The health effects of a shortage of food

Problems

- Protein-energy malnutrition is caused by a lack of protein (from meat, eggs and other sources) and food that provides energy (e.g. rice, wheat and potatoes) – it is the major cause of world hunger.
- Micronutrient malnutrition is when the body lacks certain vitamins and minerals.

Diseases caused

- Marasmus causes sufferers to become very thin and stop growing.
- Kwashiorkor is caused by eating too many cereals and not enough protein – the stomach swells, skin peels and the hair turns orange.
- Anaemia is caused by a lack of iron.
- Vitamin A deficiency causes blindness and death.
- Iodine deficiency affects the brain and can be fatal.

A *Malnutrition and disease*

When something is missing from the daily diet, this causes **malnutrition**. This can be a lack of enough food or of certain minerals or vitamins (panel A). Around 900 million people (13 per cent of the world's population) do not have enough food. They are almost all found in LEDCs and many of them are children.

Those who suffer from malnutrition are not able to work because of a lack of energy, mental problems and general poor health. Family incomes fall and people continue to become ill through lack of food.

Tackling the food supply problem

B *Distribution of food aid*

When poor countries have a problem with food shortages, especially when it is the result of a natural disaster such as a drought, cyclone or earthquake, richer countries often help out with food aid (photo **B**).

Africa is particularly in need of food aid. Problems for specific countries include:

- conflict, drought and piracy in Somalia
- drought, AIDS and high population density causing a shortage of land in Malawi
- the long-term effects of civil war in Sudan
- locust attack in Niger
- increasing numbers of refugees in Liberia.

There are concerns that handing out food does little to solve long term problems and many countries become too dependent on hand-outs. Increasingly, governments are trying to help countries improve their agriculture in order to maintain their food security. This means they would have enough food to feed their own people without relying on imports or help from overseas.

Now Investigate

1 a List some of the diseases caused by a lack of food.

b What effects do these diseases have on the countries where people are suffering?

The Green Revolution

Since the 1960s scientists across the world have been helping to improve agriculture for subsistence farmers in different regions of the world. They have developed new types of rice, maize and wheat that produce more (give higher yields).

The Green Revolution has brought problems as well as benefits. Overall, however, it has helped crop production to keep up with population growth.

The Green Revolution

Aims: to scientifically develop new types of rice that give higher yields; to introduce new irrigation schemes; to use new fertilisers to help crops grow and new pesticides to protect them from disease.

Benefits

- Food production has increased, so more people can be fed.
- Higher yields means lower prices, so poor people can afford more food.
- Crops are more resistant to disease, so harvests are more reliable.
- Crops grow faster, so more harvests can be gathered each year.
- The better-off farmers who can afford chemicals and machinery have become richer and employ more local people.
- More jobs are available in businesses supporting farming.

Problems

- Not all farmers have felt the benefits of the Green Revolution.
- The less well-off who could not compete have sold their land and moved to the city.
- Some farmers have borrowed money to pay for crops and are now in debt.
- Machinery has caused rural unemployment.
- Chemicals have polluted local water supplies.
- Irrigation has increased the demand on drinking water stores.
- Some of the new varieties of rice are not as pleasant to eat.

A more recent development has been the **Blue Revolution**. Communities have been encouraged to breed fish – in mangrove swamps, padi fields, lakes and near the coast – to provide more protein.

Genetically modified (GM) crops

The latest technological advances have been in GM crops. The idea is to alter crops scientifically to enable them to withstand pests and diseases and to help them survive droughts or the very salty conditions found in some LEDCs.

These crops have the potential to increase the amount of food that can be grown by enabling farmers to plant in areas that were thought to be unsuitable. However, some countries have banned GM crops until they are proved to be safe for both people and the environment.

Intermediate and appropriate technology

Many of the methods used to increase food production need new technology. Others depend on simpler solutions that are more affordable for poor countries and use existing local skills and technology, for example:

- educating farmers to save water by building dams on seasonal rivers
- saving land from erosion by building small terraces on gently sloping land
- using solar energy (the power of the sun) to pump water for irrigation.

Closely linked to this is the development of **permaculture**. People living in cities are encouraged to grow their own food in urban gardens. The Caribbean island of Cuba is one of many countries where people in cities have set up local markets to sell food on at reasonable prices (photo C).

C *Urban gardening in Hong Kong*

Now Investigate

1 Describe some of the methods used to increase food production and reduce food shortages.

2 Have a look at the food you eat at home. Was it produced locally? What could be done to increase the amount of locally produced food in the area where you live?