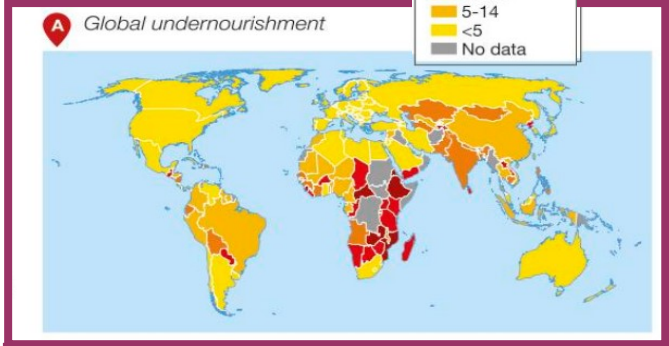
Knowledge Organiser: The Challenge of Resource Management (Paper 2)

WORLD FOOD SUPPLIES:

1 billion people in the world are malnourished and a further 2 billion are undernourished. This is most common in LICs and results in illness and low productivity, which lowers GNP.

Other areas of the world (HICs) there is an increasing obesity problem, leading to affluent diseases like diabetes and

pressure on health services.

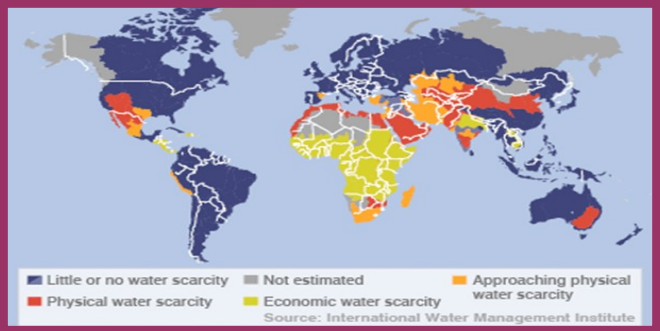


A Global undernourishment

WORLD WATER: SUPLIES

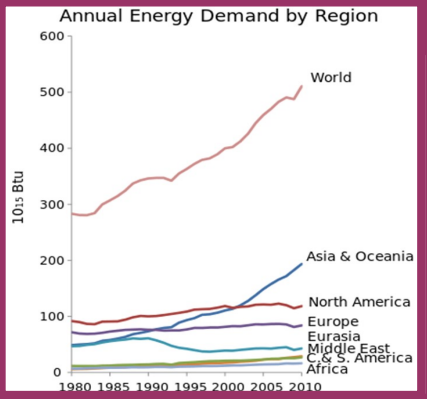
Inequality in water supply is caused by **physical scarcity** and **economic scarcity**.

Physical scarcity is can be seen in both HICs and LICs because it is caused by hot, dry temperatures in areas like SW USA. Economic Scarcity is more likely in LICs e.g. Kenya as they cannot afford the technology to access natural water supplies. HICs mostly use water in industry whereas LICs use water in agriculture due to different development levels.



WORLD ENERGY SUPPLIES:

World energy demand is increasing due to improved access to technology and industrialisation in areas like SE Asia where there has been a growing number of NEEs. SE Asia has seen the fastest growth in energy demand in recent years.



CHANGES IN UK FOOD DEMAND

The UK has a growing population and already **imports** over 40% of its food supplies. Recent changes include:

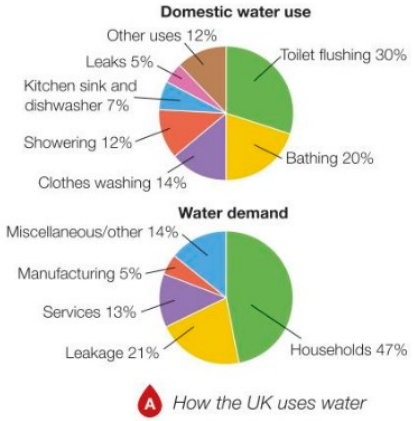
- Demand for exotic food from abroad.

- Increased demand for **seasonal** food all year round.

- Increased demand for **organic** produce (free from chemicals).

These changes result in increased ***food* miles** e.g. blueberries 5300 miles from the USA. This results in an increased **carbon footprint** and reliance on other countries.

UK WATER SUPPLY



A How the UK uses water

UK water supply is increasing as standard of living improves, bringing in labour saving domestic appliances. For this reason, water is being moved from areas of **surplus** to areas of **deficit**.

WATER STRESS

Water stress (when supply cannot meet demand) is a problem in the SW of England. One solution is water **transfer** schemes whereby water stored in **reservoirs** is moved through pipes from to where is is in high demand.

WATER MANAGEMENT

Other water management options (other than transfer) include taking care of the water which is available in the following ways:

Legislation, education, waste water treatments, improved water mains, pollution traps and green roofs.

All of these measures reduce water pollution, improve water quality and make water more readily available for domestic and industrial use.

KEY TERMS:

Agribusiness: When large farms have been turned into profit driven businesses.

Mechanisation: machinery increasingly doing the job of people.

Food miles: the distance travelled by food from producer to consumer.

Water surplus: having more water than demand requires.

Water deficit: Having less water than demand.

Carbon Footprint: amount of carbon released into the atmosphere by an individual or organisation.

SOLUTIONS:

People are being encouraged to eat **seasonal local** produce to reduce **food miles** and **carbon footprints**.

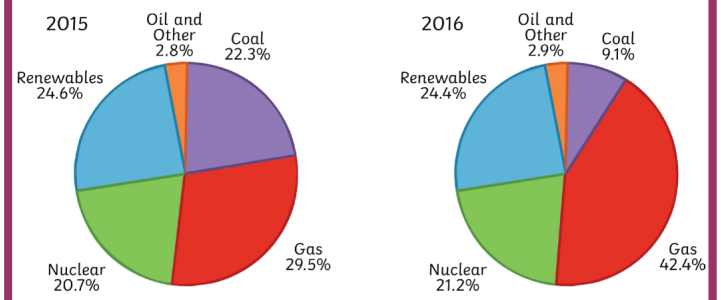
Agribusiness is increasing food production with increased use of **fertilisers** and **pesticides**.

Mechinisation has improved efficiency and increase crop **yield**.

Changing UK Energy

The UK's supply of domestic fossil fuels is running low. What does this mean for UK energy?

Electricity Generated



- Gas remains the largest source of energy in the UK.
- Use of coal has reduced dramatically.
- The use of fossil fuels and 'other' remains high (54.6% in 2015, 54.4% in 2016).
- Renewable sources make up around a quarter of the total mix.
- Nuclear power makes up about a fifth of the mix.
- Low carbon fuels (renewable and nuclear) contribute 45.6% of the total mix in 2016.

Wealth

- Fuel extraction and energy production will be more expensive if the fuel source is more difficult to access (e.g. under the sea).
- Wages in some parts of the world are higher, forcing energy prices up.
- Transport of different fuel types will vary making some sources more expensive than others in each country depending on what they naturally have and what they have to import. Where the imports come from will also affect the cost.
- Research, development, technology and infrastructure for new energy production in an area is expensive, forcing the prices to rise.

Population

- Populations have varying levels of wealth. Richer communities can afford to have more of a choice in their energy source. Poorer people will, most likely, tend towards the cheapest option.
- Countries with smaller populations can sometimes afford to use sources of energy that are more expensive or available in smaller quantities. Countries with larger populations have to use whatever is most readily available to them.

ENERGY PRODUCTION:

Renewable: biomass, wind, tidal, geothermal, wave, solar, hydro (HEP) and nuclear.

Non- Renewable: coal, gas and oil

FACTORS AFFECTING ENERGY SUPPLY:

- The geology and physical characteristics of a country determine what fuel sources are naturally present there.
- Some fuel sources are harder and more expensive to locate and extract.
- Renewable energy sources (such as HEP, solar and wind power) rely on favourable and consistent weather conditions.
- New knowledge and technology makes new fuel sources available. It can also increase the amount of fuel that can be extracted and the efficiency of production. This can influence the cost of the energy.
- Technology (such as solar panels) are decreasing in cost, becoming more widely available and accessible to poorer communities.
- Governments and leaders make decisions on what types of energy are produced and the final cost to the user.
- The quality of the transport and infrastructure systems can determine the type, quality and quantity of imported fuels that can reach and area.

IMPACT OF ENERGY INSECUIRTY:

Conflict can occur when supply does not meet demand.
Food production can be reduced where farmers prioritise bio-fuel production over food.
Economic and environmental cost in areas like the Arctic.

STRATEGIES FOR REDUCING ENERGY SUPPLY:

What Is Fracking?

Fracking is a way of accessing pockets of natural gas held inside shale rocks. It involves drilling down underground and injecting a mixture of water, sand and chemicals into cracks in the rocks at extremely high pressures. This releases the gas, making it available for collection and use.

It can produce cheap, highly taxable, domestically produced fuel for many countries.

ADVANTAGES AND DISADVANTAGES OF FRACKING:

+ Cheap, so energy bills fall and more energy security for the country.
- Contaminated water supplies from chemicals used in the process, earth tremors, finite (will run out in 70 years) and a fossil fuel (burning produces CO_2).

ACHIEVING A SUSTAINABLE FUTURE

OTHER METHODS OF IMPROVED SUSTAINABILITY:

Financial Incentives, Raising awareness,
Greater use of off peak energy tariffs,
Using less hot water on domestic appliances,
sustainable transport e.g. electric cars

CASE STUDY: Chambomontera, Peru (an LIC)

Why was it needed?

High levels of sustainable farming mean that development is low and living conditions are poor (some people live on $2 per day). Steep roads make the area difficult to access and building an electricity station nearly impossible. The charity Practical Action therefore organised the building of a micro-hydro scheme, funded in part by the Japanese government.

Was it successful and why?

The scheme provided cheap, renewable electricity, powered by easy to build and maintain technology, using local labour.

Benefits included better healthcare, due to refrigeration for medicine. Lighting meant improved education as children could work after dark. Lower fires risk as electric light has replaced gas lamps. Control of water flow has reduced flood risk and piped water can drive machines for local businesses.