

## 5 Food security

### Text 5a

### Diet and sustainability key to feeding the world

#### Diet and sustainability key to feeding the world: A food security report

One of the greatest problems the world faces is food security. Starvation, malnutrition and associated health and welfare problems can best be addressed by a systematic policy of education and research.

- 5 Grave concerns about food security have surfaced for a number of reasons. Firstly, there has been a population explosion. According to the Royal Society, between 1930 and 2010 the world's population grew from 2 billion to 6.8 billion now, with a projected peak of 9 billion by 2050  
10 (Black, 2010). A further major cause for concern is the impact on food production of climate change, brought about by global warming. Population growth and climate change will mean there is an increasing shortage of water and of land for food production, and therefore more  
15 competition for these resources.

- While threats to global food security are numerous and affect both economically developed and less-developed countries, it is the people of the latter who are likely to feel the most impact. Vast numbers lack basic food  
20 requirements: at least 1 billion people are undernourished and 2 billion suffer from micronutrient deficiency. Conversely, 1.2 billion are overweight.

- An environmental example of the impact of food production mismanagement on ecosystems, and the  
25 wider implications of this, can be clearly seen in the case of drastic declines in bird species. For example, in Europe and North America populations of 'specialist' bird species – those that are adapted to live in specific environments – have fallen by an estimated 30% over  
30 40 years. This has been attributed at least partially to the impact of farming, especially when this involves a single crop type being grown over a large area.

- In fact, a study by Stanford University biologists (Şekercioglu, Daily & Ehrlich, 2004) concluded that by 2100, 10% of all bird species were likely to disappear and another 15% could be on the brink of extinction. This dramatic loss is expected to have a negative impact on forest ecosystems and agriculture worldwide, and  
35 warned that it might even encourage the spread of human diseases. The latter point is supported by reports of a dramatic fall in vulture numbers in India, allowing an upsurge in numbers of rats and feral dogs, which spread diseases that affect humans (see Swan et al., 2006; BirdLife International, 2008). The vulture population crash is attributed mainly to poisoning by high concentrations of diclofenac, a drug used to treat farm animals. The birds ingest the drug when they feed on the animals' carcasses.

- 40 The challenges involved in addressing the problem of food security are complex. Part of the solution is increasing the potential of food yields, but the approach must be sustainable. Producers and consumers of food must play a major role in all this and take responsibility in terms of choosing how food is 'produced, used and consumed'.



Population growth is an often unspoken driver of trends such as deforestation.



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Reducing the amount of waste in the food production system is one approach to improving food security. However, in future the 'journey from farm to plate' also needs to be organized more systematically  
 45 and globally. A particular problem area here is the importing into economically developed countries of exotic fruit and vegetables. This can have a negative impact on food security in two ways. Firstly, importing (and especially air-freighting) fresh produce from overseas locations can significantly increase the carbon footprint of food production, contributing to global warming and its associated problems. Secondly, if growers in less economically developed countries switch to producing fruit and vegetables  
 50 for export, this could displace local staple crops, resulting in worsening diets for what may be an already malnourished population.

A further solution is to manage crop production to boost yields of some crops in countries with temperate climates. However, climate change could also cause shifts in seasonal patterns that put crops out of rhythm with the insects that pollinate them, or could increase the likelihood of extreme weather events damaging  
 55 the developing flowers that are essential for the crop. There is a strong likelihood that diets will increasingly be dependent on animal sources of protein, but farmers do not necessarily adopt practices that lead to the fulfilment of potential yield. Helping them become more efficient offers a further means of addressing the food security issue.

An integrated, systemic approach to the problems of food security has to be developed. This includes  
 60 encouraging agri-food research, with the most technologically advanced countries directing their attention and research focus towards dealing with the problem. In addition, a global approach is needed and specialist research initiatives will need to help with integrating the food-security research undertaken by non-specialist institutions.

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