

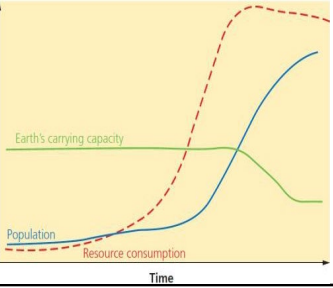





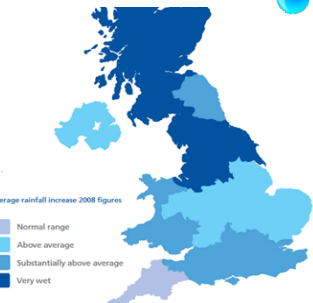


Demand outstripping supply	
The demand for resources like food, water and energy is rising so quickly that supply cannot always keep up. Importantly, access to these resources vary dramatically in different locations	
1. Population Growth 	2. Economic Development 
<ul style="list-style-type: none"> <li>Currently the global population is 7.3 billion.</li> <li>Global population has risen exponentially this century.</li> <li>Global population is expected to reach 9 billion by 2050.</li> <li>With more people, the demand for food, water, energy, jobs and space will increase.</li> </ul>	<ul style="list-style-type: none"> <li>As LICs and NEEs develop further, they require more energy for industry.</li> <li>LICs and NEEs want similar lifestyles to HICs, therefore they will need to consume more resources.</li> <li>Development means more water is required for food production as diets improve.</li> </ul>
	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	
<ul style="list-style-type: none"> <li>The demand for resources has driven the need for new technology to reach or gain more resources.</li> <li>More people in the secondary and tertiary industry has increased the demand for resources required for electronics and robotics.</li> </ul>	

Food in the UK	
 Growing Demand	 Impact of Demand
<ul style="list-style-type: none"> <li>The UK imports about 40% of its food. This increases people's carbon footprint.</li> <li>There is growing demand for greater choice of exotic foods needed all year round.</li> <li>Foods from abroad are more affordable.</li> <li>Many food types are unsuitable to be grown in the UK.</li> </ul>	<p>Foods can travel long distances (food miles). Importing food adds to our carbon footprint.</p> <ul style="list-style-type: none"> <li>+ Supports workers with an income + Supports families in LICs.</li> <li>+ Taxes from farmers' incomes contribute to local services.</li> <li>- Less land for locals to grow their own food.</li> <li>- Farmers exposed to chemicals.</li> </ul>
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"> <li>+ Intensive farming maximises the amount of food produced.</li> <li>+ Using machinery which increases the farms efficiency.</li> <li>- Only employs a small number of workers.</li> <li>- Chemicals used on farms damages the habitats and wildlife.</li> </ul>	<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"> <li>Reduces emissions by only eating food from the UK.</li> <li>Buying locally sourced food supports local shops and farms.</li> <li>A third of people grow their own food.</li> </ul>



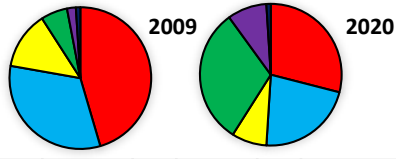

Water in the UK	
 Growing Demand	 Deficit and Surplus
<p>The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020. This is due to:</p> <ul style="list-style-type: none"> <li>A growing UK population.</li> <li>Water-intensive appliances.</li> <li>Showers and baths taken.</li> <li>Industrial and leisure use.</li> <li>Watering greenhouses.</li> </ul>	<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"> <li>Chemical run-off from farmland can destroy habitats and kills animals.</li> <li>Oil from boats and ships poisons wildlife.</li> <li>Untreated waste from industries creates unsafe drinking water.</li> <li>Sewage containing bacteria spreads infectious diseases.</li> </ul>	 <p>Average rainfall increase 2008 figures</p> <ul style="list-style-type: none"> <li>Normal range</li> <li>Above average</li> <li>Substantially above average</li> <li>Very wet</li> </ul>

# Unit 2c




# The Challenge of Resource Management



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). Opposition includes:</p> <ul style="list-style-type: none"> <li>Effects on land and wildlife.</li> <li>High maintenance costs.</li> <li>The amount of energy required to move water over long distances.</li> </ul>

Energy in the UK	
 Growing Demand	 Energy Mix
<p>The UK consumes less energy than compared to the 1970s despite a smaller population. This is due to the decline of industry.</p>	<p>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.</p>
Changes in Energy Mix	
<ul style="list-style-type: none"> <li>75% of the UK's oil and gas has been used up.</li> <li>Coal consumption has declined.</li> <li>UK has become too dependent on imported energy.</li> </ul>	

Energy in the UK (continued)					
Significance of Renewables	Exploitation				
<ul style="list-style-type: none"> <li>+ The UK government is investing more into low carbon alternatives.</li> <li>+ UK government aims to meet targets for reducing emissions.</li> <li>+ Renewable sources include wind, solar and tidal energy.</li> <li>- Although infinite, renewables are still expensive to install.</li> <li>- Shale gas deposits may be exploited in the near future</li> </ul>	<table border="1"> <tr> <td>Nuclear</td> <td> <p>New plants provide job opportunities. Problems with safety and possible harm to wildlife. Nuclear plants are expensive.</p> </td> </tr> <tr> <td>Wind Farm</td> <td> <p>Locals have low energy bills. Reduces carbon footprint. Construction cost is high. Visual impacts on landscape. Noise from wind turbines.</p> </td> </tr> </table>	Nuclear	<p>New plants provide job opportunities. Problems with safety and possible harm to wildlife. Nuclear plants are expensive.</p>	Wind Farm	<p>Locals have low energy bills. Reduces carbon footprint. Construction cost is high. Visual impacts on landscape. Noise from wind turbines.</p>
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Significance of Water		
Resources such as food, energy and water are what is needed for basic human development.		
 FOOD	 WATER	 ENERGY
<p>Without enough nutritious food, people can become malnourished. This can make them ill. This can prevent people working or receiving education.</p>	<p>People need a supply of clean and safe water for drinking, cooking and washing. Water is also needed for food, clothes and other products.</p>	<p>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.</p>

## FOOD - Global



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

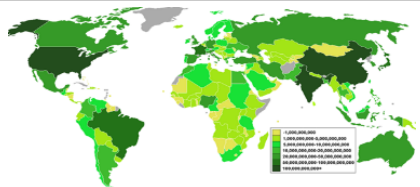
- The quality of soil is important to ensure crops have key nutrients.
- Water supply needs to be reliable to allow food to grow.
- Pest, diseases and parasites can destroy vast amounts of crops that are necessary to populations.
- Extreme weather events can damage crops (i.e. floods).

### Daily Calorie Intake



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.

### Food Supply



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.

## 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.

### Increasing Food Supply

**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.

## C.S. 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.

## Key Words:

**Resources** - 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.

**Energy mix** - the range of energy sources of a region or country, both renewable and non-renewable.

**Energy/food/water security** - Uninterrupted availability of resources at an affordable price.

**Irrigation** - applying water to land in order to supply crops and other plants with necessary water.

**Renewable energy sources** - a resource which is not diminished when it is used; it recurs and cannot be exhausted (for example wind and tidal energy) e.g. wind, solar etc.

**Non-renewable energy sources** - a resource which will diminish when it is used and will not be reproduced without our lifetime e.g. coal, oil and gas.

**Shale gas** - natural gas that is found trapped within shale formations. The gas is extracted by hydraulic fracturing or "fracking" - the process of forcing fluids at high pressure to fracture the shale rock, allowing the gas to escape.

**Sustainable** - having enough for now and future generations without affecting social, economic or environmental sustainability

**Undernutrition** - occurs when people do not eat enough nutrients to cover their needs for energy and growth, or to maintain a healthy immune system.

**Water/food/energy deficit** - where water/food/energy demand is greater than supply.

**Water/food/energy surplus** - where water/food/energy supply is greater than demand.