



# postnote

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## FOOD SECURITY IN DEVELOPING COUNTRIES

Food security and insecurity are terms used to describe whether or not people have access to sufficient quality and quantity of food. They are affected by factors such as poverty, health, food production, political stability, infrastructure, access to markets, and natural hazards. Improved food security is important for global reduction of hunger and poverty, and for economic development. One aim of the Millennium Development Goals is to reduce by half the proportion of people suffering from hunger by 2015. Currently, 820 million people are affected by hunger in developing countries and numbers are not falling quickly enough to achieve the goal, particularly in Africa and Southern Asia. This POSTnote examines food security in the developing world and options available for its progress, including increasing access to food and higher agricultural production.

### Background

In 2000, world leaders committed themselves to the Millennium Development Goals (MDGs). The first is to eradicate poverty and hunger, including “to reduce by half the proportion of people who suffer from hunger” between 1990 and 2015. However, by 2003 the proportion of world population that was undernourished had only decreased from 20% to 17% (823 to 820 million people)<sup>1</sup>. It is predicted that many regions will not reach their MDG targets, particularly sub-Saharan Africa (SSA) where a third of the population is food insecure and there is an actual increase (through population growth) in the number of hungry people. Southern Asia is also not expected to meet its goal, with increasing numbers of undernourished people in countries such as Bangladesh and Nepal.

Food security is achieved “when all people at all times have physical and economic access to sufficient, safe and

nutritious food for a healthy and active life”<sup>2</sup>. The components of food security are:

- the **availability** of food, or the amount of food that actually exists (local production and other sources);
- people’s physical, economic and social **access** to food (the capacity to produce/buy/acquire food), and the stability of this access over time;
- the **quality** or nutritional adequacy of that food; and
- people’s **ability to utilise** this food, including the patterns of control over who eats what and the physical ability to absorb nutrients (affected by health status factors such as intestinal parasites) (Box 1).

These are determined by physical, economic, political and other conditions within communities, and are undermined by shocks such as natural disasters and conflict.

### Box 1. Adequate nutrition

**Undernourishment** is when there is insufficient energy intake. It is also an indicator sometimes used to assess food security levels. Based on national food production figures, it is basically a measure of food availability.

**Malnutrition** is the condition caused by deficiencies or imbalances in energy, protein and/or other nutrients. Signs include **wasting** (thinness), **stunting** (shortness), or being **underweight** (low weight for age due to wasting/stunting). Protein-energy deficiency is a leading cause of child death in developing countries. Deficiencies in micro-nutrients (vitamins and minerals) can also affect mental and physical health. For example iron deficiency anaemia remains a major health problem and can negatively impact on health, life-expectancy, work productivity and economies.

**Food insecurity** is the absence of food security and applies to a wide range of phenomena, from famine to periodic hunger to uncertain food supply. **Hunger** can be experienced temporarily by people who are not food

insecure, as well as those who are. In the literature and this note, hunger is often used to refer in general terms to MDG1 and food insecurity. 10% of world hunger is acute, when lack of food is short term, and is often caused when shocks such as drought or war affect vulnerable populations. Chronic hunger is a constant or recurrent lack of food and results in underweight and stunted children, and high infant mortality. 'Hidden hunger' is a lack of essential micronutrients in diets and affects >2 billion people worldwide (Box 1).

### The impacts of food insecurity

Hunger, poverty and disease are interlinked, with each contributing to the occurrence of the other two. Hunger reduces natural defences against most diseases, and is the main risk factor for illness worldwide<sup>3</sup>. People living in poverty often cannot produce or buy enough food to eat and so are more susceptible to disease. Sick people are less able to work or produce food. The UN Standing Committee on Nutrition concluded that nutrition is an essential foundation for poverty alleviation, and also for meeting MDGs related to improved education, gender equality, child mortality, maternal health and disease<sup>4</sup>.

Hunger is a major constraint to a country's immediate and long term economic, social and political development. Food security is also seen as a prerequisite for economic development. Losses in labour productivity due to hunger can cause 6-10% reduction in per capita gross domestic product (GDP)<sup>5</sup>. Undernourishment pre-birth and of young children is associated with poor cognitive development, resulting in lower productivity and lifetime earnings potential<sup>6</sup>. The UN Children's Fund (UNICEF) estimate that one third of the world's people do not reach their physical and intellectual potential due to micronutrient deficiencies caused by food insecurity.

### Causes of food insecurity

Food insecurity is determined by the immediate causes of hunger, underlying determinants of conditions in a community (affecting poverty, food production, and ability to respond to shocks), and the impact of shocks.

#### Immediate causes of hunger

##### *Low rates of agricultural production*

In the last few decades, agricultural output in SSA has barely kept up with population increases, and Africa now imports 25% of its grain requirements. Inherent differences in agricultural systems (Table 1) prevented the large increases in food production ('green revolution') seen in Asia. These were due to wide introduction in the 1960-70s of high-yielding varieties of rice and wheat, expanded fertiliser use, and more irrigation.

##### *Low access to food*

Sufficient food available at the country or local level does not mean that all people are food secure. Low incomes, lack of roads and infrastructure, safe drinking water, primary health care and education all impact on people's food consumption. In some cereal-surplus countries, there are more underweight children than in food deficit ones. For example, India has sufficient food production, and yet very high numbers of underweight children,

probably due to low incomes, imbalances in household food distribution and weak social networks<sup>5</sup>.

**Table 1. Agriculture in Asia and SSA: a comparison**

Feature	Asia	Sub-Saharan Africa
Agro-ecology	Not very variable, so improved varieties could be widely used	Highly variable, so wide range of new varieties and technologies needed
Soils	Healthy in the 1960s	Weathered and inherent low fertility
Water	High levels of irrigation	Mainly rainfed agriculture
Labour	High levels	Low and stagnant levels
Infrastructure and public investment	High investment in human/physical infrastructure in 1940/50s	Poor road networks, and poor investment over the past two decades
Market infrastructure	Functioning markets to repay investment	Lack of functioning markets in many places
Crop yields 1961-2001	Increased from 1.2 to 3.3 tonnes/hectare	Increased from 0.8 to 1.2 tonnes/hectare
Cereal output 1961-2001	Increased from 306 to 962 million tonnes	Increased from 40 to 116 million tonnes

### Underlying determinants of community conditions

#### *Infrastructure and local markets*

Good infrastructure is essential for food security to ensure low food prices and efficient markets that can respond to changes in demand. Infrastructure reduces the costs of transporting produce and inputs (such as fertiliser), and food storage. It allows information transfer between producers and markets, and gives farmers access to new technologies. In SSA, only 13% of roads are paved.

#### *Trade and international markets*

Subsidies, tariffs and trade barriers distort patterns of international trade and depress world market prices. Developing countries often derive a large part of their income from agriculture, but low prices make it hard for these farmers to enter international markets. Farming subsidies in rich countries now run at around US\$1bn per day (more than six times rich countries' entire aid budgets), despite World Trade Organisation agreements aiming to increase international trade through reduction of trade barriers. Recent (Doha) trade talks have had difficulties reaching a consensus on trade and agricultural protection. In 2006, the Africa Union resolved to expand intra-Africa trade and to lower regional trade barriers<sup>7</sup>.

#### *HIV and AIDS*

While a range of diseases (such as malaria) affect food security, HIV has had the biggest impact in recent years. In 2005, 38.6 million people were living with HIV/AIDS<sup>8</sup>, of which 63% were in SSA, but numbers in Asia are now growing. Poverty increases vulnerability to risk of infection (due to more risky behaviours such as transactional sex), as well as the impact of the disease. HIV/AIDS mainly affects economically active adults, and so contributes to worsening and widespread food insecurity by undermining the capacity of households to work and so produce or buy food, increasing the number of orphans and children with little or no care, and reducing social support mechanisms (POSTnote 210).

#### *Investment power and finance gap*

Poor farmers have little or no access to credit, particularly short-term seasonal credit. Money lenders'

reluctance to meet small farmers' credit needs can be a big obstacle to investing and innovating.

#### *Health, water and sanitation*

Poor sanitation, health facilities and water sources contribute significantly to malnutrition by increasing the burden of illness. More than 1 billion people (1 in 6 people globally) lack access to safe drinking water<sup>5</sup>, increasing their exposure to bacteria and parasites.

#### *Environmental Sustainability*

Degradation and declining productivity of agricultural soils are a serious threat to agriculture in many areas<sup>6</sup>. Long-term ecologically sustainable production is a key element of food security, particularly in resource-poor areas. Sustainable use of wildlife may also be important. Wild foods are central to food security in some areas as a food or income supplement or fall-back resource<sup>9</sup>.

### **Impact of shocks to a community**

#### *Climate change and natural disasters*

Natural disasters and climate variability are major sources of vulnerability for the food insecure. They particularly affect those in countries that largely depend on rainfed farming and those highly dependent on agriculture. Poor people are also less able to cope with the impacts of climate shocks and variability. These events can result in massive crop losses, loss of stored food, damage to infrastructure and consequent increases in food prices. Climate change is increasing the frequency and size of such events. See POSTnote 269.

#### *Conflict and persecution*

Conflict can be both a cause and result of food insecurity. It can cause food emergencies, reverse economic growth, destroy schools, roads and hospitals, and force migration. Of the 34 countries furthest from reaching the MDGs, 22 are in or just coming out of conflict<sup>10</sup>. Hunger and large relative differences in nutrition can reduce social cohesion and lead to conflict.

### **Other factors affecting food security**

Many other issues also affect food security. Access and rights to land, education, gender and social exclusion all have big impacts. Poor governance and corruption can affect hunger levels by disempowering vulnerable groups (such as women and minority ethnic groups), and seriously undermine any policies in place.

### **Achieving food security**

In 2005, the UN Millennium Project Task Force on Hunger concluded that hunger can be halved by 2015, but only with concerted action<sup>5</sup>. Recommendations included: increase political action; create an enabling environment (through policy reform); improve nutrition for the chronically hungry and vulnerable; increase agricultural productivity of food-insecure farmers; reduce vulnerability of the acutely hungry with productive safety nets; make markets work for the poor; and conserve natural resources. Agencies are working towards these goals, but all have some way to go.

### **Increasing social protection**

Many agencies use social and food safety nets as a means to broaden food access. These are a way for states to fulfil their obligation to provide food (either directly or the means to buy it) to people that are unable to provide for themselves. Programmes involve regular transfers of cash, food or goods (such as fertiliser or seed) to households. They aim to assure a minimum level of food consumption and well-being, and to protect households against shocks. Used well, they support local markets by increasing demand, reduce vulnerability to shocks, and increase ability to invest and accumulate assets (which can increase people's livelihood options and incomes).

### **Increasing agricultural production**

Higher agricultural production can improve food security by decreasing food prices for consumers, increasing rural incomes and contributing to economic development. Studies show that a 1% rise in per capita agricultural output led to a 1.6% rise in incomes of the poorest 20% of people<sup>11</sup>. However, increased agricultural production is vital, *but not sufficient*, for poverty reduction and economic development<sup>12</sup>. No developing country has successfully reduced poverty through agriculture alone (institutional and industrial development are often needed), but almost none have achieved it without first increasing agricultural productivity.

### **Science and technology for food security**

Science and technology can help improve food security through increasing food production (using new crop types, etc.); improvements in cost and quality of food storage, processing, packaging and marketing; labour-saving technologies; and better communications. Some argue that appropriate technological governance<sup>13</sup> is also necessary, including examining who technologies are developed for and the impacts of their use. Improving access to and understanding of current technology and privately financed research is also important.

#### *Improved plant varieties*

Improved crop varieties developed using traditional plant breeding methods and occasionally biotechnologies can achieve higher yields, increased nutritional content, more tolerance to drought and pests, and/or more efficient use of water and soil nutrients. Such improvements may become more important as depletion of soil nutrients and water resources in existing farmland, expansion into previously unfarmed lands in risk-prone environments and the impacts of climate change mean that the poor are increasingly farming in marginal ecological zones.

#### *Research and Development in Agriculture*

Investment in agricultural research is low and has fallen in most of the poorest countries. In Africa funding for agriculture fell from a high of \$200 million in 1988 to \$125 million in 1993. In 2003, the African Union Assembly agreed on the goal that each country should allocate at least 10% of national budgetary resources to agriculture within five years, and some countries now do this. Other concerns are that research is often not aimed at technologies useful to poor farmers, and that many

developing countries acutely lack institutional capacity for research. DFID supports such research through agencies such as the Consultative Group on International Agricultural Research (CGIAR) and the African Agricultural Technology Foundation. Models show that without CGIAR contributions, poor countries would have produced 7-8% less food, and world food prices would be 18-21% higher, leading to a 5% average decrease in per capita food consumption in developing countries<sup>14</sup>.

## Policy context

### Aid

In 2005 the UK presidencies of the EU and G8 brought Africa and climate change to the front of the political agenda. World leaders reaffirmed commitment to the MDGs, and G8 countries pledged to double aid to Africa and increase Official Development Assistance (ODA) by \$50bn/yr by 2010. The EU pledged to reach the UN goal to give 0.7% of gross national income as ODA, and the UK has committed to reaching this by 2013. Some believe that aid alone will not end poverty, but can act as a catalyst for economic progress in poor countries, given favourable global trade environment.

There are issues concerned with how aid is given. **Tied aid** is when countries are obliged to spend aid money on good/services from a limited group of countries (including the donor), rather than the most suitable or competitive sources. The World Bank estimates that tying aid reduces its value by 25%, yet in 1999, OECD (Organisation for Economic Cooperation and Development) donors tied 56% of all bilateral aid. In 2001, the UK untied all its aid money. **In-kind food aid** can be an important way of responding to crises, particularly where local food production is insufficient. However, the flow of this aid has often related more to donor food surpluses than to actual needs. Where local production and markets exist, food aid can reduce production and negatively affect economies and communities. Cash can provide more food and motivate (instead of undermine) local producers.

### Box 2. Case studies: Kenya and Ethiopia

In May 2005, agencies such as the Famine Early Warning Systems Network, were predicting severe drought in Kenya and a slow onset crisis. It wasn't until December 2005 that the Kenyan government declared the country to be in a state of emergency and called for \$100m in emergency aid. In January 2006 international response began and the UN assessed that \$225m was necessary to alleviate the crisis.

The ruinous famine in Ethiopia in the mid-1980s caused 8 million people to need aid. High population growth, falling agricultural production and increasing drought mean that 9m people now need relief each year. In 2005, the Productive Safety Net Programme was launched. Led by the Ethiopian government and supported by DFID and others, it aims to break the cycle of crisis relief, providing regular cash or food.

### Timing of aid responses

Emergency relief is expensive and unpredictable and yet in Africa even in 'normal' years over 20 million people rely on it to meet basic food needs. Despite the fact that events such as drought are often cyclical, predictable to a certain extent, and build up slowly, relief is often given

only when the situation has peaked, with suffering already high and assets lost (Box 2). For example livestock may have died from lack of water, or been sold for cash at low prices. Many are now calling for a quicker response to crisis predictions and for long term protection of chronically food insecure and vulnerable populations. Some people are chronically ill or disabled and are unlikely to become productive in the future, but many more could become productive given the right assets.

### UK Government

The UK Department for International Development (DFID) has made the MDGs the main focus of its work, spending >£800m on MDG1 in 2005/06. Recent DFID White Papers reaffirmed this commitment, focussing on managing globalisation to benefit the poor, promoting better governance and tackling climate change. Besides other commitments, DFID supports hunger alleviation by working to break the cycle of emergency food aid through long term predictable assistance and by actively supporting the reduction of international trade barriers.

### Overview

- Food security is important to alleviate hunger, poverty and disease, and for economic development.
- There has been some progress towards food security targets, but absolute numbers of hungry people are increasing in Africa and elsewhere.
- Achieving food security will involve increasing access to food and agricultural production.
- Social protection can help the chronically hungry, smooth variations in income, provide a safety net for the vulnerable, and add to economic development.
- International agencies are calling for lifting of trade barriers, improved governance, more timely responses to emergencies and greater investment in technologies that target the poor, to alleviate hunger.

### Endnotes

- 1 FAO (2006) *The state of food insecurity in the world 2006*.
- 2 World Food Summit(1996) Rome Declaration on World Food Security
- 3 UN World Food Programme, *What is hunger?* [www.wfp.org](http://www.wfp.org)
- 4 UN Standing Committee on Nutrition (2004) *31<sup>st</sup> Annual Report*
- 5 UN Task Force on Hunger (2005) *Halving hunger: it can be done*
- 6 FAO (2004) *The state of food insecurity in the world 2004*
- 7 AU (2006) Summit on food security in Africa, [www.africa-union.org](http://www.africa-union.org)
- 8 The Joint United Nations programme on HIV/AIDS, [www.unaids.org](http://www.unaids.org)
- 9 FAO (1991) *Household food security and forests*
- 10 UN Millennium Project (2005), *Investing in Development: A practical plan to achieve the MDGs*, [www.unmillenniumproject.org](http://www.unmillenniumproject.org)
- 11 Gallup *et al* (1997) *Economic growth and the income of the poor*
- 12 DFID (2002), [www.dfid.gov.uk/pubs/files/elimhunger.pdf](http://www.dfid.gov.uk/pubs/files/elimhunger.pdf)
- 13 Scoones (2006) *Science, Agriculture and the Politics of Policy*
- 14 International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) model developed by the IFPRI

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