

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, Food and Energy		
Resources such as food, energy and water are what is needed for basic human development.		
FOOD	WATER	ENERGY
Without enough nutritious food, people can become malnourished . This can make them ill. This can prevent people working or receiving education.	People need a supply of clean and safe water for drinking, cooking and washing. Water is also needed for food, clothes and other products.	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 and 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 are very different across the world

1. Population Growth	2. Economic Development
<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.

Food in the UK	
Growing Demand	Impact of Demand
<ul style="list-style-type: none"> 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. 	<p>Foods can travel long distances (food miles). Importing food adds to our carbon footprint.</p> <ul style="list-style-type: none"> + 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	Sustainable Foods
<p>Farming is being treated like a large industrial business. This is increasing food production.</p> <ul style="list-style-type: none"> + 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. 	<p>Organic foods that have little impact on the environment and are healthier have been rising. Local food sourcing is also rising in popularity.</p> <ul style="list-style-type: none"> 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.

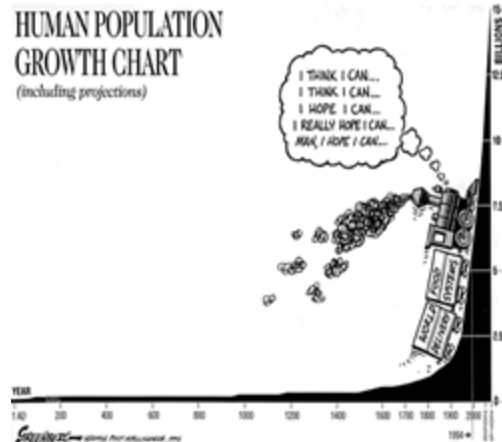
Water in the UK	
Growing Demand	Deficit and Surplus
<p>The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020.</p> <p>This is due to:</p> <ul style="list-style-type: none"> A growing UK population. Water-intensive appliances. Showers and baths taken. Industrial and leisure use. Watering greenhouses. 	<p>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).</p>

Pollution and Quality	Water stress in the UK
<p>Cause and effects include:</p> <ul style="list-style-type: none"> 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. 	

The Challenge of Resource Management

Energy in the UK	
Growing Demand	Energy Mix
The UK consumes less energy than compared to the 1970s despite a smaller population. This is due to the decline of industry .	The UK is increasingly using renewable energy. The UK aim for 15% of its energy to come from renewable sources by 2020 was met (its actually 20%!). These renewable sources do not contribute to climate change .

Changes in Energy Mix
<ul style="list-style-type: none"> 75% of the UK's oil and gas has been used up. Coal consumption has declined. UK has become too dependent on imported energy.



Management	Water Transfer
<p>UK has strict laws that limits the amount of discharge from factories and farms. Education campaigns to inform what can be disposed of safely. Waste water treatment plants remove dangerous elements to then be used for safe drinking. Pollution traps catch and filter pollutants.</p>	<p>Water transfer involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).</p> <p>Opposition includes:</p> <ul style="list-style-type: none"> Effects on land and wildlife. High maintenance costs. The amount of energy required to move water over long distances.

Energy in the UK (continued)	
Renewables	Exploitation
<ul style="list-style-type: none"> + 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 	<p>New plants provide job opportunities.</p> <p>Problems with safety and possible harm to wildlife.</p> <p>Nuclear plants are expensive.</p>
	<p>W Locals have low energy bills. Reduces carbon footprint.</p> <p>C Construction cost is high.</p>



Energy security means having a reliable, uninterrupted and affordable supply of energy available. What affects a countries energy security?

Physical



- **Geology (the land)** determines the availability of fossil fuels.
- **Climate** will affect the potential use of renewable energy.
- **Natural disasters** can damage energy infrastructure.

Technology



- **New technology** is making once difficult energy sources now reachable/exploitable.

Economic



- **Cost** of extracting fossil fuels is becoming costly and difficult.
- **Price of fossil fuels** are volatile to potential political changes.
- **Infrastructure** for energy is costly, especially for LICs.

Political



- **Conflict** and turmoil in energy rich countries can affect exports.
- **Stricter regulations** over Nuclear.

What happens if there isn't enough energy? (Energy insecurity)



Sensitive environments

Exploring for new energy sources can harm sensitive areas such as the oil drilling in Alaska, USA.

Food production

Food production depends on the energy needed to power machinery and transport goods to different markets.

Energy conflict

Shortages of energy resources can lead to tensions and violence. Conflict can be caused by fear of energy insecurity.

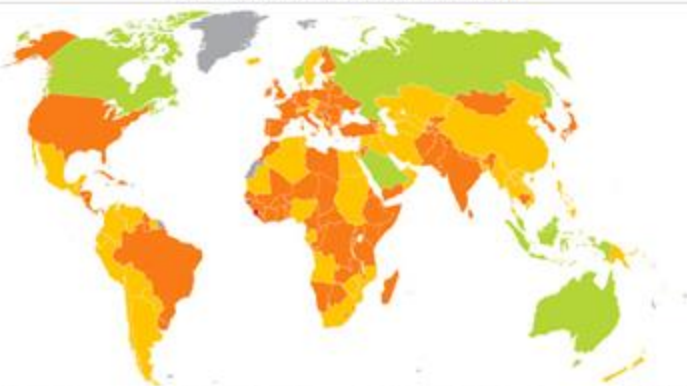
Industry

Countries can suffer from shortfalls in energy leading to a decline in manufacturing and services.

Proposed oil drill in the Arctic in Alaska



Energy Security Risk (short-term) Index 2011



Legend	Rank	Country	Rating	Rank	Country	Rating
Extreme risk	1	Sierra Leone	Extreme	6	Nicaragua	High
High risk	2	Gambia	Extreme	7	Sao Tome and Principe	High
Medium risk	3	Guinea-Bissau	Extreme	8	Afghanistan	High
Low risk	4	Cambodia	High	9	Burundi	High
No Data	5	Nepal	High	10	Benin	High

Germany Wind Power



Germany has been through a massive transition known as 'Energiewende' which literally means 'Energy Transition'. It has invested hugely in wind energy

Advantages

- Government provides money to people to install turbines.
- People can use their own energy, paying less.
- Less harmful gasses are produced

Disadvantages

- Massive cost – 35 billion
- Not everyone can access renewable energy
- Some people think wind energy is inefficient, not very nice to look at and noisy

Increasing Energy Supply

Non-renewables

Fossil Fuels - Conventional power stations can be made more efficient with carbon capture overcoming the environmental impacts.

Nuclear - Once a nuclear plant is it can provide a cheap and long-term dependable source of energy.

Renewables

Wind, Solar, Biomass - These are examples of environmentally friendly renewable sources that can't run but cost a lot to install.



UK Fracking



Fracking is used to extract natural gas trapped in underground shale rock. It is a method considered by the UK.

Advantages

- Estimated to create 64,000 jobs.
- UK has large shale gas reserves.
- Is far cheaper than natural gas.

Disadvantages

- May cause groundwater pollution
- Is a non-renewable resource.
- May trigger minor earthquakes.

Sustainable Energy Supply

This involves balancing supply and demand. It also includes reducing waste & supporting the environment.

Home design - Building homes to conserve energy. i.e. roof insulation.

Reduce demand - Changing attitudes towards energy used to save energy.

Efficient technology - Making cars more efficient by improving engine design and weight. i.e. Hybrid engines.

Transport - Using public buses & bikes.



Renewable Energy

Non-Renewable Energy

