST AND NORTH AFRICA							
Iraq***	2 150	34	na	na	133	16	1
Yemen	2 050	32	45	31	107	46	12
SUB-SAHARAN AFRICA							
Botswana	2 270	52	na	na	110	13	24
Cameroon	2 240	42	na	na	155	22	13
Chad	2 150	41	67	63	200	28	13
Congo	2 210	37	na	na	108	14	2

Tables

Table 2 *cont.* FOOD AVAILABILITY, DIET DIVERSIFICATION, POVERTY, CHILD MORTALITY, CHILD NUTRITIONAL STATUS AND RESOURCES DIRECTED TO AGRICULTURE in developing countries and countries in transition, classified by category of prevalence of undernourishment

CATEGORY OF PREVALENCE OF UNDERNOURISHMENT in total population 1999–2001 Region and country	Food availability and diet diversification		Poverty		Child mortality	Child nutritional status	Resources directed to agriculture
	Dietary energy supply (DES)	Share of non-starchy food in total DES	Population below the poverty line 1990–2000 (last survey)		Under-five mortality rate 2001	Underweight children under five years of age 1995–2001 (last survey)	External assistance 1998–2000 Constant 1995 US\$ per agricultural worker
	kcal/day per person	%	rural	urban	per 1 000 births	%	
Gambia	2 280	48	61	48	126	17	52
Guinea	2 330	40	na	na	169	33	18
Lesotho	2 310	19	54	28	132	18	57
Malawi	2 170	23	67	55	183	25	14
Mali	2 370	29	na	na	231	33	30
Niger	2 130	28	66	52	265	40	10
Senegal	2 280	39	40	na	138	23	37
Sudan	2 290	46	na	na	107	34*	4
Togo	2 310	23	na	na	141	25	7
COUNTRIES IN TRANSITION							
Azerbaijan	2 380	32	na	na	96	17	55
Georgia	2 290	38	10	12	29	3	31
Kazakhstan	2 360	50	39	30	99	4	20
Uzbekistan	2 270	39	na	na	68	19	14
35% OR MORE UNDERNOURISHED							
ASIA AND THE PACIFIC							
Cambodia	1 970	21	40	21	138	45	25
Mongolia	2 070	57	33	39	76	13	63
LATIN AMERICA AND THE CARIBBEAN							
Haiti	2 040	46	66	na	123	17	13
NEAR EAST AND NORTH AFRICA							
Afghanistan***	1 630	27	na	na	257	49	1
SUB-SAHARAN AFRICA							
Angola	1 900	32	na	na	260	31	4
Burundi	1 610	49	na	na	190	45	2
Central African Rep.	1 960	43	na	na	180	23	6
Dem. Rep. of the Congo	1 570	23	na	na	205	34	0
Eritrea	1 670	24	na	na	111	44	8
Ethiopia	1 910	19	45	37	172	47	4
Kenya	2 040	43	46	29	122	22	5
Liberia	2 080	37	na	na	235	27	3
Madagascar	2 070	25	77	52	136	40	17
Mozambique	1 950	25	71	62	197	26	16
Rwanda	2 000	49	na	na	183	24	12
Sierra Leone	1 930	36	na	na	316	27	8
Somalia***	1 600	65	na	na	225	26	1
United Rep. of Tanzania	1 970	29	50	24	165	29	7
Zambia	1 900	23	83	56	202	24	26
Zimbabwe	2 100	42	48	8	123	13	23
COUNTRIES IN TRANSITION							
Armenia	2 000	40	na	na	35	3	97
Tajikistan	1 720	33	na	na	116	na	36

NOTES

Non-starchy foods: all food sources for DES, except cereals and roots and tubers.

Poverty, urban or rural: percentage of population living on less than the poverty line, urban or rural. These poverty lines are independent standards of living for urban or rural populations based on consumption of goods and services to meet basic needs.

Under-five mortality: probability that a newborn baby will die before reaching age five, if subject to current age-specific mortality rates. The probability is expressed as a rate per 1 000 live births.

Underweight: children below five years of age (0–4.99 years), except 0–2.99 years for Cameroon, Eritrea, India, Kyrgyzstan, Madagascar, Mozambique, Myanmar, Togo and Uzbekistan; 0.5–2.99 years for Afghanistan; 0.25–4.99 years for El Salvador, Honduras and Sri Lanka; 0.5–4.99 years for Burundi, Guinea and TFYR Macedonia; 0–5.99 years for Chile; 1.0–5.99 years for Croatia; 1.0–6.99 years for Costa Rica.

External assistance to agriculture: the concessional and non-concessional commitments made in monetary terms by the bilateral and multilateral donors to countries for the development of agriculture including agro-industry, environmental activities related to agriculture, manufacturing of agricultural inputs, regional and river development, research, training and extension, and rural development.

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The State of Food Insecurity in the World

FAO's latest estimates of hunger around the world offer striking evidence that progress toward the World Food Summit (WFS) goal is possible. They also show conclusively that without redoubled national and global commitment the goal of reducing the number of hungry people by half by the year 2015 will not be reached.

A number of countries in all developing regions have succeeded in reducing hunger steadily and significantly since the World Food Summit baseline period of 1990–1992. Unfortunately, however, these countries are more the exception than the rule. Across the developing world as a whole, an estimated 798 million people were undernourished in 1999–2001, only 19 million less than during the WFS baseline period. Worse yet, during the most recent four-year period for which data are available, the estimated number of undernourished people in developing countries did not decrease at all. In fact, it increased by 4.5 million per year.

This fifth edition of *The State of Food Insecurity in the World* details recent trends in developing countries and countries in transition. It also offers an analysis of factors that have contributed to progress and setbacks in efforts to reach the WFS goal. Other articles examine the impact on food security of factors as diverse as the HIV/AIDS pandemic, improved management of water resources and increasing integration of developing countries into international markets and trade agreements.

The State of Food Insecurity in the World highlights encouraging signs that many countries have recognized the persistence of hunger not as grounds for despair but as an urgent call to action. A number of countries have launched aggressive campaigns to achieve the WFS goal within their own borders. Several have committed themselves to eradicating hunger entirely. Their strategies for achieving that goal include key elements of a twin-track approach that combines immediate interventions to give hungry people access to food with development initiatives to increase employment, incomes and food production in impoverished communities.

These countries are showing the way. With comparable commitment at a world scale, the WFS goal is still within reach.

