AT A GLANCE – AQA TOPIC SUMMARIES

**Paper 2 – The Challenge of Resource Management** *– resource management and energy*

**Resources** – things we use and need for basic human development

**Importance of food** – avoid malnourishment & disease, have energy & strength to work and go to school

**Importance of (access to clean) water** – needed for drinking, cooking, washing, growing crops; avoid cholera & typhoid; avoid walking to distances to get water

**Importance of energy** – needed for industry, transport, use in homes; crucial for development & job creation



**Distribution of resources** – production and consumption is uneven; HICs produce & consume more resources because they have the money to develop resource technology, e.g. mining and drilling for oil; HICs often take resources from LICs because LICs do not have the money to obtain and export their own resources

**Resources in the UK**

**Food in the UK**

**Demand for food** – demand for all kinds of foods from around the world at any time of year; high quantities imported; increasing trend for organic or locally grown food as people become more environmentally aware

**Carbon footprint** – the carbon emitted from growing, harvesting, packaging, and transporting food around the world (also known as food miles)

**Organic food –** grown without pesticides & fertilisers; better for people & the environment

**Agribusiness** – a type of large-scale industrial farming which has grown in the UK; uses more pesticides which are harmful to the environment; more machinery results in job losses; loss of hedgerows leads to loss of biodiversity

**Water in the UK**

**Demand for water** – most rainfall (water supply) is in the north-west, but most usage (water demand) is in the south-east; usage has increased due to use of washing machines, dishwashers, and population increases

**Water pollution** – mainly from farming fertilisers, vehicle pollutants, chemical spills; regulated using better drainage systems and stricter regulations

**Water transfer strategies** – move water from areas of surplus to deficit, e.g. using dams and aqueducts; however, this can be expensive, affect wildlife, and be controversial

**Energy in the UK**

**The energy mix** – we used to rely on fossil fuels (e.g. gas from the North Sea); nuclear energy has now increased as has wind, solar, bioenergy and HEP usage; some coal power stations have now closed down

**Supply of fossil fuels** – North Sea oil and gas is nearly all used up; coal-mines are closing; shale gas is being considered (fracking – where fluid is pumped into shale rock to extract gas) but this is a controversial process

**Issues of fossil fuel usage** – **economic** (extracting & refining fossil fuels is expensive, but using renewables and nuclear is also costly; importing energy is a costly but possible option); **environmental** (burning fossil fuels gives off greenhouse gases and carbon causing climate change; fracking may pollute water and cause mini earthquakes; oil spills cause water pollution; renewables can cause damage to the environment, e.g. wind farms)

**Energy**

**Energy security/surplus** – when you have a reliable, uninterrupted, affordable supply of energy

**Energy deficit** – when you don’t have a reliable, affordable supply of energy

**Global energy production** – uneven; a small number of fossil-fuel rich countries produce most of the world’s energy, e.g. oil – Iran, Saudi Arabia; coal – China, Australia

**Global energy consumption** – uneven; HICs consume far more energy because they can pay for it and have lifestyles that demand more energy, e.g. use of cars, large houses, electronic gadgets

**Reasons for growing energy use** – economic development (some LICs and NEEs have developed faster and have an increased use of energy); rising population (over 7 billion, heading towards 9 billion); technology (there are now more devices that use electricity, e.g. phones, computers, tablets)



**Factors affecting energy supply** – **physical** (some countries simply have more fossil fuels than others, variations in climate will affect how much renewables are used, e.g. wind and solar); **economic** (cost of extraction, prices can vary due to wars and conflict, e.g. over oil, renewables are expensive); **political** (wars affect extraction, e.g. fighting in the Middle East; international climate change agreements reduce the use of fossil fuels in a bid to reduce carbon emissions)

**Impacts of energy insecurity** – exploration begins in difficult and environmentally sensitive areas, e.g. Alaska for oil; conflict between regions with different energy levels, e.g. Russia, Ukraine, the Middle East; industry declines as it cannot rely on intermittent or expensive energy; demand for biofuels increases which causes damage to farmland

**Increasing energy supply**

**Renewables**

**Biomass** – burn wood, plants or animal waste to produce biofuels; good for LICs

**Wind** – turbines spin to create electricity; depends on high wind speeds

**Solar** – photovoltaic cells trap sunlight; only works in sunny places

**Hydro-electric power (HEP)** – uses dams to hold water back and then releases it through a turbine; reservoirs can damage wildlife and communities

**Tidal** – turbines turned with changing water levels and tides; predictable energy due to regular tide patterns

**Wave** – waves turn turbines; don’t work in calm conditions

**Geothermal** – uses water heated by the earth’s mantle; only works in certain countries



**Non-renewables**

**Fossil fuels** – search for new reserves; develop new technology, e.g. fracking

**Nuclear** – efficient way of making energy from small amounts of fuel; however, there are risks associated with safety and nuclear waste

**Case study – natural gas in the Amazon, South America**

**Natural gas** – made from the remains of sea creatures that lived long ago and are now buried under the sea

**Reserve locations** – main reserves found in Russia, Iran, Qatar and Saudi Arabia

**Advantages** – clean, low risk of accidents, provides employment, boosts local economies, easier to transport than other fuels, saves Peru US$4 billion in energy costs, Peru would no longer have to import fuel

**Disadvantages** – dangerous if mishandled, contributes to global warming, deforestation can destroy Peruvian habitats, indigenous tribes may be pushed off land or catch diseases from developers, pipelines are expensive

**Energy conservation**

**Sustainable futures** – providing energy for the current generation without compromising the ability to future generations to meet their own energy needs

**Carbon footprint** – a measure of how much carbon you emit from various activities, e.g. eating, drinking, travelling, washing, using various appliances

**Sustainable design** – improve house insulation to keep heat in, double glazing, larger windows to increase natural lighting, use modern boilers, fit solar panels and wind turbines to the roof

**Reduce demand** – turn of lights when not in use, only boil water needed, improve and increase use of public transport, make safer cycle paths and footpaths

**Increase efficiency** – hybrid cars (diesel and electric), engine manufacturers required to make more efficient engines

**Case study of a renewable scheme in an LIC: micro-hydro plants in Nepal**

**Location** – Himalayas; landlocked between China and India; has no natural energy reserves and is high up in the mountains

**Micro-hydro plants** – make use of fast flowing mountain streams; no need for dams/reservoirs – use diverted water; used to provide power or water for small-scale industry, agriculture and homes; small scale = cheaper

**Benefits** – electricity has enabled businesses to develop; medicines can be refrigerated meaning healthcare has improved; schools can function and students can study after dark; less trees cut down so forests are growing back; less people now need to move to cities; project can last for over 25 years