**Paper 1**

Section A - Changing Landscapes of the UK.

**Distinctive coastal landscape: Holderness Coast**

The Holderness coastline is located on the east coast of England. It is the fastest eroding coastline in Europe.

### Reasons for management

The coastline is rapidly eroding at an average of 1.8 metres a year. There are several reasons why the coast at Holderness is eroding so quickly:

* **Rock type** - the cliffs are made from less-resistant boulder clay (made from sands and clays) which slumps when wet.
* **Naturally narrow beaches** - these beaches give less protection to the coast as it doesn't reduce the power of the waves.
* **Man-made structures** - *groynes* have been installed to stop long-shore drift. This narrows unprotected beaches elsewhere even more.
* **Powerful waves** - waves at Holderness travel long distances over the North Sea (so have a long fetch) which means they will increase in energy.

Coastal protection

* Bridlington is protected by a 4.7 km long sea wall.
* Hornsea is protected by a sea wall, groynes and rock armour.
* Coastal management at Withernsea has tried to make the beach wider by using groynes, and also uses a seawall to protect the coast.
* Mappleton is protected by rock groynes.
* Spurn Head is protected with groynes and rock armour.

### Conflicts

* There has been an increase in erosion at Great Cowden because of the groynes used in Mappleton. This has led to farms being destroyed by the erosion and the loss of 100 chalets at the Golden Sands Holiday Park.
* Some people disagree with where the sea defences are located, especially if it means the land in their community is not protected.
* Some sea defences negatively impact tourism and reduce the amount of money coming in to the area.

**Distinctive river landscape: River Tees**

The River Tees is located in the north of England. The *source* of the River Tees is located in the Pennines and it flows east to its *mouth* where the river joins the North Sea.

### Upper course

* The *upper course* has hard impermeable rocks. Here, *vertical erosion* has formed a V-shaped valley.
* High Force, the UK's largest *waterfall* by volume when in full flow is located in the upper course. An area of hard rock, called Whin Sill (or Whinstone), is located above a layer of soft rocks (sandstone and shale) and together they create this impressive waterfall.

### Middle course

* As the River Tees starts to erode sideways (*lateral erosion*), it forms meanders. These can be identified in the *middle course* near Barnard Castle.

### Lower course

* Near Yarm, the *meanders* in the lower course are much larger, and *oxbow lakes* have formed. In this area there are also *levees* which have formed when the river has flooded.
* The River Tees has a very large *estuary* with mudflats and sandbanks which supports wildlife in the area. Sites such as Seal Sands are protected areas.

Section B – Weather and Climate

**A case study of drought in a developed country: California, USA**

California (western USA, a developed country) has been experiencing drought since 2012. Groundwater levels have fallen, land has been contaminated as salt is drawn in from the ocean and beneath, and wildfires have destroyed vegetation.

The impacts include:

* low river levels for fish and breeding
* ecosystems and people’s property destroyed by wildfires
* reduced crop production and incomes.

The government have run water education programmes and imposed a law to cut water use by 25%. Farmers are encouraged to use drip irrigation and homeowners to repair leaks. California borrows water from neighbouring states for example Colarado, and is rolling out desalination (taking water out of the ocean and treating it so that it is drinkable).

**A case study of drought in a developing/emerging country: Sudan**

Sudan, a developing country, often suffers from drought. In 2021, it suffered its worst drought since the 1980s. 85% of the population live in rural areas and rely on agriculture. The main hazards are a loss in crop yields, leading to malnutrition, and longer journeys to find water resulting in children not going to school.

The impact includes:

* death of livestock and crop failure making the population weaker
* mass migration 8.9 million people have been displaced.
* conflict
* girls missing out on education having to walk further to collect water
* spread of diseases among humans and wildlife owing to a lack of clean water.

The USA government gave over US$100 million in food aid. Aid agencies like Oxfam have assisted in helping people obtain water and raise awareness and money. Magic stones have been used to collect water when it rains, allowing small areas of cropland to be irrigated.

**A case study of a tropical storm in a developed country: Irma, Florida**

Record breaking Hurricane Irma is currently hitting the headlines for being the most powerful tropical storm recorded in the Atlantic Ocean

The USA is an example of a developed country. Storm surges (high waves created by the strong winds) flooded large parts of the East Coast states.

The hurricane’s impact was:

* The hurricane resulted in 134 deaths and caused over $65 billion in damage (second costliest hurricane on record)
* The hurricane was most catastrophic in the Caribbean (less developed region) that it hit first.On the Caribbean island of Barbuda, 90% of all structures were damaged or destroyed.
* 60% of homes across Florida were left without power, water and gas supply
* Impacts were reduced by mass organisation of evacuation and preparation to homes to reduce the impact of damages.

Responses included aid from the government and former presidents ($32 million dollars), community rebuilding schemes, and payments by insurance firms for people to recover the cost of their homes and belongs for a quick rebuilding effort.

**A case study of a tropical storm in a developing/emerging country: Philippines , Typhoon Haiyan**

formed on 2 November 2013 close to Micronesia. Micronesia is an example of an emerging country. Most damage was on the islands of Samar and Leyte, with flooding and landslides in the Philippines.

The hurricane’s impact was:

* economic – damage costing US$2 billion. Damaged infrastructure made aid difficult
* social – over 6000 people were killed and 600,000 were made homeless
* environmental – mangroves and forests were damaged.

Responses included relief aid from the UK and Canada. The World Health Organisation assisted the Philippines and governments provide loans and grants for water and shelter.

Section C - Ecosystems, biodiversity and management

**Tropical rainforest example: Malaysia.**

**Background:**

Populatuon 35.13 million people

Emerging country: 0.8 HDI

In debt

|  |  |
| --- | --- |
| Primary sector employment | 9% |
| Secondary sector employment | 37% |
| Tertiary sector employment | 54% |

**Threats**

* Growing populations.

This leads to urbanisation (the building of homes). 50% of Malaysia is urban, and the urban population is growing, so rainforest is being removed to make space for this.

It also leads to agricultural expansion to meet the food needs of people in the country and trade with a global market for example soya plantations in Brazil or palm oil plantations in Malaysia (15% of primary rainforest has been removed for the plantation of oil palm trees in Malaysian Borneo)

* Cattle ranching

In countries such as Brazil, the rearing of cattle is a key cause of deforestation. Large areas of land is needed for the grazing of cattle.

* Palm oil

Oil palm is grown on trees which are replanted over primary rainforest in countries such as Malaysia. Palm oil can be found in food and cosmetic products around the world. 15% of primary rainforest has been removed for the plantation of oil palm trees in Malaysian Borneo.

* Mining and energy

Valuable minerals such as iron ore can be found in the rainforest.

Land is cleared for huge renewable energy projects such as hydroelectric power, these locations are selected due to their high rainfall totals, allowing dams to collect water. The Bakun Dam is a large-scale hydroelectric power project located in Sarawak, Malaysia.

**Managing the threats**

Ecotourism is one way that helps manage tropical rainforest. It can help educate local inhabitants, workers and tourists about the importance of conservation. In Malaysia, a small company called River Junkies invites tourists to visit the forest, educating them on the value of primary forest and the dangers to animals by palm oil companies. The cost of the trip ($300 per guest) is used as income for local people (who are provided jobs as guides, chefs) and reinvested in the conservation of the area. generated from tourists can be reinvested into conservation.

National Forests and Parks also help manage tropical rainforests by protecting biodiversity through government policy, the Sepliok Orangutan Sanctuary in Borneo tries to reintegrate orangutans back into the rewilded forest, utilising government funding.

‘Reduced-impact logging’ (RIL) can be more profitable than large clearance and is more sustainable. This is also known as selective logging. 

Finally, cancelling debt – a leading cause of land clearance – to emerging countries can reduce the chances of deforestation for timber, palm oil, mining, energy and cattle ranching. Malaysia has had some of its debt cancelled by countries such as the USA and Japan to reduce the impact on the rainforest.

|  |  |  |
| --- | --- | --- |
| National Park e.g. Sepilok | Does reduce impacts of deforestation and protects the forest | Is small scale |
| River Junkies | Provides employment to local people | Is small scale |
| RIL | Reduces clear felling (where a large area of forest is removed for one type of tree) |  |
| Debt cancelling | Reduces the need to destroy biodiversity for profit | Does not reduce the deforestation for energy and urbanisation |

**Temperate deciduous woodland/forest: New Forest UK**

**Background**

68 million people in the UK – growing population

New Forest is in the South of England which has a higher population density.

**Some causes of deciduous woodland deforestation are**

* Agricultural change – Increased demand putting pressure on ancient woodlands.
* Urbanisation and population growth – Pressure on the countryside where houses are sought after.
* Timber extraction – Faster growing and more profitable trees reduce biodiversity.

**Protection/management strategies**

* Native trees are re-planted to replace the coniferous trees that had been cut down in the timber industry this is called rewilding or afforestation – however the loss to the timber industry economically limits this practice.
* The creation of new forest as a national park, preserves the natural beauty, reduces human activity. (however, this encourages more tourists)
* Pollarding – reduces over grazing by deer (however, this can look unappealing0
* Deer culling, reduces overgrazing (however, this is contraversial culling = killing)
* Private landowners are funded to plant native species, however, they face economic losses for doing so
* Footpath restoration – to reduce biodiversity of ‘off path walking’
* Allowing leaf litter to rot increases biodiversity, however it looks/smells ugly.
* The Green Leaf Tourism Scheme promotes the use of local products and businesses dedicate land for wildlife and recreation.
* Careful management by the National Park Authority (NPA) provides dedicated walk and cycle routes in fragile areas

**Paper 2**

Section A:  Changing Cities: A major city in the UK -  Sheffield.

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| Site, situation and connectivity | Site – wet point site – rivers allow trade/fertile land for farmingDefensive site - hills surrounding  Resource site. - iron ore, silkstone for construction, coal.  Situation – connected to nearby cities; Manchester, Leeds etc via rail and motorways. Doncaster Sheffield Airport.  Globally important – international bands e.g. Arctic Monkeys, Steel imported globally. |
| Structure | CBD e.g. Moor, Fargate, Tudor Square, Peace Gardens – new buildings, flats etc for students, older buildings including museums, town hall and city hall, public library. Connected to the rest of the city through a network of trams and railway lines, bus routes and cycle lanes.  Inner city e.g. Broomhall, Burngreave – residential properties built in 1800s smaller in size to house rural migrant workers in factories. Connected to the inner city by a network of roads, trams , bus and cycle lanes. Served by smaller shops. Some parks  Suburbs – e.g. Crookes. Larger residential properties 3-5 bedroom with gardens. Served by doctors, schools, grocery shops, connected by bus routes, some trams and roads into the CBD.  Rural urban fringe e.g. Dore. Very large residential properties with garden space surrounding, close to the Peak District. Connected to the CBD by trains and roads. |
| The sequence of urban processes and key population statistics | Urbanisation – 1800s after the discovery of better technology to produce steel. More jobs = migration from rural areas out of farming jobs into industrial jobs population = 50,000  Suburbanisation/decentralisation – 1920s mine/mill owners moving to the outskirts of the city to houses with more space as they had more disposable income to spend on themselves. population 400,000  Deindustrialisation –1970s increased industrialisation abroad led to less jobs in production in the UK. (this process is called globalisation) this coupled with less government investment in production so the closure of mines.  Counter urbanisation/decentralisation 1970-1990 - the movement of people away from the city that had gone into the decline following deindustrialisation which caused a lack of jobs so fewer services in the CBD remaining open.  Regeneration 1990s – the movement of people back into the city caused by the regeneration of the high street, coupled with the number of people attending University (Sheffield Hallam opened in 1992 doubling the student population) led to increased investment and the multiplier effect.  population 565,000 |
| Causes of national and international migration | National migration - in the past caused by industry, now for high skilled jobs in the advanced manufacturing industries and to study/work in Universities. The Universities are the top employer in Sheffield  International migration - for Universities – high skilled employment including the Sheffield Medical School which trains doctors/surgeons. Sheffield is a city of sanctuary so accepts refugees historically from Somalia. And low skilled migrant work from Africa to work as care assistants and in hospitals. |
| Causes of deindustrialisation | Globalisation – goods can be produced quicker and faster abroad (such as steel) leading to fewer jobs in the industry  Decentralisation – the movement of people away from city centres into the suburbs caused by greater transport connectivity, the desire for larger homes (spending more time at home due to better working hours provided by most jobs)  Technological advances – allows people to work from home so fewer people access the city centre, reducing investment. Mechanisation – the growth of machines to produce things like steel mean that while Sheffield is large producer of steel, it employs fewer people.  Teams and Zoom also mean that people can work from home and internet shopping has risen.  Development in transport – allows people to live in rural fringes and commute into the city, also allows goods to be delivered to people’s home, reducing the footfall in the urban area |
| Economic change | The change from industrial, low skilled jobs to high skilled tertiary and quaternary jobs caused unemployment in the low skilled job market – this has been filled by companies like uber and Just Eat. |
| Retailing changes | Meadowhall – out of town shopping where parking is free, it is weatherproof and there are more high street chains caused a decline of the high street  Online shopping – reduced the footfall and investment into both Meadowhall and the CBD.  Independent movement – the movement in the CBD towards more independent businesses diversified the economy, leading to more people visiting the CBD to have lucrative products unavailable in chain stores. |
| How urban living has been made more sustainable | Recycling – Waste incinerator, ‘Tek it ‘om’ bins.  Employment – advanced manufacturing park providing high skilled jobs, universities providing the most employment in the whole city on a variety of tertiary and quaternary jobs e.g. admin assistant, cleaner  Education – University expansion, UTC  Health – more GPs opening, University GP to stop students using local’s services  Transport – super tram, clean air tax, public buses (hybrid), cycle lanes, Dutch roundabout.  Affordable energy efficient housing – built in Kelham Island |

Section A:  Changing Cities a city in an developing or emerging country -  Mexico City.

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| Site, situation and connectivity | Previous wet point site- rivers were drained to build the city, plateau – easy to build on.  Situation – surrounded by mountains and dormant volcanoes caused by plate boundary collision (tectonic activity)  Connectivity – Capital City of Mexico – airports, roads, rail connect it to the rest of the country and wider N and S.America | |
| Structure ; CBD etc | A circular chart with different colored circles  Description automatically generated | 1. regenerated areas that were previously in decline e.g. Santa Fe  2 = less expensive homes – but not the poorest (Buena Vista)  3= the poorest – informal homes (peripherico means periphery which means less developed or ‘on the edge’) e.g. Neza  4 = elite residential  - Polanco  5= middle class residential - Chapultepec |
| Reasons for past and present trends in the population. | **Past** – rural to urban migration caused by a lack of services in the rural areas and crime. 5 million in 1960.  **Present** – as a result of migration, more investment from TNCs so more economic opportunities 21 million today. | |
| Causes and impacts (+/-) of national and international migration | **Causes of national migration** =  rural to urban migration, natural increase, TNC investment = more economic migration.  **Causes of international migration** = cheaper luxury homes (USA), improving lives from poorer N. and S American countries e.g. Cuba, Haiti. | |
| How the growth of the city has caused inequality | **International migrants** have driven house prices up in the middle class spine e.g. Polanco and Chapultepec.  **Rural-urban migration** – lack of services leading to informal homes and informal jobs causing illness, disease, environmental damage | |
| Challenges resulting from the chosen cities rapid urbanisation | Air quality – thin air caused by altitude + more car ownership  Traffic congestion – 152 hours spent in traffic  Waste management - 12,355 tons of waste per day only 24% is recycled.  Water inequality – 30% of people don’t have access to consistent water supply.  Informal homes – 2/3 people in Mexico City live in informal homes  Informal jobs – 51% of people work in informal jobs in the city. lack of taxable income  TNC exploitation of the environment/employees - low paid, hard work, disposal of industrial waste. | |
| Advantages and disadvantages of top down and bottom up approaches to improve the quality of life. | **Top down –** investment from **TNCs** such as Coca Cola, **Uber** and Amazon employ people, taking them out of informal employment **(top down includes government- see below)**  **Bottom up** – **Neza Migrant Project** = allowing people to build formal houses safely which meet building regulations and employ local people.  **Islas Urbana** - Creating gutters to channel the rainwater that falls to capture and store the water. 5000 litre tank to harvest rainwater. It helps to save money for the people, they would have to pay 800 pesos (nearly a month’s wages.)  **Pesero App** – cheap buses app which shows when they’re coming and where they’re going, formalising the buses makes them more likely to be used over cars (as people know when they will arive) and make people feel safer. | |
| The role of government policies in improving the quality of life in the city. | **Infonovit** – allowing mortgages for people who may usually not be able to get one so that they can buy a formal home.  **Home building projects** – large scale home building projects – providing formalised homes for people  **Mexicable –** cable cars connecting people from the preferico to the CBD so they can travel inexpensively to work.  **The Green Plan** – giving money off vouchers for the collection of recyclable waste.  **Hoy no Circula-** car free days on saturdays in the CBD.  **Bicycle mayor** – who has used money from the government to build more cycle lanes in the city.  **Police Helicopters** – surveying the city to allow them to respond quickly to criminal activity as they can see more and deploy local officers to intervene. | |

Section B – Global Development a named emerging or developing country: Pakistan



* Location and context (religion, culture, environment, political)

Pakistan is in Asia, to its south is the India Ocean, to the north is China and the east and West are India and Afghanistan, the northernmost part of Pakistan is mountainous. India borders Pakistan which until 1947 after the end of WW2 and collapse of empires when the ‘Partition’ occurred and Pakistan became it’s own country. It has a population of 247.5 million, the fifth most populous country in the world. Shehbaz Sharif is the Prime Minister and it is a mostly Muslim country. Environmentally, its cities have high levels of air pollution, there are mountainous and desert regions too.

* Patterns and causes of uneven development (core and periphery) including examples.

Core areas are mainly along the Indus river. They have developed rapidly due to investment by both the government and TNC’s such as Coca-Cola and Nestle. The location of Karachi and Islamabad means it is attractive to tourists. Balochistan and Sindh in the South West and East of Pakistan border Afghanistan and India respectively, they have a harsher climate which means trade and investment are much more limited.

* Impacts of uneven development on people, the environment and economic sectors (move from primary and secondary to secondary and tertiary)

*People* – life expectancy, access to running water, health care and education vary

*Environment* – air quality in core cities is poor and can compare in Karachi to smoking 50 cigarettes a day.

*Economy* – TNC investment and FDI has mean a movement to secondary and tertiary jobs in core areas, upskilling workers and increasing GDP and GNI. However, wages are still lower than cities in developed countries such as the UK.

* Trade and TNC investment into and between countries.

In 2024 India traded £29 billion of products with China This includes oil, rice, technological products. TNC’s like Coca-Cola and Nestle from the USA invested in core areas within Pakistan, such as the production factory plant in Lahore (in the Northern Punjab region).

* Geo-political relationships with other countries (e.g. military pacts, foreign policy etc) including how connected it is to other countries through technology.

The 1947 Partition of Pakistan and india caused a negative geo-political relationship between the countries, some of which is religion based. Military agreement between nearby Islamic countries (including Afghanistan, Saudi Arabia) to reduce terrorism in the area to attract investment in the region has been someone successful.

* Impacts of rapid development (positive and negative)

*Positive* – rapid increase in life expectancy (4 years in 4 years), access to healthcare, education and technology has increased the population. Increased GDP and GNI and improvements in the HDI. Greater investment of TNC’s moving jobs from primary to secondary and tertiary, including call centres and tourism.

*Negative* – greater disparity/divide between the richest and poorest of the country. High levels of atmospheric pollution due to more heavy industry and greater congestion. Higher % of people living in informal settlements. Dilution of culture to become more ‘Westernised’. Gender inequality and air quality is poor, high levels of unemployment.

* Management of these impacts to improve status and quality of life.

Top down and bottom up approaches

* Leave no girl behind (bottom up) - a charity set up to encourage girls to go to school, educating families on why it is important to send them
* Tree Tsunami (top down) - tree planting project in the north of the country aims to plant 10 million trees to improve air quality, provide employment, increase rainfall, reduce flood risk
* Tarbela Dam (top down) - hydroelectric power.
* CPEC coal investment (top down) - investment in the development of coal power plants from China to increase employment in Balochistan (an example of foreign direct investment)
* CPEC renewable investment (top down) - investment in hydropower in the northern, mountainous regions will increase employment, improve air quality, provide energy security, and lift rural communities out of poverty in Khyber Pakhtunkhwa.

Section C – Energy resource management

**A case study of a developed country trying to manage energy sustainably: UK**

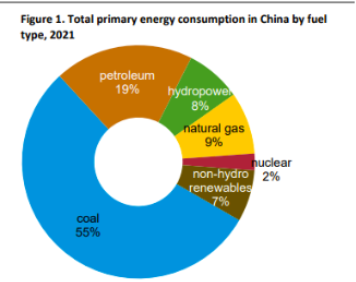
The UK has been reliant on fossil fuels for many years. Global supplies of fossil fuels were once thought to be running out. However, as technology improves, new supplies can be discovered and accessed more easily. There are huge, barely tapped reserves in South America, Africa and the Arctic.

It is estimated that gas will last another 50 years and coal another 112 years. Around 40% of the UK's gas supply currently comes from *domestic* supplies (the North Sea) and many jobs in Scotland rely on this. However, UK supplies of fossil fuels could run out within just 5 years. The UK is currently looking at new technologies like fracking. There is pressure by TNCs to extract gas as it is a cheaper fuel – this helps them to maximise profits. Some politicians believe that extracting more fossil fuels has short term employment advantages, but other politicians believe that investing in renewables will have a longer term benefit to the economy, environment and health of the nation. Individuals mainly want to keep their energy bills down, but most people (individuals) in the UK believe that the threat posed by climate change is a reason to reduce fossil fuel usage.

The UK is using more nuclear power as part of its energy mix, importing uranium from Finland and Turkieye.

*Renewable* fuels make up less than 10% of the UK's energy mix. The government needs to increase this figure to 15% by 2030 to meet its *European Union* target (international agreement). The UK has a lot of potential for generating renewable energy:

* Over 50% of all renewable energy generated in the UK comes from *wind farms* such as the London Array Most of this is from onshore *turbines*, but the number of offshore turbines is increasing. This is due to the UK’s position within the Ferrel Cell where warm and cool air mixes, causing wind, and its maritime location (an island with a large prevailing wind from the Atlantic) allowing it to harness energy in this way.
* The amount of UK electricity generated through *hydroelectric power* (HEP) has remained the same since 2012. This will not increase unless new *dams* are built. Most dams are found in the North and North West of England.
* Less than 0.01% of UK energy is generated through tidal power. The UK is an island nation and could generate around 20% of its electricity using waves and tides but there are concerns about the disruption to marine life.
* Solar panels are becoming more common, particularly on peoples' homes. The UK government think that 4% of our electricity could come from solar power by 2030. This is a local scale, individual response to a large scale challenge. Intermittent sunlight hours limits this energy source’s potential.

**A case study of a developing or emerging country trying to manage energy sustainably: China**

China's energy mix is heavily reliant on coal, but the country is also rapidly investing in renewable energy sources like solar and wind power to reduce its carbon footprint and dependence on fossil fuels, this is because it has signed up to international agreements to reduce its carbon emissions. China needs cheap and reliable energy to continue to produce 1 in 5 of the world’s products (TNCs who operate here have a strong view on trying to increase profits and reduce costs so like the idea of a cheap energy source). It has a growing population who need work – fo **A case study of a developed country trying to manage energy sustainably: UK**

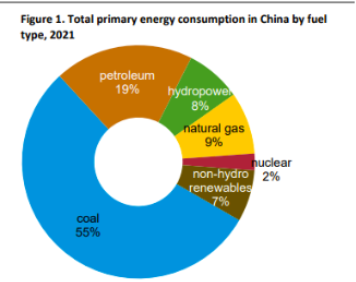
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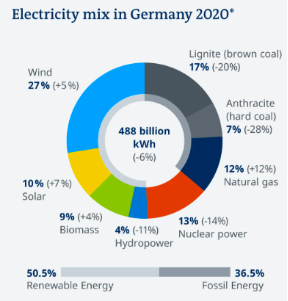
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**A case study of a developing or emerging country trying to manage energy sustainably: China**

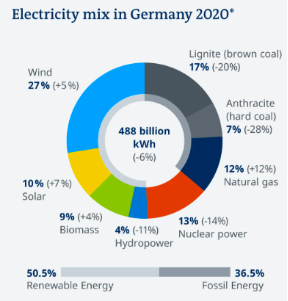
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**A case study of a developed country trying to manage energy sustainably: Germany**

Germany has access to lots of coal and gas. The coal is has, brown, lignite coal, is the most polluting type of coal. Concerns about acid rain by individuals in the country limited the country’s exploitation of this resource. Germany went on an energy transition or ‘energywende’ to try to reduce its reliance on these fossil fuels after the Black Forest experienced tree decay caused by the acid rain which was caused by the air pollution from fossil fuel combustion. As part of this energy transition, Germany began focusing on the development of nuclear energy as a cleaner alternative to other finite resources like oil, coal and gas, it also developed an agreement with Russia to import gas from them. Due to global conflict, Germany no longer relies of Russia for gas, and due to a nuclear leak in Japan, fears about the ability to store nuclear waste products safely, meant that the German government decided to move away from using nuclear. Germany now focuses on two renewable energy sources primarily for its energy supply they are solar and wind. Germany’s unique position within the Ferrel cell makes it windy, resulting in this energy being able to be harnessed. r/europe - in 2020, guess which source grew the most in the German electricity mix.

ssil fuel extraction provides low skilled jobs for these people. Finally, the population (individuals) of China do not vote in democratic elections so individuals with a clear view about the environmental threat of fossil fuel consumption cannot vote freely for officials who seek to change that. China remains heavily dependent on coal, which accounted for nearly 61% of its electricity generation in 2023, it has 35% of global supply. China is rapidly expanding its renewable energy capacity, particularly in solar and wind power. Renewable sources, including hydro, solar, and wind, contributed to a little more than 30% of China's electricity generation in 2023. China generated 37% of global wind and solar electricity in 2023. China is on track to double its wind and solar capacity by 2030. Nuclear power also plays a growing role in China's energy mix. China has 55 nuclear plants in operation, with more under construction and planned.  About 5% of electricity in China comes from nuclear energy.



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