YEAR 10 UNIT 5: Resource Management

Resources are things that humans require for life or to make our lives easier. Humans are becoming increasingly dependent on exploiting these resources, and as a result they are in high demand. The demand for resources like food, water and energy is rising so quickly that supply cannot always keep up. Importantly, access to these resources vary dramatically in different locations

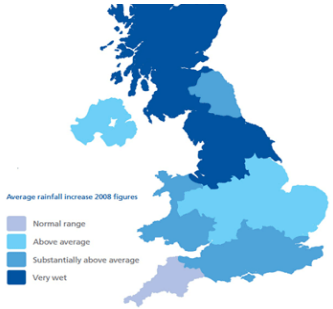
Population Growth	Economic Development	Changing Technology and employment
• Currently the global population is 7.3 billion. • Global population has risen exponentially this century. • Global population is expected to reach 9 billion by 2050. • With more people, the demand for food, water, energy, jobs and space will increase.	• As LICs and NEEs develop further, they require more energy for industry. • LICs and NEEs want similar lifestyles to HICs, therefore they will need to consume more resources. • Development means more water is required for food production as diets improve.	• The demand for resources has driven the need for new technology to reach or gain more resources. • More people in the secondary and tertiary industry has increased the demand for resources required for electronics and robotics.

Water in the UK

The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020.

This is due to:

- A growing UK population.
- Water-intensive appliances.
- Showers and baths taken.
- Industrial and leisure use.
- Watering greenhouses.



The north and west have a **water surplus** (more water than is required).
The south and east have a **water deficit** (more water needed than is actually available).
More than half of England is experiencing **water stress** (where demand exceeds supply).

Cause and effects of pollution and quality include:

- Chemical run-off from farmland can destroy habitats and kills animals.
- Oil from boats and ships poisons wildlife.
- Untreated waste from industries creates unsafe drinking water.
- Sewage containing bacteria spreads infectious diseases.

Water Management and water transfer

UK has **strict laws** that limits the amount of discharge from factories and farms

Water transfer involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).

Opposition includes:

- Effects on **land and wildlife**.
- High maintenance **costs**.
- The **amount of energy** required to move water over long distances.

Food in the UK

- The UK imports about 40% of its food. This increases people's **carbon footprint**.
- There is growing demand for greater choice of **exotic foods** needed all year round.
- Foods from abroad are more affordable.
- Many food types are unsuitable to be grown in the UK.

Foods can travel long distances (food miles). Importing food adds to our carbon footprint.

+ Supports workers with an income + Supports families in LICs.
+ Taxes from farmers' incomes contribute to local services.
- Less land for locals to grow their own food.
- Farmers exposed to chemicals.

Farming is being treated like a large industrial business. This is increasing food pr

+ Intensive faming maximises the amount of food produced.
+ Using machinery which increases the farms efficiency.
- Only employs a small number of workers.
- Chemicals used on farms damages the habitats and wildlife.

Organic foods that have little impact on the environment and are healthier have been rising.

Local food sourcing is also rising in popularity.

- **Reduces emissions** by only eating food from the UK.
- **Buying locally sourced** food supports local shops and farms.
- A third of people **grow their own food**.

Energy in the UK

The UK **consumes less energy** than compared to the 1970s despite a smaller population. This is due to the **decline of industry**. The majority of UK's energy mix comes from **fossil fuels**. By 2020, the UK aims for 15% of its energy to come from **renewable sources**. These renewable sources do not contribute to **climate change**.

2009

2020

- 75% of the UK's oil and gas has been used up.
- Coal consumption has declined.
- UK has become too dependent on imported energy.

Renewables

+ The UK government is investing more into low carbon alternatives.
+ UK government aims to meet targets for reducing emissions.
+ Renewable sources include wind, solar and tidal energy.
- Although infinite, renewables are still expensive to install.
- Shale gas deposits may be exploited in the near future

Future

Nuclear - New plants provide job opportunities.
Problems with safety and possible harm to wildlife.
Nuclear plants are expensive.
Wind farms - Locals have low energy bills.
Reduces carbon footprint.
Construction cost is high.
Visual impacts on landscape.
Noise from wind turbines.

Option 1: Food

Food Security is when people at all times need to have physical & economic access to food to meet their dietary needs for an active & healthy life. This is the opposite to **Food Insecurity** which is when someone is unsure when they might next eat.

Human

- **Poverty** prevents people affording food and buying equipment.
- **Conflict** disrupts farming and prevents supplies.
- **Food waste** due to poor transport and storage.
- **Climate Change** is affecting rainfall patterns making food production difficult.

Physical

- The **quality of soil** is important to ensure crops have key nutrients.
- **Water supply** needs to be reliable to allow food to grow.
- **Pest, diseases and parasites** can destroy vast amounts of crops that are necessary to populations.
- **Extreme weather** events can damage crops (i.e. floods).

This map shows how many **calories per person** that are consumed on average for each country. This can indicate the global distribution of **available food** and **food inequality.**

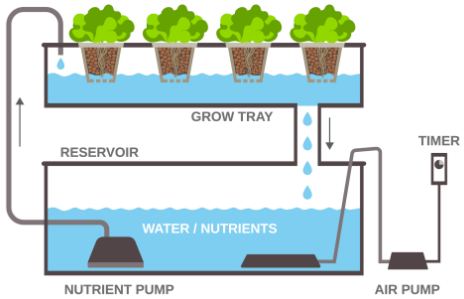
Increasing Food Security

Hydroponics - A method of growing plants without soil. Instead they use nutrient solution.

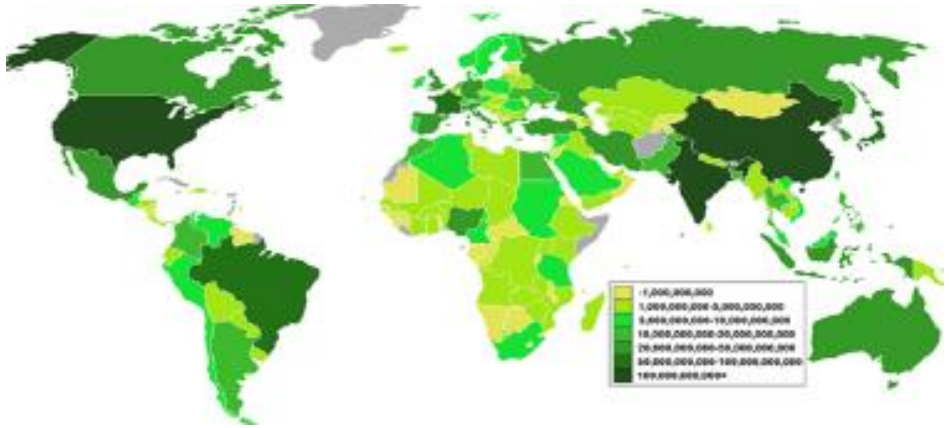
New Green Revolution - Aims to improve yields in a more sustainable way. Involves using both GM varieties and traditional and organic farming.

Biotechnology - Genetically modified (GM) crops changes the DNA of foods to enhance productivity and properties.

Irrigation - Artificially watering the land so crops can grow. Useful in dry areas to make crops more productive.



SOIL ASSOCIATION ORGANIC | FOOD AS IT SHOULD BE



This map shows the amount of **food produced** in different countries. Whilst Asia and **North America** have **high** production outputs, **Africa** and **Central America** have **low** production outputs.

Case Study NEE- Indus Basin Irrigation System

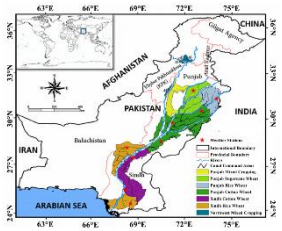
Largest irrigation scheme in the world. Involves large and small dams. Thousands of channels provides water to supports Pakistan's rich farmlands.

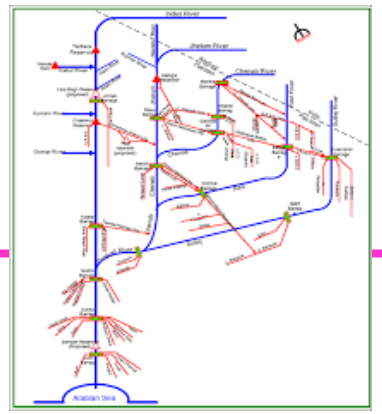
Advantages

- Improves food security by adding 40% more land for farming.
- Increased yield & range of foods.

Disadvantages

- Few take an unfair share of water
- Water is wasted and demand is rising due to population growth.
- High cost to maintain reservoirs.





Sustainable Food supply

This ensures that fertile soil, water and environmental resources are available for future generations.

Organic Farming - The banned use of chemicals and ensuring animals are raised naturally.

Permaculture - People growing their own food and changing eating habits. Fewer resources are required.

Urban Farming - Planting crops in urban areas. i.e. roundabouts.

Managed Fishing – Includes setting catch limits, banning trawling and promoting pole and line methods.