Why is water, food & energy important

Food, water & energy are needed for basic human development. People used food & water to survive & stay healthy. Energy is needed for basic standard of living eg to provide lighting & heat for cooking. Access to food, water & energy effects the economic & social well-being of people & countries.

Food: is vital for life & health. Humans need on average 2,400 calories a day. Without enough food people become malnourished or without the right balance of foods suffer malnutrition. These can lead to diseases linked to diet eg scurvy or become vulnerable to other diseases. Without enough food people are able to work properly in their jobs or at school & can effect how a country develops economically.

Water: is important as it has a wide range of uses. We need it to drink to survive, to wash ourselves, to wash belongings, to dispose of waste, to grow & process food, in industry, in power generation & for leisure purposes.

Energy: is essential for economic development because energy is required for the production of electricity & to power industry. Countries once relied on their own energy resources but now most rely on importing energy resources.

Key Words

Access to Safe Water: a reliable supply of clean water
Agribusiness: large scale industrial farming owned by large companies eg Tesco
Aquifers: water stored underground
Carbon Footprint: measurement of the greenhouse gasses individuals produce
Consumption: using a resource
Deficit: less than what’s needed
Demand: what’s required
Energy Mix: range & % of different energy sources
Energy Security: reliable supply of energy at affordable prices
Food Miles: the distance food travels from where its produced to the customer
Fossil fuels: eg coal, oil & gas formed in the geological past from the remains of living organisms. It is burnt to provide heat energy which is then used in steam turbines to produce electricity or in transportation
High Value food: foods that cannot be grown in the UK
Intensive Farming: lots of inputs are used to produce as much food as possible from each hectare
Malnourished: not having enough calories
Malnutrition: not having all the essential nutrients required for health
Organic: this is produced food according to strict regulations eg not using chemical fertilisers or pesticides
Nuclear: nuclear reactions that release energy to generate heat, which is then used in steam turbines to produce electricity

UK’s Water Demand

- Highest demand in South East, West Midlands & north west England & South Wales.
- Little demand in south west England, central, west & north Wales & Scotland.
- 47% of demand is for homes, 21% is wasted, 5% manufacturing, & 13% services
- Demand has risen 70% in homes since 1970 due to increase in wealth, changes in personal hygiene & increase in leisure.
- Demand for water will increase by another 5% by 2020 due to increase in UK population

UK’s Water Supply

- Taken from rivers, lakes, aquifers & reservoirs.
- Areas with highest rainfall have the lowest demand.
- The north & west of the UK has a water surplus due to high rainfall, lower evaporation rates, lots of upland areas suitable for dams & reservoirs, & the demand is low.
- The SE of the country has a water deficit as there is low rainfall, high demand & little land suitable for reservoirs

Need for Water Management

- To ensure demand in all areas are met regardless of deficit
- The quality of UK water needs to be managed due to:
  - Nitrites & phosphates from chemical fertilisers & from washing detergents washing into water ways & causes algae that kills other water life
  - Pollutants from vehicles run-off roads when it rains, leaching from old mine workings & accidental chemical & oil spills from factories.
- 50% of aquifers in SE England are contaminated.

How it is managed

- Each region is supplied water by a water company also responsible for the removal of waste. eg South West Water.
- Environment Agency monitors the quality of river water, filtered to remove sediment, purified by adding chlorine & restrict recreation

What can be done to ensure a supply of quality water

- Individuals: Water meters, recycle ‘grey’ water, use efficient appliances & dual flush toilets, shower not bath etc
- Water Transfer: The Government wanted to set up a national water grid, where the water is transferred via pipes from areas of surplus eg Wales to areas of deficit eg London. It has not been put into practice due to the high costs. Other concerns include: could lead to water deficit where water is taken, reservoirs will change the environment & effect wildlife, & could displace people that once lived there, pumping the water over long distances will increase carbon emissions. Some transfer do take place, water from Kielder is pumped into the North Tyne River & from there transferred to 3 other rivers including the River Tees to supply Middlesbrough.

Fossil fuels: energy resources that are naturally replenished on a human time-scale, eg sunlight, wind, Reservoirs: artificial lakes created by damming valleys
Resource: anything that humans need
Seasonal food: only available at certain times of year
Supply: what’s available
Surplus: more than what’s needed
Water Transfer: moving water from areas of surplus to areas of deficit
Supply & Demand for Food in the UK:

Before the 1960s
- Fruit & veg were grown, sold & eaten seasonally eg lettuce & strawberries in the summer, & cabbage & parsnips in the winter.
- Foods such as apples & potatoes that can be stored were available most of the year.
- Food was preserved (frozen, bottled, jam & pickles) for eating out of season.
- Some foods were imported eg sugar, tea, coffee, cocoa from the UK’s former colonies.

Since the 1960s
- Growing demand for seasonal products all year round. So fruit & veg that can be grown in the UK were supplied from countries that are able to produce it all year eg apples from South Africa, or because it can be grown more cheaply.
- Increased incomes means there has also been an increasing demand for high value foods such as exotic fruits & veg eg mangos. Most imported from LICs.
- Farms have become mechanised & intensified and some are agribusinesses created by agribusinesses. This made food cheaper which in turn increased the demand.

More Recent Changes
- People are more aware of environmental issues caused by food miles & the increased carbon footprint of importing seasonal goods all year round & high value goods such as exotic fruits & veg.
- Supply & Demand for Food in the UK has changed the landscape eg more hedges. It has put many small farmers out of business as they cannot compete.
- Small fields divided by hedges, but have now merged into large farms with huge fields.
- Pesticides use has reduced insect populations eg bees needed to pollinate other plants needed to pollinate other plants needed to pollinate other plants.
- Hedges are removed to maximise space & allows the use of large machinery, results in less protection from the wind leading to soil erosion & reduced biodiversity.