Paper 2 - Section B – Changing economic world – UKs Economy

Example of a sustainable modern industrial development – Torr Quarry

Location – Somerset, South East England.

Background information

- Torr Quarry opened in the 1940s
- Torr Quarry is a large pit that stone is mined and taken from.
- It mines around 5 million tonnes of stone per year

How it is more environmentally sustainable

- 200 acres has been blended into the surroundings. This will create more habitats for animals and make the quarry look more natural.
- The company operating the site, monitor the noise, pollution levels and water quality. This is to make sure it is not polluting and damaging the environment.
- Transport via rail rather than trucks is favoured. This is less polluting to the environment and more sustainable.

The UKs changing rural (countryside) landscape

Population growth – South Cambridgeshire

It is growing because It surrounds the city of Cambridge which provides good work opportunities and interesting places to see. It is also close to London.

- ***Social effects*** **–** More people in the area is leading to greater traffic
- ***Economic effects*** **–** House prices have increased as more people want houses then there are available. Often too expensive.

Population decline **–** The Outer Hebrides

People are leaving due to its remote location, its lack of entertainment and poor weather.

- ***Social effects*** **–** Services such as schools will have to close as there are not enough students attending to make it worth the cost

Improving transport infrastructure

The UK government is investigating in infrastructure projects to help improve the UK economy

Road improvements

- In December 2014, the government announced that they would be spending £15 billion on a project called the 'Road investment strategy'.

Example - This money involves building 'smart motorways' that use technology to manage congestion and keep people and products moving quickly around the country.

Rail improvements

- £25 billion is being spent to upgrade the UK rail network by 2019. Improvements will include longer platforms that can cope with bigger trains and better stations.

Example *- HS2 is planned to be completed in 2031, at an estimated cost of at least £81 billion. This is a high speed rail link that will cut journey times between cities along people to commute further for better paying work.*

Port Improvements

- UK ports remain the largest in Europe, in terms of volume of goods handled.
- 32 million people travel through UK ports each year and the industry employs 120,000 people.

Example *- Liverpool 2 port is a £300million project that is looking to double the amount of cargo it can hold. This will create thousands of jobs and boosts the UKs economy*.

Airport improvements

- This area makes 3.6% of the UKs economy and has over 300,000 people working in it.

Example *- This is very valuable to the UK which is why they*

The North South Divide

What is the north south divide?

People living in the north of England experience lower incomes, higher unemployment, and have a lower expectancy than those living in the south of England

Strategies to reduce the divide

- High Speed 2 is a high-speed railway under construction (phase 1 will open in 2031) that will connect London to the midlands and Northern Cities and improve connection to companies in the North of England.
    - It will create 100,000 jobs when built.
    - 70% of these jobs created are meant to be outside of London
    - Northern economies could grow by £1.5 – 3 billion by time of completion
- More professional jobs to be created in Northern Cities.
    - For example, the BBC moved many of its offices to the newly built MediaCityUK in Salford in 2011. Since then, the multiplier effect has led to other companies locating close by which brings in more money.

UK links to the wider world

The UK has strong political links with many countries.

Britain joined the European Union (EU) in 1973 and works closely with 28 other countries. It is also the leading country of the commonwealth which is a group of 53 countries from the old British empire. Both these example help trade and funding of project within the UK.

- ***Trade*** – the UK imports and exports goods from many countries. Over 50% of UK trade is with EU countries. The UK's next biggest trading partners are found in Asia and Oceania.
- ***Transport*** – increasing air travel is strengthening the UK's links with other countries. In addition to this, the UK has modern port facilities and a high speed rail link to Europe (channel tunnel)
- ***Communications*** – the UK is linked to the rest of the world via the internet. Internet cables beneath the sea provide a fast connection to countries globally.

Paper 2 - Section C – The challenges of resource management

What is a resource?

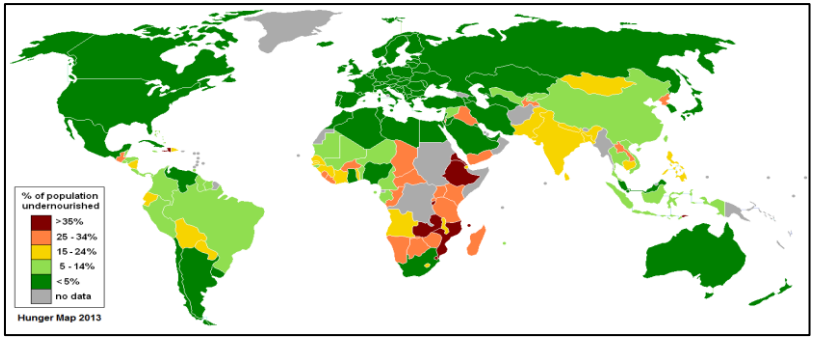
- A resource is a stock or supply or something that has a value or purpose.
- The three most important resources are **food**, **water** and **energy**.

The importance of resources

- Resources are not equally shared around the world.
- Most HIC's have vast supplies of resources and have a better quality of life as a result.
- Areas that lack resources struggle to develop and improve their quality of life.

Global distribution of food

- Your health depends on how much food you have.
- The UN recommends an intake of between 2000-2400 calories per day to be healthy.
- Over 1 billion people world wide fall below this level. This leads to people being ***malnourished***.
- A further 2 billion people suffer from ***undernutrition***.
- This is when you have a poorly balanced diet that lacks minerals and vitamins.
- You need food in be productive at work or at school. By not having food your country will struggle to develop.

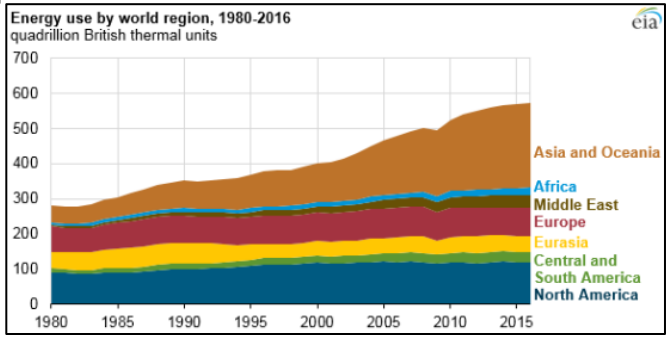


Global distribution of energy

- Energy is required for economic development
- Its powers factories, machinery and provides fuel for transport.

Energy security and energy insecurity

- High income countries (HICs) and new emerging economies (NEEs) consume a lot of energy. Factories in NEEs also use energy to manufacture products.
- Low income countries (LICs) use less energy.
- Some countries produce large supplies of energy.
- Other countries are dependent upon imported fuel.
- Fuel prices are set by the exporting countries and so those importing fuel often have to pay high prices.
- Places that have ***energy security*** produce a high percentage of the energy that they consume.
- Places that have ***energy insecurity*** consume more than they produce.



Global distribution of Water

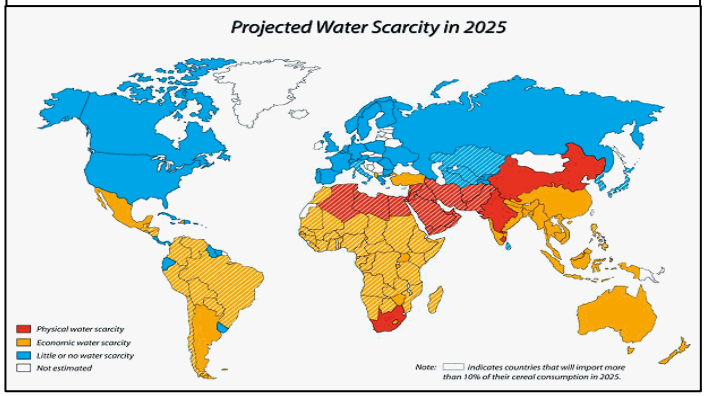
- Water is important to people, animals, crops, food and energy production.
- Many of the worlds poorest countries have a shortage of water.
- This causes them to become trapped in a poverty cycle.

Water surplus and water deficit

There is a fixed amount of water on the planet. The amount of water available in an area is dependent on factors such as rainfall, temperature and population.

- Higher rainfall leads to more water. Some places can have too much rainfall, which leads to flooding.
- Higher temperatures cause evaporation. If water evaporates, then less is available for people to use.
- Higher populations use more water. This means there is less available to share around.

Areas of **water surplus** have more water than they need. Areas of **water deficit** have too little water.



Sustainability	Environment	Scale	Interconnection	Place

Paper 2 - Section C – The challenges of resource management

UK Resources – Food

- ***Growing demand for food***
  - The population if growing which means we need more food.
  - We currently import 40% of all are food.
  - We get these foods from LICs as the people here work for less money
  - This also us to import cheaper food into our country.
  - We also want certain foods all year round but due to our climate we cannot do this.
  - This leads us to importing food from hot countries as they can grow them all year.
- ***Carbon footprint***
  - Due to the importing of our food, it is traveling from all across the world.
  - This is known as food miles.
  - This increases the amount of C02 released into the atmosphere due to the way it travels here.
- ***Organic farming***
  - Some people do not like the idea their food comes from far away
  - Organic farming is locally produced crops without the use of Chemicals.
  - This is growing in popularity as people take more of an interest in climate change but the cost can be higher.
- ***Agribusiness***
  - This is another way we can reduce our food carbon footprint.
  - This is the use of intense farming methods to maximise the amount of food produced.
  - This is achieved by advanced machinery and chemicals sprayed on the crops.

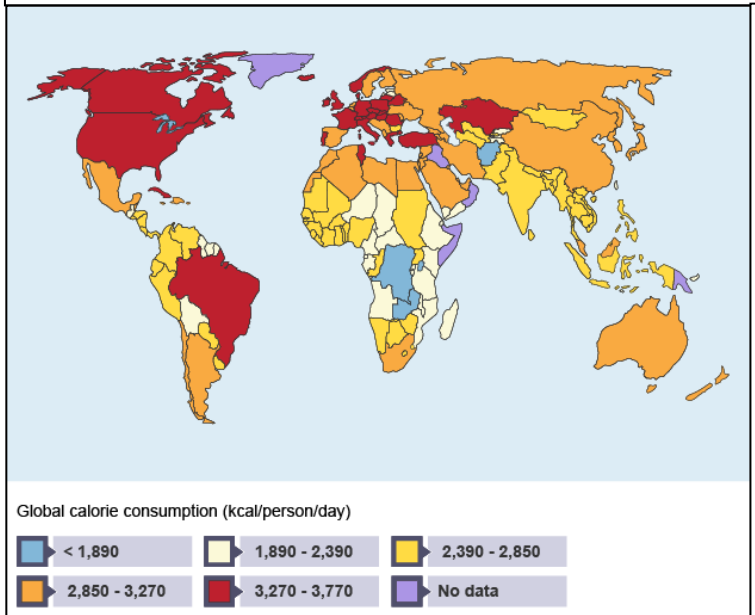
UK Resources – Water

- ***Changing Demand for water***
  - The demand for water is expected to rise by 5% by 2020.
  - This is due to more people, more houses and an increase in devices that use more water.
  - 21% of all our water is lost through leaks in pipes.
- **Water quality and pollution management**
  - The environment agency manages the water quality in the UK. They –
    - Monitor the quality of river water
    - Filter water to remove sediment
    - Purify water by adding chlorine as this kills bacteria
    - Impose regulations on what the UKs water can be used for.
  - Agriculture can pollute water due to the pesticides and fertilizers getting into rivers
- **Water supply and demand**
  - The UK's main source of water is from its rivers, reservoirs and groundwater stores.
  - The UK receives enough rain to meet its demands but it does not fall equally across the country.
    - The North and west of the UK have water surplus. This is where they receive more water then they need. This is due to lots of rain and smaller populations
    - The south east of the country has water deficit. This is where they receive less water then they need. This is due to the lower amounts of rainfall and the larger populations.
- **Water transfer**
  - To help areas of water deficit, water transfer schemes can be used to move water around the country.
  - This keeps a constant supply of water available.
  - Kielder water transfer water from its reservoir to the city of Newcastle when it requires more water

UK Resources – Energy

- **UKs changing energy mix**
  - The UK's demand for electricity is actually falling.
  - This is due to less industry and better energy conservation.
  - We have moved from getting most of our energy from coal in 1990 (fossil fuel) to more clean energy sources such as nuclear and renewable energy.
  - We are aiming for 15% of all our energy needs to come from renewables y 2020.
  - We still use a range of energy methods – Fossil fuels, nuclear and renewables
- **Reasons for our changing energy mix**
  - We used to be able to supply all our own energy.
  - About 75% of our oil and gas has run out which means we have to now get it from other countries.
  - The main change in the UKs energy mix has come from the decline of coal from 1990 to present.
    - This mainly was caused via a concern about the impact coal was having on the environment.
    - This caused 80% of coal fields to close
    - The government want all coal power stations closed by 2025.
  - Fossil fuels are still important in the UK because we still have enough for several more decades.
  - Coal is cheap to import, meaning house hold bills are cheaper.
  - We could have lots of shale gas that could be used via 'Fracking'
- **Economic and environmental issues of energy**
  - Nuclear –
    - Can be expensive to build and to produce electricity.
    - Can risk environment is any leaks occur
  - Wind farms –
    - Can impact tourism as people think they look ugly and are put of coming.
    - Help reduce carbon footprint as they don't pollute.

Paper 2 - Section C – The challenges of resource management – Food management



Global food supply

The amount of food eaten around the world varies. The more developed a country is, the more calories they tend to eat in a day.

Global calorie intake is increasing around the world. This is due to

- Increasing levels of wealth which means people can afford to buy more food
- Growing populations means more food is needed
- People have more access to food

Food Security

- This is having enough nutritious food to maintain a healthy and active life.
- Countries that have more food than needed have food surplus
- Most countries do not produce enough food and have to import it. This is known as food deficit and can lead to food insecurity (not having access to enough food).

Factors that affect food supply

Climate – Global warming is increasing worldwide temperatures. Higher temperatures and unreliable rainfall make farming difficult. This means less food is grown

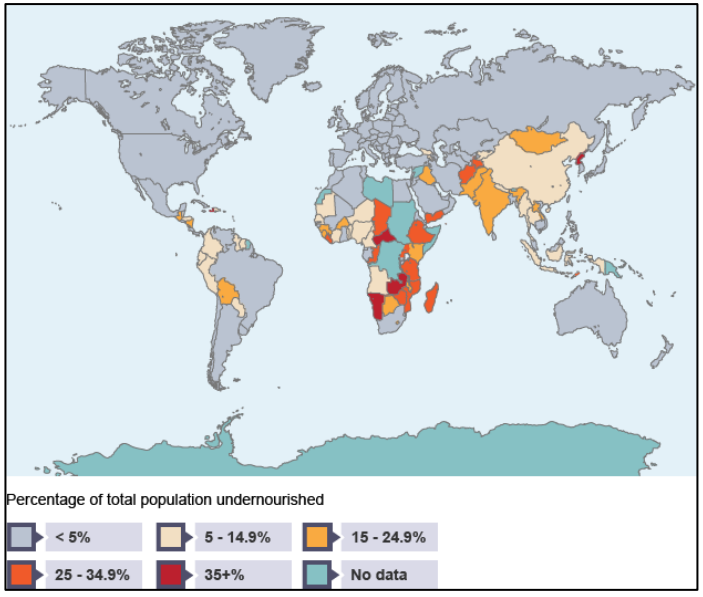
Technology – Improvements in technology have increased the amount of food available as it can be used to overcome a lack of water, higher temperatures and a lack of soil nutrients. This means more food

Pest and disease – Pesticides have increased crop yields as they kill of insects that eat the crops. Farmers in wealthier countries can afford pesticides, whereas most farmers in poorer countries cannot afford them

Water stress – A lack of water means less crops can be grown leading to less food. Countries that can afford irrigation can use this to get around lower rainfalls.

Conflict - War forces farmers to flee their land or to fight in conflict. Crops can also be destroyed during fighting which leads to less food being produced.

Poverty - When people have less money, they cannot afford food and they become unable to work. Often food is available but the people can not afford it.



St. Mark's Church of England Academy

Impacts of food insecurity

When you have a lack of food the following can occur –

Famine – This is the wide spread shortage of food that leads to malnutrition, starvation and then death. ***Example – 2010-2012 Somalian famine which lead to 258,000 deaths.***

Undernutrition – This is the lack of a balanced diet. ***Example - 850 million people suffered from this between 2012-2014. This causes around 300,000 deaths per year.***

Soil Erosion – As farmers try to get the most from their land, they can cause over farming which leads to the soil erosion as they plants die off and leave the soil exposed to wind and rain.

Rising prises – When less food is available the price of food goes up. This can cause people to be unable to afford the food they once could.

Social unrest – People often turn to violence in an attempt to get the food that is available. ***Example – Riots in Algeria in 2011 when the cost of oil and flour doubled lead to 4 people dying.***

Paper 2 - Section C – The challenges of resource management – Food management

Strategies to increase food supply

As the global population continues to increase, countries are finding ways to grow more food.

Irrigation - Irrigation is the artificial adding of water to land. This helps increase food supply as it allows more water to be available to help grow the crops. ***Example - IBIS***

Aeroponics and hydroponics - Systems that allow plants to be grown without soil.

- **Aeroponics** involves suspending plants in the air and spraying their roots with a fine mist of water and nutrients.
- **Hydroponics** involves growing plants in a porous material (other than soil) and allowing water containing nutrients to filter through it.

The New Green Revolution - The New Green Revolution involves using different seeds to help specific areas that are experiencing the impact of global warming, such as drought and flooding.

Biotechnology - Biotechnology is the selective breeding or genetic modification (GM) of plants and animals to produce specific traits. Both involve mixing two species, both of which have beneficial characteristics.

- ***Example - The IR8 GM crop is a high yield rice that was developed in India. It was shorted than normal which meant that more of the plant's energy could be places into growing more rice grain than growing tall which led to more food. It is credited with saving millions of lives.***

Appropriate technology - Appropriate technology involves using suitable machinery and techniques in LICs. Appropriate technology is usually affordable and easy to use - it can improve yields for many communities. ***Example – Magic stones in Burkina Faso***

The Indus Basin Irrigation System (IBIS)

Location – Pakistan and India (mostly in Pakistan)

What is it?

- A large scale agriculture development to increase food supply
- A series of dams used to collect water from the Indus River.
- The water is then put onto land which allows it to grow more crops. This is called irrigation.

Advantages –

- It worked as it improved Pakistanis food security by creating 40% more land that could be farmed.
  - Rice yields increased by 39%
  - Fruit yields increased by 150%
- Hydroelectric power (HEP) is also created via turbines in the dams.

Disadvantages –

- Some farmers take an unfair share of the water meaning farmers further down get less water.
- High cost to maintain the system – Could the money be better spent within the country?

Local sustainable food increase scheme – Makunei, Kenya.

Location – Makunei Country, Eastern Kenya.

What is it?

- A small scale way to improve food supplies sustainably. – Small scale is the key part to this.
- It has been hard to grow crops in the past due to low rainfall (500mm per year)

How did they increase food supply?

- In April 2014, the 'Just a drop' charity helped to improve food supplies.
  - They built / taught the locals how to build sand dams.
  - This allowed them to trap water which could then be used all year round (irrigation).
  - They also trained farmers to be more efficient at growing crops.
- How did this help?
  - This lead to increase crop yields
  - A reduction in water borne diseases
  - Less time fetching water which means more young girls in education.

Sustainable food supplies

This is when we are able to increase food supplies without damaging the environment.

Permaculture **-** is farming in a sustainable and self-sufficient manner.

Organic farming **-** Organic farming uses natural methods to grow foods. This means using organic fertilisers and pesticides, such as animal slurry and natural predators and no artificial fertilisers or pesticides. Organic farming is environmentally sustainable because it doesn't pollute the environment.

Urban farming **-** Urban farming involves growing food using space in and around cities. It also helps to reduce food miles, which is better for the environment.

Sustainable fish and meat –

- **Fish -** Modern fishing techniques use large nets. This often wipes out whole fish populations and many fish are trapped by accident. Sustainable fishing involves catching fewer fish so they do not die out.

- **Meat -** Sustainable meat production involves using grass as animal feed. This is because current methods use a lot of water and causes lots of pollution (Methane and C02).

Seasonal food consumption **-** Food is now available out of season thanks to heated greenhouses to produce it in the UK and cold storage to transport it to the UK. Seasonal food consumption reduces food miles and electricity use by eating the food that is only grown at that time of the year.

Reduction of food waste - Developed nations waste a lot of food. Buying only the food that is needed is more sustainable as there is more food left to feed others.