

● Causes and effects of food shortages

Causes

Food shortages can occur because of both natural and human problems. The natural problems that can lead to food shortages include:

- soil exhaustion
- drought
- floods
- tropical cyclones
- pests
- disease.

However, economic and political factors can also contribute to food shortages. Such factors include:

- low capital investment
- rapidly rising population
- poor distribution/transport difficulties
- conflict situations.

In late 2012, the UN warned of an imminent worldwide food crisis, highlighting three major problems:

- global grain reserves at critically low levels
- rising food prices creating unrest in many countries
- extreme weather resulting in the climate being 'no longer reliable'.

In the same year the Food and Agriculture Organisation estimated that around the world 870

million people were malnourished, with the food crisis growing in Africa and the Middle East.

The impact of such problems has been felt most intensely in developing countries, where adequate food stocks to cover emergencies affecting food supply usually do not exist. However, developed countries have not been without their problems. For example, in recent years both the USA and Australia have suffered severe drought conditions. So developed countries are not immune from the physical problems that can cause food shortages. However, they invariably have the human resources to cope with such problems, so actual food shortages do not generally occur.

Short-term and long-term effects

The effects of food shortages are both short-term and longer-term. Malnutrition can affect a considerable number of people, particularly children within a relatively short period when food supplies are significantly reduced. With malnutrition people are less resistant to disease and more likely to fall ill. Such diseases include beri-beri (vitamin B1 deficiency), rickets (vitamin D deficiency) and kwashiorkor (protein deficiency). People who are continually starved of nutrients never fulfil their physical or intellectual potential. Malnutrition reduces people's capacity to work so that land may not be properly tended and other forms of income successfully pursued. This is threatening to lock parts of the developing world into an endless cycle of ill-health, low productivity and underdevelopment.

Case study: A region suffering from food shortages – Sudan and South Sudan

The countries of Sudan and South Sudan (Figure 11), which were the single country of Sudan until 2011, have suffered food shortages for decades. The long civil war and drought have been the main reasons for famine in Sudan, but there are many associated factors as well (Figure 12). The civil war, which lasted for over 20 years, was between the government in Khartoum and rebel forces in the western region of Darfur and in the south (now South Sudan). A Christian Aid document in 2004 described the Sudan as 'A country still gripped by a civil war that has been fuelled, prolonged and

part-financed by oil'. One of the big issues between the two sides in the civil war was the sharing of oil wealth between the government-controlled north and the south of the country where much of the oil is found. The United Nations has estimated that up to 2 million people were displaced by the civil war and more than 70 000 people died from hunger and associated diseases. At times, the UN World Food Programme stopped deliveries of vital food supplies because the situation was considered too dangerous for the drivers and aid workers.

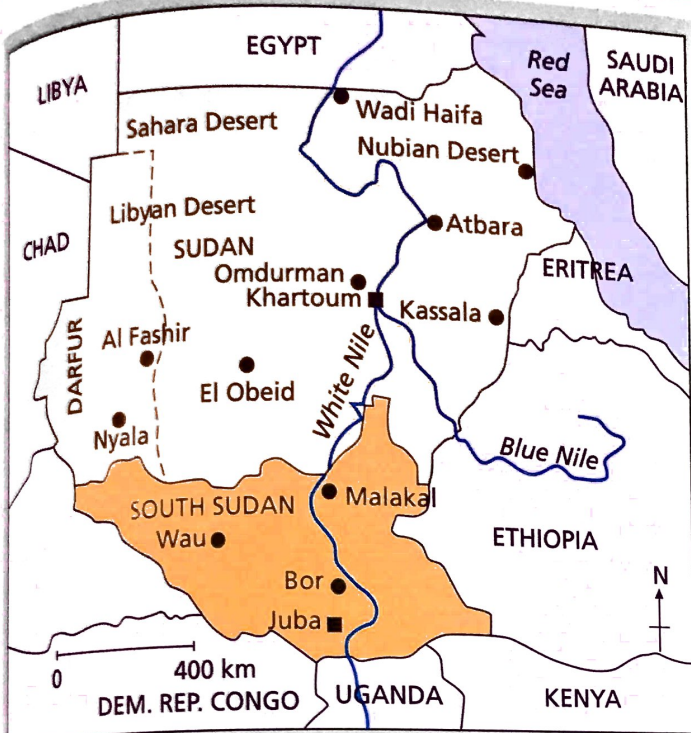


Figure 11 Sudan and South Sudan

Physical factors

- Long-term decline of rainfall in southern Sudan
- Increased rainfall variability
- Increased use of marginal land leading to degradation
- Flooding

Social factors

- High population growth (3%) linked to use of marginal land (overgrazing, erosion)
- High female illiteracy rates (65%)
- Poor infant health
- Increased threat of AIDS

Agricultural factors

- Highly variable per capita food production; long-term the trend is static
- Static (cereals and pulses) or falling (roots and tubers) crop yields
- Low and falling fertiliser use (compounded by falling export receipts)
- Lack of a food surplus for use in crisis

Economic/political factors

- High dependency on farming (70% of labour force; 37% of GDP)
- Dependency on food imports (13% of consumption 1998–2000) whilst exporting non-food goods, e.g. cotton
- Limited access to markets to buy food or infrastructure to distribute it
- Debt and debt repayments limit social and economic spending
- High military spending

Drought in southern Sudan compounds low food intake; any remaining surpluses quickly used

Shorter-term factors leading to increased Sudanese food insecurity and famine

Conflict in Darfur reduces food production and distribution

Both reduce food availability in Sudan and inflate food prices

Situation compounded by:

- Lack of government political will
- Slow donor response
- Limited access to famine areas
- Regional food shortages

Figure 12 Summary of causes of famine in the Sudan



Figure 13 The fertile banks of the river Nile in Sudan with desert beyond

The separation of Sudan into two countries has not occurred easily. There has been intermittent fighting in

border regions. This, along with economic instability, has undermined agricultural production. In March 2013 the World Food Programme warned that more than 4.1 million people were likely to be short of food in South Sudan in that year. This is approximately 40 per cent of the new country's population.

Case study analysis

- 1 Describe the location of Sudan and South Sudan.
- 2 a With the help of Figure 12, explain the causes of food shortages in recent decades.
b Suggest what needs to happen for the situation to improve.
- 3 How bad was the food shortage situation in South Sudan in 2013?

● Possible solutions to food shortages

Food aid

In the short term and in some instances the medium term, food aid is absolutely vital to cope with food shortages. When disaster strikes there is no alternative to this strategy. According to the charity ActionAid there are three types of food aid:

- **relief food aid** which is delivered directly to people in times of crisis
- **programme food aid** which is provided directly to the government of a country for sale in local markets (this usually comes with conditions from the donor country)
- **project food aid** which is targeted at specific groups of people as part of longer-term development work.



Figure 14 Food aid being delivered in Somalia

The USA and the EU together provide about two-thirds of global food aid deliveries. At the international level the main organisations are the UN World Food Programme (WFP), the UN Food and Agriculture Organization (FAO) and the Food Aid Convention.

Food aid is vital to communities in many countries particularly in Africa but also in parts of Asia and Latin America. However, it is not without controversy:

- The charity CARE has criticised the method of UN food aid to Africa. CARE sees the selling of heavily subsidised US produced food in African countries as undermining the ability of African farmers to produce for local markets, making countries even more dependent on aid to avoid famine. CARE wants the USA to send money to buy food locally instead.
- Friends of the Earth say that a genetically modified rice, not allowed for human consumption and originating in the USA, has been found in food aid in West Africa.
- Food aid is very expensive, not least because of the high transport costs involved.

There have been recent concerns that food aid may be required for even more people in the future. In recent years, the term 'global food crisis' has been used more and more by the media. Steep increases in the price of food have caused big problems in a number of countries. Major protests about the price of food have taken place in countries including Haiti, Indonesia, the Philippines and Egypt. The World Bank warned that progress on development could be destroyed by rapidly rising food costs.



Figure 15 Green Revolution crops being harvested in Brazil

The package of agricultural improvements generally known as the Green Revolution was seen as the answer to the food problem in many parts of the developing world in the post-1960 period. India was one of the first countries to benefit when a high-yielding variety (HYV) seed programme started in 1966–67. In terms of production it was a turning point for Indian agriculture, which had virtually reached stagnation. The programme introduced new hybrid varieties of five cereals: wheat, rice, maize, sorghum and millet. All were drought-resistant with the exception of rice, were very responsive to the application of fertilisers, and had a shorter growing season than the traditional varieties they replaced. Although the benefits of the Green Revolution are clear, serious criticisms have also been made. The two sides of the story can be summarised as follows:

Advantages

- Yields are twice to four times greater than for traditional varieties.
- The shorter growing season has allowed the introduction of an extra crop in some areas.
- Farming incomes have increased, allowing the purchase of machinery, better seeds, fertilisers and pesticides.
- The diet of rural communities is now more varied.
- Local infrastructure has been upgraded to accommodate a stronger market approach.
- Employment has been created in industries supplying farms with inputs.
- Higher returns have justified a significant increase in irrigation.

Disadvantages

- High inputs of fertiliser and pesticide are required to optimise production. This is costly in both economic and environmental terms. In some areas rural indebtedness has risen sharply.
- HYVs require more weed control and are often more susceptible to pests and diseases.
- Middle and higher-income farmers have often benefited much more than the majority on low incomes, thus widening the income gap in rural communities. Increased rural-to-urban migration has often been the result.
- Mechanisation has increased rural unemployment.
- Some HYVs have an inferior taste.
- The problem of salinisation has increased along with the expansion of the irrigated area.

In recent years a much greater concern has arisen about Green Revolution agriculture. The problem is that the high-yielding varieties introduced during the Green Revolution are usually low in minerals and vitamins. Because the new crops have displaced the local fruits, vegetables and legumes that traditionally supplied important vitamins and minerals, the diet of many people in the developing world is now extremely low in zinc, iron, vitamin A and other micronutrients.

The Green Revolution has been a major factor enabling global food supply to keep pace with population growth, but with growing concerns about a new food crisis, new technological advances may well be required to improve the global food security situation.

UNEP's options for improving food security

The United Nations Environment Programme has argued that increasing food energy efficiency provides a critical path for significant growth in food supply without compromising environmental sustainability.

- Options with short-term effects are (a) price regulation on commodities and larger cereal stocks to decrease the risk of highly volatile prices and (b) reduce/remove subsidies on biofuels to cut the capture of cropland by biofuels.
- Options with mid-term effects are (a) reduce the use of cereals and food fish in animal feed, (b) support farmers in developing diversified

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eco-agricultural systems that provide critical ecosystem services (for example water supply and regulation) as well as adequate food to meet local and consumer needs and (c) increased trade and improved market access by improving infrastructure and reducing trade barriers.

- Options with long-term effects are (a) limit global warming, including the promotion of climate-friendly agricultural production systems and land use policies at a scale to help mitigate climate change and (b) raise awareness of the pressures of

increasing population growth and consumption patterns on sustainable ecosystem functioning.

Activities

- 1 Describe the different types of food aid.
- 2 Why is food aid sometimes controversial?
- 3 Discuss the advantages and disadvantages of Green Revolution farming.
- 4 Comment briefly on UNEP's options for improving food security.