

Resource Challenges

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.

Significance of Water

Resources such as food, energy and water are what is needed for basic human development.

FOOD



Without enough nutritious food, people can become **malnourished**. This can make them ill. This can prevent people working or receiving education.

WATER



People need a supply of **clean and safe water** for drinking, cooking and washing. Water is also needed for food, clothes and other products.

ENERGY



A good supply of energy is needed for a basic standard of living. People need **light and heat** for cooking or to stay warm. It is also needed for industry.

Demand outstripping supply

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

1. Population Growth



- 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**.

2. Economic Development



- 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.

Resource Reliance Graph

Consumption – The act of using up resources or purchasing goods and produce.

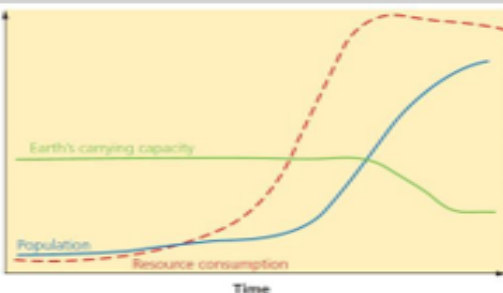
Carry Capacity – A maximum number of species that can be supported.

Resource consumption exceeds Earth's ability to provide!



3. Changing Technology and Employment

- 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.



Food in the UK



Growing Demand

- 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.

Impact of Demand

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.

Agribusiness



Farming is being treated like a large industrial business. This is increasing food production.
 + Intensive farming 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.

Sustainable Foods



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.

Unit 2c

The Challenge of Resource Management



Energy in the UK



Growing Demand

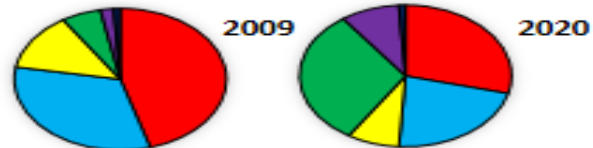
The UK consumes **less energy** than compared to the 1970s despite a smaller population. This is due to the **decline of industry**.

Energy Mix

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.

Changes in Energy Mix

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



	Oil		Gas		Renewable
	Nuclear		Coal		Other

Water in the UK



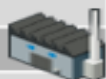
Option 2: WATER



Growing Demand

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.



Deficit and Surplus

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).

Water stress in the UK



Water security is when people have good access to enough clean water to sustain well-being and good health. Water insecurity is when areas are without sufficient water supplies. Water Stress is when less than 1700m³ is available per person.

Human



- **Pollution** caused from human and industrial waste being dumped into peoples water sources.
- **Poverty** prevents low income families affording water.
- **Limited infrastructure** such as a lack of water pipes and sewers.
- **Over-abstraction** is when more water is taken than is replaced.

Physical



- **Climate** needs to provide enough rainfall to feed lakes and rivers. Droughts affect supply if water.
- **Geology** can affect accessibility to water. Permeable rock means sourcing water from difficult aquifers, whereas impermeable allows water to run-off into easily collected basins.

Impact of Water Insecurity



Food production

The less water available for irrigating crops the less food that will be produced. This could lead to starvation.

Industrial output

Manufacturing industries depend heavily on water. A severe lack of water can impact economic output.

Disease and Water Pollution

Inadequate sanitation systems pollutes drinking water causing diseases such as cholera and typhoid.

Water conflict

Water sources that cross national borders can create tensions and even war between countries.

Increasing Water Supply



C.S. Water transfer in China

Water diversion - Involves diverting water to be stored for longer periods. Often water is pumped underground to prevent evaporation.
Dams and Reservoirs - Dams control flow and storage of water. Water is released during times of water deficit.
Water transfer - includes schemes to move water from areas of surplus to areas of deficit.
Desalination - Involves the extraction of salt from sea water to produce fresh drinking water.

Water is transferred from places of surplus in southern China to areas of deficit in northern China

Advantage-This allows drier areas of northern China to irrigate crops and provide more resources for trade in northern sea-ports exported via the Yellow River.

Disadvantages-conflict with people of the south as climate change reduces their water supply. This also increased the cost of water for all.

Sustainable Water Supply



Ensures water supplies don't cause damage to the environment whilst also supporting the local economy.

C.S. NEE - The Wakel River Basin



A project in India that aims to improve water use by encouraging greater use of rainwater harvesting techniques.

How does the project work?

- Provides 'taankas' that store water underground.
- Small dams called 'johed' interrupt water flow and encourages infiltration.
- Villages take turns to irrigate their fields so water is not overused.
- Maintained by farmers so it is entirely sustainable.
- Greater education for awareness.

Energy in the UK (continued)

Significance of 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

Exploitation

Nuclear

New plants provide job opportunities.
Problems with safety and possible harm to wildlife.
Nuclear plants are expensive.

Wind Farm

Locals have low energy bills.
Reduces carbon footprint.
Construction cost is high.
Visual impacts on landscape.
Noise from wind turbines.