



The State of  
**Food Insecurity in the World**  
**2004**

monitoring progress  
towards the World Food Summit and  
Millennium Development Goals



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The State of

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# About this report

**T**he *State of Food Insecurity in the World 2004* reports on progress and setbacks in efforts to reach the goal set by the World Food Summit (WFS) in 1996 – to halve the number of chronically hungry people in the world by the year 2015.

The first section of the report, *Under-nourishment around the world*, presents

the latest estimates of the number of undernourished people along with preliminary calculations of the heavy economic burden imposed by hunger and malnutrition.

This year's *Special feature* focuses on the impact that the rapid growth of cities and incomes in developing countries has had on hunger and food security.

The *Towards the Summit commitments* section presents examples of issues and actions that are essential to fulfilling the commitments in the WFS Plan of Action and related Millennium Development Goals.

Tables provide detailed indicators of the status and progress of developing countries and countries in transition.

## Food Insecurity and Vulnerability Information and Mapping Systems



It hardly seems that a year has gone by since I sat down to write the introduction for *The State of Food Insecurity in the World 2003*. Time passes by so quickly for many of us. But for hundreds of millions of hungry people who must worry about where their next meal will come from, this has been another long, painful year. In this publication we see that the number of hungry people remains intolerably high, progress in reaching them unconscionably slow and the costs in ruined lives and wasted resources incalculably large. For those children and adults who were reached, we may have made a life-changing difference. But the lives of far too many others continue to be plagued by hunger and poverty.

In last year's report, I mentioned the external assessment of the Inter-Agency Working Group on FIVIMS (IAWG-FIVIMS) that was under way at that time. The assessment pulled no punches. While noting some very positive initiatives and results, it concluded that FIVIMS had failed to live up to its true potential. Our membership pledged to find new ways of working together to meet a need that remains even more urgent today than when FIVIMS was created. At our annual meeting in April 2004, we agreed on a new organizational structure. We are currently defining our business plan for the future, and, in particular, identifying high-priority areas of activity for the next two years.

Our goal remains unchanged – to help countries establish quality food insecurity information systems that will provide the timely information needed both to formulate effective policies and programmes and to monitor progress in achieving global, national and local goals. We need to go beyond making a world of difference in the lives of a few hungry people to making a different world – a world where the scourge of hunger is confined to the annals of the past.

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

### IAWG-FIVIMS membership

#### Bilateral aid and technical agencies

Australian Agency for International Development (AusAID)  
Canadian International Development Agency (CIDA)  
EuropeAid Co-operation Office (EuropeAid)  
German Agency for Technical Cooperation (GTZ)  
United Kingdom Department for International Development (DFID)  
United States Agency for International Development (USAID)  
United States Department of Agriculture (USDA)

#### United Nations and Bretton Woods agencies

Food and Agriculture Organization of the United Nations (FAO)  
International Fund for Agricultural Development (IFAD)  
International Labour Organization (ILO)  
United Nations Department of Economic and Social Affairs (UNDESA)  
Office for the Coordination of Humanitarian Affairs (OCHA)  
United Nations Development Programme (UNDP)  
United Nations Environment Programme (UNEP)  
United Nations Children's Fund (UNICEF)  
United Nations Population Fund (UNFPA)  
World Bank (WB)  
World Food Programme (WFP)  
World Health Organization (WHO)  
World Meteorological Organization (WMO)  
United Nations System Standing Committee on Nutrition (SCN)

#### International agricultural research organizations

Consultative Group on International Agricultural Research (CGIAR)  
International Food Policy Research Institute (IFPRI)  
International Service for National Agricultural Research (ISNAR)  
International Center for Tropical Agriculture (CIAT)

#### International non-governmental organizations

Helen Keller International (HKI)  
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: confronting the crippling costs of hunger

**A**s we approach the mid-term review of progress towards the World Food Summit (WFS) goal, FAO's latest report on the state of food insecurity in the world highlights three irrefutable facts and three inescapable conclusions:

Fact number one: to date, efforts to reduce chronic hunger in the developing world have fallen far short of the pace required to cut the number of hungry people by half no later than the year 2015 (see graph). We must do better.

Fact number two: despite slow and faltering progress on a global scale, numerous countries in all regions of the developing world have proven that success is possible. More than 30 countries, with a total population of over 2.2 billion people, have reduced the prevalence of undernourishment by 25 percent and have made significant progress towards reducing the number of hungry people by half by the year 2015. We can do better.

Fact number three: the costs of not taking immediate and strenuous action to reduce hunger at comparable rates worldwide are staggering. This is the central message I would like to convey to readers of this report. Every year that hunger continues at present levels costs more than 5 million children their lives and costs developing countries billions of dollars in lost productivity and earnings. The costs of interventions that could sharply reduce hunger are trivial in comparison. We cannot afford not to do better.

### **We MUST do better**

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According to FAO's latest estimates the number of hungry people in the developing world has declined by only 9 million since the WFS baseline period, despite commitments made. More alarming

still, the number has actually increased over the most recent five years for which numbers are available. In three of the four developing regions, more people were undernourished in 2000–2002 than had been the case in 1995–1997. Only Latin America and the Caribbean registered a modest reduction in the number of hungry people.

### **We CAN do better**

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More than 30 countries, representing nearly half the population of the developing world, have provided both proof that rapid progress is possible and lessons in how that progress can be achieved.

This successful group of countries is striking for several reasons. Every developing region is represented, not only those whose rapid economic growth has been widely touted. Asia accounts for by far the largest drop in the number of hungry people. But sub-Saharan Africa boasts the most countries that have brought the prevalence of hunger down by 25 percent or more, although often from very high levels at the outset.

Among the African countries are several that demonstrate another key lesson – that war and civil conflict must be regarded as major causes not only of short-term food emergencies but of widespread chronic hunger. Several countries that have recently emerged from the nightmare of conflict figure prominently among those that have registered steady progress since the WFS as well as those that have scored rapid gains over the past five years.

Many of the countries that have achieved rapid progress in reducing hunger have something else in common – significantly better than average agricultural growth. Within the group of

more than 30 countries that are on track to reach the WFS goal, agricultural GDP increased at an average annual rate of 3.2 percent, almost one full percentage point faster than for the developing countries as a whole.

Several of these countries have also led the way in implementing a twin-track strategy to attack hunger – strengthening social safety nets to put food on the tables of those who need it most on the one hand, while attacking the root causes of hunger with initiatives to stimulate food production, increase employability and reduce poverty on the other.

In certain cases, as Brazil's Zero Hunger Programme has demonstrated by buying food for school lunch programmes and other food safety nets from local small and medium-sized farms, the two tracks can be brought together in a virtuous circle of better diets, increased food availability, rising incomes and improved food security.

### **We cannot afford not to do better**

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In moral terms, just stating the fact that one child dies every five seconds as a result of hunger and malnutrition should be enough to prove that we cannot afford to allow the scourge of hunger to continue. Case closed.

In economic terms the case is more complex but no less cogent. Every child whose physical and mental development is stunted by hunger and malnutrition stands to lose 5 to 10 percent in lifetime earnings. On a global scale, every year that hunger persists at current levels causes deaths and disability that will cost developing countries future productivity with a present discounted value of US\$500 billion or more.

This crushing economic burden is



borne by those who can afford it least, by people struggling to eke out a living on less than a dollar a day, by countries whose economies and development efforts are slowed or stalled by lack of productivity and resources.

Studies by the Academy for Educational Development cited in this report suggest that 15 countries in Africa and Latin America could reduce protein-energy malnutrition by half between now and 2015 at a cost of just US\$25 million per year. Over a ten-year period, that investment would pay for targeted interventions that would save the lives of almost 900 000 children and yield long-term gains in productivity worth more than US\$1 billion.

FAO's own estimates of the costs and benefits of action to accelerate progress towards the WFS goal suggest that US\$24 billion a year in public investment, associated with additional private investment, would lead to a boost in annual GDP amounting to US\$120 billion as a result of longer and healthier lives.

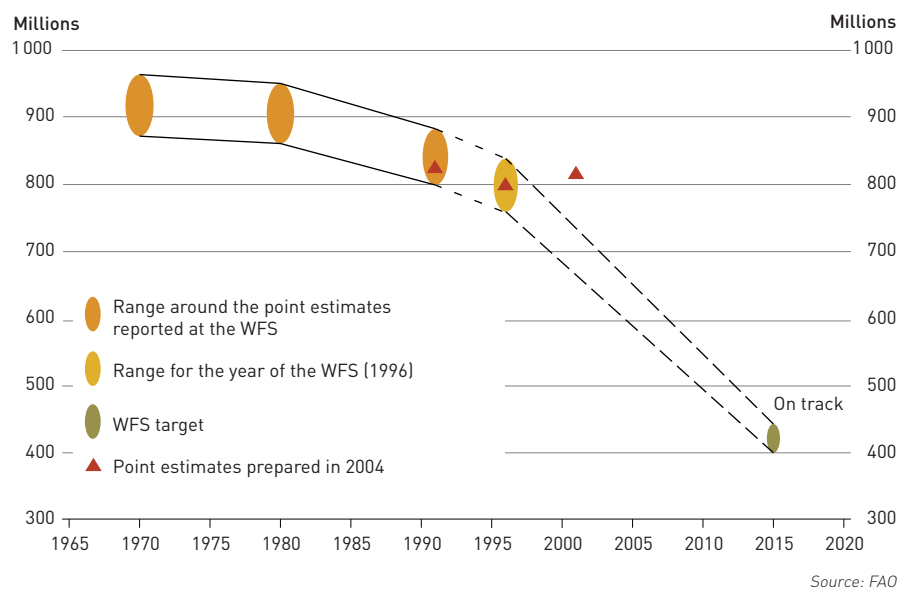
Simply stated, the question is not whether we can afford to take the urgent and immediate action needed to reach and surpass the WFS goal. The question is whether we can afford not to. And the answer is an emphatic, resounding no.

The hungry cannot wait. And neither can the rest of the human family.



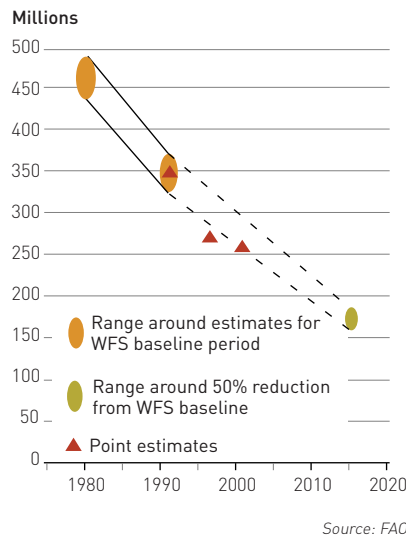
**Jacques Diouf**  
FAO Director-General

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



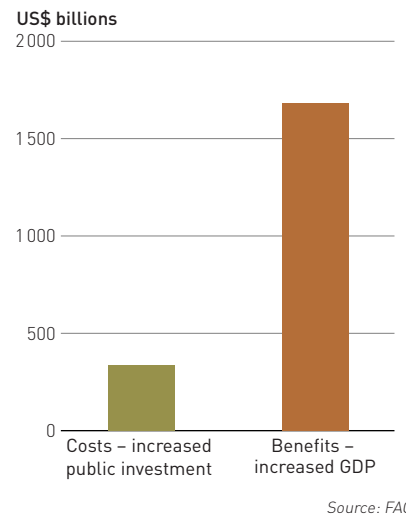
### Profile of progress

Number of undernourished in more than 30 countries that have made significant progress towards the WFS target



### Payoff for progress

Estimated costs and benefits of increased public investment required to accelerate the reduction of hunger and reach the WFS target, 2002-2015



# Undernourishment around the world

## Counting the hungry: latest estimates

**F**AO estimates that 852 million people worldwide were undernourished in 2000–2002. This figure includes 815 million in developing countries, 28 million in the countries in transition and 9 million in the industrialized countries.

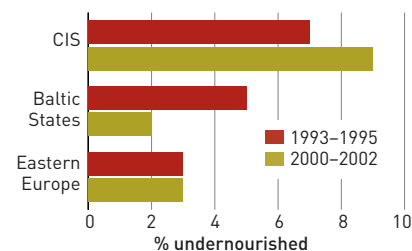
The number of undernourished people in developing countries decreased by only 9 million during the decade following the World Food Summit baseline period of 1990–1992. During the second half of the decade, the number of chronically hungry in developing countries increased at a rate of almost 4 million per year, wiping out two thirds of the reduction of 27 million achieved during the previous five years.

The reversal during the second half of the decade resulted mainly from changes in China and India. China had registered dramatic progress during the first half of the decade, reducing the number of undernourished by almost 50 million. During the same period, India pared the number of undernourished by 13 million. Gains in these two countries drove the global totals down, despite the fact that the number of undernourished in the rest of the developing

### Undernourishment in the countries in transition

The number of undernourished in the countries in transition has risen from 23 million to 28 million since the break-up of the former Soviet Union, Czechoslovakia and Yugoslavia in 1991–1993. Most of the increase and the bulk of undernourished are in the countries of the Commonwealth of Independent States (CIS), where the proportion has increased from 7 percent to 9 percent.

### Undernourished in the countries in transition



Source: FAO

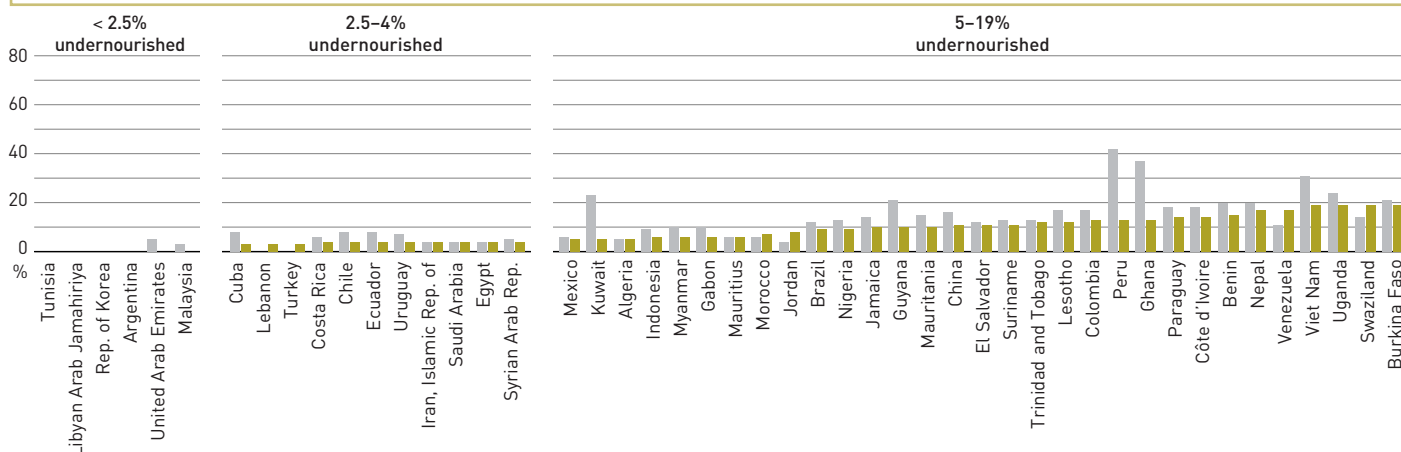
world increased by 34 million. During the second half of the decade, however, progress slowed in China, where the number of undernourished fell by only 4 million. In India the number increased by 18 million.

The news is not all bad, however. Just as gains in China and India outweighed setbacks elsewhere during the first half of the decade, the slowdown in the two Asian giants masked significant improvements in trends for the rest of the developing world. After climbing at a rate of almost 7 million per year, the number of undernourished in develop-

ing countries other than China and India essentially held steady during the second half of the decade. And the proportion of people who were undernourished declined from 20 percent to 18 percent.

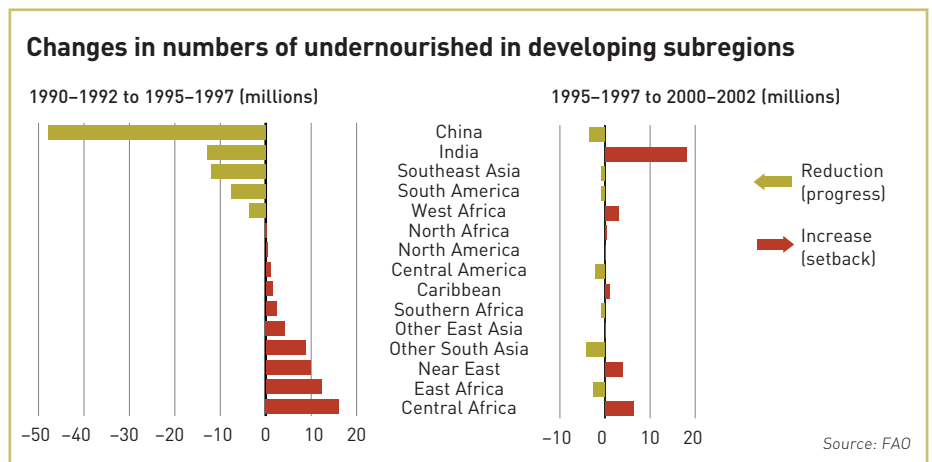
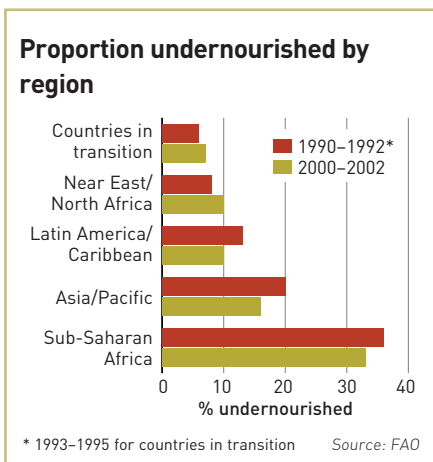
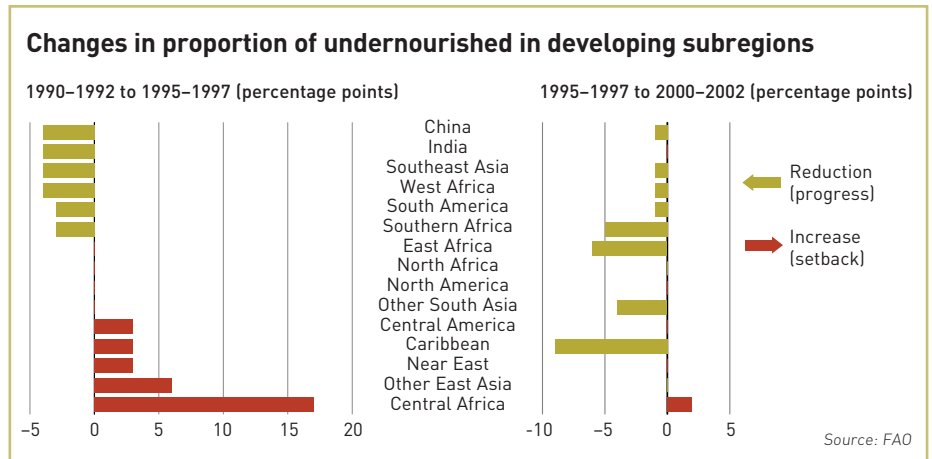
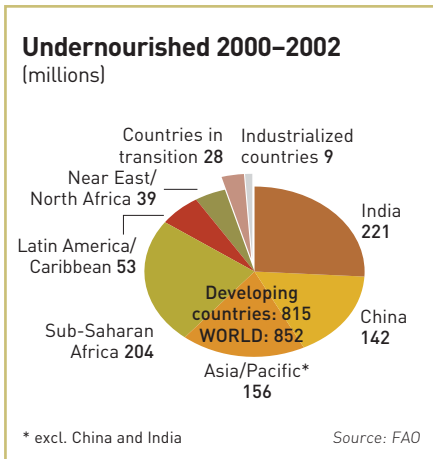
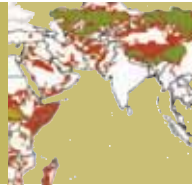
Encouragingly, the most pronounced change in trends took place in sub-Saharan Africa. Between 1995–1997 and 2000–2002, the rate of increase in the number of undernourished slowed from 5 million per year to 1 million per year. And the proportion of undernourished in the region fell from 36 percent, where it had hovered since 1990–1992, to 33 percent.

### Proportions of undernourished in developing countries, 1990–1992 and 2000–2002

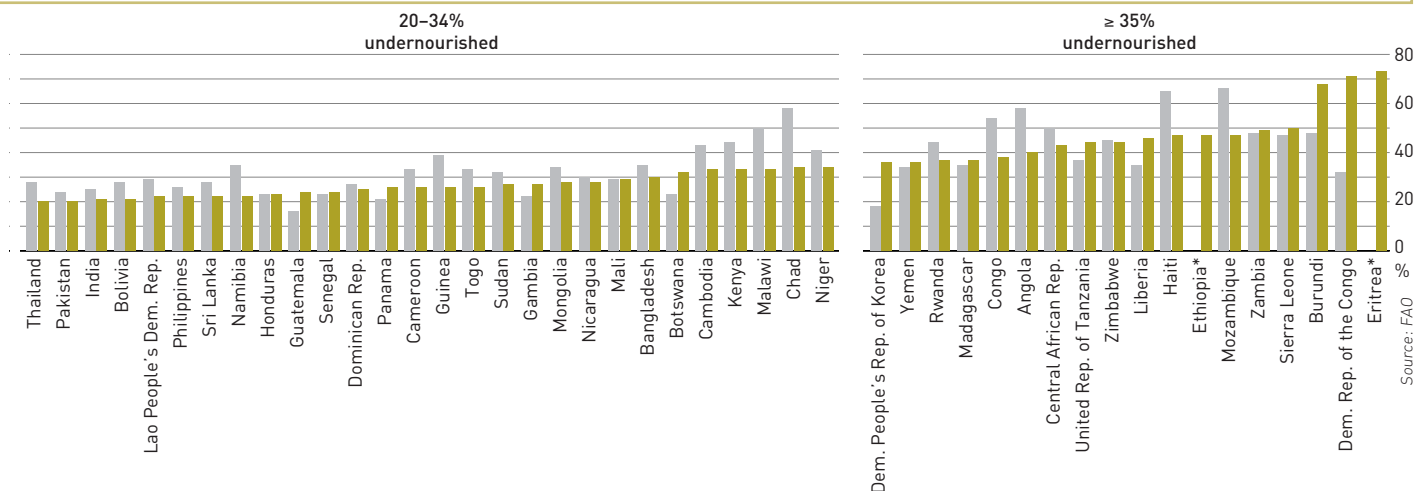


The graph does not show four countries for which there were insufficient data for the years 2000–2002: Afghanistan, Iraq, Papua New Guinea and Somalia





Grey bars: 1990–1992 Coloured bars: 2000–2002 Countries grouped by prevalence of undernourishment in 2000–2002



\* Ethiopia and Eritrea were not separate entities in 1990–1992

# Undernourishment around the world

## The human costs of hunger: millions of lives destroyed by death and disability

**H**unger and malnutrition inflict heavy costs on individuals and households, communities and nations. Undernourishment and deficiencies in essential vitamins and minerals cost more than 5 million children their lives every year, cost households in the developing world more than 220 million years of productive life from family members whose lives are cut short or impaired by disabilities related to malnutrition, and cost developing countries billions of dollars in lost productivity and consumption.

### The vicious cycle of deprivation

Every year, more than 20 million low birthweight (LBW) babies are born in the developing world. In some countries, including India and Bangladesh, more than 30 percent of all children are born underweight.

From the moment of birth, the scales

are tipped against them. LBW babies face increased risk of dying in infancy, of stunted physical and cognitive growth during childhood, of reduced working capacity and earnings as adults and, if female, of giving birth to LBW babies themselves (see diagram).

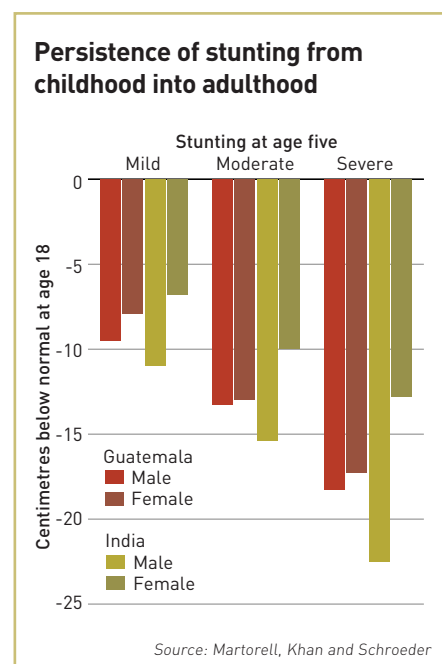
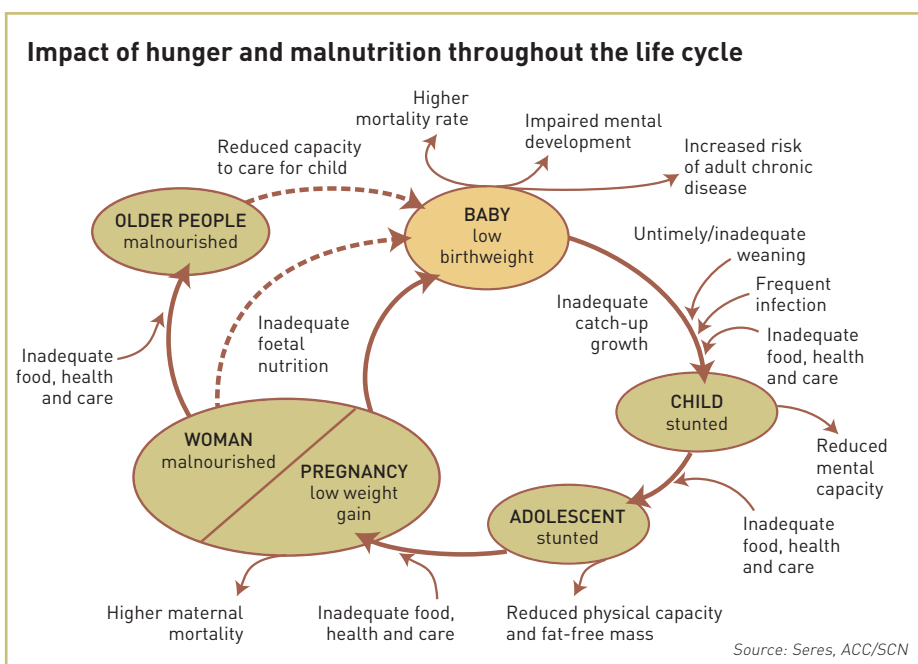
Compared with normal babies, the risk of neonatal death is four times higher for infants who weigh less than 2.5 kilograms at birth and 18 times higher for those who weigh less than 2.0 kilograms. LBW babies also suffer significantly higher rates of malnutrition and stunting later in childhood and as adults. A study in Guatemala found that by the time they reached adolescence LBW boys were 6.3 centimetres shorter and 3.8 kilograms lighter than normal, while girls lost 3.8 centimetres in height and 5.6 kilograms in weight.

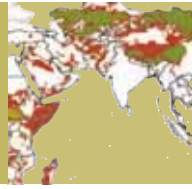
Almost one third of all children in developing countries are stunted, with heights that fall far enough below the

normal range for their age to signal chronic undernutrition. Stunting, like LBW, has been linked to increased illness and death, to reduced cognitive ability and school attendance in childhood and to lower productivity and lifetime earnings in adults.

When stunting occurs during the first five years of life, the damage to physical and cognitive development is usually irreversible (see graph). The costs in blighted health and opportunities extend not only throughout the victim's lifetime but on to the next generation, as malnourished mothers give birth to LBW babies. Maternal stunting is one of the strongest predictors for giving birth to a low birthweight infant, along with underweight and low weight gain during pregnancy.

Undernourishment and stunting frequently overlap with vitamin and mineral deficiencies that afflict nearly 2 billion people worldwide. Even when

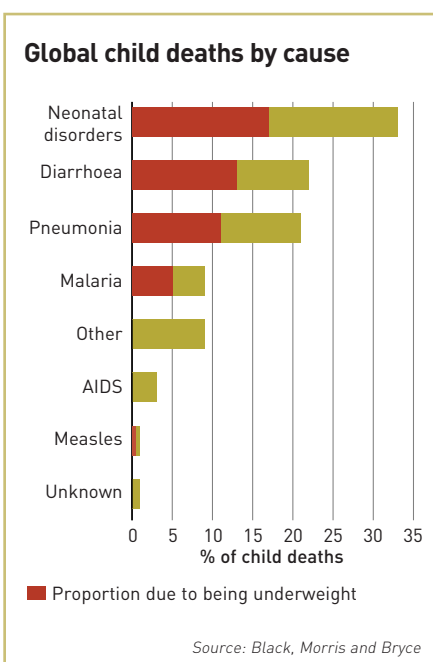




mild, these micronutrient deficiencies significantly increase the risk of death and severe illness. They can also cause irreversible cognitive deficits in children and productivity losses for adults. Iron deficiency, for example, has been linked to increased maternal mortality in child-birth, poor motor and cognitive development in children and reduced productivity in adults. Iron deficiency afflicts an estimated 1.7 billion people worldwide, half of whom suffer from iron deficiency anaemia.

### Undernutrition and child mortality

More than three quarters of all child deaths are caused by neonatal disorders and a handful of treatable infectious diseases, including diarrhoea, pneumonia, malaria and measles. And well over half of these deaths can be traced to the increased vulnerability of children who are undernourished and under-



weight (see graph). Micronutrient deficiencies also increase the risk of death from childhood diseases. A deficiency in vitamin A, for example, increases the risk of dying from diarrhoea, measles and malaria by 20 to 24 percent.

Overall, the World Health Organization (WHO) estimates that more than 3.7 million deaths in 2000 could be attributed to underweight. Deficiencies in three key micronutrients – iron, vitamin A and zinc – each caused an additional 750 000 to 850 000 deaths.

A study of trends in malnutrition and child mortality in 59 developing countries between 1966 and 1996 found that reducing levels of underweight had a significant effect on reducing child mortality, regardless of other socio-economic and policy changes.

Reductions of 60 percent in levels of underweight accounted for 16 percent of the decline in child mortality in Latin America and 27 percent of the decline in Asia, the Near East and North Africa. In sub-Saharan Africa, immunizations, antibiotics and other improvements in health care helped reduce child mortality despite the fact that levels of underweight increased. But if underweight had been reduced at the rate seen in the other regions, child mortality in sub-Saharan Africa would have fallen much more rapidly, by 60 percent instead of 39 percent. Looking ahead, the study estimated that reducing the prevalence of underweight by 5 percentage points could reduce child mortality by about 30 percent.

Another recent study found that interventions that are available today and are feasible for widespread use in developing countries could reduce child mortality by about two thirds. In the 42 countries where more than 90 percent of child deaths occur, a few affordable

and effective nutrition interventions, including breastfeeding, complementary feeding, vitamin A and zinc supplementation, could reduce child mortality by 25 percent and save about 2.4 million children's lives each year.

### The DALY costs of hunger

Malnourished people who survive childhood often suffer from lifelong physical and cognitive disabilities. One measure that has been used to quantify the impact of malnutrition on both poor health and increased mortality is called disability-adjusted life years or DALYs – the sum of years lost as a result both of premature death and of disabilities, adjusted for severity.

The Global Burden of Disease Study, sponsored by WHO and the World Bank, calculates DALYs caused by a wide range of diseases and conditions and estimates the percentage that can be attributed to various risk factors, including childhood and maternal malnutrition. The latest *Burden of Disease* report ranks being underweight as the single most significant risk factor for DALYs worldwide (see graph, next page) and for both death and DALYs in "high-mortality developing countries" – a group that includes almost 70 countries with a combined population of more than 2.3 billion people.

In all, six of the ten leading risk factors for DALYs in these high-mortality countries are related to hunger and malnutrition, including underweight, deficiencies in zinc (ranked fifth), iron (sixth) and vitamin A (seventh), and unsafe water, sanitation and hygiene (third), which contributes to malnutrition by causing infections that prevent digestion and absorption of nutrients (see graph).

Around 50 percent of DALYs caused

# Undernourishment around the world

by diarrhoea, pneumonia and malaria in high-mortality developing countries can be attributed to underweight. When the impact of micronutrient deficiencies is added, the proportion of DALYs from these diseases attributable to malnutrition rises to between 60 and 80 percent (see graph).

As might be expected, underweight and micronutrient deficiencies rank lower as risk factors for death and disability in more advanced developing countries with lower mortality rates. But nutrition-related conditions still

dominate the list of risk factors. Among low-mortality developing countries – a group that includes China, several other countries in Asia and most of South America – underweight and iron deficiency remain among the top ten risk factors. They are joined on the list by overweight and a number of other diet-related risks that contribute to non-communicable chronic diseases such as ischaemic heart disease, high blood pressure and diabetes.

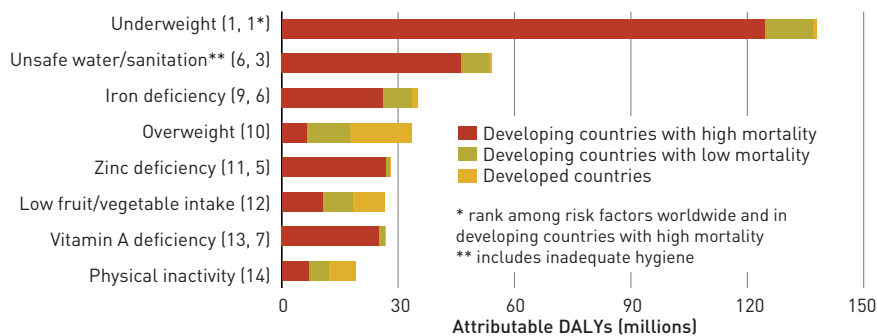
These chronic diseases are generally associated not with hunger but with

overnutrition. A growing body of evidence suggests, however, that low birth-weight and undernutrition early in life increase the risk of obesity and diet-related diseases in adulthood (see also page 23). In China, more than 30 percent of diabetes and around 10 percent of both strokes and coronary heart disease are estimated to be caused by childhood undernutrition (see graph).

Overall, not including their contribution to adult chronic diseases, childhood and maternal undernutrition are estimated to cost more than 220 million DALYs in developing countries. When other nutrition-related risk factors are taken into account, the toll rises to almost 340 million DALYs, fully one half of all DALYs in the developing world.

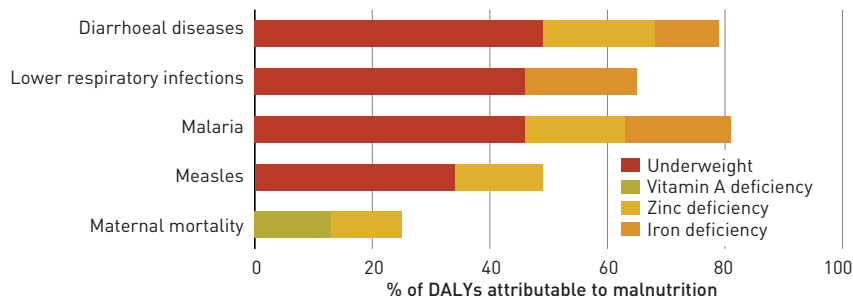
That total represents a loss of productivity equivalent to having a disaster kill or disable the entire population of a country larger than the United States of America. It also highlights the immeasurable suffering that the ongoing disaster of world hunger inflicts on millions of households and the crushing economic burden it imposes on countries throughout the developing world.

**Global DALYs attributed to nutrition-related risk factors, 2000**



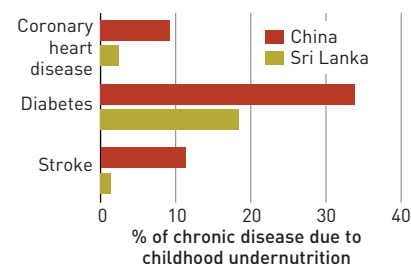
Source: WHO

**Nutritional risk factors for childhood and childbirth in developing countries with high mortality rates, 2000**

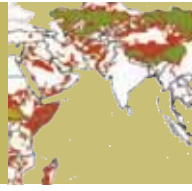


Source: WHO

**Chronic diseases and childhood undernutrition, China and Sri Lanka**



Source: Popkin, Horton and Kim



# The economic costs of hunger: billions in lost productivity, earnings and consumption

Estimating the millions of human lives cut short or scarred by disability leaves no doubt that hunger is morally unacceptable. Calculating the value of lost productivity in dollars suggests that allowing hunger to persist is simply unaffordable, not only to the victims themselves but to the economic development and prosperity of the nations in which they live.

The costs of hunger to society come in several distinct forms. Perhaps the most obvious are the direct costs of dealing with the damage it causes. These include the medical costs of treating both the problem pregnancies and deliveries of anaemic, underweight mothers and the severe and frequent illnesses of children whose lives are threatened by malaria, pneumonia, diarrhoea or measles because their bodies and immune systems have been weakened by hunger.

A very rough estimate, apportioning medical expenditures in developing countries based on the proportion of disability-adjusted life years (DALYs) attributed to child and maternal under-

nutrition, suggests that these direct costs add up to around US\$30 billion per year – over five times the amount committed so far to the Global Fund to Fight AIDS, Tuberculosis and Malaria.

These direct costs are dwarfed by the indirect costs of lost productivity and income caused by premature death, disability, absenteeism and lower educational and occupational opportunities. Provisional estimates suggest that these indirect costs range into the hundreds of billions of dollars.

Both the direct and indirect costs represent the price of complacency, of allowing widespread hunger to persist. Both are unacceptably high, not only in absolute terms but in comparison with estimates of a third type of costs – the costs of interventions that could be taken to prevent and eliminate hunger and malnutrition. Numerous studies suggest that every dollar invested in well-targeted interventions to reduce undernourishment and micronutrient deficiencies can yield from five times to over 20 times as much in benefits.

## Lifetime costs of childhood hunger

Estimates of the indirect costs of hunger are generally based on studies that have measured the impact of specific forms of malnutrition on physical and mental development and have established correlations with reduced productivity and earnings (see chart). These studies have shown, for example, that:

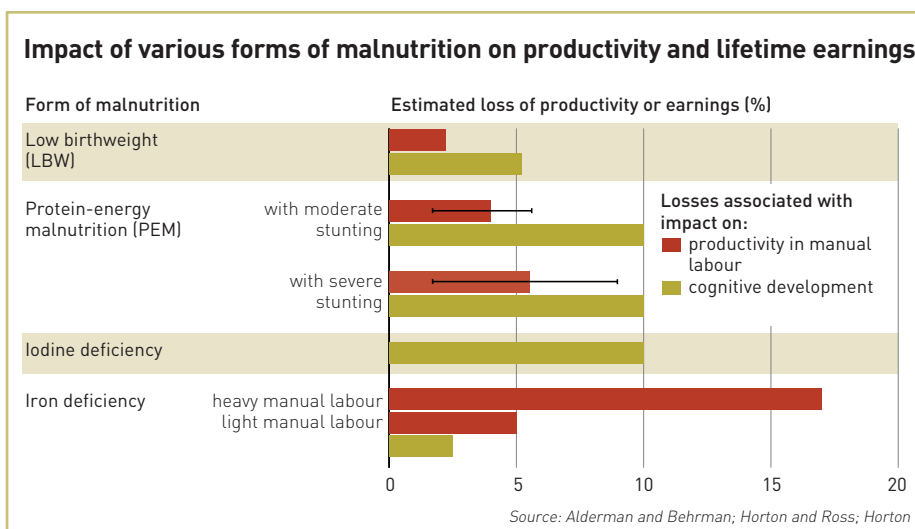
Stunted adults are less productive and earn lower wages in manual labour. Low birthweight (LBW) and protein-energy malnutrition (PEM) cause stunting.

Every year of missed schooling during childhood cuts deeply into lifetime earnings. LBW, stunting and micronutrient deficiencies have all been associated with reduced school attendance. One study that closely monitored children affected by a drought in Zimbabwe found that malnutrition during critical months of development cost children an average of 4.6 centimetres in stature and almost a year in the classroom. Those seemingly small losses in height and education translated into estimated losses of 12 percent in lifetime earnings.

Reduced cognitive ability, measurable in lower scores on IQ tests, leads to reduced productivity and earnings. Iodine deficiency, which affects an estimated 13 percent of the world's population, has been associated with losses of 10 to 15 points on IQ tests and 10 percent in productivity.

Combining these findings with available data on the prevalence of various forms of malnutrition in populations makes it possible to construct provisional estimates of the costs of hunger on national and global scales.

A thorough review of the available evidence, for example, indicates that



# Undernourishment around the world

switching one LBW infant to non-LBW status could yield almost US\$1000 in benefits over a lifetime (see graph). With about 20 million LBW children born every year in developing countries, the costs of doing nothing for one more year add up to around US\$20 billion.

These benefits include estimates of reductions both in the direct costs of neonatal care, illness and chronic diseases and in the indirect costs of productivity lost as a result of shortened working lives and impaired physical and cognitive development. Since the benefits are estimated as the current value of increased productivity over the course of a lifetime, a discount value must be applied to account for inflation and the

probability that any given individual may not survive or work throughout the normal span of working years.

## Estimating the losses of a lifetime

The Academy for Educational Development (AED) has developed a methodology and software for quantifying both the costs of various forms of malnutrition and the benefits of action to reduce or eliminate it. FAO calculations based on data provided by AED show that the discounted present value of allowing current levels of iodine deficiency and PEM to persist for another ten years range as high as 15 percent of one year's GDP (see graph below and online technical note cited on page 40).

A similar exercise estimated the long-term costs incurred for every year that iron deficiency remains at current levels in a different set of ten countries. The present discounted value of costs associated with iron deficiency anaemia ranged from about 2 percent of GDP in Honduras to 8 percent in Bangladesh (see graph, next page). In a big country

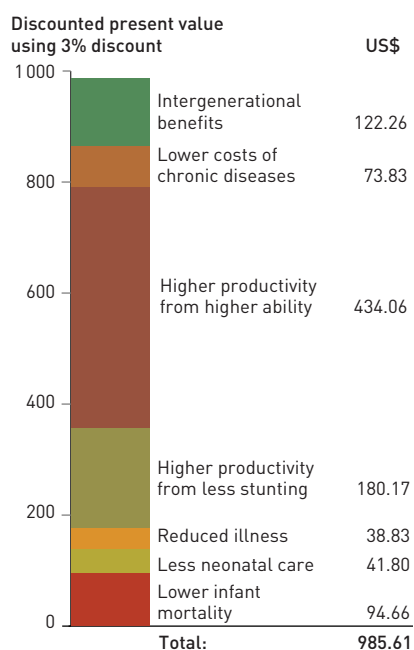
like India, whose GDP in 2002 topped US\$500 billion, the estimated present value of the cost of iron deficiency totals more than US\$30 billion.

These figures represent the discounted present values of costs imposed over a lifetime by a specific form of malnutrition. If the cost of anaemia to Bangladesh is estimated to be equivalent to 8 percent of GDP, for example, this does not mean that anaemia slashes output by 8 percent every year. Rather it means that for every year that the prevalence of anaemia remains unchanged, the present value of costs spread over the lifetimes of the current generation of five-year-olds amounts to 8 percent of one year's GDP.

None of these estimates present anything like a full accounting of the costs of hunger. Among other limitations, the calculations:

- take account only of market activities, ignoring the value of work performed inside the home;
- fail to take account of the fact that wages are likely to grow over time;
- generally do not include the transmis-

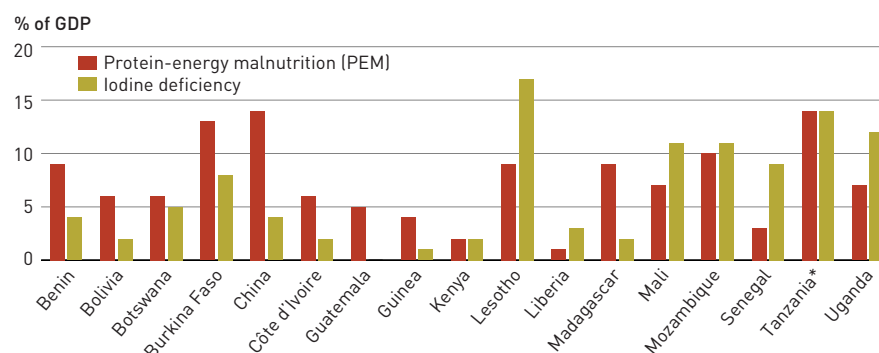
### Estimated benefits of shifting one infant from low birthweight status



Source: Alderman, Behrman and Hoddinott

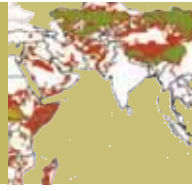
### Costs of protein-energy malnutrition and iodine deficiency

Discounted present value of estimated long-term costs of allowing protein-energy malnutrition and iodine deficiency to persist at current levels for another ten years, as a percentage of one year's GDP, selected countries.



\* United Rep. of

Source: FAO from AED data



sion of malnutrition from one generation to the next, as undernourished mothers give birth to LBW babies; depend on somewhat arbitrary discount rates to calculate the present value of costs spread over a lifetime. The choice of rates is difficult to determine and can make a big difference in the estimated benefits.

Yet even these partial and provisional estimates make it clear that the costs of hunger are extremely high. Take the low end of the estimated range of lost productivity and earnings for each individual form of malnutrition. Adjust for the likelihood that there may be considerable overlap among them. Even with these conservative assumptions, the present discounted value of the combined costs of PEM, LBW and micronutrient deficiencies would add up to at least 5 to 10 percent of GDP in the developing world – roughly US\$500 billion to US\$1 trillion.

Losses of that magnitude clearly represent a significant drag on national development efforts. AED's estimates at the country level demonstrate that

they dwarf the costs of action to reduce or eliminate malnutrition. For the 25 countries for which AED data were made available, the benefits of interventions to reduce PEM outweighed the costs by a factor of 7.7 to 1, on average. For actions to reduce iron and iodine deficiencies, the benefits averaged 9.8 and 22.7 times the costs respectively (see graph).

### The costs of missing the WFS goal

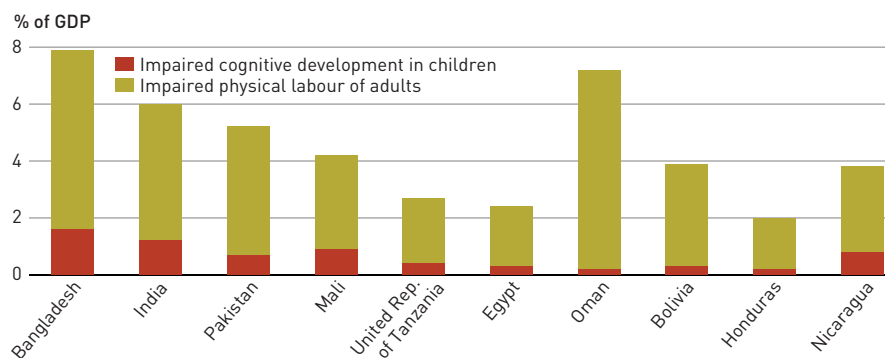
Coming at the costs of hunger from another direction, FAO conducted a macroeconomic study to estimate the benefits of reducing undernourishment by enough to meet the World Food Summit (WFS) target. The study estimated the value of increased production that would be unleashed by reducing the number of undernourished people in developing countries to around 400 million by the year 2015, instead of the approximately 600 million projected by a standard FAO model in the absence of concerted action to reduce hunger.

Based only on the increased life expectancy associated with higher levels of food availability required to meet the WFS goal, the total discounted value over the years up to 2015 was estimated to be approximately US\$3 trillion, which translates into an annuity benefit of US\$120 billion per year.

This calculation, too, almost certainly underestimates the true costs of hunger. But like the AED estimates it clearly demonstrates that the costs of allowing widespread hunger to persist are extremely high and far outweigh the costs of decisive action to eliminate it. The FAO study estimated that an increase of just US\$24 billion per year in public investment would make it possible to attain the WFS goal and reap US\$120 billion in annual benefits.

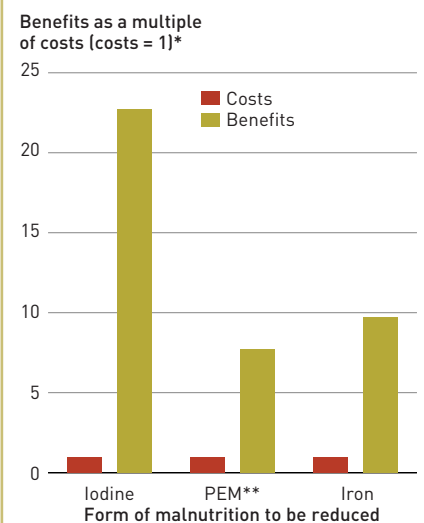
### Costs of iron deficiency anaemia

Discounted present value of estimated long-term costs of allowing iron deficiency anaemia to persist at current levels for another year, as a percentage of one year's GDP, selected countries.



Source: Horton and Ross

### Costs and benefits of interventions to reduce hunger and malnutrition



\* Averages for 25 countries from AED calculations  
 \*\* Protein-energy malnutrition

Source: FAO from AED data

# Undernourishment around the world

## Measuring hunger: improving estimates to target more effective action

FAO's estimates of the number of undernourished people in the world are the most closely followed and widely cited element of *The State of Food Insecurity in the World*. News reports invariably headline the latest figures as a gauge of progress towards the targets set by the World Food Summit and the Millennium Development Goals – to reduce hunger by half by the year 2015.

Given the attention focused on these annual estimates, it is not surprising that the methodology employed to calculate them has been subject to close scrutiny and debate. Experts within and outside FAO have pointed out limitations in both the underlying data and FAO's methods of analysing them.

In 2002, FAO hosted an International Scientific Symposium to review different methods of measuring food deprivation and undernutrition and identify ways to improve FAO's estimates. Since then, FAO has taken action both to improve its own methodology and to validate alternative, complementary approaches.

### Measuring food deprivation

FAO's estimates are essentially a measure of food deprivation based on calculation of three key parameters for each country: the average amount of food available per person, the level of inequality in access to that food and the minimum number of calories required for an average person.

Average food availability comes from "food balance sheets" compiled by FAO every year by tallying how much of each food commodity the country produces, imports and withdraws from stocks, subtracting the amounts that were exported, wasted, fed to livestock or used

for other non-food purposes, and dividing the caloric equivalent of all the food available for human consumption by the total population to come up with an average daily food intake or dietary energy supply (DES).

Data from household surveys are used to derive a "coefficient of variation" to account for the degree of inequality in access to food. Similarly, since a large adult needs almost twice as many calories as a three-year-old child, the minimum requirement per person for each country takes into account its mix of age, gender and body sizes. FAO reports the proportion of the population whose daily food consumption falls below that minimum daily requirement as undernourished.

FAO's method of estimating food deprivation offers several advantages. In particular, it relies on data that are available from most countries in more or less the same form and can be updated regularly. This allows comparisons across countries and over time.

But the FAO methodology also suffers from several obvious limitations. For one thing, the estimates it produces are only as reliable and accurate as the data used to calculate the food balance sheets, levels of inequality and daily energy requirement cut-off points. For many countries, the reliability of the underlying food balance sheet data and measures of inequality is uncertain. A relatively small variation in just one of these parameters can make a big difference in a country's estimated level of hunger (see graph).

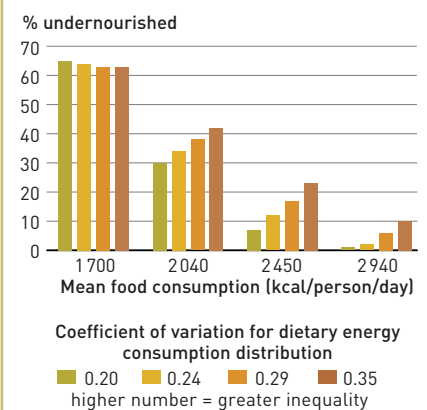
Furthermore, estimates based on national production and trade figures cannot be used to pinpoint where hunger has become increasingly concentrated in specific geographic areas and socio-economic groups.

### Other approaches and dimensions

Many of the proposals to improve the FAO estimates put forward at the Symposium called for increased reliance on data obtained from household budget surveys. Such surveys, which are available from an increasing number of developing countries, provide data that can be used to calculate two of the parameters used in FAO's estimates – daily food intake and the degree of inequality in access to food. They can also be used to measure other dimensions of hunger and food insecurity, including poor diet quality and vulnerability to food deprivation, and to monitor them over time within different areas and population groups.

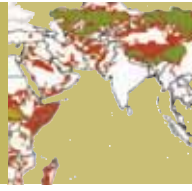
Surveys also suffer from certain weaknesses. Data are not collected regularly in all countries. Even where they are, the surveys are usually updated only once every three to five years and the results are often not comparable across countries or even from one

### Impact of mean food consumption and inequality of access to food on estimates of undernourishment



Source: FAO





survey to the next. This limits their value for monitoring national and global trends annually.

Nutritional status can be impaired not only by lack of food but by frequent illness, poor sanitation and other conditions that prevent people from getting full nutritional benefit from their food. FAO's estimates of undernourishment measure only food deprivation. Other indicators, such as the proportion of children who are stunted (short for their age) or underweight capture all the dimensions that affect nutritional status. Most countries regularly collect such anthropometric data, though only every few years and only for children.

Although the prevalence of stunting or underweight rarely matches the level of undernourishment, the relative magnitude and overall trends generally coincide (see graph). Anthropometric data are extremely valuable for highlighting trends and evaluating interventions among particularly vulnerable groups, such as children and pregnant women.

### Strengthening monitoring efforts

Since the Symposium, FAO has worked with more than 50 countries to improve their ability to apply FAO's methodology to measure food deprivation for specific population groups. The mean of food consumption that is one of the key parameters in FAO's estimates can be derived either from national food balance sheets or from household budget surveys. In calculating the estimates given in this report, FAO relies on food balance sheets as the only way to obtain consistent global and regional coverage on a regular basis. When it comes to targeting geographical areas or population groups within countries, however, the FAO methodology can be applied using figures for both food consumption and inequality of access taken from household survey data.

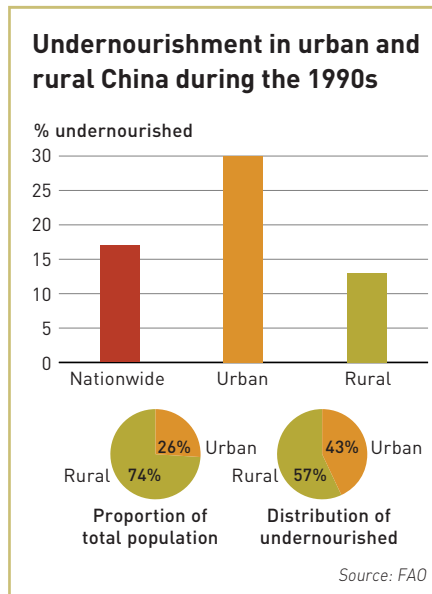
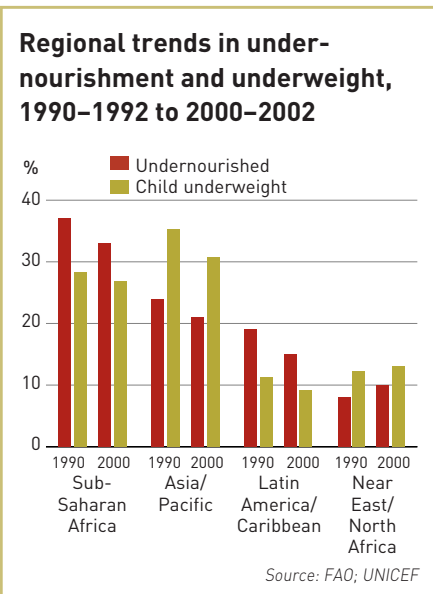
By taking this approach, countries have been able to use data collected from household income and expenditure surveys to estimate levels of hunger

within particular geographical areas, such as urban and rural residential areas or ecological zones, or among socio-economic groups, defined by such things as the level of household income or the main occupation and economic activity (see graph).

FAO estimates have always relied on household budget survey data to derive a coefficient of variation for inequality in access to food. But they have applied a single coefficient across the entire time series for each country, leading to criticism that they fail to account for changes in equality over time. Since the Symposium, FAO has responded to this by conducting a review of trends in inequality in developing countries. Results show that inequality has decreased in 28 of the 38 countries for which data from at least two reliable and comparable surveys were available. Once comparable trend data become more widely available they will be introduced into FAO's estimates of undernourishment.

The emerging expert consensus is that no one indicator can capture all aspects of hunger and food insecurity. Instead, a variety of methods can provide a suite of indicators that measure the different dimensions of food insecurity, both at the global level and within countries.

Considerable progress has been made towards creating such a suite. FAO and the World Bank have worked together, for example, to build data sets that integrate information on food deprivation, income, food consumption and anthropometry. As more such efforts bear fruit, they will improve ability to monitor progress towards achieving the World Food Summit target and Millennium Development Goals and to tailor and focus actions urgently needed to accelerate that progress.



# Undernourishment around the world

## Hunger hotspots

As of July 2004, 35 countries faced food crises requiring emergency assistance. Neither the number of crises nor their locations differed markedly from the situation reported in *The State of Food Insecurity in the World 2003*. Most of the crises were concentrated in Africa and were caused by drought, conflict or a combination of the two (see map). Almost all had persisted over a prolonged period, with an average duration of nine years.

In East Africa alone, the food security of over 13 million people was threatened by a combination of erratic rains and the impact of recent and ongoing conflicts. Escalating civil conflict in the Darfur region of the Sudan uprooted more than a million people from their homes and fields, precipitating a major crisis. Elsewhere in the subregion, recurrent drought caused crop failures and heavy livestock losses in parts of Ethiopia, Eritrea, Somalia, Uganda and Kenya.

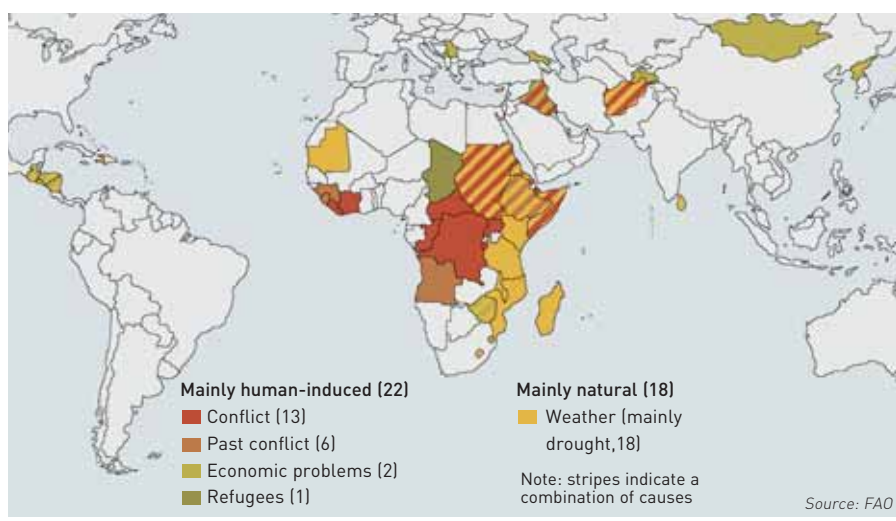
### Trends in locations and causes

The number of food emergencies has been rising over the past two decades, from an average of 15 per year during the 1980s to more than 30 per year since the turn of the millennium. Most of this increase has taken place in Africa, where the average number of food emergencies each year has almost tripled (see graph).

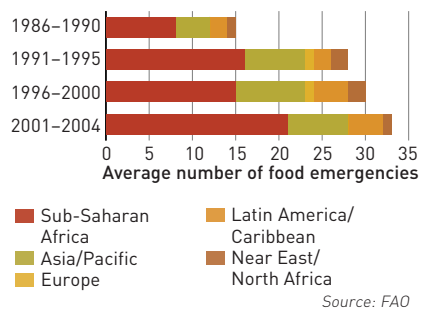
The balance of causes of food emergencies has also shifted over time. Since 1992, the proportion of emergencies that can be attributed mainly to human causes, such as conflict or economic failures, has more than doubled, rising from around 15 percent to more than 35 percent (see graph).

In many cases, natural and human-induced factors reinforce each other. Such complex crises tend to be the most severe and prolonged. Between 1986 and 2004, 18 countries were "in crisis" more than half of the time. War or economic and social disruptions caused or compounded the crises in all 18 (see graph, facing page). These countries also offer evidence that frequent and prolonged crises cause widespread chronic undernourishment. FAO's latest estimates list 13 of the 18 countries among those where more than 35 percent of the population goes hungry.

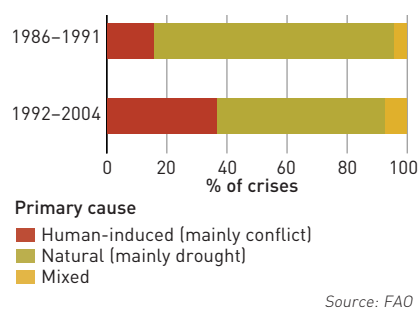
**Food emergencies and their causes, 2003–2004**



**Food emergencies by region**

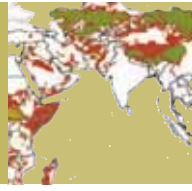


**Primary causes of food crises**



### Monitoring hunger "hotspots"

In order to identify and monitor potential hunger "hotspots", both the specifics of locations and the complexities of causes of food emergencies must be taken into account. Tracking weather conditions and crop prospects in regions regularly buffeted by monsoons, droughts and other recurring weather patterns is relatively straightforward. The task



of identifying potential human-induced and complex emergencies is much more difficult, requiring an ongoing assessment of many different environmental, economic, social and political indicators. Once a food emergency has been identified, monitoring can provide the information needed to tailor effective relief and rehabilitation measures.

Many countries that are plagued by unfavourable weather but enjoy relatively stable economies and governments have implemented crisis prevention and mitigation programmes and established effective channels for relief and rehabilitation efforts. But when a country has also been battered by conflict or economic collapse, programmes and infrastructure for prevention, relief and rehabilitation are usually disrupted or destroyed.

As the continent with the highest number and proportion of countries facing food crises, Africa provides a good illustration, especially if one analyses

differences among the continent's sub-regions.

East Africa, for example, not only experienced several of the most severe crises during 2003–2004 but includes six countries that have been in crisis more than half the time since 1986. The subregion suffers from frequent droughts and occasional torrential rains and floods. But the East African countries that have suffered the most devastating and persistent crises are those that have been stricken by conflict. The humanitarian crisis in Darfur, for example, engulfed an area that had generally enjoyed good rains and crops. The crisis was triggered by conflict that drove an estimated 1.2 million people from their homes and prevented them from tending their fields and herds.

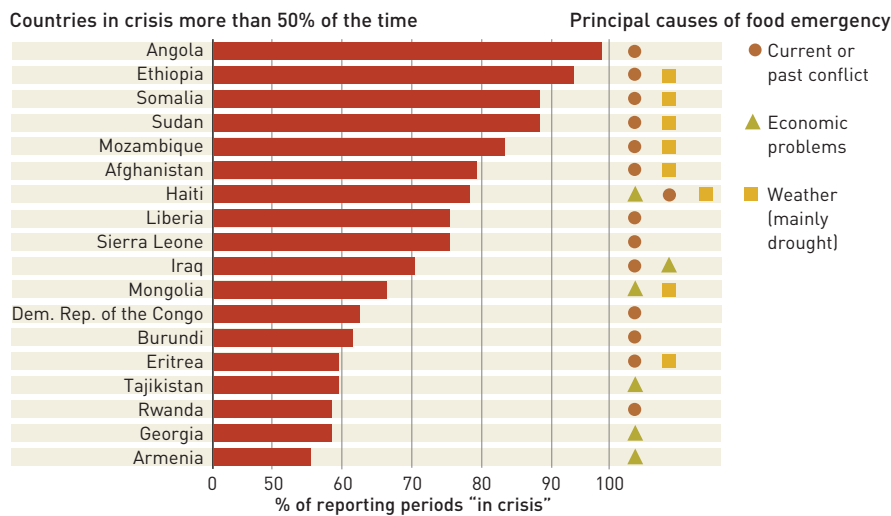
The Sudan and other East African countries are less vulnerable to weather conditions than the neighbouring Sahel, where the single annual growing season receives an average of only 575 milli-

metres of rainfall in good years and is plagued with frequent droughts.

Sahel countries have been relatively free of conflict, however. And after a series of devastating droughts, they have integrated the unpredictability and volatility of weather conditions into their agricultural and trade policies and farming systems. As a result, these countries tend to fall into crisis less often than countries elsewhere on the continent. When crises do occur they tend to be less severe and far shorter. Since the mid-1980s, the longest emergencies in the Sahel lasted an average of one year. In East Africa, the average was more than 11 years (see graph).

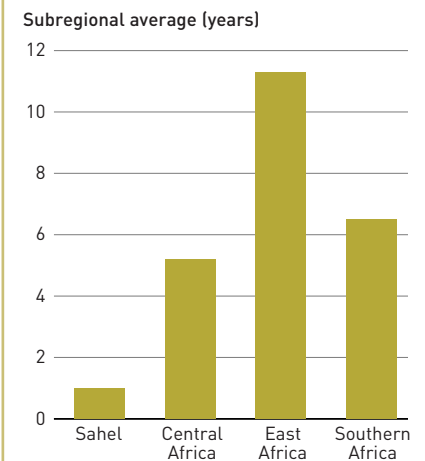
Taking account of such differences in underlying causes of hunger and poverty and in countries' vulnerability to natural disasters and human-induced crises is essential both for monitoring potential hunger hotspots and for responding effectively when crises do erupt.

### Frequency and primary causes of chronic food emergency, 1986–2004



Source: FAO

### Duration of longest crises in African countries, 1986–2004



Source: FAO

# Special feature

## Globalization, urbanization and changing food systems in developing countries

**W**ith more than 800 million people in developing countries still suffering from chronic under-nutrition, hunger and food security will remain the top priority for food policy for many years to come. But profound demographic and economic changes are rapidly transforming food systems and the scope and nature of nutritional challenges.

Although the pace of change varies considerably from region to region, common trends can be identified throughout the developing world. Population is becoming increasingly urban. Average incomes and calorie intake are rising. Commodity and food prices are falling. An increasingly integrated world trade environment and improved transportation facilities are spurring a greater concentration of the food industry and a convergence of dietary patterns and preferences.

### Rapid growth of cities and incomes

According to the latest UN estimates, almost all of the world's population

growth between 2000 and 2030 will be concentrated in urban areas in developing countries. If present trends continue, urban population will equal rural population around 2017. By 2030, almost 60 percent of the people in developing countries will live in cities.

As economic development fuels urban growth it is also driving per capita incomes higher. And the proportion of people living in extreme poverty and hunger is slowly shrinking. The latest projections by the World Bank show income per person in the developing countries growing at an annual rate of 3.4 percent for the period 2006–2015, twice the 1.7 percent registered during the 1990s.

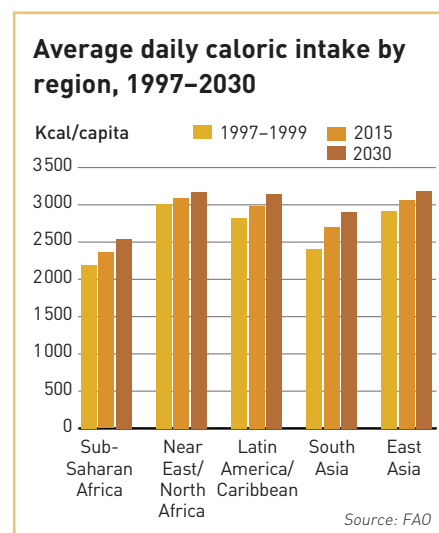
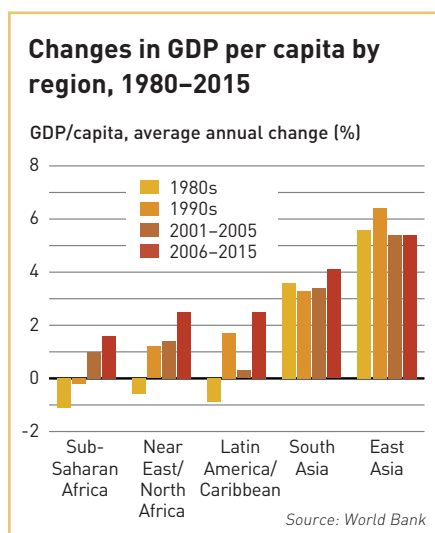
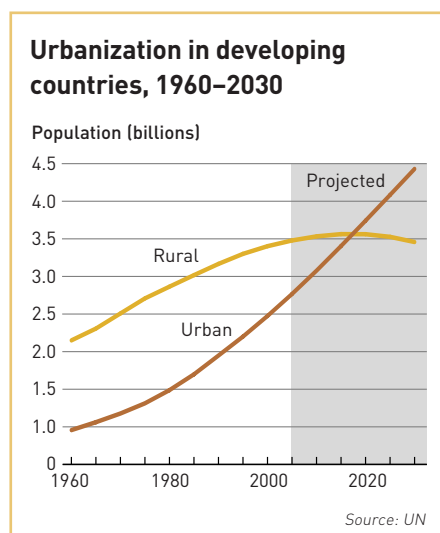
Over the same time period, the average daily caloric intake in developing countries is expected to increase by nearly 200 kilocalories (see graph). The largest gains are projected in sub-Saharan Africa and South Asia, although the pace of progress in these regions is still likely to fall below what would be needed to reach the World Food Summit goal.

### Convergence in diets

The combination of growing cities and rising incomes has contributed to significant changes, not only in the average number of calories that people in developing countries consume, but in the foods that make up their diet.

As total caloric intake has increased, so has the proportion of those calories derived from vegetable oils, meat, sugar and wheat. To a large extent this reflects the preferences of consumers whose rising incomes allow them to purchase more expensive and more highly valued foods.

Other contributing factors include the steep decline in prices and rapid growth in imports of wheat and other commodities produced in temperate zones and exported mainly by the industrialized countries. Net imports of these commodities by developing countries have increased by a factor of 13 over the past 40 years, and are expected to grow by another 345 percent by the year 2030, offering further evidence of changes in food systems and dietary preferences.



Nutrition experts identify two distinct trends fuelled by these changes: dietary convergence and dietary adaptation. Dietary convergence refers to the increasing similarity in diets worldwide. It is characterized by a greater reliance on a narrow base of staple grains (wheat and rice), increased consumption of meat, dairy products, edible oil, salt and sugar, and lower intake of dietary fibre (see graph). Dietary adaptation, on the other hand, reflects the rapid pace and time pressures of urban lifestyles. In households where both parents often commute long distances and work long hours, consumers eat more meals outside the home and purchase more brand-name processed foods.

### Concentration of food processing and retail trade

The trends towards dietary convergence and adaptation have also been fuelled by the increasing concentration of food processing and retail trade. Latin America and Asia, the regions where these trends have been most pronounced, have experienced explosive growth both in investments by transnational food corporations and in the proportion of food sold through supermarkets.

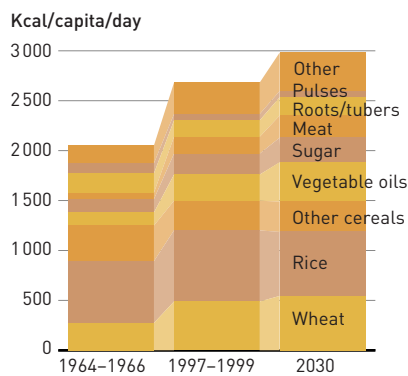
In the decade 1988–1997, foreign direct investment in the food industry increased from US\$743 million to more than US\$2.1 billion in Asia and from US\$222 million to US\$3.3 billion in Latin America, outstripping by far the level of investments in agriculture (see graph).

Over roughly the same period, the share of food sales made through supermarkets more than doubled both in Latin America and in East and Southeast Asia (see graph, next page). In Latin America, supermarkets increased their share of retail food sales by almost as much in one decade as it took them 50 years to do in the United States of America. In the larger and wealthier countries that account for three quarters of the Latin American economy, the share of supermarkets increased from about 15–20 percent in 1990 to 60 percent in 2000. In Asia, the supermarket boom started later but took off even more quickly. In just two years, from

1999 to 2001, the share of supermarkets in sales of packaged and processed food in urban China increased by more than 50 percent.

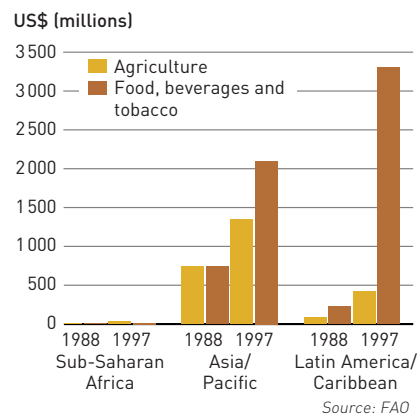
Transnational food companies played a big part in this supermarket boom as well. Between 1980 and 2001, each of the five largest global supermarket chains (all based in Europe or the United States) expanded the number of countries where it operated by at least 270 percent (see graph). The rapid growth and increasing concentration of supermarkets are among the most visible causes and consequences of the transformation and consolidation of global food systems – the entire chain from agricultural production through trade, processing, retail and consumption. These changes have profound implications for the food security and nutritional well-being of people at both ends of the chain, from farmers who must adapt to the requirements and standards of changing markets to urban consumers who depend increasingly on processed foods and meals purchased from street vendors and fast food restaurants.

### Changing diets in developing countries, 1964–1966 to 2030



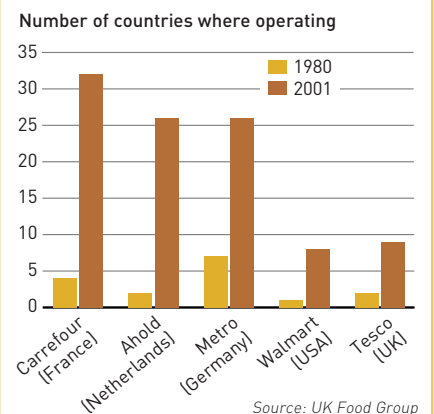
Source: FAO

### Foreign investment in agriculture and the food industry, 1988–1997



Source: FAO

### Global expansion of transnational supermarkets, 1980–2001



Source: UK Food Group

# Special feature

## The impact of changing food systems on small farmers in developing countries

Changes in food markets, fuelled by the rapid growth of cities and incomes, have major implications for the food security of millions of people who are neither urban nor affluent – the small farmers and landless labourers in rural areas who make up the vast majority of the world's chronically hungry population. For these households, the globalization of food industries and the expansion of supermarkets present both an opportunity to reach lucrative new markets and a substantial risk of increased marginalization and even deeper poverty.

Over recent decades, a handful of vertically integrated, transnational corporations have gained increasing control over the global trade, processing and sales of food. The 30 largest supermarket chains now account for about one third of food sales worldwide. In South America and East Asia, the supermarket share of retail food sales has ballooned from less than 20 percent to more than 50 percent over the past decade (see graph). And the biggest chains, most of them owned by multinational giants, now control 65 to 95

percent of supermarket sales in Latin America (see graph).

### Opportunities and risks

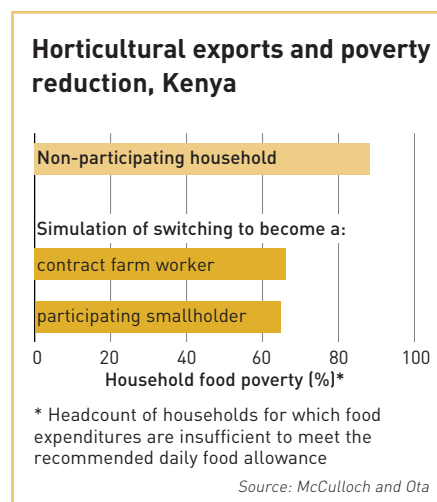
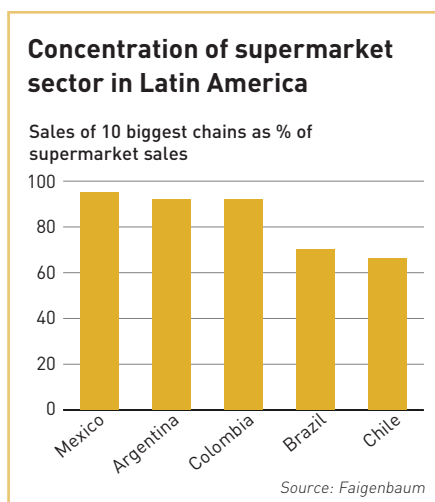
The increasing dominance of supermarkets has yielded greater consumer choice, more convenience, lower prices and higher food quality and safety for urban consumers. It has also led to consolidated supply chains in which buyers for a handful of giant food processors and retailers wield increasing power to set standards, prices and delivery schedules.

The globalization of supermarket procurement has created unprecedented opportunities for some farmers in developing countries. In Kenya, for example, exports of fresh fruits, vegetables and cut flowers for sale in European supermarkets have soared to more than US\$300 million per year. Smallholders who grow for the export market enjoy significantly higher incomes than non-participating households. A recent study found that if non-participating rural households were able to take up growing horticultural crops for export, their

poverty rate would decrease by approximately 25 percent (see graph).

But as the scale of Kenya's exports has grown, the share produced by smallholders has dwindled. Before the horticultural export boom in the 1990s, smallholders produced 70 percent of vegetables and fruits shipped from Kenya. By the end of the 1990s, 40 percent of the produce was grown on farms owned or leased directly by importers in the developed countries and another 42 percent on large commercial farms. Smallholders produced just 18 percent.

The rise of supermarkets in developing countries has created a domestic sector with centralized procurement and high-quality standards that has quickly outgrown the export market in most countries. Latin American supermarkets, for example, now buy 2.5 times more fresh fruit and vegetables from local farmers than the region exports to the rest of the world. Like their counterparts in the industrialized countries, domestic supermarket chains are shifting towards contracts with a limited number of suppliers who can meet their requirements (see graph, next page).



Carrefour, the world's largest super-market chain, has set up its own, huge distribution centre in São Paulo, Brazil, serving a market of more than 50 million consumers. Carrefour buys melons from just three growers in northeast Brazil to supply all its Brazilian stores and to ship to distribution centres in 21 countries.

Small dairy farmers in Brazil have also borne the brunt of consolidation. Between 1997 and 2001, more than 75 000 Brazilian dairy farmers were "delisted" by the 12 largest milk processors (see graph). Most presumably went out of business. Similar consolidation has been taking place at an even more rapid rate in Asia. In less than five years, Thailand's leading supermarket chain pared its list of vegetable suppliers from 250 down to just 10.

Smallholders face many obstacles to joining the ranks of preferred suppliers for supermarkets. Meeting standards for quality and reliability may require substantial investments in irrigation, greenhouses, trucks, cooling sheds and packing technology. Supermarket transaction costs may be significantly higher

for negotiating and managing contracts with small producers.

### Empowering small producers

Smallholders who have succeeded as suppliers for supermarkets have generally overcome these obstacles by forging cooperatives or enrolling in outgrower schemes. Often they have benefited initially from information, training and start-up funds provided by public and private sector development initiatives.

In Zambia, for example, a consortium of government and industry organizations helped forge a partnership that included government ministries, the country's largest supermarket chain, suppliers of farm inputs, and the poor farming community of Luangeni. The project enabled the farmers in Luangeni to begin supplying high-quality vegetables for Shoprite. Participating farmers reported both substantially higher incomes and improved nutrition.

A number of farmer cooperatives have broken into lucrative and dynamic niche markets by obtaining certification for their produce as "organic", "fair

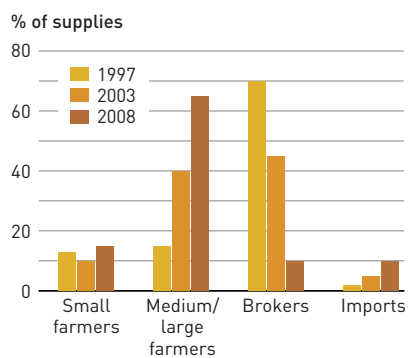
trade" and "environmentally friendly". Such products command a premium price and bring higher returns to farmers. For small producers, organic farming offers the added benefits of reduced dependence on purchased inputs like pesticides and fertilizer and increased use of low-cost labour.

The Del Cabo cooperative in Mexico, for example, has thrived by supplying organic cherry tomatoes to supermarkets in the United States. Since it was founded in the mid-1980s, the cooperative has grown to include 250 family farms, many of them smaller than 2 hectares. Average income in the cooperative has increased from US\$3 000 to more than US\$20 000.

Certified products generally command better market access in the industrialized countries. They may well enjoy similar advantages in local supermarkets as consumers become more demanding about food quality, safety and sustainability. But the certification process itself is costly and may present a major obstacle to small producers, who often lack access to the credit, information and training they would need to enter these niche markets.

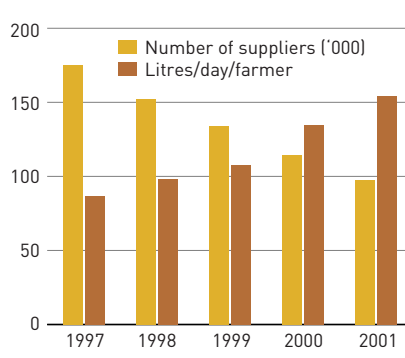
As supermarkets expand their market from the wealthy elite in the cities out to middle and working class neighbourhoods and towns throughout the country, one Central American supermarket chain has estimated that only 17 percent of the population is beyond their reach. That 17 percent is characterized as the poorest, rural segment of the population. Smallholders who fail to gain a foothold in this globalized marketplace risk finding themselves consigned to a permanently marginalized minority, excluded from the food system both as producers and as consumers.

Sources of supplies for a Kenyan supermarket, 1997–2008



Source: Neven and Reardon

Number and size of suppliers to top 12 Brazilian milk processors



Source: www.terraviva.com.br

## The changing profile of hunger and malnutrition

Rising incomes and falling levels of hunger and malnutrition have generally been associated with the rapid growth of cities in the developing world. But although the proportion of people who go hungry usually remains lower in cities, the numbers of poor and hungry city dwellers are climbing rapidly along with the total urban population.

A study by the International Food Policy Research Institute (IFPRI) analysed trends in urban poverty and malnutrition in 14 developing countries between 1985 and 1996. In a majority of these countries the number of underweight children living in urban areas is rising, and at a more rapid rate than in rural areas. In 11 of the 14 countries, the share of urban children among underweight preschoolers nationwide also increased (see graph).

More than 40 percent of all urban residents in developing countries live in slums. That means around 950 million people lack one or more of such basic services as access to sufficient living space, clean water and improved sani-

tation facilities. Many also lack access to adequate food, even though the urban poor in many developing countries spend 60 percent or more of their total expenditures on food. In India 36 percent of urban children are stunted and 38 percent are underweight.

A recent FAO study compared levels of stunting in urban and rural areas in Angola, the Central African Republic and Senegal. Although overall prevalence of stunting was higher in rural areas, the prevalence was essentially the same in urban and rural areas when economic status was considered (see graph).

### Changing lifestyles, changing diets

Urbanization and the globalization of food systems are redrawing not only the map but the profile of hunger and malnutrition in developing countries.

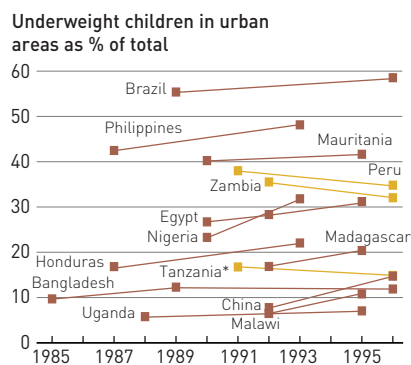
For the developing world as a whole, per capita consumption of vegetable oils and of animal source foods such as meat, dairy, eggs and fish doubled between 1961 and 2000. Where the pace of urban growth and rising incomes has

accelerated, so have dietary changes. In China, the proportion of urban adults consuming high-fat diets, in which more than 30 percent of calories come from fat, shot up from 33 to 61 percent in just six years between 1991 and 1997.

Changes in the composition of diets and increased consumption of processed foods have been spurred by changing lifestyles and the rapid growth of fast food outlets and supermarket chains. In 1987, Kentucky Fried Chicken (KFC) opened the first foreign-owned fast food restaurant in Beijing. Fifteen years later, KFC boasts more than 600 stores in China and total fast food sales top US\$24 billion a year.

The urban poor may not be able to afford fast food restaurants, but they do share in the lifestyle and dietary changes brought on by urbanization. In cities from Bangkok to Bamako, poor people often buy more than half their meals from street food vendors. A study in Accra, Ghana, found that the poorest city residents spend 40 percent of their food budget and 25 percent of their total expenditures on street foods (see graph).

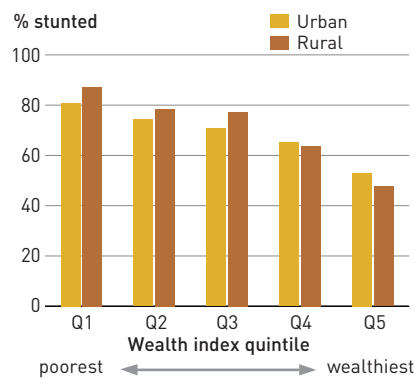
**Trends in urban malnutrition, selected developing countries**



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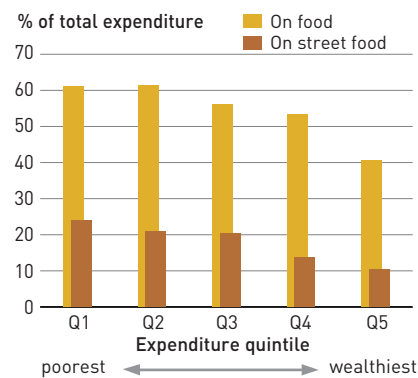
Source: IFPRI

**Stunting by residence and wealth, three African countries**



Source: FAO

**Food and street food as shares of expenditure, Accra, Ghana**



Source: IFPRI



## Changing diets, mounting problems

As people consume more oils, meat and dairy products and less dietary fibre, more fast foods and fewer home-cooked meals, many developing countries now face a double challenge – widespread hunger on the one hand and rapid increases in diabetes, cardiovascular diseases and other diet-related non-communicable diseases on the other.

An estimated 84 million adults in developing countries suffer from diabetes today. By 2025 that number is expected to rise to 228 million, of whom 40 percent will live in the more populous countries of India and China (see graph). Levels of obesity, heart disease and other diet-related ailments are also rising rapidly, not only in cities but in rural areas, influenced by the economic and social changes that have fuelled the “nutrition transition”.

A growing body of evidence suggests that it is the poor who are most at risk not only of hunger and micronutrient deficiencies but of diabetes, obesity and hypertension. A recent study of nutrition trends and underlying causes in Latin America found that obesity rates are higher and rising faster among the poorest segments of the population. The study concluded that obesity and related chronic diseases are likely to increase in countries where maternal and child malnutrition coexists with urbanization and economic growth.

It has long been known that children born to undernourished mothers are likely to be underweight at birth and that both their physical and cognitive development may be impaired. Now, there is growing evidence that low birthweight and stunting in early childhood heighten the risks of growing up to develop diabetes, heart disease and

other ailments commonly associated with too much food and too little physical activity.

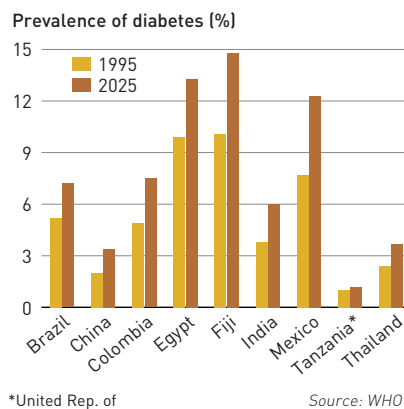
This has become known as the “Barker hypothesis”, named after the author of a study showing that adults who had been underweight at birth suffered higher rates of death from heart disease and strokes. It has been suggested that this may be the result of “foetal programming”, in which the body adapts to nutritional deprivation in ways that help short-term survival but endanger long-term health. Although the hypothesis remains controversial, other studies have demonstrated similar correlations between low birthweight and higher prevalence of insulin resistance and type 2 diabetes (see graph).

Studies carried out in Mysore in south India confirmed that men and women who were underweight at birth had a higher risk of cardiovascular disease and insulin resistance. But it was the short, fat babies of heavier mothers who faced the greatest risk of developing diabetes. These findings suggest that India’s looming epidemic of diabe-

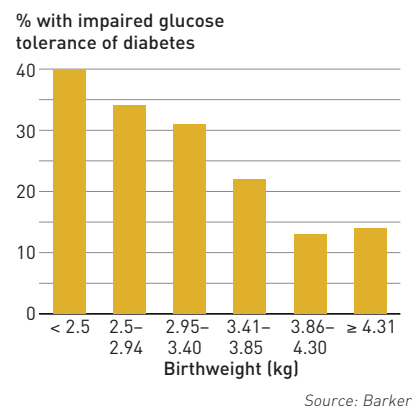
tes may be caused by a combination of widespread hunger and urbanization. According to this theory, many of these mothers were once low birthweight babies themselves and therefore predisposed to obesity and insulin resistance. When they move to cities, modify their diets and become less physically active, they are then more likely to become hyperglycaemic. Hyperglycaemia during pregnancy is known to be associated with giving birth to babies who are short, fat and at increased risk of diabetes as adults, just like the babies observed during the Mysore study.

Meeting the dual challenge of chronic hunger and increasing non-communicable diseases highlights the need for food and nutrition policies that target vulnerable groups among the urban and rural poor. Ensuring that children and women of childbearing age have access to adequate dietary energy and variety is essential to break the transmission of hunger and malnutrition from one generation to the next and from infancy through a lifetime of stunted opportunities.

**Prevalence of diabetes, selected developing countries, 1995–2025**



**Impaired glucose tolerance, diabetes and low birthweight**



# Towards the Summit commitments

## Acting to combat hunger

### India's "White Revolution"

Continuing rapid growth in India's dairy sector has spurred such significant gains in alleviating poverty and improving nutrition that it has been dubbed the "White Revolution". Milk production in India has risen from less than 30 million tonnes in 1980 to around 87 million in 2003 (see graph). India now ranks as the world's biggest milk producer. Despite rapid population growth, availability per person increased from less than 50 kilocalories per day in 1980 to 80 kilocalories per day in 2000.

The increased availability of milk represents an important improvement in nutrition, particularly in a country

where many people are vegetarians and depend on dairy products for most of the animal protein in their diets.

Producing milk has boosted the incomes of an estimated 80 to 100 million families. The vast majority are marginal and small farmers, whose plots are often too small to support their families, and landless labourers who depend on common grazing lands and forests for fodder. More than 70 percent of India's milk is produced by households who own only one or two milk animals.

On average, dairy production provides around one quarter of the income of rural households. But it is far more important than that for the poor and for women, who carry out more than 90 percent of activities related to care and management of dairy animals. In landless households, dairy production accounts for more than half of household income, compared with less than 20 percent for large farmers.

The key to smallholder dairy production and India's White Revolution has been the growth of a nationwide network of dairy cooperatives. The cooperative approach started successfully as a local initiative in Anand, Gujarat, half a century ago. Since 1970 it has been replicated all across India through a three-phase programme known as Operation Flood, backed by the Indian Government, the Anand Milk Union Limited, FAO and the World Bank. By 2002, more than 11.2 million households were participating in 101 000 village dairy cooperatives (see graph).

The importance of dairy products in Indian diets has grown along with milk production and incomes. Between 1970 and 2000, the proportion of total food expenditures spent on milk and dairy products in rural areas increased from 10 percent to 15 percent.

Although Operation Flood has come to an end, India's dairy production is expected to triple by the year 2020. With government policies that facilitate rural credit and provide essential support services to promote milk production by poor rural households, the White Revolution will continue to play a significant role in reducing poverty and hunger in India.

### Right to food gains support

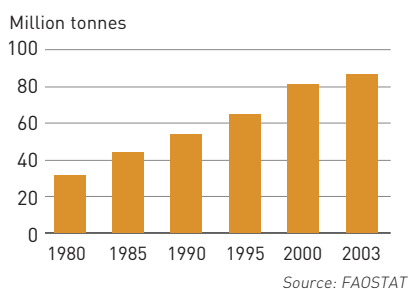
After more than a year of work, an Intergovernmental Working Group was expected to complete a set of voluntary guidelines for the progressive realization of the right to adequate food in time to submit them to the September 2004 session of FAO's Committee on World Food Security. The guidelines will serve as a practical tool in national efforts to implement the right to food.

In the meantime, numerous countries have pressed ahead with measures to transform the right to food from a statement of principle to an enforceable right.

South Africa is the most advanced country in this regard. The right to food is enshrined in the post-apartheid constitution adopted in 1996, which places an obligation on the state to ensure that everyone has access to adequate food at all times. The South African Government has taken further steps towards clarifying and fulfilling this obligation by drafting comprehensive legislation on food issues, in the form of the National Food Security Draft Bill. Both India and Uganda have also recently upgraded the right to food from a directive principle to a legally "justiciable" right.

In India, non-governmental organizations have succeeded in bringing violations of the right to food to court.

#### Milk production in India, 1980-2003



#### Growth of Indian dairy cooperatives, 1970-2002





The People's Union for Civil Liberties, for example, claimed that the public food distribution system is not working in some districts and that no attempts have been made to prevent hunger-related deaths. Although the Supreme Court has not yet reached a final judgement on the case, it has issued "interim orders" directing the government to introduce midday meals for all primary schools, provide 35 kilograms of grain per month to 15 million destitute households and double the funding for India's largest rural employment programme.

Judicial processes can be slow and expensive. In some countries, quasi-judicial mechanisms are being used to claim the right to food. In Brazil, for example, public prosecutors in the Ministério Público (Public Ministry) can initiate civil suits against any person or entity, including government agencies, "for the protection of public and social patrimony, of the environment and of

other diffuse and collective interests". Since the 1988 Constitution broadened the scope for these "public civil suits", public prosecutors have used them increasingly to press for rights such as the right to food that might be derived from the constitutional right to "education, health, work, leisure, security, social welfare, maternity protection and childhood". Indeed a survey of attitudes among public prosecutors found that they believe the Public Ministry can contribute more than any other institution or sector to broadening and consolidating such "diffuse and collective rights" (see graph).

#### **Hunger Task Force promotes action**

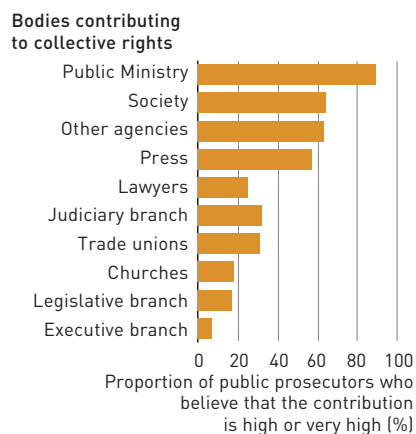
Both the UN's Millennium Development Goals and the Rome Declaration approved by heads of state and government at the World Food Summit pledge to reduce hunger by half by the year 2015. The United Nations Millennium Project has established a special "Hunger Task Force" to promote immediate action towards achieving that goal. The Task Force includes experts on nutrition, agriculture, environmental sustainability, research, capacity building, business and communications, drawn from a wide range of public and private institutions.

The Task Force has carried out research to identify more precisely who and where hungry people are. A set of maps highlights the world's "hunger hotspots" and has been used to help define general typologies of hunger. Based on available information, the Task Force has concluded that about half of the world's hungry people are from smallholder farming communities, another 20 percent are rural landless and about 10 percent live in

communities whose livelihoods depend on herding, fishing or forest resources. The remaining 20 percent live in cities (see graph).

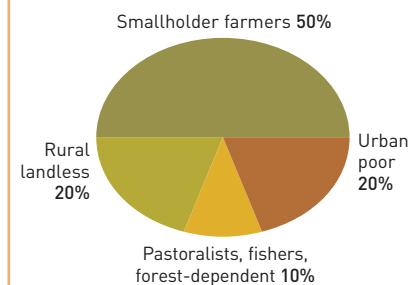
Within these communities, hunger disproportionately affects the most vulnerable groups, including children under the age of five, women of child-bearing age and mothers of babies, the sick and the infirm. The Task Force has called for urgent, adequately funded programmes to improve perinatal health and nutrition services and to get food to the needy. It is also emphasizing the need to renew and increase support for smallholder farming, with special attention given to improving soil fertility, water management, improved seeds and a complete restoration and overhaul of extension services. All of the recommendations from the Hunger Task Force focus on investment in poor people and the infrastructure and services they need to escape from the cycle of abject poverty and hunger. Following early action in a number of countries in Africa, the Task Force intends to put a price tag on the investments that are needed and to call upon the United Nations and its member countries to make the necessary funds available.

#### **Views of members of Public Ministry on contributions to collective rights, Brazil**



Source: Arantes

#### **Who the hungry are**



Source: Hunger Task Force

# Towards the Summit commitments

## Factoring the resilience of food systems and communities into the response to protracted crises

**M**ore than 45 million people were affected by the 21 most serious humanitarian crises in 2003. Most of these crises have persisted for many years, often triggered by armed conflict and compounded by drought, floods and the effects of the AIDS pandemic (see map). Protracted crises disrupt food production and undermine food security as they drive people from their homes, strike at the foundations of their livelihoods and erode the social fabric of families, communities and countries.

Frequently, however, farmers and communities show remarkable resilience in the face of such disasters. As Angola neared the end of almost three decades of civil war, for example, a broad review of agricultural recovery and development options reported that in many areas traditional village institutions remained largely intact, demonstrating a sustained capacity to manage land allocation and small-scale irrigation systems. In a war-torn area of Sri Lanka, a case study found that farmers

in one Tamil village had been forced to abandon traditional paddy cultivation in the lowlands. But they succeeded in earning considerable cash by growing rainfed crops in the nearby hills and engaging in wage labour. Similar evidence of both destruction and resilience has been cited in reports from other countries ravaged by war, natural disasters and HIV/AIDS.

In recent years, recognition has grown that responses to chronic and protracted crises must go beyond the repeated mobilization of emergency support when humanitarian conditions deteriorate. Relief and rehabilitation efforts are far more effective if they build on the foundations of resilience rather than relying exclusively on injections of external inputs, technology and institutions.

### Resilience, relief and rehabilitation

Studies have identified several keys to the resilience of farming systems and communities. And emergency relief

and rehabilitation programmes have achieved notable success by building on these foundations.

**Strengthening diversity:** communities that cultivate a variety of crops, raise livestock and engage in other food- and income-generating activities can often adjust and survive when food production and social institutions are disrupted. In the drought-prone western Sudan, for example, communities traditionally devoted most of their land to crops and allocated only a small portion for grazing livestock. Food and income from their herds helped them survive the increasingly frequent years when drought destroyed their crops. To enhance their capacity to cope with recurring crises, a project was designed to build on this diversity by encouraging a significant shift of resources from cropping to grazing. At the conclusion of the project, the proportion of land allocated for grazing had increased from less than 30 percent to more than 80 percent (see graph, next page). The shift in land use was accompanied by a wide range of other activities, including rehabilitation of rangelands, improved access to credit and improved veterinary services, all of which fostered greater diversity, increased resilience and improved food security.

**Supporting local institutions:** during protracted crises, government and market institutions often collapse, leaving communities to fend for themselves. Their ability to do so often hinges on the strength and adaptability of traditional support networks and communities. Local seed markets have been recognized as responsive institutions that can fuel both resilience during crises and rehabilitation afterwards. Agencies engaged in emergency relief have found that

**Location and duration of protracted food emergencies, 2004**





providing vouchers that can be redeemed at local seed markets is often far more effective than distributing seeds purchased on commercial markets. Seed fairs give farmers access to a much wider selection of crops and varieties suited to local conditions. At seed fairs organized by Catholic Relief Services in five East African countries, for example, farmers were able to exchange their vouchers for an average of seven different crops and around ten varieties of each crop. In addition, since project funds are not spent on seeds, 65 to 80 percent of the money remains in the community. And much of it goes to women. Half the seed sellers at fairs in Kenya, the Sudan and Uganda and more than 80 percent in the United Republic of Tanzania were women.

**Enabling adaptation and building on local knowledge:** traditional institutions and knowledge often provide a foundation for resilience. But crisis conditions may also present unprecedented challenges that call for creative responses. As a way of reinforcing local knowledge and building on farmers' capacity to adapt and reorganize, a number of projects have successfully

employed Farmer Field Schools (FFS). A project in Zimbabwe, for example, used participatory classes conducted by local farmers to teach AIDS widows how to produce organic cotton. Traditionally, cotton had been considered a "man's crop", and many of the women could not afford the expensive inputs required to grow conventional cotton. Growing organic cotton reduced both input costs and labour requirements substantially. Although average yields fell below those of conventional farmers, saving an average of US\$48 per hectare spent on pesticides allowed the women to reap significantly higher profits (see graph).

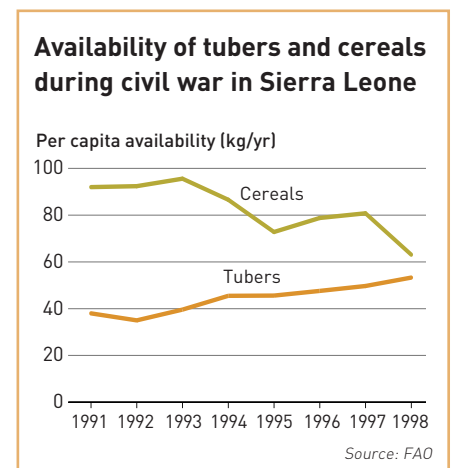
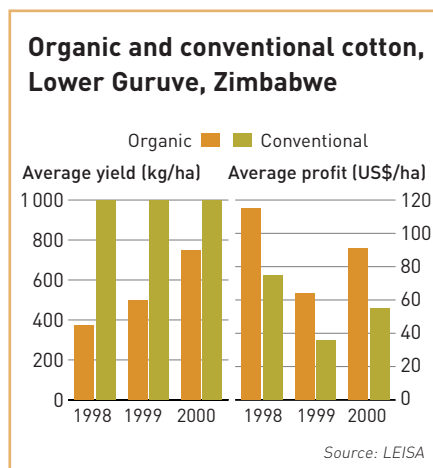
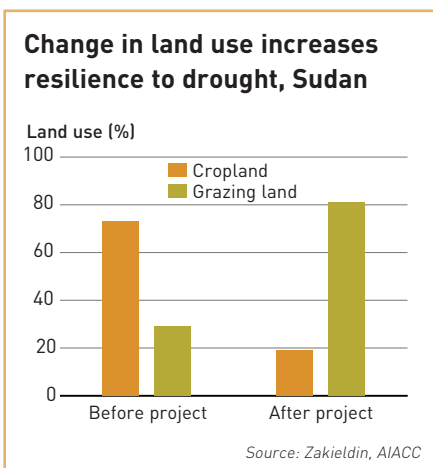
Elements of resilience are serving as important building blocks in efforts to reconstruct Sierra Leone's rural economy, shattered by over a decade of civil war, and to reach the nation's goal of eliminating hunger by the year 2007. When availability of grains fell sharply during the war, for example, farmers fell back on crops that required fewer inputs and did not depend on access to distant markets. Production of cassava and other tubers increased rapidly (see graph). Maintaining this diversity

and promoting cassava production have been emphasized in the reconstruction campaign as keys to current progress and future resilience.

Reconstruction efforts have also tapped local knowledge and enlisted traditional village work groups to help identify, multiply and distribute cherished local seed varieties. FFS are being extended to every rural household in the country as a way to spur innovation and foster participatory, community institutions.

A growing body of experience confirms the importance of strengthening the resilience of societies and food systems before crises erupt and of factoring resilience into responses to protracted crises, based on:

- a dynamic understanding of community opportunities and capacities;
- a participatory approach to defining community priorities;
- strategies and policies that address communities' specific long-term food security concerns; and
- mechanisms to ensure that food security assessments, programme monitoring and impact evaluation take account of the resilience of food



# Towards the Summit commitments

## Education for rural people and food security

The vast majority of the world's 852 million chronically undernourished people live in rural areas in the developing world. So do most of the 860 million illiterate adults (a majority of whom are women) and the 130 million children (mainly girls) who do not go to school. The fact that hunger, illiteracy and lack of schooling affect many of the same areas and people is no coincidence. Nor does it merely reflect the fact that both hunger and

lack of education are facets of extreme poverty. Hunger, malnutrition and food insecurity erode cognitive abilities and reduce school attendance. Conversely, illiteracy and lack of education reduce earning capacity and contribute directly to hunger and poverty.

School attendance and literacy rates are particularly low for women and girls in rural areas (see graph). In 50 developing countries for which data are available, primary school attendance

for rural girls averaged only 58 percent, compared to 63 percent for rural boys and over 75 percent for urban children. As a result, around two thirds of the illiterate people in the developing world are women and the gender gap is significantly larger in rural areas.

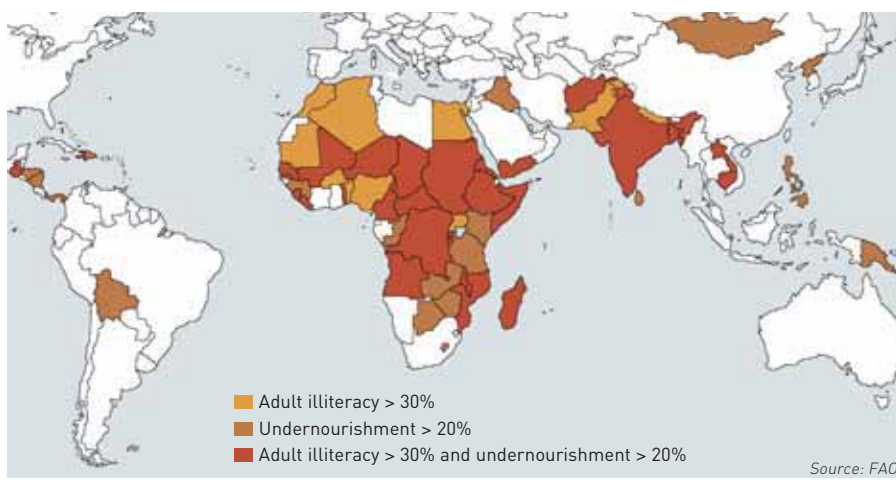
Hunger and malnutrition deter children from going to school and stunt their learning capacity when they do attend. A study in rural Pakistan found that a relatively minor improvement in nutrition would increase the likelihood of starting school by 4 percent for boys and 19 percent for girls. Low birthweight, protein energy malnutrition, iron deficiency anaemia and iodine deficiency have all been linked to cognitive deficiencies that reduce children's ability to learn. Iodine deficiency, for example, affects an estimated 1.6 billion people worldwide and has been associated with an average 13.5 point reduction in IQ for a population.

Lack of education reduces productivity and earning capacity and increases vulnerability to hunger and extreme poverty. Research shows that a farmer with four years of elementary education is, on average, 8.7 percent more productive than a farmer with no education. When complementary inputs such as fertilizers, new seeds or farm machinery are available, the productivity increase rises to 13 percent.

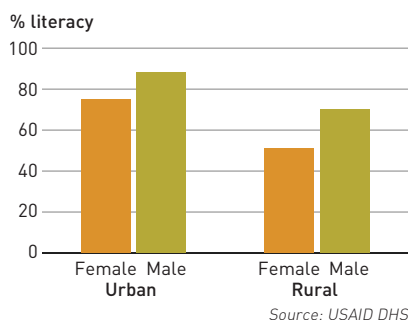
### Improving education to feed both minds and bodies

Improving education can be one of the most effective ways to reduce hunger and malnutrition. Malnutrition rates decline with increased literacy, especially female literacy. Higher rates of literacy among rural women are also associated with increased enrolment of

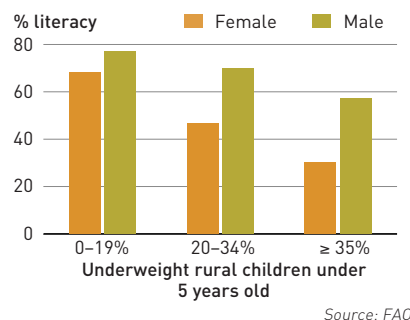
**Correspondence of high rates of illiteracy and undernourishment**



**Rural and urban literacy, 1990–1995 (22 countries)**



**Literacy and prevalence of rural child undernutrition**





girls in primary school and lower rates of malnutrition (see graph).

Education is also the front line against HIV/AIDS. A recent study in Uganda found that people who finished primary school were only half as likely to contract HIV – and those with a secondary education only 15 percent as likely – as those who received little or no schooling.

The Indian state of Kerala is often cited as a prime example of the virtuous circle of benefits from investments in education and nutrition. Since shortly after independence, successive governments in Kerala have made education a top priority. Special attention has been given to girls and women in rural areas.

The investment has paid off. Although Kerala is not one of India's wealthiest states, it ranks first in female literacy and school enrolment by a wide margin. Kerala also boasts the lowest rate of malnutrition among children and an infant mortality rate that is a fifth of that of the country as a whole (see graph).

A number of countries have recognized the importance of education for rural people and adopted policies to

make it more accessible and relevant. Almost half of the rural schools in Colombia, for example, have adopted the Escuela Nueva (New School) model. These schools emphasize participatory learning and employ a curriculum that combines core national content with local modules relevant to the culture and needs of rural people. Communities and parents are actively engaged in the schools. Drop-out rates are far lower and third-grade scores in Spanish and mathematics are significantly higher than in traditional schools.

The Indian state of Madhya Pradesh pledged to build a primary school building within 90 days for any rural community that provided space and hired a qualified teacher. Today, all children of primary school age in the state are enrolled in school.

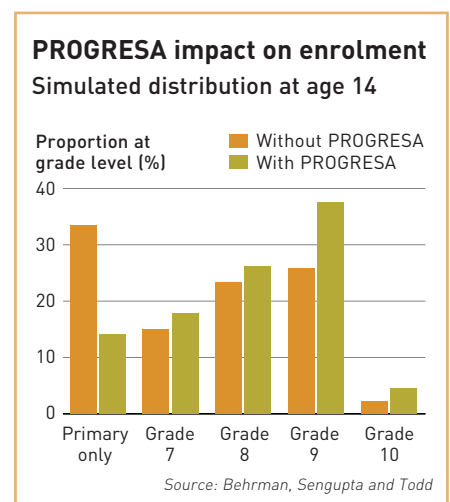
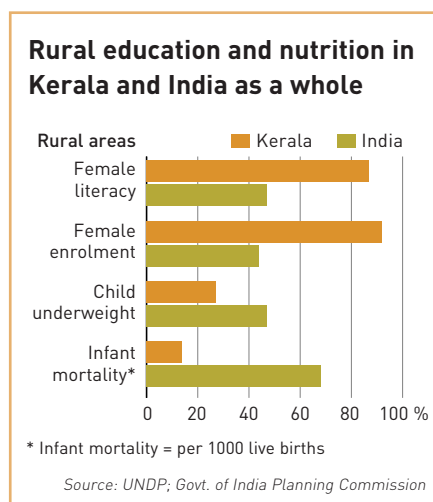
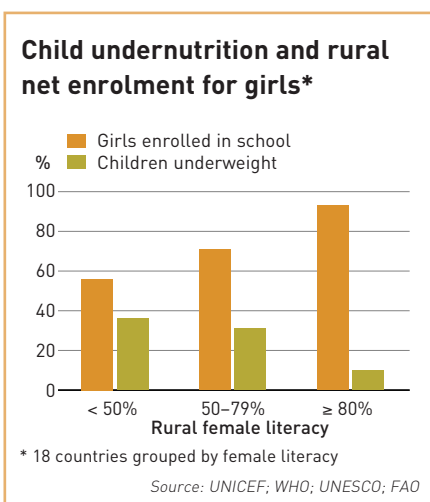
Programmes that take direct aim simultaneously at lack of education and malnutrition have achieved notable gains in several countries.

In Bangladesh's Food for Education programme, families receive food if they send their children to school instead of putting them to work. After eight years,

an evaluation by the International Food Policy Research Institute found gains in both education and nutrition. Primary school attendance had increased, especially for girls. School absences and drop-out rates had declined. And calorie and protein consumption among participating families had risen significantly.

Mexico's Programa de Educación, Salud y Alimentación (PROGRESA) provides cash transfers to more than 2.6 million poor, rural families as long as they send their children to school. Benefits are higher for older children and for girls, who are more likely to drop out prior to secondary school. The programme also provides nutritional supplements for infants and small children in participating families.

After its first three years in operation, enrolment for the critical transition year from primary to secondary school increased by 20 percent for girls and 10 percent for boys. Simulation of the impact over a longer period shows that, on average, children would complete 0.6 more grades in school and 19 percent more of them would attend some secondary grades (see graph).



# Towards the Summit commitments

## Rice and food security

Rice is central to food security in the world. It is the main source of calorie intake for about half of the world's population and the predominant staple food for 34 countries in Asia, Latin America and Africa (see map). In several Asian countries, people depend on rice for more than two thirds of the calories and 60 percent of the protein in their diets.

Growing and processing rice is also the main source of employment and income for an estimated 2 billion people. About 90 percent of the world's rice is produced and consumed by small-scale farmers in developing nations. In many of the poorest countries in Asia, 60 percent of the cropland is devoted to growing rice and the poorest segments of the population spend between 20 and 40 percent of their income on rice.

### Higher yields, lower prices

Over the past 40 years, advances in technology and policy changes have fuelled rapid gains in rice production

and a steep decline in prices. High-yielding varieties introduced during the Green Revolution gave a strong boost to rice production. Between 1961 and 1990, global production more than doubled, from 216 million to 518 million tonnes. Yields increased from less than 1 900 kilograms per hectare to more than 3 500. Real prices fell by more than 50 percent (see graph).

The increased availability and affordability of rice contributed to a rapid decline in the number of people suffering from hunger in countries where rice is the main staple food. In Asia, annual per capita rice consumption increased by more than 20 kilograms and the proportion of undernourished declined from almost 40 percent to 16 percent.

### Changing consumption patterns

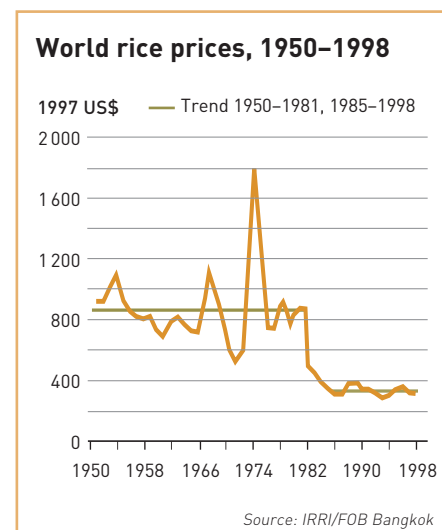
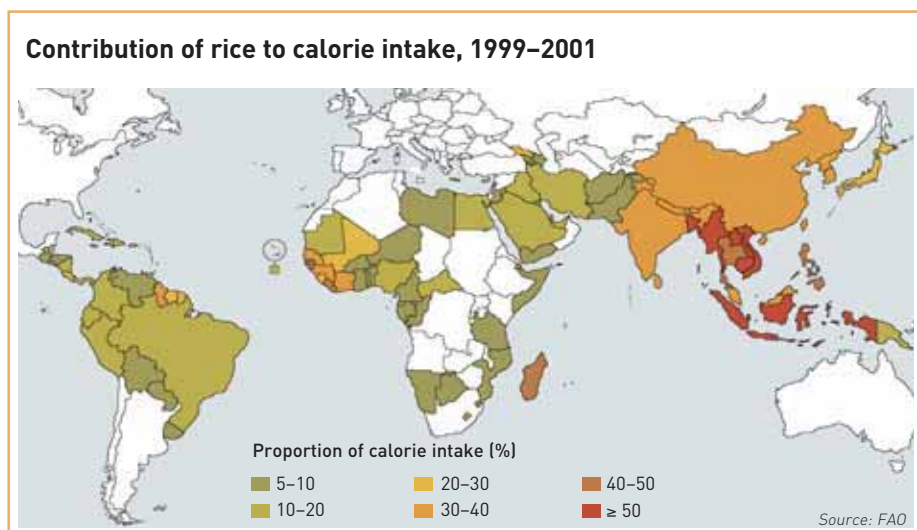
Over the past four decades, rice consumption patterns in different regions have evolved and converged. In Asia, where rice has been the mainstay of diets for centuries, per capita consumption of rice increased rapidly during

the 1960s and 1970s. Since then consumption of other foods has increased and the relative contribution of rice has fallen. In parts of Africa, the Near East and Latin America and the Caribbean, on the other hand, rice consumption has increased significantly, both in volume and as a proportion of total calorie intake (see graph). Rice is now the most rapidly growing source of food in Africa.

### Meeting the challenge

The International Rice Research Institute estimates that by the year 2025 the number of people who depend on rice as their main source of food will rise by more than 40 percent, from 2.7 billion to 3.9 billion. Meeting this demand will require government policies and agricultural practices to support sustainable increases in rice production.

Governments must calibrate farm and trade policies to keep rice both affordable for poor consumers and profitable for small farmers. In Indonesia,







for example, the State Logistics Agency (Bulog) establishes a guaranteed floor price at which it will purchase rice from farmers and distributes more than 2 million tonnes of subsidized rice to poor households through a targeted social safety net programme.

In West Africa, several governments have taken steps to increase production. In Mali, the rice sector has grown rapidly over the past decade. Price liberalization has encouraged farmers and merchants to invest resources and expand production. Proliferation of small mills at the village level has reduced processing costs significantly. And the government has increased public investments in infrastructure. Now Mali, which boasts large areas suitable for irrigated rice production, aims to become “the rice basket of the Sahel” by increasing output from 735 000 tonnes to 4.5 million by the year 2010.

### Closing the yield gap

With limited areas available to expand rice production, efforts to meet increased demand will depend on reducing the “yield gap” between yields demonstrated at research stations and

those achieved in farmers’ fields. FAO estimates that yield gains of 1 percent per year will be required to meet demand without pushing prices higher.

Hybrid rice varieties offer one proven way to boost production. Such varieties typically yield about 15 to 20 percent more than even the best of the high-yielding varieties. Since breeding the first successful hybrid in 1974, China has increased production by almost 50 percent, even while the area planted to rice has shrunk by almost one quarter.

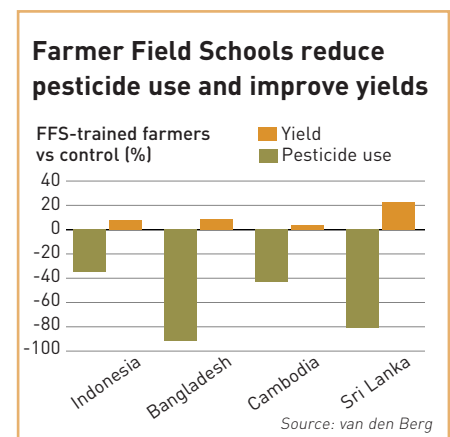
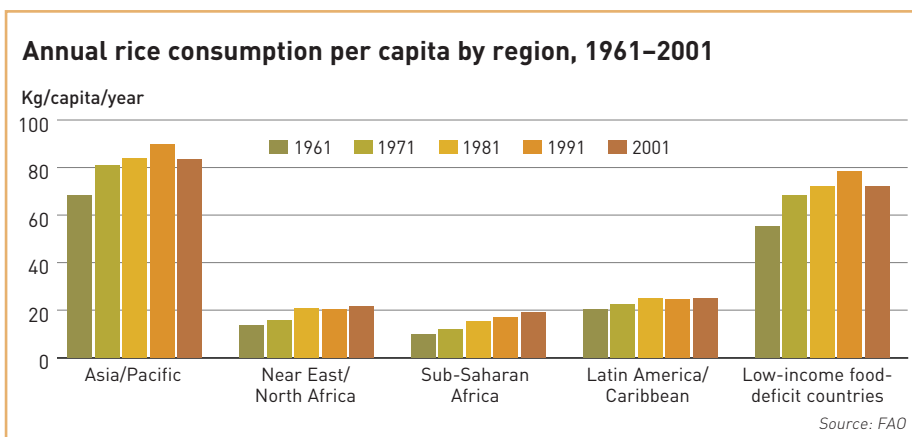
Breakthroughs in rice breeding have also yielded major gains in West Africa. The West Africa Rice Development Association succeeded in crossing hardy African rice species with higher-yielding species imported from Asia, producing what has become known as NERICA (New Rice for Africa). With a minimal increase in fertilizer, these new varieties can increase yields by as much as 150 percent in upland areas and rainfed lowlands. Nigeria has emphasized use of NERICA as a key element in its drive to increase production from an average of 3 million tonnes in 2000–2002 to about 15 million in 2007.

### Empowering small farmers

Technological advances can boost yields and government policies can help create a favourable environment for producing and marketing rice. But long-term success in improving food security depends on the ability of millions of small farmers to benefit from these gains and increase rice production as part of sustainable, diversified agricultural systems.

One approach that has proven successful at engaging and empowering small farmers has been the use of Farmer Field Schools (FFS). Between 1990 and 2000, more than 2 million Asian rice farmers participated in FFS. They learned how to reduce their use of pesticides and how to make better and more sustainable use of fertilizer and water. Their lessons translated into reduced costs, increased yields and higher incomes (see graph).

In Sri Lanka, for example, farmers who participated in FFS reduced pesticide use by more than 80 percent while increasing yields by over 20 percent. With substantial savings on pesticides and higher yields, incomes from rice production more than doubled.



# Towards the Summit commitments

## The way ahead: scaling up action to scale down hunger

The time that is left to reach the World Food Summit (WFS) goal is getting short. The distance to be travelled remains long. It is time to step up the pace, to start acting aggressively on what we know can and must be done.

Although progress has lagged so far, the WFS target is both attainable and affordable. We have ample evidence that rapid progress can be made by applying a twin-track strategy that attacks both the causes and the consequences of extreme poverty and hunger (see diagram). Track one includes interventions to improve food availability and incomes for the poor by enhancing their productive activities. Track two features targeted programmes that give the most needy families direct and immediate access to food.

To meet the WFS goal, we must now translate the twin-track approach into large-scale programmes that can be adopted in countries where hunger is widespread and resources are extremely limited.

This means that within the twin-track framework we must give priority over the next ten years to actions that will have the most immediate impact on the food security of millions of vulnerable people. Where resources are scarce, we must focus on low-cost approaches that empower small-scale farmers to raise production in ways that will enhance food consumption for their families and communities. At the same time, we must rapidly expand targeted safety nets.

### Improve the productivity, nutrition and livelihoods of the poor

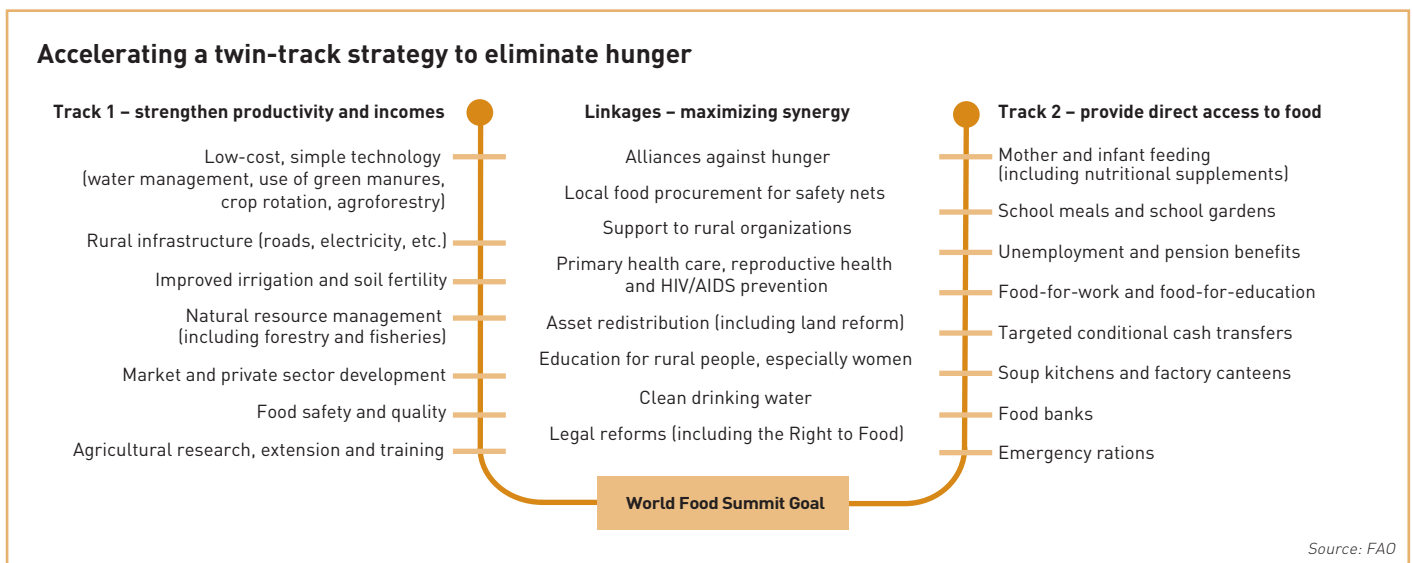
The vast majority of the world's hungry people live in rural areas and depend on agriculture both for their incomes and their food. Even modest gains in output by very large numbers of small farmers, when translated into improved diets, would have a major impact in reducing rural hunger and poverty.

Improving the productivity of small farmers has a ripple effect that spreads

benefits throughout poor rural communities. When small farmers have more money to spend, they tend to spend it locally on labour-intensive goods and services that come from the rural non-farm sector, boosting the incomes of the rural population as a whole, including landless labourers who make up a large proportion of the hungry and poor in many countries.

### Strengthen safety nets and transfer programmes

With the need so urgent and the time so short, the quickest way to reduce hunger may often be to provide direct assistance to the neediest households to ensure that they can put food on their tables. In order to make a large and enduring dent in hunger, we must scale up safety net and cash transfer programmes and make sure that they target the most vulnerable groups, including pregnant and nursing mothers, infants and small children, school children, unemployed urban youth and





the elderly, disabled and sick, including people living with HIV/AIDS.

Safety nets can also be woven with strands that contribute to developmental goals. Food banks and school feeding programmes can often be designed to boost incomes, improve food security and stimulate development in vulnerable rural communities by buying food locally from small-scale farmers. Similarly, programmes that provide food to people who attend education and training programmes can improve both their nutritional status and their employment prospects.

### Empower rural communities

Rural communities themselves are often best able to diagnose the local root causes of chronic hunger and to identify solutions that will benefit the most community members with the least reliance on external resources.

Experience has shown that Farmer Field Schools (FFS) and similar approaches to adult education and community empowerment can help farmers

increase production and improve targeting of social safety nets.

Sierra Leone has made FFS a key element in mobilizing a community-based drive to eradicate hunger within five years. By September 2006, more than 200 000 of the country's 450 000 farmers are expected to have been enrolled in self-financing FFS focusing on food security (see graph).

### Scale up funding and commitment

Scaling up direct actions to reach the WFS goal, while simultaneously increasing long-term investments in sustainable agriculture and rural development, will also require scaling up resources and political commitment. Fortunately several countries have taken the lead in mobilizing political will and pressing for innovative funding mechanisms.

Calling hunger "the worst of all weapons of mass destruction", President Luiz Inácio Lula da Silva of Brazil has proposed taxes on the international arms trade and on some financial transactions carried out in "fiscal paradises".

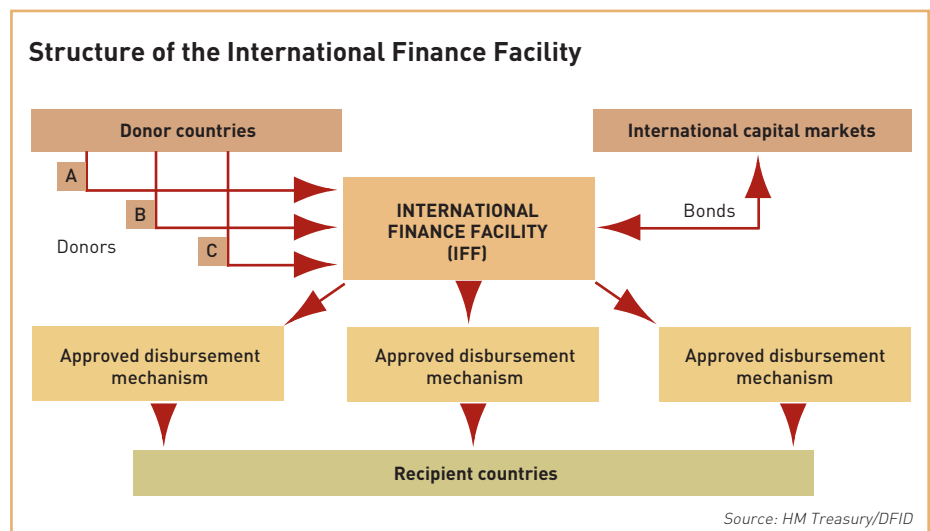
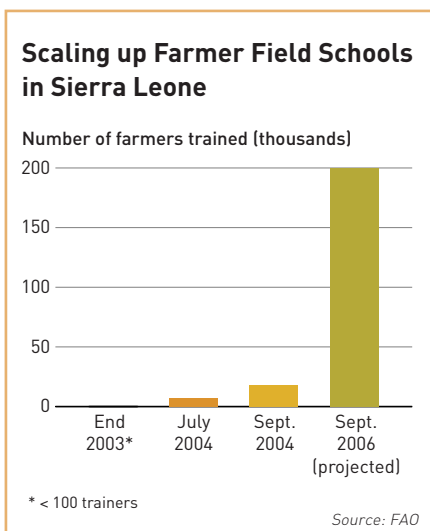
The Presidents of Chile, France and Spain and UN Secretary-General Kofi Annan have joined President Lula to forge the "Quintet against Hunger", which is considering a variety of alternative funding mechanisms.

The United Kingdom has proposed one such mechanism – an International Finance Facility (IFF) designed "to 'frontload' aid to help meet the Millennium Development Goals". The IFF would use bonds backed by long-term commitments from donor countries to provide US\$50 billion a year in development assistance to the world's poorest countries up to 2015 (see diagram).

On 20 September 2004, more than 100 countries participated in a one-day World Leaders Summit on Hunger held at UN Headquarters in New York. At its conclusion, they endorsed a campaign to raise an additional US\$50 billion a year to fight hunger and declared:

"The greatest scandal is not that hunger exists but that it persists even when we have the means to eliminate it. It is time to take action.

"Hunger cannot wait."



# Tables

**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	2000–2002	1990–1992	1995–1997 millions	2000–2002	1990–1992	1995–1997 %	2000–2002
<b>DEVELOPING WORLD</b>	<b>4 058.7</b>	<b>4 431.1</b>	<b>4 796.7</b>	<b>823.8</b>	<b>796.7</b>	<b>814.6</b>	<b>20</b>	<b>18</b>	<b>17</b>
<b>ASIA AND THE PACIFIC*</b>	<b>2 815.2</b>	<b>3 039.5</b>	<b>3 256.1</b>	<b>569.2</b>	<b>509.5</b>	<b>519.0</b>	<b>20</b>	<b>17</b>	<b>16</b>
<b>EAST ASIA</b>	<b>1 241.5</b>	<b>1 307.2</b>	<b>1 364.5</b>	<b>198.8</b>	<b>155.1</b>	<b>151.7</b>	<b>16</b>	<b>12</b>	<b>11</b>
China [3]	1 175.7	1 237.8	1 292.5	193.5	145.6	142.1	16	12	11
Dem. People's Rep. of Korea [5]	20.3	21.6	22.4	3.7	7.6	8.1	18	35	36
Mongolia [4]	2.3	2.4	2.5	0.8	1.1	0.7	34	46	28
Rep. of Korea [1]	43.3	45.4	47.1	0.8	0.8	0.7	—	—	—
<b>SOUTHEAST ASIA</b>	<b>444.2</b>	<b>484.7</b>	<b>522.8</b>	<b>78.4</b>	<b>66.3</b>	<b>65.5</b>	<b>18</b>	<b>14</b>	<b>13</b>
Cambodia [4]	10.1	11.8	13.5	4.3	5.2	4.4	43	44	33
Indonesia [3]	185.2	200.1	214.3	16.4	11.2	12.6	9	6	6
Lao People's Dem. Rep. [4]	4.2	4.8	5.4	1.2	1.3	1.2	29	28	22
Malaysia [1]	18.3	20.9	23.5	0.5	0.5	0.6	3	—	—
Myanmar [3]	41.2	44.8	48.2	4.0	3.2	2.8	10	7	6
Philippines [4]	62.5	69.9	77.1	16.2	16.3	17.2	26	23	22
Thailand [4]	55.1	58.5	61.6	15.2	12.0	12.2	28	20	20
Viet Nam [3]	67.5	74.0	79.2	20.6	16.7	14.7	31	23	19
<b>SOUTH ASIA</b>	<b>1 125.3</b>	<b>1 242.7</b>	<b>1 363.3</b>	<b>291.3</b>	<b>287.3</b>	<b>301.1</b>	<b>26</b>	<b>23</b>	<b>22</b>
Bangladesh [4]	112.1	126.3	140.9	39.2	50.4	42.5	35	40	30
India [4]	863.3	948.6	1 033.3	215.8	203.0	221.1	25	21	21
Nepal [3]	19.1	21.4	24.1	3.9	5.6	4.0	20	26	17
Pakistan [4]	113.7	128.4	146.3	27.7	23.8	29.3	24	19	20
Sri Lanka [4]	17.0	17.9	18.8	4.8	4.6	4.1	28	26	22
<b>LATIN AMERICA AND THE CARIBBEAN</b>	<b>443.4</b>	<b>482.5</b>	<b>521.2</b>	<b>59.5</b>	<b>54.8</b>	<b>52.9</b>	<b>13</b>	<b>11</b>	<b>10</b>
<b>NORTH AMERICA</b>	<b>84.8</b>	<b>92.7</b>	<b>100.5</b>	<b>4.6</b>	<b>5.0</b>	<b>5.2</b>	<b>5</b>	<b>5</b>	<b>5</b>
Mexico [3]	84.8	92.7	100.5	4.6	5.0	5.2	5	5	5
<b>CENTRAL AMERICA</b>	<b>28.8</b>	<b>32.7</b>	<b>36.9</b>	<b>5.0</b>	<b>6.5</b>	<b>7.4</b>	<b>17</b>	<b>20</b>	<b>20</b>
Costa Rica [2]	3.2	3.6	4.0	0.2	0.2	0.2	6	5	4
El Salvador [3]	5.2	5.8	6.3	0.6	0.8	0.7	12	14	11
Guatemala [4]	9.0	10.3	11.7	1.4	2.2	2.8	16	21	24
Honduras [4]	5.0	5.8	6.6	1.1	1.2	1.5	23	21	22
Nicaragua [4]	3.9	4.6	5.2	1.2	1.5	1.4	30	33	27
Panama [4]	2.5	2.7	3.0	0.5	0.6	0.8	21	23	26
<b>THE CARIBBEAN</b>	<b>28.5</b>	<b>30.2</b>	<b>31.7</b>	<b>7.8</b>	<b>8.9</b>	<b>6.7</b>	<b>27</b>	<b>30</b>	<b>21</b>
Cuba [2]	10.7	11.0	11.2	0.8	1.9	0.4	8	18	3
Dominican Rep. [4]	7.2	7.8	8.5	1.9	2.0	2.1	27	26	25
Haiti [5]	7.0	7.6	8.1	4.6	4.5	3.8	65	59	47
Jamaica [3]	2.4	2.5	2.6	0.3	0.3	0.3	14	11	10
Trinidad and Tobago [3]	1.2	1.3	1.3	0.2	0.2	0.2	13	15	12
<b>SOUTH AMERICA</b>	<b>301.3</b>	<b>327.0</b>	<b>352.2</b>	<b>42.0</b>	<b>34.4</b>	<b>33.6</b>	<b>14</b>	<b>11</b>	<b>10</b>
Argentina [1]	33.0	35.2	37.5	0.7	0.4	0.6	—	—	—
Bolivia [4]	6.8	7.6	8.5	1.9	1.9	1.8	28	25	21
Brazil [3]	151.2	162.8	174.0	18.5	16.5	15.6	12	10	9
Chile [2]	13.3	14.4	15.4	1.1	0.7	0.6	8	5	4
Colombia [3]	35.7	39.3	42.8	6.1	5.1	5.7	17	13	13
Ecuador [2]	10.5	11.6	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	9
Paraguay [3]	4.3	5.0	5.6	0.8	0.7	0.8	18	13	14
Peru [3]	22.2	24.3	26.4	9.3	4.6	3.4	42	19	13
Suriname [3]	0.4	0.4	0.4	0.1	0.0	0.0	13	10	11
Uruguay [2]	3.1	3.2	3.4	0.2	0.1	0.1	6	4	4
Venezuela [3]	20.0	22.4	24.8	2.3	3.5	4.3	11	16	17

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	2000-2002	1990-1992	1995-1997 millions	2000-2002	1990-1992	1995-1997 %	2000-2002
<b>NEAR EAST AND NORTH AFRICA*</b>	<b>322.8</b>	<b>362.6</b>	<b>399.4</b>	<b>24.8</b>	<b>34.9</b>	<b>39.2</b>	<b>8</b>	<b>10</b>	<b>10</b>
<b>NEAR EAST*</b>	<b>202.5</b>	<b>230.2</b>	<b>255.0</b>	<b>19.4</b>	<b>29.2</b>	<b>33.1</b>	<b>10</b>	<b>13</b>	<b>13</b>
Iran, Islamic Rep. of [2]	58.0	63.3	67.3	2.1	2.1	2.7	4	3	4
Jordan [3]	3.4	4.4	5.2	0.1	0.3	0.4	4	7	7
Kuwait [3]	2.1	1.8	2.3	0.5	0.1	0.1	23	5	5
Lebanon [2]	2.8	3.2	3.5	0.1	0.1	0.1	—	3	3
Saudi Arabia [2]	17.1	19.5	22.8	0.7	0.8	0.8	4	4	3
Syrian Arab Rep. [2]	13.1	15.0	17.0	0.7	0.6	0.6	5	4	4
Turkey [2]	58.7	64.1	69.3	1.0	1.5	1.8	—	—	3
United Arab Emirates [1]	2.1	2.6	2.9	0.1	0.1	0.1	4	—	—
Yemen [5]	12.5	15.7	18.7	4.2	5.7	6.7	34	36	36
<b>NORTH AFRICA</b>	<b>120.4</b>	<b>132.4</b>	<b>144.4</b>	<b>5.4</b>	<b>5.7</b>	<b>6.1</b>	<b>4</b>	<b>4</b>	<b>4</b>
Algeria [3]	25.6	28.4	30.8	1.3	1.7	1.7	5	6	5
Egypt [2]	57.0	62.8	69.1	2.5	2.2	2.4	4	3	3
Libyan Arab Jamahiriya [1]	4.4	4.8	5.3	0.0	0.0	0.0	—	—	—
Morocco [3]	25.0	27.3	29.6	1.5	1.7	2.0	6	6	7
Tunisia [1]	8.4	9.1	9.6	0.1	0.1	0.1	—	—	—
<b>SUB-SAHARAN AFRICA*</b>	<b>477.3</b>	<b>546.4</b>	<b>620.0</b>	<b>170.4</b>	<b>197.4</b>	<b>203.5</b>	<b>36</b>	<b>36</b>	<b>33</b>
<b>CENTRAL AFRICA</b>	<b>63.4</b>	<b>73.6</b>	<b>82.0</b>	<b>22.7</b>	<b>38.8</b>	<b>45.2</b>	<b>36</b>	<b>53</b>	<b>55</b>
Cameroon [4]	12.0	13.8	15.4	4.0	4.6	3.9	33	33	25
Central African Rep. [5]	3.0	3.4	3.8	1.5	1.7	1.6	50	51	43
Chad [4]	6.0	6.9	8.1	3.5	3.4	2.7	58	49	34
Congo [5]	2.6	3.0	3.5	1.4	1.8	1.3	54	59	37
Dem. Rep. of the Congo [5]	38.8	45.3	49.9	12.2	27.2	35.5	32	60	71
Gabon [3]	1.0	1.1	1.3	0.1	0.1	0.1	10	8	6
<b>EAST AFRICA*</b>	<b>167.8</b>	<b>190.8</b>	<b>217.7</b>	<b>76.4</b>	<b>88.7</b>	<b>86.2</b>	<b>46</b>	<b>46</b>	<b>40</b>
Burundi [5]	5.7	6.1	6.4	2.7	3.8	4.4	48	63	68
Eritrea [5]**	na	3.3	3.9	na	2.2	2.8	na	68	73
Ethiopia [5]**	na	59.0	67.3	na	35.8	31.3	na	61	46
Kenya [4]	24.4	28.1	31.1	10.7	10.8	10.3	44	38	33
Rwanda [5]	6.4	5.5	8.0	2.8	2.8	3.0	44	52	37
Sudan [4]	25.5	28.7	32.2	8.0	6.6	8.5	32	23	27
Uganda [3]	17.9	20.9	24.2	4.2	5.4	4.6	24	26	19
United Rep. of Tanzania [5]	27.0	31.7	35.6	9.9	15.8	15.6	37	50	44
<b>SOUTHERN AFRICA</b>	<b>71.0</b>	<b>80.6</b>	<b>90.1</b>	<b>34.1</b>	<b>36.5</b>	<b>35.7</b>	<b>48</b>	<b>45</b>	<b>40</b>
Angola [5]	9.6	11.2	12.8	5.6	5.4	5.1	58	49	40
Botswana [4]	1.4	1.6	1.7	0.3	0.4	0.6	23	27	32
Lesotho [3]	1.6	1.7	1.8	0.3	0.2	0.2	17	14	12
Madagascar [5]	12.3	14.2	16.4	4.3	5.7	6.0	35	40	37
Malawi [4]	9.6	10.3	11.6	4.8	4.1	3.8	50	40	33
Mauritius [3]	1.1	1.1	1.2	0.1	0.1	0.1	6	6	6
Mozambique [5]	13.9	16.4	18.2	9.2	9.5	8.5	66	58	47
Namibia [4]	1.5	1.7	1.9	0.5	0.6	0.4	35	36	22
Swaziland [3]	0.9	1.0	1.1	0.1	0.2	0.2	14	23	19
Zambia [5]	8.4	9.6	10.6	4.0	4.6	5.2	48	48	49
Zimbabwe [5]	10.7	11.9	12.7	4.9	5.6	5.6	45	47	44
<b>WEST AFRICA</b>	<b>175.1</b>	<b>201.4</b>	<b>230.3</b>	<b>37.2</b>	<b>33.5</b>	<b>36.4</b>	<b>21</b>	<b>17</b>	<b>16</b>
Benin [3]	4.8	5.6	6.4	1.0	0.9	0.9	20	17	15
Burkina Faso [3]	9.2	10.6	12.3	1.9	2.0	2.3	21	19	19
Côte d'Ivoire [3]	12.9	14.7	16.1	2.3	2.3	2.2	18	16	14
Gambia [4]	1.0	1.2	1.4	0.2	0.4	0.4	22	31	27
Ghana [3]	15.7	17.9	20.0	5.8	3.2	2.5	37	18	13

# 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	2000-2002	1990-1992	1995-1997 millions	2000-2002	1990-1992	1995-1997 %	2000-2002
Guinea [4]	6.4	7.5	8.2	2.5	2.3	2.1	39	31	26
Liberia [5]	2.1	2.3	3.1	0.7	1.0	1.4	34	42	46
Mali [4]	9.3	10.6	12.3	2.7	3.4	3.6	29	32	29
Mauritania [3]	2.1	2.4	2.7	0.3	0.3	0.3	15	11	10
Niger [4]	7.9	9.4	11.1	3.2	3.9	3.8	41	42	34
Nigeria [3]	88.7	102.7	117.8	11.8	8.9	11.0	13	9	9
Senegal [4]	7.5	8.5	9.6	1.8	2.2	2.3	23	25	24
Sierra Leone [5]	4.1	4.1	4.6	1.9	1.8	2.3	46	44	50
Togo [4]	3.5	4.0	4.7	1.2	1.0	1.2	33	25	26

COUNTRIES IN TRANSITION Region/subregion/country [undernourishment category]	Total population		Number of people undernourished		Proportion of undernourished in total population	
	1993-1995 millions	2000-2002	1993-1995 millions	2000-2002	1993-1995 %	2000-2002
<b>COUNTRIES IN TRANSITION</b>	<b>413.6</b>	<b>409.8</b>	<b>23.3</b>	<b>28.3</b>	<b>6</b>	<b>7</b>
<b>COMMONWEALTH OF INDEPENDENT STATES</b>	<b>284.5</b>	<b>281.7</b>	<b>19.0</b>	<b>24.1</b>	<b>7</b>	<b>9</b>
Armenia [4]	3.4	3.1	1.8	1.1	52	34
Azerbaijan [3]	7.7	8.2	2.6	1.2	34	15
Belarus [1]	10.3	10.0	0.1	0.2	—	—
Georgia [4]	5.4	5.2	2.1	1.4	39	27
Kazakhstan [3]	16.7	15.5	0.2	2.0	—	13
Kyrgyzstan [3]	4.5	5.0	0.9	0.3	21	6
Rep. of Moldova [3]	4.4	4.3	0.2	0.5	5	11
Russian Fed. [2]	148.4	144.9	6.4	5.2	4	4
Tajikistan [5]	5.7	6.1	1.2	3.7	21	61
Turkmenistan [3]	4.1	4.7	0.5	0.4	13	9
Ukraine [2]	51.7	49.3	1.2	1.5	—	3
Uzbekistan [4]	22.3	25.3	1.7	6.6	8	26
<b>BALTIC STATES</b>	<b>7.6</b>	<b>7.2</b>	<b>0.4</b>	<b>0.2</b>	<b>5</b>	<b>2</b>
Estonia [3]	1.5	1.4	0.1	0.1	9	5
Latvia [2]	2.5	2.4	0.1	0.1	3	4
Lithuania [1]	3.6	3.5	0.2	0.0	4	—
<b>EASTERN EUROPE</b>	<b>121.4</b>	<b>120.9</b>	<b>3.9</b>	<b>4.0</b>	<b>3</b>	<b>3</b>
Albania [3]	3.2	3.1	0.2	0.2	5	6
Bosnia and Herzegovina [3]	3.6	4.1	0.3	0.3	9	8
Bulgaria [3]	8.5	8.0	0.7	0.8	8	11
Croatia [3]	4.5	4.4	0.7	0.3	16	7
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	11
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	10.5	0.5	1.1	5	11
Slovakia [3]	5.3	5.4	0.2	0.3	4	5
Slovenia [1]	2.0	2.0	0.1	0.0	3	—

For notes on Table 1, please see page 39.

**Table 2. FOOD AVAILABILITY, DIET DIVERSIFICATION, CHILD MORTALITY, CHILD NUTRITIONAL STATUS, EDUCATION AND URBANIZATION in developing countries, classified by category of prevalence of undernourishment**

CATEGORY OF PREVALENCE OF UNDERNOURISHMENT in total population 2000–2002 Country	Food availability		Diet diversification		Child mortality		Child nutritional status		Education		Urbanization	
	Dietary energy supply (DES)		Share of non-starchy food in total DES		Under-five mortality rate		Under-five underweight		Literacy rate		Urban share in total population	
	1990–1992	2000–2002	1979–1981	2000–2002	1990	2002	1990	2000	1990	2003	1990	2000
	kcal/day/person		%		per 1000 live births		%		%		%	
<b>LESS THAN 2.5% UNDERNOURISHED</b>												
Argentina	2990	3070	67	65	28	19	2	5	98	99	87	89
Libyan Arab Jamahiriya	3280	3320	54	51	42	19	na	5	91	97	80	85
Malaysia	2820	2890	48	53	21	8	25	20	95	98	50	62
Rep. of Korea	3000	3060	32	51	9	5	na	na	100	100	74	80
Tunisia	3150	3270	42	47	52	26	10	4	84	95	58	63
United Arab Emirates	2930	3200	70	62	14	9	na	na	85	92	83	85
<b>2.5 TO 4% UNDERNOURISHED</b>												
Chile	2610	2850	51	56	19	12	2	1	98	99	83	86
Costa Rica	2710	2860	62	65	17	11	3	na	97	99	54	59
Cuba	2720	3000	58	63	13	9	na	4	99	100	74	75
Ecuador	2510	2740	65	66	57	29	17	14	96	98	55	60
Egypt	3200	3340	36	35	104	39	10	11	61	72	43	42
Iran, Islamic Rep. of	2980	3070	39	38	72	41	na	11	86	95	56	64
Lebanon	3160	3160	58	62	37	32	na	3	92	96	83	87
Saudi Arabia	2770	2840	52	50	44	28	na	na	85	94	78	86
Syrian Arab Rep.	2830	3040	51	54	44	28	12	7	80	89	49	50
Turkey	3490	3360	45	47	78	41	10	8	93	97	59	65
Uruguay	2660	2830	62	59	24	15	4	na	99	99	89	92
<b>5 TO 19% UNDERNOURISHED</b>												
Algeria	2920	2990	41	41	69	49	9	6	77	91	51	57
Benin	2340	2520	30	27	185	156	na	23	40	57	34	42
Brazil	2810	3010	57	66	60	37	7	6	92	96	75	81
Burkina Faso	2350	2410	26	25	210	207	33	34	25	38	14	17
China	2710	2960	20	42	49	38	17	10	95	98	27	36
Colombia	2440	2580	59	59	36	23	10	7	95	97	69	75
Côte d'Ivoire	2470	2620	34	35	157	191	12	21	53	64	40	44
El Salvador	2490	2550	44	48	60	39	15	10	84	89	49	58
Gabon	2450	2610	58	51	92	91	na	12	na	na	68	81
Ghana	2080	2620	35	28	125	97	30	25	82	93	36	44
Guyana	2350	2710	50	50	90	72	18	14	100	100	33	36
Indonesia	2700	2910	25	30	91	43	38	25	95	98	31	42
Jamaica	2500	2670	58	60	20	20	7	4	91	95	51	52
Jordan	2820	2670	48	48	43	33	6	4	97	100	72	79
Kuwait	2370	3050	62	58	16	10	11	2	88	93	95	96
Lesotho	2450	2620	26	19	120	87	16	18	87	91	17	18
Mauritania	2560	2780	50	49	183	183	48	32	46	50	44	58
Mauritius	2890	2960	49	53	25	19	24	15	91	95	41	43
Mexico	3100	3160	52	53	46	29	14	8	95	97	72	75
Morocco	3030	3040	35	36	85	43	10	9	55	71	48	55
Myanmar	2630	2880	20	27	130	108	32	35	88	92	25	28
Nepal	2350	2440	19	23	145	87	na	48	47	64	9	14
Nigeria	2540	2700	45	35	235	201	35	31	74	89	35	44
Paraguay	2400	2560	56	59	37	30	4	na	96	97	49	55
Peru	1960	2550	46	46	80	39	11	7	95	97	69	73
Suriname	2530	2630	52	56	48	40	na	13	na	na	65	74

# Tables

Table 2 cont. FOOD AVAILABILITY, DIET DIVERSIFICATION, CHILD MORTALITY, CHILD NUTRITIONAL STATUS, EDUCATION AND URBANIZATION in developing countries, classified by category of prevalence of undernourishment

CATEGORY OF PREVALENCE OF UNDERNOURISHMENT in total population 2000–2002 Country	Food availability		Diet diversification		Child mortality		Child nutritional status		Education		Urbanization	
	Dietary energy supply (DES)		Share of non-starchy food in total DES		Under-five mortality rate		Under-five underweight		Literacy rate		Urban share in total population	
	1990–1992	2000–2002	1979–1981	2000–2002	1990	2002	1990	2000	1990	2003	1990	2000
	kcal/day/person		%		per 1 000 live births		%		%		%	
Swaziland	2 460	2 360	45	53	110	149	na	10	85	92	23	23
Trinidad and Tobago	2 640	2 730	59	62	24	20	7	6	100	100	69	74
Uganda	2 270	2 360	52	55	160	141	23	23	70	81	11	12
Venezuela	2 460	2 350	63	60	27	22	8	4	96	98	84	87
Viet Nam	2 180	2 530	16	28	53	26	41	34	94	96	20	24
<b>20 TO 34% UNDERNOURISHED</b>												
Bangladesh	2 070	2 190	15	16	144	73	66	48	42	50	20	23
Bolivia	2 110	2 250	52	50	120	71	11	8	93	97	56	62
Botswana	2 260	2 160	45	51	58	110	na	13	83	90	42	50
Cambodia	1 870	2 060	12	22	115	138	na	45	74	81	13	17
Cameroon	2 110	2 260	45	43	139	166	15	23	81	92	40	49
Chad	1 780	2 150	34	42	203	200	na	28	48	71	21	24
Dominican Rep.	2 260	2 320	65	67	65	38	10	5	88	92	55	58
Gambia	2 370	2 270	36	47	154	126	na	17	42	62	25	26
Guatemala	2 350	2 190	40	48	82	49	33	24	73	81	41	45
Guinea	2 110	2 380	40	40	240	165	24	23	na	na	25	33
Honduras	2 310	2 350	46	54	59	42	18	17	80	86	40	44
India	2 370	2 420	32	39	123	90	56	47	64	75	26	28
Kenya	1 920	2 110	36	46	97	122	23	21	90	96	25	36
Lao People's Dem. Rep.	2 110	2 290	14	23	163	100	44	40	70	80	15	19
Malawi	1 880	2 150	29	24	241	182	28	25	63	73	12	15
Mali	2 220	2 200	30	28	250	222	31	33	28	39	24	30
Mongolia	2 070	2 240	52	53	104	71	12	13	99	99	57	57
Namibia	2 060	2 270	42	40	84	67	26	na	87	93	27	31
Nicaragua	2 220	2 280	52	49	68	41	11	10	68	73	53	56
Niger	2 020	2 130	28	26	320	264	43	40	17	25	16	21
Pakistan	2 300	2 430	42	47	130	104	40	38	47	60	31	33
Panama	2 320	2 240	61	61	34	25	na	8	95	97	54	56
Philippines	2 260	2 380	41	44	63	37	34	32	97	99	49	59
Senegal	2 280	2 280	34	39	148	138	22	23	40	54	40	47
Sri Lanka	2 230	2 390	42	45	23	19	37	33	95	97	21	21
Sudan	2 160	2 260	50	47	120	94	34	41	65	80	27	36
Thailand	2 250	2 450	33	50	40	28	25	18	98	99	29	31
Togo	2 150	2 300	22	23	152	141	25	25	64	78	29	33
<b>35% OR MORE UNDERNOURISHED</b>												
Angola	1 780	2 040	40	32	260	260	na	31	na	na	26	33
Burundi	1 900	1 640	56	48	190	190	38	45	52	67	6	9
Central African Rep.	1 870	1 980	34	43	180	180	27	24	52	71	37	41
Congo	1 860	2 090	34	37	110	108	24	na	93	98	48	52
Dem. People's Rep. of Korea	2 450	2 140	34	36	55	55	na	28	na	na	58	60
Dem. Rep. of the Congo	2 170	1 630	28	24	205	205	na	31	69	85	28	30
Eritrea	na	1 520	na	25	147	89	41	40	61	73	16	19
Ethiopia	na	1 840	na	20	204	171	46	47	43	59	13	15
Haiti	1 780	2 080	49	45	150	123	27	17	55	67	29	36
Liberia	2 210	1 990	27	36	235	235	na	27	57	72	42	45



Table 2 cont. FOOD AVAILABILITY, DIET DIVERSIFICATION, CHILD MORTALITY, CHILD NUTRITIONAL STATUS, EDUCATION AND URBANIZATION in developing countries, classified by category of prevalence of undernourishment

CATEGORY OF PREVALENCE OF UNDERNOURISHMENT in total population 2000–2002 Country	Food availability		Diet diversification		Child mortality		Child nutritional status		Education		Urbanization	
	Dietary energy supply (DES)		Share of non-starchy food in total DES		Under-five mortality rate		Under-five underweight		Literacy rate		Urban share in total population	
	1990–1992	2000–2002	1979–1981	2000–2002	1990	2002	1990	2000	1990	2003	1990	2000
	kcal/day/person		%		per 1 000 live births		%		%		%	
Madagascar	2080	2060	27	23	168	135	41	40	72	82	24	26
Mozambique	1740	2030	25	25	240	205	na	26	49	64	21	32
Rwanda	1950	2050	50	44	173	203	29	24	73	86	5	14
Sierra Leone	1990	1930	40	36	302	284	29	27	na	na	30	37
United Rep. of Tanzania	2050	1960	31	29	163	165	29	29	83	92	22	32
Yemen	2040	2040	34	34	142	114	30	46	50	69	21	25
Zambia	1930	1900	23	23	180	182	21	28	81	90	39	35
Zimbabwe	1970	2020	34	44	80	123	12	13	94	98	29	34

#### NOTES TO TABLE 1

Countries revise their official statistics regularly for the past as well as the present. The same holds for population data of the UN. Whenever this happens, FAO revises its estimates of undernourishment accordingly. Therefore users are advised to refer to changes of estimates over time only within the same SOFI publication and refrain from comparing data published in editions for different years.

Figures following country name refer to the prevalence categories (proportion of the population undernourished in 2000–2002):

- [1] < 2.5% undernourished
- [2] 2.5–4% undernourished
- [3] 5–19% undernourished
- [4] 20–34% undernourished
- [5] ≥ 35% undernourished

Table does not list countries for which there were insufficient data.

#### NOTES TO TABLE 2

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

**Under-five mortality rate:** 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.

**Under-five underweight:** proportion of children under the age of five whose weight falls below the mean weight-for-age by two standard deviations or more. Dates of the surveys vary. For each country, data were included for the year closest to 1990 from the decade 1985–1994 and for the most recent year from the decade 1995–2004.

**Literacy rate:** The percentage of persons aged between 15 and 24 who can, with understanding, both read and write a short simple statement on everyday life.

**Urbanization:** Percentage of population at mid-year residing in urban areas.

\* Although not listed separately, provisional estimates for Afghanistan, Iraq, Papua New Guinea and Somalia have been included in the relevant regional aggregates.

\*\* Eritrea and Ethiopia were not separate entities in 1990–1992 but estimates of the number and proportion of undernourished in the former Ethiopia PDR are included in regional and subregional aggregates for that period.

#### KEY

- proportion less than 2.5% undernourished
- na data not available
- 0.0 zero or less than half the unit shown

#### SOURCES

**Total population:** UN Population Prospects, 2002 revision  
**Undernourishment:** FAO estimates

#### KEY

- na data not available

#### SOURCES

**Category of undernourishment, food availability and diet diversification:** FAO  
**Child mortality:** UNICEF  
**Child nutritional status:** WHO  
**Education:** UNESCO  
**Urbanization:** UN Population Division: UN Population Prospects, 2003 revision

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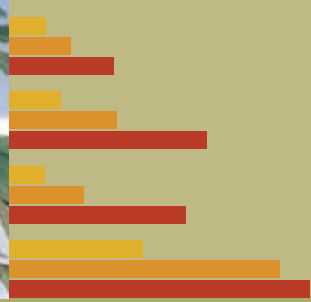
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# The State of Food Insecurity in the World

The sixth edition of *The State of Food Insecurity in the World* reports that the number of chronically hungry people in the developing world has fallen by only 9 million since the World Food Summit baseline period of 1990–1992. The conclusion is inescapable – we must do better.

Looking at the impressive progress that more than 30 countries in all developing regions have made in reducing hunger, the report highlights another clear and compelling lesson – we can do better.

And for the first time, *The State of Food Insecurity in the World 2004* presents provisional estimates of the staggering costs that hunger inflicts on households and nations – the millions of lives ravaged by premature death and disability, the billions of dollars in lost productivity and earnings. On both moral and pragmatic grounds, these estimates lead to one more unavoidable conclusion – we cannot afford not to do better.

The report also includes a special feature examining the impact that the rapid growth of cities and incomes in developing countries and the globalization of the food industry have had on hunger, food security and nutrition.

*The State of Food Insecurity in the World 2004* concludes with an urgent appeal to scale up action, resources and commitment in order to achieve the World Food Summit goal. That goal of cutting the number of hungry people in half by the year 2015 can still be reached if we just focus our efforts over the next ten years on simple, low-cost, targeted actions that will improve food security quickly for very large numbers of people.

Hunger cannot wait.



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