Beechen Cliff School

GCSE Geography

For AQA

Case Study & Named Example

Revision Guide
For this GCSE you are required to study **CASE STUDIES** and **NAMED EXAMPLES**. **Case studies** are broader in context and require greater breadth and depth of knowledge and understanding. We spent several lessons and sometimes even a whole half term on a case study e.g. The Amazon rainforest or Lagos. **Named Examples** are more focused on a specific event or situation, are smaller in scale and do not cover the same degree of content. These were normally covered in one or two lessons e.g. The Nepal earthquake or Sedgemoor floods for example. For both case studies and named examples you are expected to support your points with evidence (PSI). Tick them off as you revise.

**Paper 1 Living with the Physical Environment**

**Named Examples (a specific event or situation, smaller in scale, one or two lessons spent on these)**

**The challenge of natural hazards**
- Pg 3&4. Named examples to show how the effects and responses to a tectonic hazard vary between two areas of contrasting levels of wealth; **Chile and Nepal Earthquakes**
- Pg 5. Extreme weather event in the UK- Sedgemoor Floods
- Pg 6&7. Tropical storm - Haiyan, Philippines

**The living world**
- Pg 8. Small scale ecosystem in the UK - Beechen Cliff Woods

**Physical landscapes in the UK**
- Pg 9. Coastal Management - Lyme Regis
- Pg 10. A stretch of UK coast to illustrate landforms of erosion and deposition - Dorset Coastline (Old Harry etc)
- Pg 11. A river valley and its landforms (The River Severn)
- Pg 12&13. A named flood management strategy (Bath)

**Case studies (wider area studied, more lessons, more detail, lots of smaller examples therein)**
- Pg 14,15,16. A Cold Environment; Opportunities and Challenges - Alaska
- Pg 17&18. Tropical Rain forest; Causes, impacts and management of rainforests - The Amazon

**Paper 2: Challenges in the Human Environment**

**Named Examples (a specific event or situation, smaller in scale, one or two lessons spent on these)**

**Urban issues and challenges**
- Pg 19. How urban planning is improving the quality of life for the urban poor - Makoko slum in Lagos.
- Pg 20. An urban regeneration project in Bristol - Wapping Wharf and Cargo

**The changing economic world**
- Pg 21. How modern industrial development can be more environmentally sustainable - Torr Quarry
- Pg 22. How the growth of tourism in an LIC helps to reduce the development gap - Tourism in Nepal

**The challenge of resource management**
- Pg 23. An example to show how the extraction of a fossil fuel has both advantages and disadvantages – Fracking in the Fylde, Lancashire
- Pg 24. An example of a local renewable energy scheme in an LIC to provide sustainable supplies of energy (Micro hydro electric power in Peru)

**Case Studies: (wider area studied, more lessons, more detail with smaller examples therein)**

**Urban issues and challenges**
- Pg 25-29. A case study of a major city in the UK - Bristol.
- Pg 30-32. A case study of a major city in an Newly Emerging Economy (NEE): Lagos

**The changing economic world**
- Pg 33-38. Economic Development in a Newly Emerging Economy (NEE)- Nigeria
- Pg 39-45. Economic development in The UK
The effects of, and responses to, a tectonic hazard vary between areas of contrasting levels of wealth.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate and long-term responses to a tectonic hazard.</td>
<td>Use named examples to show how the effects and responses to a tectonic hazard vary between two areas of contrasting levels of wealth.</td>
</tr>
</tbody>
</table>

Know your definitions!

Primary effects occur as a direct result of the ground shaking, eg buildings collapsing. Secondary effects occur as a result of the primary effects, eg broken gas mains leading on to fires.

**Chile - 27th Feb 2010 8.8 EQ on the Richter scale**

**Primary Impacts**
- 500 killed, 12,000 injured
- 220,000 homes, 4500 schools, 53 ports and 56 hospitals destroyed.
- Santiago airport badly damaged.
- Powerlines fell down across Santiago.
- Large waves damaged harbours eg. Port of Talcahuana.
- Roads and bridges damaged across the country.

**Secondary Impacts**
- Huge fire at a chemical plant in Santiago.
- Remote communities cut off for several days due to landslides and blocked roads.
- Tsunami waves hit hundreds of coastal towns and villages.

**Immediate responses**
- Established and trained search and rescue teams were deployed across the country.
- 10,000 troops were dispatched to the worst hit areas to assist rescue teams and establish order.
- Major roads such as route 5 were repaired and cleared within 24 hours allowing aid to be transported.
- Santiago and Concepcion runways were patched quickly in order to receive aid flights.
- Power and water was restored to 90% of homes within 10 days.
- Field hospitals were quickly set up along with tented villages for displaced people.
- Pre-prepared aid packages of food/tarps/water and blankets were distributed from various centres across Chile.

**Longer-term responses**
- Development of a Tsunami warning system along the coast.
- Public education plan launched to inform population about actions to take before, during and after an earthquake.
- Building permits were fast tracked and earthquake proof designs made compulsory.
- Chile’s economy is one of the most diverse in the region and therefore has not been effected by the loss of a main industry.
- High rates of insurance in Chile means reconstruction can take place to those worst damaged area.

One reason why Chile was counting its dead in the hundreds rather than hundreds of thousands was that this is one of South America’s richest, best-organised countries. Homes and offices are built to sway with seismic waves rather than resist them. Also because of Chile’s past experience with earthquakes, building codes are strict, so even though a few buildings collapsed and many were damaged, the devastation was far less than other areas like Nepal, where many areas were reduced to rubble and limited infrastructure made recovery difficult. Rescue teams and supplies were also trained and located around the country beforehand. All this **reduced the secondary impacts** of the earthquake as these impacts in particular can be better planned for.

**Exam question**

Choose either an earthquake or a volcanic eruption. Assess the extent to which primary effects are more significant than secondary effects. Use an example you have studied. [9 marks]
Named example of the Impacts of a tectonic hazard in contrasting areas of the world - Chile (NEE) 2015

**Nepal - 25th April 2015  7.8 EQ on the Richter scale**

**Immediate responses**
Nepal requested international help. The UK’s DEC (see page 13) raised US$1.25 billion by September 2015 to provide emergency aid and start rebuilding the worst-hit areas. Temporary shelters were set up. The Red Cross provided tents for 225,000 people. The United Nations (UN) health agency and the World Health Organization (WHO) distributed medical supplies to the worst-affected districts. This was important as the monsoon season had arrived early, increasing the risk of waterborne diseases. Nepal’s mountainous terrain and inadequate roads made it difficult for aid to reach remote villages. 315,000 people were cut off by road, and 75,000 were additionally unreachable by air. Sherpas were used to hike relief supplies to remote areas. Facebook launched a safety feature so people could indicate they were ‘safe’. Several companies did not charge for telephone calls.

**Long-term responses**
Nepal’s government (along with the UN, EU, World Bank, Japan International Cooperation Agency and Asian Development Bank) carried out a Post-Disaster Needs Assessment. It reported that 23 areas required rebuilding, such as housing, schools, roads, monuments and buildings. Eight months after the earthquake, the Office for the Coordination of Humanitarian Affairs (OCHA) reported that US$274 million of aid had been committed to the recovery efforts. The Durbar Square heritage sites were reopened in June 2015 in time to encourage tourists back for the tourism season. Mount Everest was reopened for tourists by August 2015 after some stretches of trail were re-routed. By February 2016 the Tourism Ministry extended the climbing permits that had been purchased in 2015 to be valid until 2017, so that climbers would return and attempt Everest again. A recovery phase started six months later by the Food and Agriculture Organization of the United Nations (FAO). To expand crop production and growing seasons, individuals trained how to maintain and repair irrigation channels damaged by landslides in the earthquake.

**Exam question**
Choose either an earthquake or a volcanic eruption. Assess the extent to which levels of economic development affects the impacts of tectonic events.

**Exam tip - Go through the factors below. Consider how each is different between Chile and Nepal.**

- **Primary Impacts**
  - A total of 8,841 dead, over 15,600 injured and 1 million made homeless.
  - Historic buildings and temples in Kathmandu, including the iconic Dharahara Tower (Figure 2.15), a UNESCO World Heritage Site, in which 200 people were estimated to be trapped, were destroyed; there were no compulsory building standards in Nepal, so many modern buildings collapsed.
  - The destruction of 26 hospitals and 50 per cent of schools. (Save the Children estimated 25,000 more people would have been killed if the earthquake had struck during school hours.)
  - A reduced supply of water, food and electricity.
  - 352 aftershocks, including a second earthquake on 12 May 2015 measuring 7.3 magnitude.

- **Secondary Impacts**
  - The earthquake triggered an avalanche on Mount Everest. It swept through Everest Base Camp, which is used by international climbing expeditions. Out of the nineteen who died, several were tourists and the rest were members of an ethnic group in Nepal called Sherpas. Sherpas work as porters, guides and cooks. They are aware of the dangers of Mount Everest, but tourism can provide them with an income to help lift them out of poverty.
  - In 2014, the World Travel and Tourism Council reported that tourism was 5.9 per cent of Nepal’s GDP and provided 1 million jobs. It was expected to increase by 5.8 per cent in 2015, but until Nepal has recovered from the earthquake, tourism, employment and income will shrink. The earthquake happened just before the monsoon season, when rice is planted. Rice is Nepal’s staple diet, and two-thirds of the population depend on farming. Rice seed stored in homes was ruined in the rubble, causing food shortages and income loss. Water supplies were disrupted and in some regions there were cholera outbreaks.

**Table 2.11 GDP and HDI 2015**

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP (US$100M)</th>
<th>HDI</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nepal</td>
<td>38193</td>
<td>41/187</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>109193</td>
<td>145/187</td>
<td></td>
</tr>
</tbody>
</table>

**Exam question**

Choose either an earthquake or a volcanic eruption. Assess the extent to which levels of economic development affects the impacts of tectonic events.
Background Info:
Somerset is a county in South West England. The Somerset Levels are an extensive area of low-lying farmland and wetlands between the Bristol Channel and Quantock and Mendip Hills. The area was flooded during the 2013-2014 winter (Dec/Jan) due to a series of 13 depressions passing over the SW of the UK. Sedgemoor is one of the lowest and flattest areas in the country with much of it below sea level. The wetland is supplied by 7 main rivers which all have their confluences here for example the Tone and Parrett. Rain falls in the hills and has to pass through the Somerset Levels to reach the sea. This frequently leads to flooding.

Causes: There were several causes, **human** and **physical**. You may need to **assess** which you think was most significant!
- **It was the wettest January since records began.** A succession of 13 low pressure systems came in off the Atlantic bringing wet weather lasting several weeks. 350mm of rain fell in January and February. 100mm above average.
- **High tides and storm surges** swept water up rivers such as the Parrett from the Bristol channel. This prevented fresh water reaching the sea meaning it spilled over river banks on to the floodplain.
- **Humans have also increased the flood risk in Somerset.** The area has flooded naturally for centuries. But as the area has been developed for farming and settlement, many more people are now at risk from extreme flood events.
- **Some rivers hadn’t been dredged for 20 years and had become clogged with sediment.** Some people such as ‘FLAG’ (Flooding on the Levels Action Group) argue that if the rivers were dredged, the floods wouldn’t have happened.

Impacts: Soc, Eco and Env
The key here is to not just reel off a list of impacts but to be able to develop your ideas fully...the ‘so what?’ factor. So what if 600 homes were flooded? So what if agricultural land was flooded? For each of the impacts to the right, explain their significance.

<table>
<thead>
<tr>
<th>Social</th>
<th>Economic</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 600 houses flooded</td>
<td>Somerset County Council estimated the cost of flood damage to be more than £10 million</td>
<td>Floodwaters were heavily contaminated with sewage and other pollutants including oil and chemicals</td>
</tr>
<tr>
<td>16 farms evacuated</td>
<td>Over 14,000 ha of agricultural land under water for 3-4 weeks</td>
<td>A huge amount of debris had to be cleared</td>
</tr>
<tr>
<td>Residents evacuated to temporary accommodation for several months</td>
<td>Over 1000 livestock evacuated</td>
<td>Stagnant water that had collected for months had to be reoxydized before being pumped back into the river</td>
</tr>
<tr>
<td>Villages such as Moorland and Muckenheim cut off. This affected people’s daily lives, e.g. attending school, shopping, etc.</td>
<td>Local roads cut off by floods</td>
<td></td>
</tr>
<tr>
<td>Many people had power supplies cut off</td>
<td>Bristol to Taunton railway line closed at Bridgwater</td>
<td></td>
</tr>
</tbody>
</table>

**How management strategies can reduce risk:**
You need to be able to **assess** how effective the different responses were.

**Immediate Responses**
- Villages cut off by the floods used boats to get around.
- 13 high capacity pumps were brought in from the Netherlands to pump water off the Levels.
- Royal Marines were sent in to help with flood relief
- FLAG (Flooding on the Levels Action Group) was set up to campaign for better dredging and support.

**Longer-term Responses**
- A £20m Flood Action Plan has been launched by Somerset County Council and the Environment Agency. This involved:
  - Dredging an 8km stretch of the River Tone and Parrett to increase the channel capacity.
  - Raising road levels in places to maintain communications/businesses.
  - A tidal barrage at Bridgwater is being considered (at a cost of £100m)
  - River banks raised and strengthened and more pumping stations built.

**Geolegend Exam Tips:** Remember to **EVALUATE the issue/response**. Some people argue that in the context of government cuts, climate change and the threat of more frequent large rainfall events such as these, that the approaches above are not sustainable. Regular dredging, building defences, and using large pumps are all very expensive and when the number of homes being protected is relatively small it is hard to justify such large on going expenses. The only sustainable solution is to stop building on these floodplains and allow them to flood so as to divert water away from larger settlements. This is a bitter pill to swallow for those people already living on the Somerset levels. Some people argue they should be compensated if this decision is made to help them move to other areas. What is certain is that not everyone can be defended. A method of cost/benefit analysis must be used.

**Useful Video/Weblinks:** BBC Panorama 2014: Britain Underwater = https://www.youtube.com/watch?v=PdqoiZOYe8o
Named Example: **Typhoon Haiyan (2013), Philippines**

**Paper and Unit: Paper 1: The Challenge of Natural Hazards**

**Line of the Spec:** Use a named example of a tropical storm to show its effects and responses. Primary and secondary effects of a tropical storm. Immediate and long-term responses to tropical storms.

**Sample Exam Q:** Using a named example, evaluate the immediate and long-term responses to tropical storms. (9 marks)

**Background:** The Philippines are a series of islands located in the South China Sea, east of Vietnam and north of Indonesia. The capital of the Philippines is Manila. The islands regularly suffer from considerable typhoons that sweep in from the south west every year during the tropical storm season. Typhoon Haiyan originated from an area of low pressure on November 2, 2013. After becoming a tropical storm and attaining the name Haiyan on November 4, the system began a period of rapid intensification that brought it to typhoon intensity on November 5. Haiyan is unofficially the fourth most intense tropical cyclone ever observed.

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### The Philippines, Development Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Values (2014 estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita PPP</td>
<td>$4700</td>
</tr>
<tr>
<td>People Living in Poverty (less than $2 per day)</td>
<td>27% of the population</td>
</tr>
<tr>
<td>Access to Clean Water</td>
<td>95.4% of the population</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>72 years</td>
</tr>
<tr>
<td>Literacy Rate</td>
<td>48.7%</td>
</tr>
<tr>
<td>People Per Doctor</td>
<td>1.15 doctors per 1000 people</td>
</tr>
</tbody>
</table>

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### Why was it so bad?

The impacts of the typhoon were made worse by the fact that sea levels have risen by about 20cm in the past 100 years and this means that the storm surge that accompanied the typhoon was greater. The coastal city of Tacloban was worst affected by the 4m storm surge as it sits in a funnel shaped bay that pushed the water upwards, flooding many of the informal settlements that

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### The path of Typhoon Haiyan

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### Primary and Secondary Effects of Haiyan:

**Primary Effects of Haiyan:** (Happen as a direct result of the storm)

- 1.1 million tonnes of crops destroyed – This is important as The Philippines is a NEE, but it’s still heavily dependent on its primary industry and agricultural exports.
- 1.1 million houses damaged – Many houses were not built to high construction standards and therefore could not withstand the sustained high winds or 4m storm surge.
- Power and telephone lines were damaged meaning that the emergency services found it difficult to communicate and respond effectively to the Typhoon.
- The airport and roads were badly damaged meaning that when government and foreign aid did begin to arrive it was hard to distribute to the rural communities that needed it most.

**Secondary Effects of Haiyan:** (These are often a result of primary effects and happen in the days and weeks following the storm)

- 4.1 million people were made homeless, this meant that they lost access to clean water and toilets and the likelihood of infection and disease increased.
- Looting was reported in a number of towns as people became desperate for food and supplies. 8 people died in a stampede for rice supplies.
- The Philippines lower level of development undoubtedly contributed to the country’s capability to effectively police the population in the immediate aftermath of the storm.
- The flooding caused surface groundwater to be contaminated with seawater, chemicals from industry and raw sewage. This led to the spread of waterborne diseases and increased incidence of Diarrhoea, which ultimately increased the number of deaths.
Immediate and Long-Term Responses to Haiyan:

<table>
<thead>
<tr>
<th>Immediate Responses</th>
<th>Long Term Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The president went on national television and gave a video warning that the storm was imminent.</td>
<td>- Many international companies and celebrities raised awareness of the disaster and in total $1.5 billion was pledged in foreign aid.</td>
</tr>
<tr>
<td>- 800,000 people were evacuated from coastal areas.</td>
<td>- 33 countries donated foreign aid as well as many charities (Non Government Organisations).</td>
</tr>
<tr>
<td>- Many people sought refuge in Tacloban’s stadium, but many died when it was flooded by the storm surge.</td>
<td>- The government adopted a policy of ‘Build Back Better’ The intention was that buildings would be rebuilt to a higher standard and be able to withstand future disasters.</td>
</tr>
<tr>
<td>- The government distributed emergency food supplies and medical equipment, but in some areas this was destroyed by the storm.</td>
<td>- A no build zone was enforced along some of the coastline, meaning fewer people will live in areas vulnerable to storm surges.</td>
</tr>
<tr>
<td>- A curfew was imposed two days after the typhoon to try and prevent looting.</td>
<td></td>
</tr>
<tr>
<td>- One million food packs and 250,000 litres of water was distributed in the days immediately after the typhoon.</td>
<td></td>
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</tbody>
</table>

So... What about that 9 mark question???

Using a named example, evaluate the immediate and long-term responses to tropical storms.

- Knowledge and understanding of specific example of a tropical storm eg Haiyan. Immediate/emergency responses. Government evacuated over 1 million people over 1200 evacuation centres. Many sought refuge in an indoor stadium in Tacloban but some died when it was flooded. The government sent essential equipment and medical supplies to some regions. Emergency aid supplies arrived three days later by plane once the airport was reopened. It was a week before power was restored in some regions and partially in others. Within two weeks, over one million food packs and 250,000 litres of water were distributed. $1.5 billion in foreign aid. A curfew was imposed two days after Typhoon Haiyan to reduce looting.


- Assessment/evaluation of different types of response. Individual responses have a relatively small impact on reducing damage. People may be able to protect their own land or property but not much beyond that. National governments can have the biggest impact because they have the resources, capacity and authority to respond to economic, social and environmental effects on a large scale. Aid organisations may focus on social impacts (safety, food, shelter), but will often invest in longer term projects and solutions.

- Effectiveness of responses may be determined by many factors, including available technology, infrastructure, communications, remoteness of area affected, degree of preparedness, monitoring systems, capacity of emergency services, education, building design. The distinction between HIC and NEE responses can be over-simplistic. Some poorer countries such as Bangladesh have early warning systems, tracking, cyclone shelters, coastal defences which have reduced death tolls considerably.

Assess the extent to which prediction is the most important factor in reducing the effects of tropical storms. (9 marks)

This is a much trickier 9 mark question. You would still use the information about the effects and responses to Haiyan to support your arguments. It’s asking if Prediction, Preparation or Planning is the most important factor when it comes to keeping the effects of tropical storms to a minimum.
**Named Example: Beechen Cliff Woods**

**Paper and Unit:** Paper 1 – The Living World

**Line of the Spec:** An example of a small scale UK ecosystem to illustrate the concept of interrelationships within a natural system, an understanding of producers, consumers, decomposers, food chain, food web & nutrient cycling.

**Sample Exam Q:** For a named small scale UK ecosystem you have studied, **explain** the concept of interrelationships within a natural system [6 Marks]

**Know your key terms:**

An **ecosystem** is a unit made up of living things and their non-living environment e.g a pond, rainforest or path of UK woodland. There are often complex **interrelationships** (links) between the living and non-living elements of an ecosystem. A **food chain** shows how plants, animals and humans rely on each other for food. A **food web** is a series of interrelated food chains.

**PSI to use in your Beechen Cliff Woods Named Example**

<table>
<thead>
<tr>
<th>Producers visible in Beechen Cliff Woods</th>
<th>Primary consumers visible in Beechen Cliff Woods</th>
<th>Secondary consumers visible in Beechen Cliff Woods</th>
<th>Decomposers visible in Beechen Cliff Woods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild Garlic</td>
<td>Squirrel</td>
<td>Sparrow Hawk</td>
<td>Fungi</td>
</tr>
<tr>
<td>Beech Tree</td>
<td>Caterpillar</td>
<td>Fox</td>
<td>Worm</td>
</tr>
<tr>
<td>Nettles</td>
<td>Blue Tits</td>
<td>Badger</td>
<td>Woodlice</td>
</tr>
</tbody>
</table>

Examples of the non-living environment which contribute to this ecosystem:

- Soil
- Limestone bedrock
- Rainwater
- Leaf Litter

**Food web to illustrate inter-relationships within a natural system**

```
                              = carnivore/tertiary consumer  
Sparrow Hawk                  = herbivore   
                              = producer          
Squirrel                      = decomposers  
                               
Fungi                          
                              
Beech Tree                    
                              
Fungi                          
```

**Interrelationships in a natural system**

One of the key things you need to be able to discuss is what happens to the ecosystem when something changes. Because the Beech Trees are producers, when one dies it has a ripple effect up the food chain. Primary consumers such as caterpillars and blue tits lose food. This will reduce their numbers meaning there is less food available for tertiary consumers such as foxes. Less blue tits means an increase in creatures below them in the food chain such as slugs. **Altering one part of the ecosystem affects the other parts.**

It is worth noting that BC Woods is not in a ‘natural state’ but is heavily managed. Footpaths, signs and benches etc. Consider how this affects the ecosystem.

**Nutrient cycling**

Producers rely on water, carbon dioxide and nutrients from the soil in order to grow. When something in the food chain dies, whether it be a nettle leaf, ladybird or blue tit, it will fall to the forest floor and become part of the ‘LEAF LITTER’.

This then gets broken down by **decomposers** (bacteria, worms etc). This process of decomposition releases nutrients in to the soil. These can then be taken up by the next generation of producers (Beech Tree), starting the whole cycle again.

**Useful Video/Weblinks:**

- https://widcombewest.uk/behaviour-concerns/beechen-cliff-woodland/

**#Geolegend ExamTips:** The key here is to convince the examiner that you have studied an actual place. You must avoid your answer being generic. The easiest way to do this is to include PSI e.g say wild garlic rather than plants. Buzzard rather than tertiary consumer.
Named Example: Coastal Management - Lyme Regis

Paper and Unit: Paper 1: Physical Landscapes in the UK

Line of the Spec: An Example of a coastal management scheme in the UK to show: The reasons for management, The management strategy, The resulting effects and conflicts.

Sample Exam Q: ‘Hard engineering strategies are effective in protecting the coastline.’ Do you agree with this statement? Explain your answer. (6 marks)

The Reasons for Management:

Lyme Regis is a town on the south coast of England in Dorset. It has a population of about 4000 people. The town has been built on porous limestone with impermeable clay underneath. When it rains the water sinks (percolates) through the limestone and then cannot sink further into the clay beneath. It lubricates the junction between the limestone and the clay and if the limestone becomes saturated it can slump down the gentle cliff face and into the sea. This type of mass movement is called rotational slumping and has been made worse in Lyme Regis by the building of the town, which increases the weight on the cliff. In 1962 a large landslide caused several houses to collapse in the centre of the town.

The town is worth defending as the properties have a combined value of £94 million. 45% of the population are employed in the tourism industry and this contributes £50 million a year to the UK economy. The A3052 is also under threat from coastal recession; it’s the main link road between Seaton and West Bay.

The Management Strategy:

A £24 million defensive scheme is being put in place. This focuses on stabilising the cliffs by drilling in steel pilings to prevent future rotational slumping. Beach replenishment/nourishment is used to help absorb the wave’s energy and this also has the effect of providing a space for tourists. Rock armour has been used to extend The Cobb (Harbour Sea Wall) to provide a barrier to prevailing winds and wave attack. New masonry groynes have been installed to replace the old wood groynes. These trap sediment and encourage deposition on the beach in front of Lyme Regis. The slope has also been regarded, with old landslide debris being removed and stone buttresses installed at the base of the cliffs to prevent further slumping.

Effects:

- The new defences have stood up to some very stormy winters in recent years.
- The new beaches have increased visitor numbers and seafront businesses are thriving.
- The harbour is now better protected, benefiting boat owners and local fishermen/women.

Conflicts:

- Increased visitor numbers have led to conflicts with locals, who think traffic and litter have got worse.
- Some people think that the new hard defences are ugly and spoil the natural coastal landscape.
- The new defences interfere with coastal processes and mean sediment is held at Lyme Regis starving other coastal communities down drift.
- Stabilising the cliffs means that no new fossils are exposed. Bad for science.
**Named Example:** Dorset Coastline

**Paper and Unit:** Paper 1: Physical Landscapes in the UK

**Line of the Spec:** An Example of a section of coastline in the UK to identify its major landforms of erosion and deposition.

**Sample Exam Q:** Using a named example, explain how coastal processes can create distinctive landforms. (6)

The Dorset coast is a great example of where differing geology, rock type and structure has led to a distinctive coastal landscape, (see above, Lulworth Cove). The geographical theory you need to understand is the importance of Concordant and Discordant coastlines. This is simply how different types of rock are aligned in relation to the coast.

**Concordant Coast – Lulworth Cove**

On the South Dorset coast the layers of rock are aligned parallel to the coastline and waves. This is called a concordant coastline. In the case of Lulworth Cove, the outer layer of rock that faces the sea is hard Portland Limestone. This is resistant to erosion, but at Lulworth Cove waves have exploited weaknesses in the Limestone and broken through to the weaker clays and greensand behind. Erosion has accelerated until the weaker rock has been removed forming a cove and the back of the cove is prevented from growing as it is faced with chalk, (another hard type of rock).

**Discordant Coast – Durlston Head and Swanage Bay**

In contrast to concordant coasts, a discordant coastline has rocks of different hardness aligned at right angles to the coast. Differential rates of erosion mean that softer rock is eroded more rapidly than hard rock. In the case of the Dorset Coastline the Wealdon Clays and Bagshoat Beds are eroded more easily than the Limestone and Chalk. This has resulted in the formation of bays at Swanage and Studland in front of the softer rock and headlands where the rock is more resistant.

Once the headlands and bays have formed, the processes operating along the discordant coastline change. The bays become low energy zones and are now sheltered from wave attack by the headlands. Over time deposition occurs and beaches form. The headlands in contrast like Ballard Point and Peveril Point become high energy zones and are now targets for erosion.

#geolegend exam tips:

There hasn’t been a question in a past paper asking you to use your named example of a coastline (Dorset) in an answer. That could mean that it’s likely in future years. What’s important is that you can identify different named locations along the coastline that have been formed because of their geology and rock structure and in the case of the sample exam question above, you’ll also need to link the landform, (cove, bay, headland), to the processes of erosion and deposition that create it.
Named Example: The River Severn
Paper and Unit: Paper 1, River Landscapes in the UK

Line of the Spec: An example of a river valley in the UK to identify its major landforms of erosion and deposition.

Sample Exam Q: “For a named river valley in the UK you have studied, explain the formation of one major landform of erosion and one major landform of deposition” [6 Marks]

**Background Information**
The River Severn is the longest river in Britain at 354 km. The source is in Wales, 610m above sea level in the Plynlimon Hills. The mouth is level in the Bristol Channel where the river reaches the sea. For this case study you need to be able to talk about the way landforms change as you move down the long profile of the River Severn and then be able to describe and explain named landforms in detail.

**Landform of Erosion 1: Severn Breaks-it-neck waterfall**
- **Key PSI = 11 metres high, Hafren Forest, Wales.**
- Sandstone (harder) on top of mudstone (soft).
- **Formation:** The waterfall is found in the upper course of the river where there is plenty of gravitational potential energy (GPE) leading to vertical erosion. It has formed due to a layer of harder rock (sandstone) lying over the top of a layer of softer rock (mudstone). The river erodes the mudstone through processes such as hydraulic action in the plunge pool. This causes an overhang to form. Eventually this collapses and the waterfall retreats upstream leaving a gorge behind downstream.

**Landform of Erosion 2: Meander at Shrewsbury**
Shrewsbury is home to around 71,000 inhabitants and is placed inside a meander. The Meander is 35 metre wide and 12 metres deep. It is in the middle course of the river. The meander has formed due to lateral erosion as there is little GPE to cause vertical erosion here as the river is only 75m above sea level.

That’s all you need to know about this specific meander, the rest of it is just generic theory. Erosion is faster on the outside bend because velocity is greatest there. This causes the neck of the meander to narrow over time creating the classic shape of the meander at Shrewsbury. In time, if left unmanaged, the river would break all the way through the neck to create an ox-bow lake.

**Landform of Deposition: Severn Estuary**
The River Severn has a high tidal range (the second highest in the world) which is the difference in height between high and low tide. The estuary is very wide being 3.2km at the old Severn crossing. It has mudflats/sand banks that are visible at low tide. Near the banks some of these mudflats have been colonised by particular species of plants to form salt marshes.

Mudflats form in sheltered areas where tidal water flows slowly. As a river transports alluvium down to the sea, an incoming tide transports sand and marine silt up the estuary. Fresh water from the river and salty water from the sea begin to meet and mix. Where this happens velocity is reduced and sediment is deposited. This build up layers called mud flats, which are covered at high tide and exposed at low tide. Within the mudflats small creeks develop to drain the water as the tide recedes. Over time the mudflats can be colonised by salt tolerant plants like cordgrass and develop into salt marsh.

# Geology Exam Tips: Gaining marks here will be easier than you might think. You essentially just need to be able to describe and explain how generic river landforms are formed and then throw in a bit of PSI to show you’ve learned a specific place. The waterfall, meander and estuary are the same as any other so it’s just textbook theory plus some PSI.

Useful Video/Weblinks: Both these videos give a good overview of the way the River Severn changes from source to mouth. They are a good way to revise the whole of the rivers unit. [https://www.youtube.com/watch?v=_M48ANM3hAQ](https://www.youtube.com/watch?v=_M48ANM3hAQ)
[https://www.youtube.com/watch?v=1TwaEjAi4M](https://www.youtube.com/watch?v=1TwaEjAi4M)
**Named Example: Bath Flood Defence Scheme**

**Paper 1 – UK physical landscapes**

An example of a flood management scheme in the UK to show:

**Why the scheme was required.** The management strategy. The social, economic and environmental issues.

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**Why the scheme was required.**

- Bath has a history of big floods, notably in the 1960s. Climate change is predicted to increase peak flows in the Avon by 20% in the future.

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**The management strategy**

**Hard Engineering approaches in Bath (channelisation)**

- In Bath the river channel has been straightened and widened. The channel has also been split at Locksbrook. This increases the volume of water the river can hold reducing the likelihood of a flood.
  - **Socially** this reduces the flood risk in Bath so residents feel a little more secure. It also benefits residents **economically** as they pay less insurance. However large volumes of water are sped out of Bath to flood other housing areas downstream in Saltford. In Keynsham, playing fields are often underwater due to excess water from Bath. As a result rugby and football fixtures are often cancelled impacting people on a **social** level as there pastimes are disrupted.
  - **Economically** it cost £8 million at the time but has worked for the last 30 years as no city centre floods have occurred. This means the **economic** benefits have outweighed the costs involved. Bath has had no negative press from floods to affect retail or tourism.
  - **Environmentally**, the channels sides and appearance do not look natural and can be considered unsightly. New plans along the riverside development have included planting native trees like Willows to enhance the river banks and create a wildlife corridor. Also where paths have been incorporated as part of the channel at normal flow levels, **social** access to the city areas is improved for cyclists and pedestrians away from traffic and roads.

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**Exam tip** – Consider the econ, soc and env positives and negatives of each technique.
Land use zoning prohibits the building of high value infrastructure right next to rivers. Where floods often occur parks or playing fields is preferred to housing. If floods are less likely, non-essential industrial units are allowed. Housing and hospitals are built on the outer flood limits so they are damaged far less often.

Soft Engineering approaches around Bath

Bath uses flood plain zoning throughout the city. The NW area between the centre and Batheaston is an example. Environmentally it preserves habitat and is good for wildlife. Socially it can be frustrating as there is a shortage of housing in Bath and this land would be desirable to create affordable homes. Economically it is a cheap technique, however it is hard to enforce in cities where demand for land is at a premium. There is no economic output from land that is not built on or used.

Naturalisation of the river means restoring meanders and allowing the flood plain to re-vegetate. This has been done at Batheaston, upstream of Bath with the aim of holding water on the floodplain where it is slowly released to the river reducing peak flows and therefore floods. Environmentally it creates great habitat and socially the water meadows created can be a pleasant picnic and walking area. However farmland has to be lost reducing yields and economic output for farmers. It is however a relatively cheap form of flood defence.

Afforestation or planting trees increases interception of rain water. Trees also transpire water back into the atmosphere removing it from the drainage basin and reducing flood risk by increasing lag time. Warleigh woods serve this purpose upstream of Bath. Environmentally this creates great wildlife habitat and also serves to fight climate change. Woodlands also make great areas to visit on a social or for leisure. However it does take up huge tracts of land, often former farmland leading to fewer yields from crops or livestock on an economic level. Trees can also take 70 years to be really effective in this way meaning socially people may have to put up with flood disruption in the meantime. In winter this technique is less effective, this is also when we get most rain. Consequently planting trees alone will not stop floods and it needs to be used in conjunction with other techniques. This makes it a less economically viable technique than at first it might appear.

Exam Questions

Explain how approaches to flood management reduce the flood risk in a place you have studied. (6)

Using you own understanding of a place you have studied, explain the social and economic issues relating to flood management. (6)
Case Study:
A Case Study of a Cold Environment - Alaska

Paper and Unit: Paper 1 - The Living World

Line of the Spec: A case study of a cold environment to illustrate:

- Development opportunities in cold environments: mineral extraction, energy, fishing and tourism.
- Challenges of developing cold environments: extreme temperature, inaccessibility, provision of buildings and infrastructure.

Sample Exam Q:
For a hot desert environment (NO!) or cold environment (YES!) you have studied, to what extent does that environment provide both opportunities and challenges for development? [9 marks]

Development Opportunities:

The fishing industry

The 3,000 rivers, three million lakes and 10,686 kilometres of Alaskan coastline provide many economic opportunities linked with fishing. There are two main sectors of the industry:

- **Commercial fishing**: Since the 1870s, the sector has grown to employ one in ten Alaskans. Some of the biggest salmon, crab, and whitefish fisheries in the world are in Alaska. They provide 78,500 jobs and add US$6 billion to the state economy annually. Some jobs are only seasonal, however.

- **Subsistence fishing**: Native American communities remain dependent on fish for several uses. Fish provide food, oil (for fuel), and bones (used to help make clothing and tools).

Alaska's fisheries are widely viewed as a successful example of sustainable management.

Background Info: Alaska is the 49th US state. It has a surface area of 1,717,856 km² and a population of just 750,000, (about the same number as Leeds). It was bought by the USA from Russia in 1867 for 2.5 cents an acre, probably one of the best bargains ever as Alaska is a land rich with resources: Gold, Oil, Fish etc. However, due to the remoteness of many of these resources, the harsh climate and low population density, Alaska faces challenges to develop. If solutions are found to overcome these challenges then Alaska has the potential to become an even more prosperous state than it already is.

Fishing - Geolegend Comment:

Alaska has a lot of fish, (never, ever write ‘a lot’). The fishing industry employs 10% of Alaskans. That’s a fairly simple, but important piece of PSI that you can remember and use in a case study exam question. It’s good because it answers the ‘to what extent’ part of the question. If you want to go on to give some balance to your answer, then mention that some fishing is seasonal (meaning it doesn’t provide a reliable source of income all year round), and also if fish stocks are depleted due to overfishing, then the practice will become unsustainable and the economic impact could be large, due to the state’s over dependence on the industry.
Mineral Extraction

In the late 1800s, Alaska was known as ‘the gold rush state’. Today, one-fifth of the state’s mining wealth still comes from gold (although silver, zinc and lead mining are also very important).

Large gold mines must be managed carefully to minimise environmental impacts. Humans and ecosystems can be harmed by the toxic chemicals used to process gold ore (such as mercury, cyanide and nitric acid).

Mining development has sometimes been halted due to environmental campaigns. In 2013, the Pebble Mine gold project was closed down. It would have been North America’s largest open-pit operation. Native American communities ran an effective ‘No Dirty Gold’ campaign. Fifty businesses supported the campaign by saying they would not buy Pebble Mine gold (see Figure 8.12). Anglo American, one of the world’s biggest mining companies, walked away from a half a billion dollar investment due to the scale of opposition.

Energy

Energy production is another big employer, especially the oil industry.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many working Alaskans rely on the oil and gas industries for their income. More than 90 per cent of taxes raised by the Alaskan state come from this sector, so it pays for education, health, policing and important community services.</td>
<td>Migrant workers take the majority of jobs created by the oil industry, spend little locally and often only have short-term contracts. In Prudhoe Bay, locals take just 400 of the 2,000 available jobs.</td>
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<tr>
<td>In some places along its route, the trans-Alaskan pipeline passes underground so that it does not disturb the migration routes of the tundra caribou. The pipeline is thickly insulated to protect it from freezing and stop the permafrost from melting.</td>
<td>In 1989, an oil tanker, Exxon Valdez, ran aground on the southern Alaskan coast. Only 15 per cent of the 12 million spilled barrels was ever recovered. Around 5,000 sea otters and many seals and eagles were killed. A broken pipeline spilled 1 million litres of oil in the fragile North Slope region in 2006.</td>
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Tourism

Tourism attracts between one and two million summer visitors each year, making tourism one of Alaska’s biggest employers, although some work is seasonal and poorly paid. Some tourists enjoy fishing, while others merely view the wildlife, with popular activities including whale watching and kayaking. Approximately 60 per cent of summer visitors are cruise ship passengers.

Hiking, skiing, rock climbing and sightseeing by helicopter are also available. The state has numerous national parks, preserves, refuges and monuments. There are historical sites for those interested in the Inupiat and Yup’ik heritage. These tourists arrive mostly by air.

Energy – Geolegend Comment:

If you’re going to use energy to exemplify the development opportunities in Alaska then really you should focus on oil, but Alaska also has the potential for Hydro Electric Power and Geothermal energy. The Trans Alaskan Pipeline is the big thing worth remembering for the exam. The pipeline was built to transport oil from Alaska’s north coast to the port of Valdez in the south of the state. The pipeline helped to boost the Alaskan economy through the 80s and 90s, but it was very expensive to build in the first place, ($8 billion!). There were challenges in its construction as well. In some sections it had to be raised so that Caribou could migrate beneath it and it also needed to be made earthquake proof in some sections where it passed over known tectonic fault lines.
Development Challenges:

**Extreme Temperature:** The northern half of Alaska lies in the Arctic Circle and much of Alaska experiences low average temperatures and heavy snowfall during winter months. This climate graph for a town in Alaska shows that with the exception of June, July and August the average temperature is below 0°C. This is obviously a challenge for development.

How do I develop the idea of **extreme temperature** in an answer?

DEV: Low average temperature in Alaska mean that it’s difficult to spend long periods of time outdoors, even with thermal clothing. As many of the industries in Alaska are primary, (they involve getting a resource out of the ground), this makes it difficult for certain businesses to stay productive throughout the year. Furthermore high heating costs mean that making a profit is harder to do.

**Inaccessibility:** Alaska is vast. It has the lowest population density of any US state. (See map) The terrain is incredibly difficult to cross, with boreal forests spreading across the plateaus and a number of great mountain ranges. The absence of people reflects the low carrying capacity of the land. Carrying capacity is the ability/suitability of an area to support a population.

How do I develop the idea of **inaccessibility** in an answer?

DEV: The low population density means that any business wishing to establish itself may struggle to find a work force, simply because the skills they require are not present in the local population. (If there even is a local population!)

**Provision of Buildings and Infrastructure:**

The biggest problem with buildings in Alaska is that they radiate heat into the ground that they are built upon. This means the permafrost layer melts and the foundations of the building becomes unstable. They now build structures on raised steel piles which can rise and fall if there’s any future ground movement.

How do I develop the idea of **poor buildings and infrastructure** in an answer?

DEV: Infrastructure means things like roads, railways, water, sewage and gas mains. Alaska has all of these things, but each requires special adaptation to be able to cope with the harsh climate of the US state. This means that if private companies do want to set up in Alaska, then they may have cover some of the upfront costs involved in establishing usable infrastructure. This is a challenge to development.

**Further Sample Exam Qs:**

1.) Choose one of the following environments: an area on the fringe of a hot desert (NO!) or a cold environment (YES!). For your chosen environment, assess the importance of management strategies used to reduce the risk of environmental damage. [9 marks]

2.) Choose one of the following environments: Environments on the fringe of hot deserts (NO!) or cold environments (YES!). To what extent is your chosen environment at risk from human activity? [9 marks]
Background Info: Brazil is located in South America. It is the fifth largest country in the world and contains the largest area of tropical rainforest – The Amazon. For centuries the rainforest has been lived in and used by indigenous (native) tribes who maintained forest sustainability without causing much lasting damage. In recent decades the pace of deforestation has accelerated with the shift towards larger scale commercial uses. 20 per cent of the Amazon rainforest has been cleared since 1970: an area of 761,000 square kilometres (roughly three times the size of the UK).

Causes of Deforestation in the Amazon: You could be asked a question here in either an open way where you would draw on a range of the causes outlined below, or you may be asked specifically about one or more of them.

Subsistence Farming
This is where people use land to grow food for their own survival. After cutting trees for building material, these people use the slash-and-burn technique to clear the surrounding forest for short-term agriculture. Farmers stay on the same land and attempt to farm the land year after year. Nutrients in the soil are quickly exhausted as there is no longer a humus layer to provide nutrients. The soil becomes infertile and nothing will grow. As a result, more forest must be cleared.

Commercial Farming
Large areas of the Amazon rainforest have been cleared to make way for livestock rearing. The rearing of cattle is believed to account for 80 per cent of the tropical rainforest destruction in Brazil. However, the land cannot be used for long. The quality of the pasture quickly declines and the cattle farmers then have to move on and destroy more forest to create new cattle pastures. The forest is cleared to make way for vast plantations, where crops such as palm oil and soya are grown. The amount of rainforest cleared for this soya farming in the Amazon doubled between 1990 and 2010. The soil does not sustain crops for long. After a few years, the farmers have to cut down more forest for new plantations.

Logging
Only 3% of all deforestation in Brazil is directly for logging. However logging is the first step in the conversion of forest land to other uses so it’s impact is greater than it initially seems. Timber companies are most interested in trees such as mahogany and teak, and sell them to other countries to make furniture (selective logging). Smaller trees are often used as wood for fuel or made into pulp or charcoal. Vast areas of rainforest are cleared in one go (clear felling).

Mineral Extraction
Some of the minerals that developed countries need are found beneath stretches of tropical rainforest. In the Amazon, mining is mainly about gold, iron ore (Carajas iron ore mine – used to make steel) and bauxite from which aluminium is made.

Energy Development
Brazil is an emerging economy so needs lots of energy to meet the demands of industry. It also has a growing population. An unlimited supply of water and ideal river conditions have encouraged dams to be built to generate hydroelectric power (HEP). This involves flooding vast areas of rainforest. A good example of this is the Belo Monte Dam on the Xingu River. Often the dams have a short life. The submerged forest gradually rots, making the water very acidic. This then corrodes the HEP turbines. The dams also become blocked with soil washed down deforested slopes by the heavy rain. They also displace tribes such as the Kayapo.

Settlement
All the activities mentioned here have a common knock-on effect. They need workers, and workers and their families need homes and services. That, in turn, means clearing the forest to build settlements where these people can live. These then encroach further in to the forest. A good example is the city of Manaus – in the Heart of the Amazon has a population of 1.8 million and covers 11,000km2. The city used to be rainforest and in 1963 the population of Manaus was only 173,000.
Impacts of Deforestation in the Amazon: You could be asked a question here in either an open way where you would draw on a range of the impacts outlined below, or you may be asked specifically about one or more of them. It is important to consider the issue of scale here as this could help with an ‘assess’ style question e.g. short term gains (economic development) vs long term impact (soil erosion and climate change). Consider sustainability…

**Economic Development:**
Deforestation is driven by profit. But while deforestation may result in short term economic gains for Brazil, it may lead to long term losses. If the Amazon is used in a sustainable manner, it can provide income and resources for Brazil for hundreds of years. But if deforestation continues unchecked then the forest will be gone before Brazil has become an HIC.

**Road Building**
Roads are needed to bring in equipment and transport products to markets, but road building means cutting great swathes through the rainforest. Additionally, a road built for one particular commercial activity makes the forest accessible to other exploiters of the tropical rainforest resources. The Trans-Amazonian Highway began construction in 1972 and is 4,000 kilometres long. Although only a small part of it is paved, it has played an important part in opening up remote areas of the Amazon rainforest.

**Population growth**
The total population in Brazil was estimated at 207 million people in 2017, according to the latest census figures. Looking back, in the year of 1960, Brazil had a population of 72.7 million people. This puts huge pressure on the rainforest as all these people need water, food, land, power and jobs, most of which comes from the Amazon basin in the form of farming and HEP.

**Soil Erosion**
Trees protect soil from soil erosion by intercepting rainfall and binding soil together. When the canopy is removed through deforestation there is nothing to protect the soil so it is easily eroded. As a result, nutrients get washed away leading to a loss of soil fertility and consequently it is hard for new forest to establish itself. This can then lead to desertification making the land useless for farming. Soil erosion causes other secondary problems because the soil is washed in to the River Amazon and its tributaries causing pollution and increasing flood risk as the river gets silted up. Brazil loses 800 million metric tons of topsoil to erosion every year.

**Contribution to Climate Change:**
The rainforest is significant at a **global level**. The tree canopy absorbs carbon dioxide in the atmosphere. This stops as soon as the trees are felled and more carbon dioxide remains in the air. Also, fire is often used in clearing rainforests, which means that the carbon stored in the wood returns to the atmosphere. In these ways, deforestation is a main contributor to the greenhouse effect, which is a cause of the global warming that is a threat to the survival of the human race – not just the people of the tropical rainforest. Deforestation can also change climate on a **local scale** by disrupting the water cycle. With the felling of trees, evapotranspiration is reduced, and so too the return of moisture to the atmosphere. The local climate becomes drier and also warmer (as water recycling has a cooling effect). This increasing dryness and rising temperatures can make farming difficult so more forest is cleared and so on.

**Geolegend Exam Tips:** The priority here is that you can explain in detail the different reasons why the Amazon is cut down and the different impacts this leads to. PSI is useful, but more marks will come from your ability to offer fully developed ideas. Try and link things back to the 'big idea' of Brazil being a newly emerging economy (NEE) and needing to use its resources (rainforest) to develop.

**Useful Video/Weblinks:** This 4 minute clip from the BBC gives a good overview. [https://www.bbc.com/education/clips/z28f9j6](https://www.bbc.com/education/clips/z28f9j6)
This short clip is good for deforestation’s contribution to climate change: [https://www.youtube.com/watch?v=wVV1kDII80](https://www.youtube.com/watch?v=wVV1kDII80)
A good wider rainforest 3 minute overview from National Geographic [https://www.youtube.com/watch?v=IC-J6h5SkA8](https://www.youtube.com/watch?v=IC-J6h5SkA8)
3 min BBC clip about deforestation linked to drought in the Amazon (local climate change) [https://www.youtube.com/watch?v=6rQmG-koEPl](https://www.youtube.com/watch?v=6rQmG-koEPl)
**Sample Exam Q:** “Using a named city in a LIC or NEE you have studied, explain how urban planning has been used to improve the quality of life for the urban poor.” [6 Marks]

**Background Info:**
The lack of properly built homes in Lagos has forced millions of people to build their own homes on land (or even water!) they do not own. These so-called squatter settlements are found all over the city, particularly on marshy, poorly drained land where no one else wants to build. Over 60 per cent of Lagos’ population live in squatter settlements, or slums, like Makoko.

**What is the problem?**: Homes in Makoko are usually makeshift shelters built from materials like tin sheets and wooden planks. They lack basic facilities and good sanitation. 33% of toilets in Lagos’ slums are pail latrines which means sewage is poured into a drain or river. In the case of Makoko this means straight in to the lagoon. People then play, wash and even drink from this same water. Only 11% of houses have water piped directly to them. As a result people rely on costly water vendors or have to walk long distances to shared taps. The population of Makoko is estimated at up to a quarter of a million people. Most of them make a living in the informal economy and by fishing. This goes back to Makoko’s origins as a fishing village outside Lagos. As the city grew it was swallowed up in the urban area. Lagos’ population is growing by about 600,000 people each year which means whatever solutions are proposed to improve the quality of life for the urban poor, they will have to account for further growth if they are to be sustainable.

**How urban planning is being used to improve quality of life in Makoko:** One idea is to create new floating communities, using the vast area of water that surrounds Lagos, to house the growing population. The idea is not as far-fetched as it may seem. Already several squatter settlements like Makoko are built on stilts at the edge of Lagos Lagoon. Effectively, they are communities on water. In 2014, the Makoko Floating School was built. It has classrooms that can host lessons for up to 60 children at a time and it is also used as a community centre when not being used as a school. The floating school does not just help to meet educational needs in Makoko though, of course, these are important. It is also a prototype for the sort of structures that could help to house the population of Makoko and other Lagos communities in the future. The idea could be scaled up to create sustainable houses for the whole slum community. The school is environmentally sustainable, and with its floating design, it would help communities to withstand the impact of rising sea levels as a result of climate change. As shown above, access to clean drinking water is a big problem in the slum but these floating houses address this by harvesting rain water meaning people will have a clean supply free from pollution in the lagoon and reducing dependence on expensive water vendors. Another advantage of the proposed scheme is that it would keep residents in their existing community. Past improvement schemes have been criticised for demolishing the Makoko slums, breaking up the community and damaging the informal economy. Though this is just one school, there is potential for it to be a model for the whole community.

**#Geolegend Exam Tips:** For the design features of the school above, try and explain how it makes the school more sustainable. E.g. Rooftop classroom means that students spend the majority of their day away from the polluted water of the lagoon and are therefore less likely to contract waterborne diseases like cholera. You also need to be able to ‘assess’ the success/sustainability of the scheme. A good critique is that one small scheme like this is not going to be able to cope with the ongoing rural to urban migration Lagos experiences. It can be argued that a more sustainable solution would be to improve conditions in rural areas to stem the flow of migrants. NEWSFLASH! In August 2016, four years after the floating school was built, string winds caused it to collapse. This puts in to question the sustainability of such structures and their potential for scaling it up!

**Useful Video/Weblinks:**
- Life in Makoko: [https://www.youtube.com/watch?v=brR2AMEYsBw](https://www.youtube.com/watch?v=brR2AMEYsBw)
- Floating School: [https://www.youtube.com/watch?v=aONshUk2dfk](https://www.youtube.com/watch?v=aONshUk2dfk) and [https://www.youtube.com/watch?v=YM9LY67v2Uc](https://www.youtube.com/watch?v=YM9LY67v2Uc)
- 2016, Floating school collapses: [https://www.youtube.com/watch?v=EHWCoSi85jA](https://www.youtube.com/watch?v=EHWCoSi85jA)
**Location/Background Info:** Wapping Wharf and Cargo is a new mixed use development on a former brownfield site on the South side of the floating harbour in Bristol between the M Shed and the SS Great Britain museums. It is the latest phase of the regeneration of the harbourside that began in the 1980s. The first phase was the Lloyds TSB buildings and Millennium Square on the opposite side of the water at Canon’s Marsh which is now home to the Watershed cinema, Arnolfini art gallery, ‘We the curious’ science museum, apartments, offices, bars, restaurants & night clubs. The first phase of Wapping Wharf was completed in 2016.

**Main features of the project: (PSI in bold)**
- Wapping Wharf is a new quarter where people can live, shop, eat and relax by the city’s waterfront. It cost £42 Million.
- It is a community-focused ‘mixed use’ development on Bristol harbourside, featuring 600 homes alongside office and retail space.
- It is a new addition to Bristol’s thriving food, drink and shopping scene as Wapping Wharf is home to some of the city’s best independent restaurants, shops and cafes. **There are no chain stores here whatsoever, 1005 are independent.**
- It is also the location of CARGO, Bristol’s first retail yard made of converted shipping containers. This is made up of 32 small restaurants, bars, shops and leisure facilities, all of them independent and local to Bristol.
- Wapping Wharf provides an important new connection between south Bristol and the city centre following the opening of Gaol Ferry Steps, which runs through the heart of the new neighbourhood.
- Based on land that was previously derelict, this project retained and restored several key listed buildings such as the Old City Gaol Gatehouse to enhance the City Docks conservation area. Wapping Wharf is one of the final pieces in the jigsaw that will complete the regeneration of Bristol’s iconic Floating Harbour.

**Reasons why the area needed regenerating (PSI in bold)**
- Prior to WW2, Bristol was a thriving port. As ships got larger and out grew the harbour in central Bristol, dockyard commerce declined between the 1960s and 1980s. This led to widespread dereliction and job losses, reducing the environmental quality of the area and led to social and economic problems due to high unemployment in Bedminster to the South of the harbour.
- These brownfield sites were an eyesore yet had a high land value as were in close proximity to the city centre. Therefore the area not only put off investors in central Bristol but was also a waste of prime real estate, needed if Bristol was to expand and become a successful post industrial economy. Today one of the attractions of Bristol for investors is the industrial heritage and waterfront.
- As the last part of the harbour to be regenerated, the south side has always been quieter with only housing between the M shed museum to the East and SS GB to the West. This meant the area contributed little to the local economy and attracted few visitors. Wapping Wharf has addressed this and is now hailed as ‘Bristol’s trendiest shopping and dining hotspot’ (Bristol Post 2018).
- Wapping Wharf has also improved connectivity between south Bristol and the city centre, by introducing a new pedestrian and cycle route from Gaol Ferry Bridge to the waterfront. Prior to this, residents of Bedminster had to walk a longer route to get to Central Bristol via the Prince Street Bridge. This boosted the local economy of Bedminster, making it more desirable to live there.
- The area was also home to several historic, yet neglected buildings which were in need of preservation. This included the old gaol wall which has now been reinstalled in its original location. The industrial heritage of the Wapping Wharf is now preserved for future generations to enjoy.

**Useful Video/Weblinks:**
- [http://wappingwharf.co.uk/cargo](http://wappingwharf.co.uk/cargo)

**#Geolegend Exam Tips:** The key here is to avoid being overly descriptive. You need to be able to connect (explain) each of the main features of the project to the reasons why regeneration was needed. You should also try and assess how successful it has been.
**Named Example:** Torr Quarry

**Paper and Unit – Paper 2 Changing Economic World**

**Line of the Spec:** Impacts of industry on the physical environment. An example of how modern industrial development can be more environmentally sustainable.

**KEYWORD:** SUSTAINABILITY – Actions that meet the needs of the present without reducing the ability of future generations to meet their needs.

**Torr Quarry** is located 7km east of Shepton Mallet in Somerset, England and comprises of two main quarry areas providing limestone and aggregates for industries. It is owned by Aggregate Industries.

- 60 acres of the site have been landscaped to blend in with the surrounding environment, including trees, grasses, banking and ponds for wildlife.
  This is environmentally sustainable as it goes some way to recreating what habitat was lost. It also encourages biodiversity in the long term and is more aesthetically pleasing to local to habitants.

- Limestone is transported by rail rather than road via the Mendip rail network.
  This is environmentally sustainable because it reduces congestion and fumes on local roads, improving air quality. One train carriage can take three lorries off the road. This also makes local villages quieter and less dusty.

- Strict environmental targets have been introduced. Regular monitoring of dust, noise, vibration and water quality is carried out.
  This is environmentally sustainable due to reduced levels of pollution in the surrounding landscape. Consequently wildlife is not affected on the company are held responsible for any lapses.

- In 2010 a decision was made to deepen and not widen the existing quarry.
  This is environmentally sustainable because it further protects greenfield sites around the quarry meaning there is no further loss of farmland or habitats whilst extraction of rock can continue.

- There are plans to restore the quarry after use to a lake for water sports and wildlife. Native species of amphibians (newts) and trees will be reintroduced increasing biodiversity and helping rare species.
  This is environmentally sustainable because the area is returned to nature and continues to enhance the environment after use.

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**Exam Practice**

- Explain the ways in which modern industry can operate in a more sustainable way (6)
- Using figure (example) to help you, explain how modern industrial developments can be more environmentally sustainable. (6)

**Exam tip** – Also consider the disadvantages or unsustainable elements of the ideas listed above.
Various strategies exist for reducing the global development gap.

**Line of the Spec:** An example of how the growth of tourism in an LIC or NEE helps reduce the development gap.- NEPAL

**LOCATION** – Nepal is in central Asia. It is a landlocked country north of India and south of China. Being landlocked makes it difficult to trade overseas easily, therefore holding up economic development.

Nepal is one of the poorest countries in Asia. 85% of its population live in rural areas, including the Himalaya’s where access is difficult. Only 5% of roads are paved and literacy rates are low. However Nepal has incredible mountains such as Mount Everest to climb and trek. It also has religious and cultural sites and heritage, all which attract tourists from around the world. Nepal is trying to use the income tourism provides to close its development gap.

In 2010, 940 million people were recorded as arriving in a country from abroad because of tourism. This is worth $919 billion dollars, making tourism one of the world’s largest industries. (Source: World Tourism Organization)

The largest groups arriving in Nepal from trekking arrive from wealthy HIC countries. Predominantly arrivals are aged between 31-45, meaning they generally have more money to spend.

**How is tourism closing the development gap?**

- When trekkers and climbers hire guides and Sherpas, they pay a wage that is better than any other wage in the country.
- In 2012 the number of international tourists visiting Nepal was 598,204, a 10% increase on the previous year. The tourism sector contributed nearly 3% of national GDP in 2012 and is the second-biggest foreign income earner after remittances.
- Tourism creates ‘spin off’ industries. For example carpet weavers are able to sell to tourists and have a new market. Builders are employed to create new tourist lodges in the mountains. Muleteers are needed to walk supplies into the more remote regions. All this creates jobs and income closing the development gap in poorer areas of Nepal.
- Major trekking routes and summits are ‘taxed’ (you pay for permits to be there) generating revenue for the government to spend on infrastructure, health and education closing the development gap.
- Mountain treks help tourists get away from the capital of Kathmandu allowing tourist spending to improve pay and create livelihoods away from the capital city in more rural areas.
- Major trekking routes and summits are ‘taxed’ (you pay for permits to be there) generating revenue for the government to spend on infrastructure, health and education closing the development gap.

**How effectively has tourism closed the development gap?**

- Trekking is a seasonal activity due to the monsoon rains between June and Oct. Therefore employment in this sector is seasonal or part time. Jobs and income are not secure all year around.
- Reliance on tourism also means that Nepal is reliant on the economies of other countries doing well. If there is a global depression, (2008) people have less money and therefore do not travel. Therefore slowing how effectively tourism can close the development gap in Nepal.
- Prices of everyday goods inflate along trekking routes. This prices out inhabitants who live away from these tourist hotspots. Consequently the gap between rich and poor has widened in some rural areas of Nepal. The development gap is not closing here.
- Being reliant on tourism means events like the 2015 earthquake can be really damaging to the Nepalese economy. (Avalanches on Everest killed 19 tourists) Consequently tourism numbers dropped and income levels fell slowing how quickly the development gap could be closed.
- Since 1980 tourism has been partly responsible for moving Nepal from an HDI score of 0.27 to 0.5 by 2018. This shows a closing of the development gap.

Remember that other factors such as political stability, role of women and trade will also contribute to closing the development gap. Tourism alone can only go so far.

**Exam questions** - Suggest how the growth of tourism in an LIC or NEE might help reduce the development gap. (4) Evaluate the effectiveness of tourism in reducing the development gap. (9)
Named Example: Fracking in the Fylde, Lancashire

Paper and Unit: Paper 2: The Challenge of Resource Management

Line of the Spec:

An example to show how the extraction of a fossil fuel has both advantages and disadvantages – Fracking in the Fylde, Lancashire

Sample Exam Q: Using an example you have studied, examine how the extraction of a fossil fuel creates both advantages and disadvantages. (6 marks)

Background:
Fracking is the extraction of natural gas from shale (a type of sedimentary rock). It involves drilling into the rock and then pumping water and chemicals in the rock under great pressure until the rock fractures and natural gas is released. The gas is captured on the surface, transported and sold. Fracking is a massive industry in the USA worth billions of dollars, but in the UK there are only a handful of test sites. The Fylde in Lancashire is one of these and the company that are trying to get permission to scale up their fracking operation are called Cuadrilla. This revision guide was made in the summer of 2018, so you might want to research what the current situation is. Things may have changed. Regardless, fracking will remain controversial.

The Basic Arguments For and Against:

For:

- The UK has a lot of shale. It therefore has a lot of natural gas locked away in the rock. Natural gas is the least polluting fossil fuel.
- The industry would have a positive impact on the UK economy and provide jobs in Lancashire, where unemployment levels are some of the highest in England.
- Tapping into this energy resource would improve the UK’s energy security and make us less dependent on imports and potential energy shocks, if foreign supplies are disrupted.

Against:

- Burning the natural gas that comes from fracking will still contribute to global warming through the enhanced greenhouse effect.
- Fracking sites require lots of lorries to come and go, bringing water to the site are taking the gas away. This increases congestion on local roads. Many of the roads in Lancashire are only small country lanes not designed for this volume of traffic.
- The chemicals used in the fracking process and also some of the natural gas can be released into local ground water and rivers, leading to increased pollution levels.

There’s loads of video documentaries and news reports online about Fracking in Lancashire. This is a decent 10 minute summary: https://www.youtube.com/watch?v=GQDUkUqQi0Q

1.) Suggest one reason for the development of fracking in the UK. (1 mark)
2.) Using Figure 9, describe the distribution of areas with existing licences for fracking in the UK. (2 marks)
3.) With the help of Figures 8 and 9, explain why the process of fracking for gas causes conflict between different groups of people. (6 marks)
Named Example: Micro-Hydro Electric power in La Peca, Peru.

Paper and Unit: Paper 1: The Challenge of Natural Hazards

Line of the Spec: An example of a local renewable energy scheme in an LIC or NEE to provide sustainable supplies of energy.

Sample Question: “Use an example from a LIC/NEE to explain how local strategies are being used to increase sustainable supplies of energy”. (6 marks)

WATCH: 5 minute video that summarises Micro Hydro in Peru
https://www.youtube.com/watch?v=xepODtFXjk4

This is an example of INTERMEDIATE TECHNOLOGY being used on a LOCAL scale in an LIC (Peru). Your local place is La Peca. The area experiences high amounts of annual rainfall and has steep relief, which enables the water to develop gravitational potential energy. The electricity that it supplies has acted as a catalyst for development in this poor, rural area. Local people invest in the scheme and pay for the scheme by selling the electricity to local households and businesses. The same people are trained to run and maintain the hydroelectric power plant. There are MANY social, economic and environmental benefits.

Use an example from a LIC/NEE to explain how local strategies are being used to increase sustainable supplies of energy.

[6 marks]

The introduction of microhydro schemes in the Peruvian Andes are an example of appropriate technology that have improved energy security on a local scale in undeveloped, rural regions of this LIC.

The renewable energy scheme takes advantage of the steep relief and high rainfall in the mountainous regions of the country, meeting the energy needs of the current population, without damaging the ability of future generations to develop in this location. The energy that is supplied by the scheme is reliable as rainfall in the region is high throughout the year and even during periods of low rainfall or drought, water can be stored upstream so that energy security is ensured. Furthermore local people are given ownership of the scheme through small scale investments and locals are trained in how to manage and maintain the system, so that if there are any issues they can be solved quickly and cheaply, thus ensuring sustainable supply.

The Non-Government Organisation (NGO) that supplied the technology and materials for the Micro-Hydro Scheme are called Practical Action.

Socially sustainable because local people are trained in how to run and maintain the scheme and therefore feel a sense of ownership.

Economically sustainable because businesses now have a reliable source of energy that means they can trade for longer.

Environmentally sustainable because the energy that is produced is renewable and almost carbon neutral.

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 (Detailed)</td>
<td>5-6</td>
<td>AO1 – Demonstrates detailed knowledge of way(s) to improve water security at a local scale in a named LIC/NEE context. AO2 – Shows thorough understanding of the concept of sustainability as part of the relationship between environment and process in relation to improving water security.</td>
</tr>
</tbody>
</table>
Case Study: Bristol – A Major City in the UK

Remember that case studies are broader in context and require greater breadth and depth of knowledge and understanding than examples which are more focused on a specific event or situation, are smaller in scale and do not cover the same degree of content. We spent six lessons on Bristol and you should expect at least one 6 or 9 mark question from the content below, plus possibly other shorter low tariff questions [2 marks]. You could be asked a Q based on a whole bullet point, or an element of one bullet point so you must be able to talk about everything listed within the context of Bristol.

This is a choropleth map of social deprivation for the Bristol/Bath area. The areas shaded red show the areas with the highest levels of social deprivation and the lighter shaded areas show the areas that are the least deprived. You can clearly see that Bristol is more deprived than Bath. Rapid urban growth and economic change in Bristol has led to this inequality.

Paper and Unit: Paper 2, Urban Issues and Challenges

Line of the Spec: A case study of a major city in the UK to illustrate:
- The location and importance of the city in the UK and the wider world
- Impacts of national and international migration on the growth and character of the city
- How urban change has created opportunities:
  - Social and economic (Cultural Mix, Recreation and Entertainment, Employment, Integrated Transport Systems) and Environmental (Urban greening).
- How urban change has created challenges:
  - Social and Economic (urban deprivation, inequalities in housing, education, health and employment)
  - Environmental (Dereliction, Building on Brownfield and Greenfield Sites, Waste Disposal)
- The impact of urban sprawl on the rural–urban fringe, and the growth of commuter settlements

- Please note that we also used Bristol for the separate line of the specification below:
  - How urban transport strategies are used to reduce traffic congestion.

Sample Exam Qs: So far we have had 2,6 and 9 mark questions that draw on this case study. Top tip: For each of the questions below, try re-wording them (with the same command words) for different lines of the spec above.

“Evaluate the effectiveness of an urban transport scheme(s) you have studied.” [9 Marks]
“To what extent has urban change created opportunities in a UK city you have studied?” [9 Marks]
“To what extent has urban change created environmental challenges in a UK city you have studied?” [9 Marks]
“Discuss the effects of urban sprawl on people and the environment. Use Fig3 and a case study of a major city in the UK.” [6 Marks]
“Outline one way that international migration has led to change in the character of a named UK city.” [2 Marks]
The Importance of Bristol in the UK
Visit Bristol Promo – Attractions of Bristol: [https://www.youtube.com/watch?v=kHM7ju8i86Q](https://www.youtube.com/watch?v=kHM7ju8i86Q)

- Largest city in the SW
- Population 450,000
- Grew as a trading port in the 18th century
- Docks are now outside Bristol at Avonmouth and Portbury. Huge container ports where 700,000 cars are imported a year.

The Importance of Bristol in the wider world: Bristol is now an important international city because:
- Strategic position on the M4 corridor with good road and rail links to London and ferry services to Europe.
- Bristol airport links to major European centres and the USA. Good for business, study and tourism.
- Post industrial city based on global industries like financial and business services, defence, aerospace, Hi-tech, media.
- High levels of inward investment including FDI in manufacturing (Airbus, BMW) finance and hi-tech industries.
- Bristol Uni/UWE attract global students providing graduates for professional, managerial and knowledge based jobs.

Impacts of national migration on the growth and character of the city
There are 50,000 students studying in Bristol across the two unis 20% of these are international students meaning 80% are UK students, the majority of which will have migrated from other parts of the UK. 40,000 extra young people alters the character of the city as students tend to live in certain parts of the city (such as White Ladies Road, and Clifton). This alters Bristol’s demographic and the types of shops and services present. Many stay after graduating causing the city to grow.

Impacts of international migration on the growth and character of the city
Bristol has experienced influxes of economic migrants throughout its history. This has led to the population of Bristol being quite ethnically diverse compared to other cities in the UK, altering the character of the city. It is not an even picture though as migrants from different origin countries tend to live and work in particular areas. Across all the different wards in Bristol, the average % of the population who belong to a black or ethnic minority group is 16%. For Easton, however as you can see to the left, the figure is 37.9%. This alters the character of Easton as thing like the high street change as shops and services spring up to cater for the large Somali population there. Many migrants from the Caribbean have settled in St Pauls, which has had an impact on the area’s cultural identity. The St Pauls Carnival celebrates Bristol’s large Afro-Caribbean population and attracts 40,000 people each year.

How urban change has created opportunities: Social and economic (Cultural Mix, Recreation and Entertainment, Employment, Integrated Transport Systems) and Environmental (Urban greening).

The key point here is that Bristol has changed and this has brought some opportunities in a post industrial economy such as the UK. Some context is needed here: In the early 19th century the trade passing through Bristol started to outgrow the tidal docks on the River Avon in the town centre. At low tide no ships could move in or out of Bristol. As a result Brunel built the ‘new cut’, essentially a new river channel that bypassed the town centre. This allowed a ‘floating harbour’ to be created in the town centre where the water level could be kept permanently at high tide. Eventually though modern outgrew Bristol and in 1977 the docks closed with operations moving to Avonmouth. The shift towards a post industrial economy did create huge challenges for Bristol as many people were left unemployed as Bristol lost its function as a port and its traditional industries closed. But it also created...
opportunities as empty warehouses from cigarette, sherry and beer industries have been transformed in to waterside living, office space and recreation from the 1980s onwards. The table below outlines the new social and economic opportunities Bristol’s changing population and land use has brought.

### Useful Video
https://www.youtube.com/watch?v=ysuKCrmw834

<table>
<thead>
<tr>
<th>Cultural Mix</th>
<th>Recreation and Entertainment</th>
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<tbody>
<tr>
<td>Bristol's youthful population means there is a vibrant underground music scene with genres such as drum and bass and trip hop both emerging from Bristol through artists such as Roni Size and Massive Attack. Due to in migration, Bristol's population is also very ethnically diverse meaning there is a wide variety of food and drink on offer in the city that can not be found in more rural areas or cities less of a cultural mix. This is visible somewhere like Wapping Wharf and Cargo (one of your named examples) or in areas like Easton or Stokes Croft. This cultural mix has also led to nationally recognised events such as the St Pauls Carnival (as mentioned above) attended by 40,000/year.</td>
<td>Bristol has a range of music &amp; entertainment venues ranging from the Thekla on the waterfront to the 02 Academy or Colston Hall. The Thekla is also visited as part of ‘Banksy Graffiti tours’. His street art attracts many visitors to the city. The harbourside contains museums such as the M-Shed, SS Great Britain and We the Curious (Bristol’s science museum for children). It also boasts art galleries such as the Arnol Fini and independent cinemas such as the Watershed. In the summer there is the 3 day Bristol Harbour festival which attracts 300,000 visitors per year. There are more festivals away from the water such as the annual Balloon Fiesta at Ashton Court. Also away from the waterfront, the Ashton gate stadium not only hosts Bristol City football club but is also an entertainment venue that can be hired out for private functions such as weddings. Shopping is a growing leisure activity and Cabot Circus, a new Mall built in the centre of town in 2008 at a cost of £500million has a large sphere of influence, attracting people from far &amp; wide. In winter, Broadmead hosts a Christmas market which attracts visitors from the whole region.</td>
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### Employment — in a post industrial city
The majority of Bristol's population now work in tertiary and quaternary industries and in 2015 it's unemployment rate was below the national average. Hi-tech industries have a been a big growth area with 50 micro-electronic businesses in the city. It is home to global companies like Aardman Animations (on the harbour and home to Wallace &Gromit) & Toshiba. Hi tech businesses are attracted because: Bristol received a government grant of £100m to become a ‘Super-connected City’ with high speed broadband; it has a strategic location on the M4/M5 interchange; has close links to the two universities. In Filton is the Defence Procurement Agency or DPA (an MOD site employing 10,000 people by supplying the army, navy and airforce with everything they need). The large number of people employed there has led to urban sprawl with new housing areas such as Bradley Stoke emerging with a population of 21,000. This shows how economic development leads to urban change. Bristol is also the centre of the Aerospace industry with 14/15 of the main global aircraft companies found there such as Rolls Royce and Airbus. This has had a positive multiplier effect as supply chains grew in the region to supply these hi-tech firms.

### Integrated Transport Systems
As people no longer need to live near where they work in a post industrial city (Bedminster for example, next to the harbourside, used to house workers of the old docks/warehouses) more and more people commute to work. This leads to traffic congestion and in 2012, Bristol was the 2nd most congested city in the UK. Today, Bristol has a higher % of people walking or cycling than any other city (57%) and it aims to double the number of cyclists by 2020. This is being achieved through an integrated transport system (ITS), linking different forms of public transport. The ITS has several elements to it. Below is an overview (see separate named example for more details): 1. Metrobus; a Bus Rapid Transport Network consisting of 3 bus routes linking Temple Meads station with the city’s Park n Ride sites. The idea is to Reduce congestion by making public transport more attractive so more people choose to leave their cars at home. 2. Improving railways by the electrification of the line to London (greener & faster). 3. Bristol’s Cycling Strategy (goal same as above but by making cycling safer. 4. South Bristol Link Road: eases congestion for car users that don’t want to/can’t cycle/use buses. It allows cars to pass certain routes by building new roads.

### Environmental Opportunities
As Bristol transitioned to a post industrial economy, there came opportunities to plan a more sustainable city. In 2015 Bristol became the first UK city to be awarded status as a European Green Capital. This involved the following:

<table>
<thead>
<tr>
<th>Improved Energy Efficiency &amp; Development of Renewables</th>
<th>Transport &amp; Building Policy</th>
<th>Water and Air Pollution</th>
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<tbody>
<tr>
<td>• Plans to increase number of low carbon industries from 9000 to 17000 by 2030.</td>
<td>• In addition to ITS, the UK’s first 100 electric car charging points were located in Bristol.</td>
<td>• Reduce water pollution by improved monitoring and maintenance</td>
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<tr>
<td>• Reduce energy use by 30% and CO2 emissions by 40% by 2020.</td>
<td>• Increase the use of brownfield sites (sites in a city that had previously already been built on) for new businesses and housing to protect greenfield sites (green areas in a city yet to be built on) and the greenbelt (protected ring of countryside surrounding a city).</td>
<td>• Establish an air quality management plan to monitor air pollution.</td>
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### Urban Greening: The process of increasing and preserving open space in urban areas e.g. public parks and gardens
As party of Bristol becoming a European Green capital, every primary school pupil in the city planted a tree to improve the city’s green coverage. This is urban greening in action. 1/3 of Bristol is open space and 90% of the population live within 350m of parkland or water ways. Queens Square was once a dual carriageway but is now an open space with cycle routes. The idea is to protect this green space and to add to it. There are 8 nature reserves and 300 parks in Bristol. One way to increase the provision is by making it a planning requirement. For example a new housing development at Portbury Wharf was only allowed by the council on the condition that the neighbouring area was made in to a nature reserve. This provides habitat for wildlife but is also good for people’s health as access to green space is good for people’s physical and mental well bring. Bristol has a target of having 30% of the city covered in trees.
How urban change has created challenges: Social and Economic (urban deprivation, inequalities in housing, education, health & employment). Environmental (Dereliction, Building on Brownfield & Greenfield Sites, Waste Disposal)

We have already seen how Bristol’s transition to a post industrial economy has brought opportunities but it has also brought challenges. When the docks closed in 1977, many people were left unemployed as Bristol lost its function as a port and its traditional industries closed. Many areas were left in a poor environmental state but it also created a stark social divide in the city with high levels of deprivation and inequality.

Social and Economic (urban deprivation, inequalities in housing, education, health and employment).

Like many cities, Bristol has a wide range of social issues and imbalances. Lack of investment in some areas leads to deprivation.

You need to be able to compare Filwood, (in the 10% most deprived wards of the UK according to the map on the first page of this case study) with Stoke Bishop, (in the 10% least deprived wards in the UK). These two contrasting wards of Bristol are only 4k apart yet the inequality is huge. You need to be able to use a range of development indicators to compare different areas. Life Expectancy in Filwood is 78 and Stoke Bishop 83. The geocips below & the data to the right give a great overview of the contrasts between the two wards. You need to explain why inequality creates challenges e.g. explain the significance of the data. Essentially, the life chances of children born in Stoke Bishop are much higher with direct links between wealth, health, educational achievement and employability. For children in Filwood it is a different story. The challenge for the council is to not let children be disadvantaged because of where they are born.

Video: Filwood – an area of high levels of social deprivation: https://www.youtube.com/watch?v=xWf2jNoEaPA
Stoke Bishop – an area with little deprivation: https://www.youtube.com/watch?v=8O3QSbZAtJS

Environmental (Dereliction, Building on Brownfield & Greenfield sites, Waste Disposal)

Changes in the economy and industry of Bristol have created problems and challenges for the city’s environment. Many industrial buildings that are no longer used have become derelict and demand for new housing has led to urban sprawl.

Dereliction

Dereliction is an issue because it is an eyesore. This can put visitors and investors off coming to an area which is ultimately bad for the economy and limits regeneration prospects. Two areas suffering from dereliction in Bristol are the harbourside and Stokes Croft. Much of the harbourside has been regenerated but there are pockets of dereliction that remain, especially between the SS Great Britain28 and Cumberland basin and around Redcliffe Wharf. Here abandoned buildings in poor state of disrepair create an uninviting environment with a low footfall. Stokes Croft (shown on Map 1) grew in the 19th century as an area of high density housing built for industrial workers. The area became notorious over the last few decades for its derelict housing and abandoned properties such as Perry’s Carriage Works (right), now a listed building. Many empty buildings have been taken over by squatters and the area has suffered from riots (Tesco riot in April 2011) and antisocial behaviour.

Solution? Bristol City Council obtained lottery grants to help improve poor economic activity and environmental decay in the area. Activitists and artists have tried revitalising the area through a bottom up approach using community action and public art. Organisations such as the People’s Republic or Stoke’s Croft have spearheaded the use of art and graffiti while Love Stoke’s Croft have invested in community shops. The area is now well known for its music, independent shops, nightclubs and graffiti (helped by the fact one of Banksy’s early works is there). There have also been some private investments but these have been controversial and led to protests as they have involved the building of luxury flats and a new Tesco which some say is leading to the gentrification of the area causing long term residents to be out-priced as they can no longer afford rents there. It is hard to please all ‘players’.

Waste Disposal

The amount of waste produced per head in Bristol is 23% lower than the UK average. However, the city still produces over a half a million tonnes of waste per year. It is one of the worst cities in the country for the amount of food waste produced. Part of the issue is that Bristol’s population has grown by 9% since 2000. Yet due to the strategies below, household waste has been reduced by 18% over this time period. Winning!
Building on Brownfield & Greenfield sites

Urban growth in Bristol has led to urban sprawl. It has been growing rapidly since the end of World War 2. It was heavily bombed and new housing was needed to replace what had been lost. Economic migrants have also increased the demand. Many private and council housing estates like Hartcliffe were built particularly in the north west and South of the city. The new town of Bradley Stoke has extended the city boundary to the north. The development of Cribbs Causeway and new industries such as aerospace and the DPA/MOD have drawn people to the North and created the demand for new housing. Urban sprawl is a challenge as it puts pressure on the countryside & other green space. Within the city this housing demand can be met by using brownfield or greenfield sites:

- **Brownfield sites** = A plot of land in an urban area that has not been built on before e.g. large gardens, parks, common land, playing fields
- **Greenfield Sites** = A plot of land in an urban area that has not been built on before e.g. large gardens, parks, common land, playing fields

To try and reduce urban sprawl, Bristol has focused on developing brownfield sites. Between 2006 and 2013, 94% of new housing developments were on brownfield land. By 2026, over 30,000 new homes are planned on brownfield sites. Where greenfield sites are to be developed, these will be much lower density (less houses per hectare (10,000 square metres) so as to retain some green space. Brownfield sites will have 210 houses per hectare whereas greenfield sites will only be allowed 60 per hectare. Finzel’s Reach (shown right, and located on Map 1) on Bristol Harbour is a good example of a brownfield site. It is a 2 hectare brownfield site near the CBD and Temple Meads where a former sugar refinery and brewery stood. The facades (fronts) of the old buildings have been retained for heritage reasons. It contains 400 apartments, office space and shops.

Strategies to deal with the challenge of waste disposal:

- Reduce waste sent to landfill by improving kerbside recycling & education about recycling.
- This aims to reduce waste generated per household by 15% & increase recycling to 50%.
- Turn waste in to power and money: The Geneco waste treatment plant at Avonmouth treats 40,000 tonnes of food waste per year. It is ground up in to a slurry which pass in to anaerobic digesters. Here bacteria break down the organic matter to release methane which is burnt to produce enough electricity to power 3,000 homes. In addition to this, Bristol also has a ‘poo bus’. This is powered by human and food waste and runs between Bath and Bristol Airport using bio-methane gas produced at the Geneco plant at Avonmouth. It can travel 300km on one tank & is sustainable as we will always produce human and food waste and is less polluting than normal vehicles.

Despite the fact that between 2006 and 2013, only 6% of new housing developments were on greenfield land, a national shortage of housing has meant that sometimes greenfield sites are needed for large developments. Government policy currently encourages this. A new development of 1200 homes (and 2000 more planned) has been built on land at Harry Stoke, a former greenfield site near Bradley Stoke in North Bristol. You can clearly see in the image to the left that this site was open green space (surrounded by existing settlements). This ‘urban sprawl’ has been controversial because of fears over; increased congestion, road traffic noise and reduced air quality; Has/will also destroy wildlife habitat and impact ecology (Great Crested Newt population affected); Loss of open space/recreational land; pressure on existing services; Increase local flood risk. The growth of commuter settlements.

The growth of commuter settlements

This is connected to the above section on brown/greenfield sites. As we have seen, urban sprawl threatens the countryside and puts pressure on existing settlements and services. To help combat this, in 1957 green belt was set up around Bristol to prevent further urban sprawl (like that shown left) in to the rural-urban fringe. The north of Bristol has been particularly badly hit by urban sprawl, partly due to the good road and rail links there and the development of Cribbs Causeway. The new town of Bradley Stoke built in the 1980s is a good example.

#Geolegend Top Tip: There was a lot of content on the last 5 pgs. Now try applying it to the different exam Qs on the first page of this case study.
Introduction: Just like your Bristol case study you could be asked about any of the bullet points in the spec for Lagos in a 9 mark question, so you need to know this content really well. Lagos is the most populous city in Africa with 21 million residents. Nigeria gained independence from Britain in 1960.

National Importance: In 1991 the Nigerian government moved from Lagos to Abuja, however Lagos has maintained its importance as the country’s centre for trade and commerce. Around 80% of Nigeria’s industry is based in and around Lagos, fuelling the country’s rapidly growing economy.

Regional Importance: Lagos is now the main financial centre in the west of Africa. Many people from neighbouring countries such as Cameroon and Niger migrate to Lagos in search of employment and a better quality of life. Lagos is also the epicentre of Nigerian culture, specifically the Nigerian film industry. The Lekki Free Trade Zone is also located in Lagos and will be a big driver of economic growth in West Africa.

International Importance: The city has a major international airport and busy sea port, opening up trade links with other Atlantic nations. Nigeria is the largest and most rapidly growing African economy. This has attracted much Foreign Direct Investment from NEEs and HICs, especially from China.

Key facts
- Population: 15 million (2015 estimate)
- Population growth rate: 600,000 per year
- Area: 1,000 km²
- Average earnings: £670 per year (2012)
- Gross domestic product: £18 billion per year (total value of goods and services)
- Waste: 10,000 tonnes per day
- Reported murders: 1 per cent of households have reported the murder of a family member
- Religion: 68 per cent describe themselves as Christian. There is a large Muslim minority

Paper and Unit: Paper 2 – Urban Issues and Challenges

Line of the spec: A case study of a major city in an LIC or NEE to illustrate:
- The location and importance of the city, regionally, nationally and internationally
- Causes of growth: natural increase and migration
- How urban growth has created opportunities:
  - Social: access to services – health and education; access to resources – water supply, energy.
  - Economic: How urban industrial areas can be a stimulus for economic development.
- How urban growth has created challenges:
  - Managing urban growth – slums, squatter settlements
  - Providing clean water, sanitation systems and energy
  - Providing access to services – health and education
  - Reducing unemployment and crime
  - Managing environmental issues – waste disposal, air and water pollution, traffic congestion.

Sample Exam Qs:

“*To what extent* do urban areas in lower income countries (LICs) or newly emerging economies (NEEs) provide social and economic opportunities for people?” (6 marks)

“Use a case study of a city in a LIC/NEE to **assess** the challenge of providing services to the city’s population. (6 marks)”

“**Evaluate** the effectiveness of an urban planning strategy in helping to improve the quality of life for the urban poor. Use an example of a city in a lower income country (LIC) or newly emerging economy (NEE).” (9 marks)
Opportunities created by Urban Growth in Lagos:

Don’t fall into the trap of thinking that just because Lagos is in a developing country in Africa that it’s a terrible place to live. There are some advantages to the rapid urban growth of the city, and you need to know about them. There’s a reason why so many Nigerians and other West Africans want to live in the city.

Social Opportunities: Education is a big draw for many. There are more schools in Lagos than the whole of the rest of Nigeria. It also has a well-regarded university. Expected years of schooling have risen from 6.4 (1990) to 9.1 (2015). Healthcare is also far better than in rural Nigeria. Although it’s not always free, the proximity of clinics is always closer. As a result life expectancy has risen from 46 (1990) to 54 (2015). Access to water and energy is also better than in the countryside: 2 new power stations are planned to reduce the number of blackouts and to light the streets at night and water is available, but at a cost from street vendors.

Economic Opportunities: The demographic dividend in Lagos, (a favourable dependency ratio), means that there are many young, well-educated Nigerians in the city who are willing and able to work. This has attracted businesses, which employ the population; these people pay more taxes, which the government spends on improving services. This attracts more workers and therefore more business. This is called the Positive Multiplier Effect. (Look right!) Good transport is another key piece of infrastructure, with good road, rail, air and sea links. As a result Lagos is responsible for 30% of Nigeria’s GDP despite only having 10% of the population. 78% of Lagosians (the demonym for someone from Lagos) work in the tertiary (services) sector, compared to 55% for the whole of Nigeria.

Challenges created by Urban Growth in Lagos:

Managing urban growth – slums, squatter settlements: Lagos has 14 major slum/squatter settlements. Makoko is the largest of these. (see the named example). These settlements have developed due to the huge influx of economic migrants to Lagos, and are found all over the city, but predominantly on marshy or contaminated land, or sometimes even on the lagoon itself. The slums are densely populated, lack basic sanitation facilities and many people work in the informal economy, meaning that they don’t pay taxes, which could be spent on improving the already non-existent infrastructure. The Makoko named example really nails this line of the spec, so my advice is reread that for more detail in how the slum is being managed. i.e. demolish the slum or improve what’s there: The floating school?
Providing clean water, sanitation systems and energy:
Only the very wealthy in Lagos have access to all three of these things. Despite the fact that the city is surrounded by water, many of the water sources have been polluted and the lagoon is salt water. This means that drinking water can only really be bought from water vendors. Only 10% have piped water. Lagos has a new State Water Regulatory Commission that is making water vendors have to apply for licences and seeking new sites for water bore holes. The aim is to provide clean water at a reasonable price for all residents of Lagos. Sanitation is difficult problem to solve. Installing sewers in somewhere like Makoko is impossible as it’s already over water. 55% have pit latrines. (The sewage runs straight into the ground). The only long term solution is relocating the squatters to a more suitable site. Energy is another massive problem. Lagos hums with the background noise of thousands of generators as there is no reliable mains electricity. The solution to this is small scale renewable schemes all over the city, with the ability to store energy in large batteries for night time use. This would require some very careful governance (organising by the government), which has never been one of Lagos’ strong points.

Reducing unemployment and crime:
Unemployment in Lagos stands at 14.2%, (this is high), and it’s rising. This is mostly due to the Nigerian economy going through a downturn, but also as many people work in the informal economy and therefore would not be registered as ‘employed’. Local banks were threatened with a possible withdrawal of their licenses for sacking workers. Meanwhile, the government has sought to employ as many as possible through large-scale recruitment exercises. The latter effort hasn’t made much of dent as demand for jobs far outstrips supply. Last November, the federal tax agency received 700,000 applications for 500 advertised positions. In May 2016, nearly a million people applied for 10,000 listed positions in the Nigerian Police Force. With so few job opportunities people turn to crime to get by. Crime is a risk throughout the country, but especially in Lagos. Common crimes include violent armed robberies, kidnap for ransom, and fraud. The mainland of Lagos has experienced periodic, violent clashes among localized street gangs known as “Area Boys.” International visitors and residents experience armed muggings, assaults, burglaries, carjacking, rapes, kidnappings, and extortion. Despite a visible police presence in large cities, police assistance does not have a wide reach. The Rapid Response Squad’s policing capacity and emergency response capabilities continue to grow but remain in an inadequate state.

Managing environmental issues:
Waste disposal: Landfill sites around and within Lagos are widespread, with the waste being collected by an army of private contractors. Only 13% of the waste collected is recycled, but this does employ many people in the informal sector. Fires in the landfill sites are common when pockets of methane from decomposing waste ignites. The management solution is a combination of improved waste collection, increased recycling and the possibility of harnessing the natural gas from waste to make electricity. (A bit like the Bristol poo bus).

Air and water pollution: The local government are trying to reduce the high levels of air pollution by improving the city’s energy supply. This will mean that households and businesses will no longer have to rely on highly polluting, private generators. 94% of the population is currently is exposed to air pollution levels, that exceed World Health Organisation guidelines. Water pollution is also a massive problem impacting public health, with the number of cases of Cholera and dysentery increasing. Boreholes are one solution. These are wells that draw water from the ground water store, but unless they are dug deep enough the water can be contaminated by the thousands of open pit latrines around the city.

Traffic congestion: The average Lagosian spends 3 hours in traffic every day. 40% of new cars are registered in Lagos state. 28 people in every 100,000 are killed in a road traffic accident each year. How is this being managed? the Lagos state government set up the Lagos Metropolitan Area Transport Authority (LAMATA) to improve transport in the city. One of its first achievements was to introduce a bus rapid transit (BRT) system on a north–south route from the suburbs to the CBD on Lagos Island. It provides a separate lane for buses to reduce travel times. 200,000 people use the service each day – a quarter of all commuters in Lagos. However, a single BRT route is inadequate in a city the size of Lagos. The public transport system has to be supplemented by a large fleet of minibus taxis, known as ‘danfos’. They are designed to carry ten to fifteen passengers, but demand is so high that they often carry twenty to thirty. This might have something to do with the high fatality rate on Lagos’ roads.
Case Study: Nigeria – A Newly Emerging Economy (NEE)

Remember that case studies are broader in context and require greater breadth and depth of knowledge and understanding than examples which are more focused on a specific event or situation, are smaller in scale and do not cover the same degree of content. We spent 8 lessons on Nigeria and you should expect at least one 6 or 9 mark question from the content below, plus possibly other shorter low tariff questions [2 marks]. You could be asked a Q based on a whole bullet point, or an element of one bullet point so you must be able to talk about everything listed within the context of Nigeria.

Paper and Unit: Paper 2, The Changing Economic World

**Line of the Spec: A case study of one LIC or NEE to illustrate:**
- The location and importance of the country, regionally and globally.
- The wider political, social, cultural and environmental context within which the country is placed.
- Changing industrial structure. The balance between different sectors of the economy. How manufacturing industry can stimulate economic development.
- The role of transnational corporations (TNCs) in relation to industrial development. Advantages and disadvantages of TNC(s) to the host country.
- The changing political and trading relationships with the wider world.
- International aid: types of aid, impacts of aid on the receiving country.
- The environmental impacts of economic development.
- The effects of economic development on quality of life for the population.

**Sample Exam Qs: So far we have had 2, 6 and 9 mark questions that draw on this case study. Top tip: For each of the questions below, have a go at re-wording them for the lines of the spec above that haven’t been used yet.**

Using a case study of a LIC/NEE country, explain how manufacturing industry can encourage economic development. (6)

‘Transnational corporations (TNC’s) only bring advantages to the host country’ Do you agree with this statement? Yes ☐ No ☐

‘Economic development only has positive effects on quality of life for people in LIC’s and NEE’s’ Do you agree with this statement? Yes ☐ No ☐

**Nigeria’s Global importance**
- Nigeria accounts for 2.7% of the world’s oil supply and is the 12th largest producer in the world.
- Nigeria has a rapidly growing economy and is attracting global investment from TNC’s. It is expected to have the 11th biggest economy by 2050.
- Nigeria is easily accessible from major shipping routes around the Atlantic making it a good global centre for trade.
- It is expected that Nigeria will become a major global manufacturing centre as TNC’s relocate from SE Asia in the future.
- Nigeria has the largest population in Africa (184 million) making it attractive to global markets looking for new customers.

**Nigeria’s regional Importance**
- Lagos, Nigeria’s capital is the biggest port in Africa. Other landlocked African nations depend on Lagos for transit of their own exports and imports.
- Nigeria is politically stable and is the 5th biggest contributor to United Nations peace keeping missions elsewhere in Africa.
- Nigeria is seen as a good model for the economic growth of other African nations.
- Nigeria has a high agricultural output. This helps neighbouring nations in times of shortage or famine such as Chad 2013.
- Nigeria has an expanding film industry (Nollywood) promoting African culture regionally and globally.
Nigeria’s changing industrial structure

In the past 20 years Nigeria’s economic sectors have shifted. The Primary sector is shrinking as more manufacturing jobs in factories are made available. TNC’s such as Porsche have invested in Nigeria creating these jobs. This has triggered jobs in the tertiary sector as the population seek to spend their money on services. Tertiary sector industries such as KFC have also created jobs in Nigeria. This sector is the fastest growing. The formal job sector is also increasing in size raising tax revenue for the government which it can subsequently spend on healthcare and education. The informal sector is decreasing. This has helped improve the overall wealth of Nigeria as shown on the graph below.

Exam tip: REVISE THE CHARACTERISTICS OF INFORMAL AND FORMAL JOBS.

Demographic change. Nigeria has a youthful population with a large young workforce as shown on the population pyramid below. This is extremely attractive to investors and offers some social context to the country.

Nigeria’s GDP growth since 2006

Social/cultural context - Nigeria has more than 500 different ethnic groups, each with its own language. However, three ethnic groups dominate – the Igbo, the Yoruba and the Hausa. The south of Nigeria, where the Igbo and Yoruba live, is predominantly Christian, while the north, where the Hausa live, is mainly Muslim.

Rapid urbanisation in recent years has led to a shift of population. Rural–urban migration of people from the countryside into cities has broken down some of the traditional (cultural) boundaries such as the role of women to a higher status in society. However, ethnic identities still exist, even within modern cities.

As Nigeria gets richer a middle class is developing which are more cosmopolitan and ‘western’ in their outlook. Some traditional cultural values and customs are being lost as a result. Eg. Musical heritage and clothing.

Since independence in 1960, Nigeria has progressed from civil war (1967–70), through several military dictatorships when the army ruled the country (until 1998), to a stable democracy today. The country now holds regular elections, when people vote to choose their government.

However, there is still conflict in Nigeria. In the north of the country, Boko Haram, an extremist organisation, wants to abolish democracy and set up its own government under its version of Sharia (Islamic) law. At least 17,000 people have been killed in the conflict since 2002, and over half a million people have fled the region.

Environmental context

Nigeria is located 5–12° north of the Equator in tropical Africa. Moving north from the Equator, the climate becomes drier and this determines the type of vegetation in each area. Tropical rainforest grows in the hot, humid climate in the south of Nigeria, and savanna grassland in the hot, dry climate further north (Figures 19.6 and 19.7). Much of the natural vegetation in Nigeria has been replaced by agriculture. Cocoa and oil palm are grown in the south, and peanuts are grown in the north.

Nigeria’s exploitation for oil has also gone unregulated and many spills have ruined tracts of land in the Niger Delta causing significant environmental damage. Rapid urbanisation in cities like Lagos has also led to unsanitary environmental conditions in some of the slums and traffic congestion on roads.

Exam tip – Also research the positive multiplier effect and why T.N.C’s would want to locate in Nigeria. What is the Leki Free Trade Zone?
The role of transnational corporations (TNCs) in relation to industrial development. Advantages and disadvantages of TNC(s) to the host country.

**Trans National Corporations:**
Are large companies that operate in several countries. They usually have headquarters in an HIC, with production plants in several NEEs or LICs.

**Foreign direct investment (FDI)** is an investment made by a company in one country into business interests in another country.

TNCs in Nigeria are GOOD for the country's development

- TNCs like KFC and Shell bring new investment into Nigeria's economy.
- TNCs provide jobs, often at higher wage levels than the average in the local economy.
- TNCs bring new expertise and new skills that Nigeria has lacked historically. Shell Oil have helped them access oil resources.
- Many TNCs have excellent international links that Nigeria can nurture and use in the future to help its continued development. For example, Porsche located in Nigeria and encouraged industries that make car parts to follow them.
- TNC’s can encourage a ‘multiplier effect’ in a country increasing jobs, wages and FDI.
- TNC’s raise the profile of host countries globally and can help them access wider markets for trade.

TNCs in Nigeria are BAD for the country's development

- TNCs are owned by shareholders from all over the world who expect to see a return on their investments. Profits do not always stay in Nigeria.
- TNCs in Nigeria sometimes get away with contravening environmental laws and pay corrupt officials to get away with actions that result in damage to the environment. Eg. Shell and Oil spills.
- TNCs are fickle and can withdraw their investment from Nigeria whenever they wish. In 2008 the global recession led to manufacturing industries ceasing investment in Nigeria for a while and Nigeria’s GDP dropped.
- TNCs have a lot of power and can lobby/bribe politicians to pass laws that are in the interests of the TNCs, but not always in the interests of the average Nigerian.
- TNC’s such as KFC have eroded the culture of Nigeria by introducing the western concept of fast food to the population at the expense of traditional local foods and produce.

Exam Questions
Using a case study of a LIC or NEE country, explain the link between TNC’s and Indusrial development in the country. (6)

"Assess the costs and benefits of TNCs in Nigeria." (6)

Consider the factors above and rate which are most significant on both sides of the argument. This will help you ‘assess’ them overall.

The changing political and trading relationships with the wider world.

Nigeria's relationship with the UK isn't always a happy one. From 1650 the UK and Nigeria made up 2 corners of the Atlantic Ocean slave triangle. West Africans, (Nigeria didn't exist in its current state until 1914), were taken against their will to the Americas and made to work on plantations, the produce from which was returned to Western Europe and sold. Estimates are that between 12 and 50 million Africans were enslaved for this purpose.

Northern and Southern Nigeria, (yet to be unified), went to Britain. The damage caused by the decisions made over brandy and cigars at this conference is hard to calculate, but it’s certainly partly to blame for the continents’ stunted development in the 20th and 21st centuries.

Nigeria didn't gain independence from Britain until 1960. The relationship by this time was one of formal trade. Nigeria would produce and export raw materials to the UK and the UK would sell back manufactured goods.

Following independence Nigeria found itself with a power vacuum and by 1967 had descended into civil war. Violence flared up again in 1983 following a military coup and continued for 16 years. In 1999 the country finally held presidential and parliamentary elections and in 2015 Muhammadu Buhari (the opposition candidate) won the presidency in an election that was deemed fair by most international observers.

In 2018, the UKs relationship with Nigeria can be summed up in two words. Trade and Aid. We are now an ongoing aid donor to Nigeria and a trade partner with them. China however has become a major partner for Nigeria...
The changing political and trading relationships with the wider world

China is considered one of Nigeria's closest allies. China is also one of Nigeria's important trading and export partners as shown on the pie charts above. In 2007 China secured four oil drilling licenses and agreed to invest $4 billion in oil and infrastructure development projects in Nigeria. Nigeria also promised to give preference to Chinese oil firms for contracts for oil exploration in Niger Delta. In 2006, China also agreed to grant a loan of $1 billion to Nigeria to help it upgrade and modernize its railway networks and telecommunication infrastructure. This has all helped Nigeria move on from its colonial past.

International aid: types of aid, impacts of aid on the receiving country.

During the 1980s and 1990s, many low-income countries like Nigeria faced a debt crisis. They were unable to repay their debts without cutting essential government spending. It was impossible for the low-income countries to escape from the cycle of debt repayment. Although millions of US dollars were repaid, this did not keep up with the interest repayments. So, debt continued to increase. In 2005, leaders of the world’s richest countries finally agreed debt relief for 39 of the world’s most highly indebted poor countries (HIPCIs), which included Nigeria. Some, or all, of the low-income countries’ debt was cancelled, so it no longer had to be repaid.
International aid: types of aid, impacts of aid on the receiving country.

**TYPES OF AID**

1. **Bilateral aid** - from one country to another. Often tied or with conditions attached which favours the donating country.
2. **Multilateral aid** - from international organisations which receive money from several countries e.g. United Nations, the World Bank.
3. **Emergency or short-term aid** – food or medical help to give short term relief. Needed after a disaster such as the 2000 Mozambique floods or the 2004 Asian tsunami.
4. **Conditional or tied aid** – when one country donates money or resources to another (bilateral aid) but with conditions attached which will often be in the HIC’s favour, e.g. the aid has to be used for buying goods from the donor country. An example of tied aid is the controversial Pergau Dam project in Malaysia.
5. **Charitable aid** – funded by donations from the public through organisations such as OXFAM.
6. **Voluntary aid** - charities e.g. Oxfam.
7. **Project aid** - aid given for specific projects e.g. HEP station.
8. **Long term or development aid** – this is usually a project involving local communities in education and skills for sustainable development, through organisations such as Practical Action.

Does Nigeria still need aid or not?

Since 2005, the Nigerian economy, like the economies of many other African countries, has been growing. Nigeria has graduated from being a low-income country (LIC) to a newly emerging economy (NEE). Given this achievement, some say aid has worked. Others now question if Nigeria needs further aid at all.

The UK gives £300 million a year in aid to Nigeria. Critics point out that Nigeria now funds its own space programme so, surely, it does not need aid. The UK government’s response is that Nigeria’s space programme is about investment in weather satellites that will help to improve food production. While Nigeria’s economy is growing, it should not be forgotten that 60 per cent of the population still live below the poverty line on less than US$1.25 a day. Others criticise Nigeria’s aid for being too bi-lateral and further placing the country in debt. Nigeria could also become too reliant on outside countries through aid.

Nigeria has one of the highest death rates from malaria in the world. Malaria is a disease transmitted by a mosquito bite that can cause death or long-term health problems. It can easily be prevented by sleeping under a mosquito net at night. Each net costs as little as £2. Aid is still needed and has been effective at reducing cases of Malaria in Nigeria. However others argue that as Nigeria has the fastest growing economy in Africa then they have more money to spend on their own healthcare system.

The UK has funded a health program in rural areas of Nigeria that has reduced levels of HIV. In 2014 the World Bank invested $500 million in small businesses in Nigeria to reduce reliance on oil exports and diversify Nigeria’s economy.

**Exam Questions**

Outline one way in which international aid has had an impact on a named LIC or NEE country. (2)

Using a case study of an LIC or NEE country assess the positive and negative impacts of aid. (6)

**The environmental impacts of economic development.**

What is the environmental impact of oil in Nigeria?

Some people believe, rather than being a blessing, oil has become a curse for Nigeria. In order to keep some control over the oil industry, the Nigerian government set up the Nigerian National Petroleum Corporation (NNPC) to form joint ventures with TNCs. This ensures that part of the profit from oil stays in Nigeria. The oil industry also causes environmental damage.

- The Delta region contains important wetland and coastal ecosystems. Most people depend on the natural environment for their livelihood, either through farming or fishing.
- Oil spills from leaking pipelines damage farmland so crops no longer grow.
- Gas flares are used to burn off gas from the oil. Apart from being wasteful, the fumes affect people’s health and contribute to global warming.
- Oil heated by the Sun becomes highly flammable and can burn out of control.
- Oil pollution, which occurs offshore from tankers, kills fish in the sea.
The environmental impacts of economic development.

Commercial Farming and Deforestation
Much like in the Amazon deforestation across large parts of Nigeria is having a huge environmental impacts on habitats, endangered species, rivers and people.

Urban Growth
As the population has grown and more people are moving to urban areas like Lagos and Abuja, urban sprawl has resulted in major environmental problems as services have struggled to keep up.

Industrial Growth
Nigeria has about 5000 registered industrial plants and 10000 illegal small scale industries.
The fast and unregulated growth of industry has led to environmental problems with waste products making its way into food chains and water supplies.

These environmental impacts from economic growth reduce the quality of life for the population.

Exam Questions
Explain how economic growth can have negative environmental impacts to a NEE or LIC country. (6)

The effects of economic development on quality of life for the population

<table>
<thead>
<tr>
<th>Year</th>
<th>Life expectancy</th>
<th>Expected years of schooling</th>
<th>GNI per capita</th>
<th>HDI</th>
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<td>9.0</td>
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<tr>
<td>2012</td>
<td>52.1</td>
<td>9.0</td>
<td>5,176</td>
<td>0.500</td>
</tr>
<tr>
<td>2013</td>
<td>52.5</td>
<td>9.0</td>
<td>5,353</td>
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</tr>
</tbody>
</table>

Nigeria’s improved quality of life is connected with the country’s economic development. With the new jobs that come with development, people are able to earn more money to pay for the things they need. The government also earns more money through taxes.

However, the benefits of economic development are not equally shared.

What they do not tell us is how many people are above or below the average. There are large differences between:
- north and south of the country
- urban and rural areas
- educated and uneducated people.

There have been many benefits for Nigeria and Q of L. As the table above shows, the HDI (Human Development Index) score has risen dramatically and is the fastest increasing in Africa. There are more reliable and better paid jobs available. Infrastructure such as roads, rail and broadband is improving. Hospitals and schools are improving, although this is mainly only in urban areas. A more reliable electricity supply is being created although every time it improves demand goes up creating more black outs.

60% of Nigerians are still in poverty so wealth needs to be more evenly distributed. Income levels have improved the most around Lagos and other areas which receive investment. Wealth and services in rural areas is still lacking.

Exam Questions
Evaluate the extent to which economic development has improved the quality of life in an LIC or NEE you have studied. (6)
Case Study: Economic development in The UK

Remember that case studies are broader in context and require greater breadth and depth of knowledge and understanding than examples which are more focused on a specific event or situation, are smaller in scale and do not cover the same degree of content. We spent 7 lessons on the changing economy of the UK and you should expect at least one 6 or 9 mark question from the content below, plus possibly other shorter low tariff questions [2 marks]. You could be asked a Q based on a whole bullet point, or an element of one bullet point so you must be able to talk about everything listed within the context of the UK’s changing economy.

Paper and Unit: Paper 2 – The Changing Economic World

<table>
<thead>
<tr>
<th>Line of the Spec:</th>
<th>Major changes in the economy of the UK have affected, and will continue to affect, employment patterns and regional growth. Economic futures in the UK:</th>
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<tbody>
<tr>
<td>• Causes of economic change: de-industrialisation and decline of traditional industrial base, globalisation and government policies</td>
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<tr>
<td>• Moving towards a post-industrial economy: development of IT, service industries, finance, research, science and business parks</td>
<td></td>
</tr>
<tr>
<td>• Impacts of industry on the environment. Example of how modern industrial development can be more Environmentally sustainable</td>
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<tr>
<td>• Social and economic changes in the rural landscape in one area of population growth and one area of population decline</td>
<td></td>
</tr>
<tr>
<td>• Transport: Improvements and new developments in road and rail infrastructure, port and airport capacity</td>
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<tr>
<td>• The north–south divide. Strategies used in an attempt to resolve regional differences</td>
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<tr>
<td>• The place of the UK in the wider world. Links through trade, culture, transport, and electronic communication. Economic and political links: the European Union (EU) and Commonwealth.</td>
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</tr>
</tbody>
</table>

Sample Exam Qs: So far we have had 2, and 9 mark questions that draw on this case study. **Top tip:** For each of the questions below, try re-wording them (with the same command words) for different lines of the spec above.

“Assess the importance of transport improvements to the UK economy” [9 Marks]

“Give two reasons why there has been a growth in the number of science parks in the UK.” [2 marks]

“Suggest how one or more strategies might reduce regional differences in the UK.” [9 marks]

Causes of economic change: de-industrialisation and decline of traditional industrial base, globalisation and government policies

De-industrialisation is the decline in manufacturing (secondary) industry and the subsequent growth in the tertiary and quaternary employment. This has happened for several reasons. 1. Machines have replaced many people in modern industries. This is called Mechanisation. Think a car production line. 2. Manufacturing and resource extraction (mining) has been outsourced to other countries like China, Malaysia and the Philippines as they can produce the same products, but at a fraction of the cost, mostly because of cheaper labour. 3. Many of our ports became too small to cope with the increasing size of container ships. This meant that where the function of a city was as a port, it went into decline. **This had some negative impacts:** Unemployment in traditional ‘working class’ towns rose sharply following the closure of mines and factories. Unemployment in the north east was 7.4% in 2016, the highest in the UK. This can lead to a negative multiplier effect in the local economy and social problems. But it has also led to opportunities: Many ‘brown field’ sites (old industrial sites), often in prime city centre locations have been redeveloped in recent years into shopping centres, business parks or leisure/tourist sites e.g. Bristol Harbourside.

Brownfield sites

London Docklands before regeneration

London Docklands after regeneration

FDI
Globalisation: The UK economy is also changing due to globalisation. This is the way business, ideas and lifestyles spread rapidly around the world. For example, more businesses in the UK are now owned by foreign companies, while, in the same way, more British companies own businesses in other countries. It would be almost impossible for the UK to be isolated from the global economy. We have been trading with the rest of the world for centuries. For the UK economy to thrive, we need to be part of the global economy. When a foreign TNC locates in the UK it is known as foreign direct investment (FDI). This ‘economic change’ can bring benefits leading to a positive multiplier effect in the local economy. A good example would be when Japanese firm Honda invested £200m at its production plant in Swindon in 2015 and created 500 new jobs. Globalisation has also led to an increase in migration. Migrants come to the UK to fill jobs where we have a shortage of skilled workers, in healthcare and construction. This has other knock on benefits with EU migrants adding £5bn more in taxes between 2004 and 2014 than they took out in public services.

Government Policies: Whether it be the decision to privatise key services such as the railways or to join or leave a trading bloc like the EU (Brexit), the decisions our government makes play a key role in causing economic change in the UK. Between 1945 and 1979 major industries, especially in the North of England and in South Wales became less profitable and eventually factories and mines closed. During the twentieth century the number of coal mines in the UK declined from over 3,000 to just 30. As a result the government has tried different strategies to revitalise these parts areas, such as:

- Investment in new infrastructure, including roads, the rail network (think HS2 and Crossrail) and industrial estates
- Encouraging foreign investment from large, transnational companies. Nissan, the Japanese car manufacturer opened a new car plant near Sunderland in the northeast in 1986. It now employs 7,000 people
- Using public-private partnerships between government development corporations and the private sector to transform derelict industrial areas such as the London Docklands in to gleaming new financial centres with offices and retail outlets such as that now found at Canary Wharf.
- Setting up a regional development agency in 1999, which was replaced in 2012 by a local enterprise partnership which supports businesses, improves skills and plans for economic growth.
- From 2010 onwards, the government has tried to ‘rebalance’ the economy by rebuilding the UK’s manufacturing sector and relying less on the service industries, in particular the financial sector in London. Creating and investing in enterprise zones and industries such as aerospace engineering have attracted investment and created many jobs as shown below.
- The biggest story dominating economic change in the UK at the moment is Brexit. The UK government’s decision to hold a referendum and now the way the government approaches negotiations will potentially have a huge impact on the UK economy over the next decade. It is uncertain exactly what impact this will have.

Ultimately the key message here is that while globalisation and deindustrialisation have been big factors causing economic change in the UK, our government also plays a key role in causing economic change.

Moving towards a post-industrial economy: development of IT, service industries, finance, research, science and business parks

Being in a post industrial economy means the majority of the population are employed in the tertiary sector. By 2015 78% of UK employment was in tertiary, 10% in the quaternary sector and although in 1900, 55% worked in manufacturing, this is now only 10%. Rather than the UK just being an exporter of heavy manufactured goods, the UK now also exports services such as IT & finance. Employment was in tertiary, 10% in the quaternary sector and although in 1900, 55% worked in manufacturing, this is now only 10%. Rather than the UK just being an exporter of heavy manufactured goods, the UK now also exports services such as IT & finance.

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Development of Information Technology (IT):
- Embracing IT has helped the transition to a post industrial economy
- Internet access now enables many people to work from home and have international business meetings without leaving the office/UK.
- Many new start up businesses are directly involved with IT, manufacturing hardware and designing software
- Over 1.3 million people work in the IT sector
- As one of the world’s leading digital economies, the UK attracts businesses and investment from abroad, aiding in job creation.

Service Industries
- Individuals employed in the service sector produce services rather than products. The UK service sector has grown very rapidly since the 1970s a of UK economic output compared to 46% in 1948. The service sector includes anything from banking to financial services (accountancy, investment advice, real estate, mortgages) to insurance, education, marketing, consultancy, retail, transport, entertainment, the arts, local council, social care and healthcare.
Finance
Finance is an important part of the service sector. It includes banking, insurance and fund management. The UK is the world’s leading centre for financial services, with the City of London as the UK’s financial centre. This sector accounts for 10% of the UK’s GDP and employs over 2 million people. Essentially, the UK is now making money from flows of money and information rather than the flow of manufactured products. The problem is that this is not evenly distributed around the UK. Most growth is concentrated in London, contributing to the North-South divide (see below).

Research
A new sector of the UK economy that is growing rapidly in the twenty-first century is the quaternary industry. The quaternary sector is sometimes described as the ‘knowledge economy’ because it involves providing information and the development of new ideas. This includes research in fields such as information technology, biotechnology and new creative industries. It is estimated that ten per cent of the UK workforce now works in the quaternary sector with the UK Research sector employing over 60,000 people. It is estimated to contribute £3bn to the UK economy every year. Research is done by Universities such as Cambridge (with links to its science park), as well as by private companies and government bodies. Good examples of UK research organisations are the NHS, the MOD, charities such as Cancer Research and the British Antarctic Survey (BAS). The BAS employs over 500 highly skilled people in Cambridge, the Antarctic and Arctic bases. Its research in polar regions helps our understanding of the earth and human impact on its natural systems. This currently involves things like future changes in sea ice levels due to global climate change and the impact of ocean acidification on ecosystems. The research sector will be one of the UK’s main growth areas in the future.

Growth Corridors – M4 Named Example
IT, Hi-Tech, research and development industries often cluster in business parks around certain cities. These cities are often the focus of growth corridors, following major transport routes, where the fastest economic growth is happening. A good example is the M4 Corridor linking growth cities such as London to Reading, Swindon, Bristol and Cardiff. The M4 corridor has become home to hi-tech industry over the past thirty years. Many well-known companies, like Microsoft, Sony and Vodaphone, are based there, usually in modern, out-of-town business parks. It is estimated that the M4 corridor produces 8% of the UK’s economic output, as much as Manchester and Birmingham combined. The diagram to the right shows why the M4 corridor is so popular.

Science Parks: A group of scientific and technical knowledge-based businesses located on a single site. There has been a proliferation of science parks in recent years with the government funding them as a way to help the UK be a world leader in hi-tech, ‘knowledge based’ industries in our ‘post industrial’ economy. A good example is Cambridge Science Park. Cambridge is fast emerging as one the UK’s main hubs for hi-tech industry. Over 1,500 information technology and biotechnology companies are now based there. The reason it has been so successful is because the city lies only 80 kilometres north of London and is close to the M11 and Stansted Airport meaning it is accessible and easy for business meetings to take place. It is found in one of the UK’s growth corridors meaning there are lots of like minded business nearby for sharing expertise. This is known as agglomeration. It also has close links with the university. It was opened in 1970 by Trinity College which specialises in science and technology. Toshiba’s European research HQ is there, as are many ‘start up’ companies such as biotech company Abcam. Abcam (named for ‘antibodies Cambridge’) produces antibodies that are used in the treatment of diseases. The company is now worth £1 billion and employs 200 staff with PhD degrees – more than some universities!

Business Parks: An area of land occupied by a cluster of businesses, usually on the edge of towns. A good example is Aztec West Business Park near Cribbs Causeway in Bristol. They locate on the edge of cities to benefit from cheaper land (allowing room for expansion) and easy access as main transport routes tend to be on the edge (motorways such as the M4/M5 with Aztec West). This means they are accessible for workers, customers and imports/exports. They allow for agglomeration to take place meaning businesses benefit from working together.
Background theory: We live on an urbanised island. 81% of people in the UK live in towns and cities. This trend of urbanisation, where people move from rural areas (countryside) to urban areas (towns and cities), really started to accelerate during the industrial revolution. These internal migrants were drawn towards cities by the prospect of work and a perceived improvement in the quality of their lives. A more recent trend has seen people move back out into the countryside from cities. This is called counter-urbanisation and leads to population growth in the rural landscape. Many families make this move in order to bring young children up in an environment that they see as better for their children's development. Some people who counter-urbanise are able to work from home, thanks mostly to the UK’s rapidly improving Internet infrastructure, but many workers have to commute back into urban areas. The average commute distance and time varies around the country, but it’s getting longer in every region, which is why investing in transport infrastructure is so important. This process can also lead to housing shortages as small rural villages and towns become more desirable. One way governments can increase housing

An Area of population growth: South Cambridgeshire

South Cambridgeshire is the rural area surrounding the city of Cambridge. It is a very desirable place to live for people that work in Cambridge (which has seen huge growth over the last two decades due to the Science Park) but want a more rural lifestyle. The population of 150,000 is increasing due to counterurbanisation from Cambridge and other parts of the UK. Many of these migrants are part of a process of ‘retirement migration’ with the proportion of people in S.Cambridgeshire being aged 65 and over projected to reach 29% by 2031. This growth has had the following negative effects on the area:

- 80% car ownership is leading to increased congestion
- House prices have increased, outpricing young people
- Commuters use services where they work (Cambridge) rather than live, damaging the local rural economy.

Despite these negatives, South Cambridgeshire has seen large numbers of highly skilled and educated people move to the area. There is a high level of employment, with 21% of the population employed in hi tech industries like computer software and engineering manufacture.

An Area of population decline - Outer Hebrides

The Outer Hebrides refers to the series of islands to the very North West of Scotland. It has a population of 27,400. The area has seen a population decline of 50% since 1901. This decline is due to outward migration of young people known as ‘rural flight’. With limited opportunities, younger people have chosen to move away from the area in search of better paid employment and other opportunities elsewhere more modern lifestyle (broadband, higher education, nightlife etc). This has had a number of impacts:

- The number of school children has fallen causing local school schools to close, making it harder for other families to stay.
- There are now fewer people of working age living in the Outer Hebrides to support an elderly population.
- The government has to support the area with subsidies for things like ferries and maintenance of essential services.
- It is hard to maintain a local economy with a falling population though and many services like post offices have closed.
- Farming and fishing have declined due to the falling population.

The UK’s economy relies on its transport infrastructure running smoothly. When transport routes are congested or stop, the economy suffers. People are late to work, shops stay closed, customers can’t reach shopping centres, airlines have to pay passengers compensation, goods don’t reach their destination. In short the economy grinds to a halt. The government is therefore investing billions in the UK’s transport Infrastructure. You need to be able to discuss some of these projects and explain their importance to the continued growth of the economy.

Transport: Improvements and new developments in road and rail infrastructure, port and airport capacity

Road:

We’ve all sat in traffic jams. It’s frustrating. Congestion on the UK’s roads is calculated to cost £9bn a year in wasted time, fuel and unnecessary carbon emissions. £15 billion has been committed to a ‘Road Investment Strategy’. This involves 100 new road schemes, 1300 new lane miles on motorway and trunk roads and motorways being turned into smart motorways as shown in the photo to the left worth variable speed limits to help traffic keep flowing freely in times of congestion. Finally, the A303 is being converted in to the South West ‘Super Highway’. Due to alternating stretches of dual and single carriageway, the traffic between Andover and Exeter is often ‘stop-start’. The £2bn road widening project will be undertaken over the next 15 years to convert the route to dual carriageway.
Rail: Britain’s railways provided the means to move the Industrial Revolution forwards, but our rail infrastructure is showing its age. Investment in railways is therefore vital to improve links between regions of the UK. There are 2 huge projects ongoing. Crossrail and HS2.

Crossrail is a new underground line in London that will link Reading and Heathrow in the West to Shenfield and Abbey Wood in the East. It is costing £15bn and involves 32km of new tunnels under central London. This will reduce journey times across London, easing congestion on other London Underground routes.

HS2 is the new $50bn plan for a High Speed Rail service from London to Manchester and Leeds via Birmingham. It aims to stimulate economic growth in the North of the UK by improving the rail network there and connectivity to London. This should help draw investment away from London as businesses/investment will only be attracted to the North if they can quickly reach London for business meetings. This will bring economic benefits to the Midlands and northern England where de-industrialisation has led to a loss of jobs. It will also take the pressure off the existing road and rail network, encouraging more people to travel by rail.

Ports: Great Britain is an island. Historically we’ve relied on the seas to export things we produce & import things we don’t. We have the largest ports industry in Europe. These ports tend to specialise in either ferries and cruise ships or container ships. 32 million passengers travel through UK ports each year and 96% of all goods come through a port. In a globalised world reliant on the cheap transport costs that container ships allow, having up to date infrastructure is vital for the UK economy. In 2014, Felixstowe was the UK’s largest container port handling 2 million containers. As the size of container ships increases, UK ports must be able to handle these large ships or we will lose trade. To address this, the London Gateway on the Thames Estuary opened in 2013. It is the first port in London to open since the old docks closed in the 1970s and there are plans for it to expand. London Gateway can accommodate the largest container ships in the world, up to 400 metres long and carrying up to 18,000 containers. In addition to this, £195m has been invested in the Avonmouth dock in Bristol for bulk handling and storage facilities for cars.

Airports: Aviation accounts for 3.6% of the UK’s economy and 300,000 are employed in the sector. The UK sees 750,000 international and 420,000 domestic flights a year, with 35 million seats available. On 5th June 2018, the UK Government gave the go ahead for a new, third runway at Heathrow despite much opposition. Heathrow is already by far the largest airport in the UK. By 2030 it could expand even further. The new runway will cost approximately £18.6 billion. Heathrow currently operates at almost full capacity, with 480,000 flights a year. It would be impossible to increase the number of flights on its two existing runways. There were alternatives to expanding Heathrow. Some people thought that Manchester Airport should be expanded to boost the economy in northern England and help reduce the North–South divide. However, Heathrow supporters pointed out that, unless Heathrow is allowed to expand, London would be in danger of losing its position as a leading world city. In a post industrial society, connectivity is key.

<table>
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<th>For</th>
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<tr>
<td>• It will help London to compete with rivals like New York and Paris.</td>
<td>• It is already the largest emitter of CO₂ in the UK. This will increase when the airport expands.</td>
</tr>
<tr>
<td>• The airport employs 76,000 people and supports a similar number of jobs in London.</td>
<td>• Noise pollution will get worse for one million people who live below the flight path.</td>
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<tr>
<td>• Expansion would boost the UK economy by over £200 billion.</td>
<td>• One village will be demolished and two others are threatened.</td>
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The north–south divide. Strategies used in an attempt to resolve regional differences

There is a clear divide in wealth in the UK, some regions and cities are wealthier than others, and the people who live there have a higher standard of living and can even live longer. Broadly speaking, there is a North South divide in the UK, the people who live in the South generally earn more per week and generate more wealth for the UK.

**Why is there a N/S divide?**

During the industrial revolution the UK’s growth was centered on the coalfields in Wales, Northern England and Scotland. Heavy industries and engineering thrived in cities such as Manchester, Sheffield and Glasgow, generating wealth and prosperity. Since the 1970s many industries (such as steel making, ship building and heavy engineering) have declined and unemployment increased. Alternative sources of energy have reduced the importance of coalfields and modern industries have located elsewhere. London and the SE developed rapidly due to a fast growing service sector. London is a major global financial centre and has grown faster than the rest of the UK. This has led to high house prices across the SE. London dominates the UK’s economy, and firms AGGLOMERATE there to take advantage of being close to one another. Related industries can help each other and this makes them more productive. The weekly earnings map below from the Office for National Statistics really does show this divide between the richer south East and the poorer areas elsewhere.

**Exceptions?**

However, this is not universally the case. The “rich south” should not really include the south west. London itself has pockets of extreme poverty and the poorer north also has areas of great wealth, such as the oil wealth generated around Aberdeen. Cities also distort the pattern.

**Strategies to reduce these regional differences: The Northern Power house – “One Agenda, One Economy, One North”**

For many decades now governments have tried to iron out the differences between the north and the south. The latest idea (created during the parliaments of 2010 to 2015 and 2015+) is to create a “Northern Powerhouse” of well linked northern cities to match, rival and compete with the economic muscle of London. The proposal for a Northern Powerhouse is based around linking the regional “core” cities of Liverpool, Leeds, Manchester, Sheffield, Hull and Newcastle. Other regional centres would be integrated such as Cumbria, Lancashire, Cheshire, North Yorkshire and the Tees Valley.

Linking these urban areas should help industries perform better and help to even out the UK’s economy to match that of London and the south east. The main practical areas of the proposal are to;

1. Improve transport links between the places, such as motorway developments and railway improvements such as HS2
2. Invest in science and innovation as is happening in Newcastle Science Central
3. Devolve the powers of government. Here, many of the decisions currently made in London’s parliament would be passed on to those Northern cities. This would give northern cities more control on what happens and could help developments be more appropriate to those places. Cities would get their own deals and elected mayors.

Not everyone agrees with the idea however. Some people claim that the plan is too concentrated on Manchester and others question where the money will come from. Supporters of the scheme point to a similar successful scheme in the Randstad region of the Netherlands and that the idea already has a Minister appointed who can link between the powerhouse and the government in London.
The place of the UK in the wider world. Links through trade, culture, transport, and electronic communication. Economic and political links: the European Union (EU) and Commonwealth.

As globalisation increases, the world is becoming more interdependent. The UK has global links through all the things listed above. You will need to be able to talk about a couple of them in the exam. In the past the UK was a superpower with a huge empire. The UK is still important today but for the last few decades our relationship with the world has been through our membership of organisations like the EU, G8, NATO and the UN security council. The UK is seen as a fair, tolerant and law abiding society with a rich history and culture. The UK has embraced technology and invested in infrastructure to ensure it remains globally competitive in a globalised, twenty first century world. You need to know about the following links the UK has with the wider world:

**The EU**

The EU, also known as the European Union (EU), is an economic union of 28 European countries that was established in 1957. It has its headquarters in Brussels, Belgium, and its member states include countries from Western Europe, Northern Europe, and Southern Europe. The EU aims to promote peace, prosperity, and democracy in Europe. It operates through various institutions, including the European Commission, the European Parliament, and the Council of the European Union.

The EU is composed of 28 member states, which are full members of the union. The UK joined the EU in 1973, becoming the second country to join after Denmark in 1972. The EU has a population of over 500 million people and a combined GDP of around €14 trillion. The union is headquartered in Brussels, Belgium, and is governed by a number of institutions, including the European Commission, the European Parliament, and the Council of the European Union. The EU operates through various policies and programs, including those related to trade, immigration, and security.

The EU allows free movement of people, goods, and services. The UK trades a lot with the EU as its geographically close and therefore transport costs are cheaper. It's members are also wealthy so it makes for a good trading partner. Much migration to the UK is also from EU countries, especially from Eastern Europe (10 countries joined the EU from here in 2004) as people move in search of better paid work. The EU is now more than just a trading group and it has substantial political influence over its members. This is one of the reasons that some people voted to leave the EU in 2016.

The UK is a member of the Commonwealth, a voluntary group of 53 countries, most of which were once British colonies. It is home to 2.2 billion people, 60 per cent under the age of 30. The Commonwealth includes some of the world's largest, smallest, richest and poorest countries. It was established in 1945 with the aim of promoting peace, friendship, and cooperation among its members. The Commonwealth is a voluntary association of independent states, and its members are encouraged to work together on a wide range of issues, including trade, education, and culture. Despite its name, the Commonwealth is not a political union, and its member states retain their own governments and systems of government.

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