

FACTFILE: GCE NUTRITION & FOOD SCIENCE

FOOD SECURITY



Food Security

Learning outcome

- Outline the challenges to achieving food security:
 - climate change and severe weather;
 - land degradation through intensive farming;
 - population growth.

Course content

Food security is the measure of an individual's ability to access food that is nutritious and sufficient in quantity. Food security is a basic human right. However, for hundreds of millions of people, this right is not being met.



The concept of food security can be broken down into four main components known as the 'four pillars of food security'.

1. Availability

This refers to the existence of food in a community. Availability can become an issue when there is a lack of necessary resources such as water for irrigation or when land being used for food production is degraded.

2. Access

Food security means that individuals have the resources they need to obtain sufficient quality of nutritious food. Access to food is affected by factors such as pricing and infrastructure.

3. Utilisation

To be food secure, the food being accessed needs to be of good quality. It is crucial that the food is nutritious and healthy enough to provide the energy people need for their daily activities. People also need the knowledge and tools to properly utilise the food available to them including the utilities to properly select, prepare and store foods that are available and accessible.

4. Stability

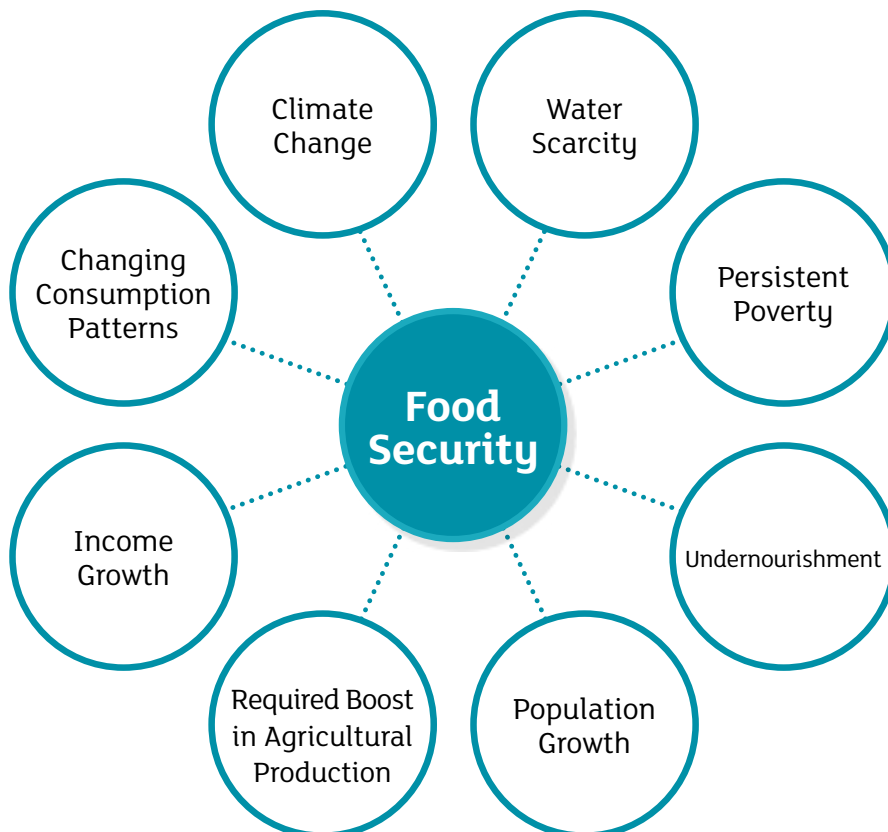
Food stability means that access, availability and utilisation of food remains relatively stable over time. Threats to this stability include climate change and severe weather, conflict and volatile price fluctuations.



The Food Security Debate



Food security – the challenge





Challenges

1. Climate change and severe weather

Understanding the impact of climate change on food security is challenging. Some regions of the world might experience gains under climate change, but others are likely to be negatively affected.

Under climate change, the frequency and intensity of some disasters, such as droughts, floods and storms, could increase. Climate-related disasters have the potential to destroy crops, critical infrastructure and key community assets, therefore deteriorating livelihoods and exacerbating poverty.

Sea levels will rise affecting livelihoods in coastal areas and river deltas.

Climate change and severe weather can affect food security in the following ways ...

- **Food availability**
 - changing rainfall and higher temperatures will impact upon yield and crop quality.
- **Food access**
 - climate change could increase the prices of crops in some regions. Lower agricultural output also means lower income.
- **Food use**
 - changing climatic conditions could also create a vicious cycle of disease and hunger.



2. Land degradation through intensive farming

Land degradation is the reduction in the capacity of the land to provide ecosystem goods and services and assure its functions over a period of time. Land degradation affects large areas and many people in dry land regions.

Intensive farming often leads to a vicious cycle of soil infertility and decline of agricultural yields. Approximately 40% of the world's agricultural land is seriously degraded.

Land degradation is caused by multiple forces including extreme weather conditions, particularly drought, and human activities that pollute or degrade the quality of soils and land utility, negatively affecting food production.

Intensive farming aims to maximise yields from available land through various means such as heavy use of pesticides and chemical fertilisers. Intensive farming practices produce more and cheaper food per acre and animal which helps feed booming populations.

However intensive farming encourages:

- over grazing, caused by unsustainable animal density on land and leads to soil erosion, reduced biodiversity, loss of top soil and increases flooding
- monocultures, growing one type of crop intensively over a large area which depletes soil nutrients and reliance on chemicals
- irrigation, artificial application of water to the land drawing water from underground sources and leading to ground water depletion
- slash and burn, involving the cutting and burning of rainforests to create fields leading to soil erosion and eventually poor soil quality which is unable to support crops.

3. Population growth

The Food and Agriculture Organisation (FAO) projects that by 2050, population growth will result in a doubling of the demand for food globally. Increasing numbers of people drive up the demand for food which typically results in additional use of land and water.

Food production depends on croplands and water supply, which are under strain as human populations increase. Pressure on limited land resources can mean expansion of cropland. This often involves destruction of vital forest resources or intensive farming of land.

Most of the countries with the highest numbers of people facing food insecurity also have high fertility rates and rapid population growth. This increases the challenge of adequately meeting nutritional needs.

Population growth is likely to cause over reliance on one food industry. For example, population pressures in coastal areas are affecting food security in countries where there is a high dependence on fisheries for protein such as the Philippines.

Population growth can cause people to migrate. This forced migration can have a detrimental effect on the country which they are arriving in. There may be insufficient jobs or food to provide for everyone. This can leave the migrants food insecure.

The expanding global population is getting wealthier, and richer people tend to eat more and demand food that is resource intensive to produce, particularly meat and dairy. This diet is unsustainable.



Revision Questions

- 1 Explain how severe weather can threaten food security.
- 2 Discuss the impact of intensive farming upon food security.

