GCSE Case Studies

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Physical Geography

- Restless Earth
- Water on the Land
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Human Geography

- Population Change
- Tourism
- The Development Gap

Restless Earth

Physical Geography

The Alps – Fold Mountains

The Alps are located in Central Europe and border Austria, Italy, Switzerland, Germany and France. They were formed by the African plate pushing against the Eurasian plate. As it moved sediments in Sea of Thethys (the geosyncline between the plates) were squeezed upwards to form the Alps. The highest peak is Mont Blanc near the Franco-Italian border at 4810m but many other peaks are also above 3800m. It is the source area for some of Europe's great rivers e.g. Rhine and Rhone.

How do humans use the Alps?

Hydro-electric power: steep slopes, high precipitation and summer melting produce fast flowing rivers and narrow valleys mean that the rivers are easy to dam. This makes the Alps ideal for generating hydro-electric power which then in turn attracts industry to the area. Some electricity is also exported to other regions to supply towns and cities (60% of Switzerland's energy comes from HEP in the Alps).

Farming: Most farms are located on the sunnier and warmer south-facing slopes. The traditional pattern of farming is a type of dairy farming called transhumance. This is where animals are moved according to the season. In the summer cattle are taken up to the high alp to graze which allows hay and other fodder crops to be grown on the flat land in the valley floor when the soils are at their deepest and most fertile. In winter the cattle return to the farm on the valley floor where they are kept in cattle sheds and stall fed the fodder crops which were grown in the summer. There has been many changes to the traditional way of farming. Cable cars installed for tourism are now being used to bring milk to co-operative dairies on the valley floor each day rather than farmers staying on the alp all summer and turning the milk into butter and cheese (longer lasting). Farmers also buy in additional feed stuffs so that their cattle can stay on the valley floor all year. **Forestry**: coniferous forest cover many of the slopes especially north-facing ones. Wood, as a plentiful resource, has always been the main building material and winter fuel in the Alpine region. Most saw mills are located on the valley floor near rivers.

Tourism: the Alps have physical advantages for tourism all year round. In summer walkers and climbers are attracted to the stunning scenery in the area. Theree are large glacial lakes on the valley floors and beautiful scenery with snow-capped peaks. Examples of main summer resorts are Interlaken and Lake Garda. In winter the snow attracts skiiers to the area. Weather conditions are perfect as in between the days of heavy snowfall are many sunny, crisp and clear days. The flatter land on the high level alp allow for easy building of hotels, restaurants, ski lifts and other facilties. Steep sided slopes above the resorts are perfect for skiing amid great mountain views. However, there is a concern that the Alpine winters are warming up and becoming less snowy.

How have humans adapted to living in the Alps?

- Farmers have adapted their practise to working in fold mountains by diversifying their techniques and using technology to move away from transhumance. As the valleys get more built up through tourism, the space available to farmers decreases so they have to design new methods of farming, such as introducing vineyards or providing campsites for tourists to help boost their income.
- As the countries are rich problems like communication and transport have been overcome. Modern road tunnels e.g. Mont Blanc, St Bernard have replaced old routes over high passes. Many electrified railways link the Alps to cities; rail tunnels under the Alps include the Brenner and St Bernard. Mountain cog railways, cable cars and ski lifts link the valley floor to high level benches and ski slopes above them.
- The greater overall usage of the Alps has meant that communication links, e.g. roads, has been improved making it easier to move around the Alps and ensure people can live and work more effectively. Even ski lifts and cable cars can be used to move around both people and also farmers' animals.
- Locals have developed new ways of supporting tourism from building new resorts to offering different types of activities in the summer and winter, all to try and encourage people to visit the area. This provides jobs year round and a considerable income for the area.
- Energy companies have used the steep sided valleys to build dams, reservoirs and HEP plants to provide energy, using the region's natural landscape to provide more renewable forms of energy.
- Industry uses natural resources, particularly trees, to provide wood for a variety of uses. Deforested trees are replanted to preserve the resource and in doing so, long term employment is provided.

Montserrat – Volcanic Eruption

Causes

- Montserrrat is part of a volcanic island arc in the Caribbean, which has developed at a destructive plate boundary. The Atlantic Plate (oceanic crust) is being subducted under the Caribbean plate (continental crust) as it is more dense. As the Atlantic plate is forced into the mantle it melts creating new magma. This magma then combines with the sea water that has also been subducted making this new magma less dense. It then rises through the Caribbean plate to form a volcano and a volcanic arc (Lesser Antilles volcanic arc).
- In August 1995 the volcano started to erupt smothering Montserrat's capital, Plymouth, in dense clouds of volcanic ash. Two years of 'gentle' eruptions then followed. In June 1997 the biggest eruption sent massive pyroclastic flows (mixture of volcanic fragments, ash, mud and toxic gases at temperature over 500C) flowing down the side of the Soufriere Hills at over 130km/h covering everything in their path.

Effects	Primary	Secondary
Social	•23 people died •People had to be evacuated	•Homes were destroyed and abandoned •People who stayed suffered very harsh conditions •Health problems were reported (due by volcanic ash contaning quartz that can then cause silicosis) •Ageing population as many young people have left the island
Economic	•Infrastructure, including the airport, was destroyed	•Montserrat's economy was devastated •Tourism came to a halt •Montserrat forced to rely on UK •Processing of imported rice and assembly of electrical products declined •Unemployment rose as tourism industry declined
Enviromental	•More than half Montserrat become uninhabitable. •Floods as valleys blocked with ash. •Pyroclastic flows	•Floods as valleys blocked by ash •Forest fires caused by pyroclastic flows

Short term responses:

- August 1995, many residents were evacuated to the north of the island.
- April 1996, Plymouth was evacuated and an exclusion zone was set up in the south of the island before the big eruption
- Many people left the island completely. By November 1997 Montserrat's population had fallen from 12,000 to 3,500.
- Montserrat is a British Overseas Territory, the British Government spent millions of pounds on aid - including temporary buildings and water purification.
- Charities set up temporary schools, and sent emergency food for farm animals.

Long term responses:

- Some people returned to the island. By 2010, the population had risen to nearly 5,000.
- The island's population structure changed. Many younger people left and didn't return. Many older people never left, or came back.
- The British government spent over £200 million helping Montserrat to restore electricity and water, build a new harbour in the north of the island at Little Bay, a new airport and new roads.
- The Montserrat Volcano Observatory was set up in 1996 to study the volcano and provide warnings for the future.
- Little Bay is being developed as the new capital.

Positive Impacts	Negative Impacts
•New roads and a new airport built •Presence of the volcano resulted to an eventual increase in tourism •A volcanic observatory has been built to monitor the volcano •Services in the north of the island have been expanded as Little Bay is developed as the new capital	•Many young people left the island forever •Ageing population •Unemployment rose due to declining industries •Montserrat had to rely heavily on the British government to rebuild country •Plymouth, original capital city, had to be abandoned •23 people lost their lives

Monitoring

The Montserrat Volcano Observatory was set up in 1996 and they are monitoring the volcano through a number of methods.

- Checking changes in its shape using electronic tilt meters and GPS. A change in shape can indicate rising magma.
- Using seismometers to listen to the rumbing of the volcano as magma moves towards the surface.
- Creating a seismology network to collect information on earthquake activity.
- Measuring sulphur dioxide

	Northridge, USA (MEDC EARTHQUAKE)	Sichuan, China (LEDC EARTHQUAKE)
Key Facts	• 17 January 1994 at 4.31am • Lasted 10-20 seconds • 6.7M on the Richter scale	• 12 May 2008 at 2.28pm • Lasted 2 minutes • 7.9M on the Richter scale
Causes	Caused by a blind fault on the San Andreas Fault (conservative boundary between the North American plate and the Pacific plate). Friction builds up as the two plates move past each other and pressure is eventually released as an earthquake.	Caused by movement on the Longmenshan Fault (destructive boundary between Eurasian and Indo-Australian plates). Friction builds up as the two plates move past each other and pressure is eventually released as an earthquake.
Primary effects	• Buildings and highways collapsed • Landslides triggered in surrounding mountain areas • Gas and water mains damaged • Liquefaction in the upper San Fernando Valley • 57 people killed	• Buildings collapsed • Half of the telecommunications in the province went down. • 69,172 deaths • Landslides • Millions of livestock were killed and a large amount of crops were destroyed.
Secondary effects	• People trapped and injured by collapsed buildings (9,000 injured) • Roads blocked and houses damaged by landslides especially in the Pacific Palisades area • Fires caused by broken gas pipes • Scoreboard at Anaheim Stadium collapsed onto several hundred seats • Over 15,000 aftershocks also occurred causing further damage	• 158 relief workers were killed by landslides • Contaminated drinking water • Impacts on the economy • Aftershocks caused further deaths and collapsing buildings. • 5000km pipes damaged • 1300 water treatment works destroyed • 5.46 million homes destroyed and 21.0 million homes damaged • 7000 schools destroyed • Roads blocked by landslides • Cost estimated at $75 million
Immediate responses	The area was declared a federal disaster by President Clinton which allowed hundreds of workers from the Federal Emergency Management Agency (FEMA) to be deployed to Southern California to help the communities recover.	Some areas in the affected area had not been reached within 30 hours after the disaster however access was impossible. Twenty helicopters were assigned to rescue and relief efforts and troops began parachuting in to assess the situation whilst others hiked on foot. Thousands of army troops were deployed after the earthquake and large-scale efforts were made to free trapped survivors from collapsed buildings. On 14th May China requested international help. Donations to the Red Cross exceeded £100 million in the fortnight after the earthquake. Much of this went to running survivors camps - food, medicine and doctors, tents with mattresses and volunteers.
Long-term responses	More than 600,000 applied for state and federal disaster assistance, and FEMA spent millions of federal money helping the area recover. The United States Geological Survey (USGS) has set up an experiment in Parkfield to record all ground shaking in an attempt to help build data to predict future earthquake.	One hundred million temporary houses were built for those made homeless and the Chinese government has pledged $10million rebuilding fund and banks wrote off debts owed by survivors who did not have insurance.

Indian Ocean Tsunami

Causes

The Boxing Day tsunami happened at 7.59am on the 26th December 2004 and was the result of the Indo-Australian plate being subducted beneath the Eurasian plate 240km off the coast of Indonesia (destructive plate boundary). The earthquake measured 9.1 on the Richter scale according to the USGS and caused a 20m uplift all along the 1,000km fault line.

Impacts

Social	Economic	Environmental
• Over 220,000 people died in 14 countries • 650,000 were seriously injured • Up to 2million were made homeless • Identification of the dead on such a massive scale was difficult • Families grieving for lost family members • Livelihoods destroyed • Diseases such as cholera and dysentary spread due to the lack of sanitation and contaminated floodwaters	• Public buildings including schools and hospitals were wiped out in some areas • 1,500 settlements were wiped out in Banda Aceh • Coastal tourist hotels damaged • Railway lines and roads washed away • Fishermens' boats were destroyed • Crops destroyed/farming land flooded • Hotels lost income	• Highest wave to come ashore was over 25m • Coral reefs damaged • Thousands of rice, mango and banana plantations in Sri Lanka destroyed • Water wells contaminated by seawater and dirt • Debris washed up on beaches • Places as far away as Fiji, American Samoa, New Zealand and Hawaii which lie up to 12,000km from the tsunami, saw the seas rise. • In India saltwater from the ocean contaminated freshwater supplies

Short-term responses:

- Rescue services and emergency teams were swamped by the scale of the disaster. Injured people were untreated for days as wounds turned gangrenous and conditions worsened. Bodies littered the street before being buried in mass graves.
- Over $7 billion was provided by governments and charities in the aid effort and to help with reconstruction.
- Immediate response from the international community was to send fresh water, water purification tablets, food, sheeting and tents. Medical teams and forensic scientists also came.
- UK government promised £75 million and public donations of £100 million followed.
- Up to 5 million people had to be relocated into temporary refugee camps and had to be provided with shelter, food and water.
- Took months to simply clear the debris before rebuilding could start again.

Long-term responses:

- Indonesian government relocated people straight from the refugee camps into new homes. The building of these new homes took a lot longer than expected due to the lack of building materials and destruction of main transport routes.
- A tsunami early warning system has now been installed in the Indian Ocean at a cost of $20 million

Water on the Land

Physical Geography

Bangladesh – LEDC Flooding

		Severe floods in 1998 and 2004 Confluence of three rivers: Meghna, Ganges, Brahmaputra
Causes	Natural	• Confluence of three large rivers • Snow melt from Himalayas • 70% land area <1m above sea level • Cyclones create storm surges • Increased surface runoff and more soil erosion means silt blocks river channels reducing carrying capacity of river • 80% floodplain and delta makes Bangladesh very susceptible to flooding • Monsoon rainfall
	Human	• Deforestation in Himalayas • Ganges diverted for irrigation increasing silt deposition • Rapid unplanned urbanisation in Dhaka
Effects	Social	• Hundreds killed • Millions made homeless • Contaminated water led to disease
	Economic	• Over 900 bridges destroyed • 15,000km road damaged • Crops lost leading to food shortages • Financial losses for businesses and shops • Communications damaged making co-ordinating rescue efforts difficult
	Environmental	• Agricultural land flooded and contaminated by polluted water
Responses	Short-term	• Farmers provided with free seeds • Foreign aid (including £21million from UK) • Water purification tablets • Food aid
	Long-term	• Dhaka Integrated Flood Protection Project • Cluster villages (raised by 2m) and raised homesteads (individual homes raised by 2m on earth banks) • Flood shelter: about 2ha of raised land where people can bring livestock. Each shelter has space for over 100 families and includes a toilet • Radios to issue warnings • Embankments to hold back rising water • Sluice gates (able to close channel when water rises) • Slope protection (to reduce erosion of embankments)

Boscastle, UK – MEDC Flooding

		16th August 2004 Village built at the confluence of the River Jordan and the River Valency
Causes	Natural	• Torrential rain: over 500mm rain fell in 4 hours, remnants of Hurricane Alex. Weather system remained stationary over area due to converging winds. • Small catchment area (about 23km^2) • Impermeable upland area (Bodmin Moor) • Steep-sided valleys • Extremely wet summer, by August ground was saturated.
	Human	• Building along river • Construction of small bridges across river (trapped material behind them creating small dams) • River narrowed through Boscastle reducing capacity • Deforestation in valleys
Effects	Social	• Destroyed homes • Stress and anxiety for local people • Cars belonging to more than 1,000 people washed away
	Economic	• 25 business properties destroyed • Bridges and roads damaged • 4 footbridges washed away • Visitor centre destroyed • Area relies on tourism for 90% income, most of which earned in summer months. Floods dramatically affected earnings. • Insurance companies paid out an estimated £20 million to repair damaged property
	Environmental	• Gardens and pavements destroyed by weight of floodwater
Responses	Short-term	• Major incident declared at 5pm. RAF search and rescue were alerted to rescue trapped people. No-one died mainly due to the rapid response of the emergency services.
	Long-term	• To reduce the risk of future floods, a £4.6 million flood defence scheme was completed in 2008. • Low bridges removed • River widened through Boscastle • New flood defence wall built in village centre • River bed lowered by an average of 0.75m • Trees near to river removed • Landowners encouraged to maintain vegetation cover on valley sides

Grafham Water – Reservoir

- Grafham Water is a resevoir with a circumference of about 10 miles (16km). It is located between the villages of Grafham and Perry in the county of Cambridgeshire. Grafham Water is the eight largest resevoir in England by volume and the third largest by area.
- Grafham Water was constructed in the 1960's to meet the demand from the new town of Milton Keynes and the rapid expansion of Bedfordshire and Northamptonshire's existing towns. It was originally a joint project between Mid-Northants Water Board, Great Ouse Water Authority and Bedfordshire County Council but transferred to Anglian Water in 1974.
- Originally called Diddington Reservoir after the little brook whose valley it flooded, it was renamed Grafham Reservoir and subsequently Grafham Water. The reservoir is on a plateau with nearly all of its water being abstracted from the River Great Ouse at Offord and pumped up to form the 1500 acre (600 hectare) lake.
- In addition to the sailing club a trout fishery and education centre were included in the original design and Sir Peter Scott opened the nature reserve at the western end. Most of the leisure infrastructure you see today was provided in the last 19 years including a visitor centre, cycle hire and route, fishing lodge and restaurant. The water treatment works has been expanded and modernised to meet increasing demand and today's higher quality standards.

	Positive	Negative
Social	•Leisure activities e.g. trout fishery, cycle route, restaurant •Ensures drinking water for local population	•Visual impact for local residents
Economic	•Water levels can be controlled to reduce flood risk	•Expensive to build
Environmental	•Reservoir colonised by wildlife •Nature reserve surrounding western side of the reservoir containing semi-natural ancient (at least 400 years old) woodlands and plantation woodlands, grasslands and wetlands habitats such as reedbeds, willow and open water.	•Flooded valley around Diddington Brook

Coastal Zone

Physical Geography

Maldives – impacts of rising sea levels

- Maldives is a group of islands in the Indian Ocean
- 1190 islands of which 199 are inhabited
- Average island height is around 1.5m above sea level but 80% of the land is below 1m.
- Population of around 300,00 people
- Because of rising sea levels scientists predict the islands will be completely submerged within 50 to 100 years.
- Coastal flooding has a variety of impacts on the Maldives.

Economic	Social	Political	Environmental
•Loss of tourism - tourism is the largest industry in the Maldives. if the main airport can't function properly because of coastal flooding the country will be cut off from international tourists. This will massively reduce the country's income. •Disrupted fishing industry - fish are the Maldives largest export. Coastal flooding may damage fish processing plants, reducing the fish exports and the country's income.	•Houses are damaged or destroyed - a severe flood could make whole communities homeless. •Less freshwater available - supplies of freshwater are already low on the islands. If supplies are polluted with salt water during floods then some islands will have to rely on rainwater or expensive desalination plants to meet their water needs.	•The Maldivian government had to ask the Japanese government to give them $60 million to build the 3m high sea wall which protects the capital city, Malé. •Changes to environmental policies - the Maldives has pledged to become carbon neutral so it doesn't contribute to global warming. The Maldivian government is encouraging other governments to do the same. •Changes to long-term plans - the government is thinking about buying land in other countries such as India and Australia so they can move Maldivians there before the islands become uninhabitable.	•Loss of beaches - coastal flooding erodes beaches at a rapid rate. This destroys habitats and exposes the land behind to the effects of flooding. •Loss of soil - the soil on most of the islands is shallow (about 20cm deep or less). Coastal floods could easily wash the soil layer away which means that most plants won't be able to grow.

Cliff collapse – Christchurch Bay, Bournemouth

The cliffs in Christchurch Bay which is on the south coast of England. The cliffs here are rapidly eroding at a rate of 1-2m per year.
The cliffs are collapsing and retreating rapidly because:
Marine processes: the bases of the cliffs are being eroded by hydraulic action and abrasion.
Sub-aerial processes: weathering is weakening the rock and then mass movement (slumping and rock fall) is leading to cliff collapse and further erosion.
Geology: in Christchurch Bay permeable sand lies on top of impermeable clay. During wet weather heavy rain saturates the permeable sand, making it much heavier and making the top of the cliff unstable.
Fetch: south-west winds, which have blown 3000 miles across the Atlantic Ocean create strong destructive waves which have lots of energy to erode.
Human activity: it's a tourist honeypot and there has been extensive building along the cliff top. The extra weight weakens the top of the cliff making it more unstable.

What impacts does cliff collapse have?

Social	Economic	Environmental
•People lose their homes if they fall into the sea. •Homes close to the cliffs go down in value. •It is difficult and expensive to insure houses close to the cliffs. •It is dangerous for people to walk along the cliff tops and on the beach if the cliffs are likely to collapse.	•Roads and railways near the coast are under threat from collapse. •Tourists may not visit the area because of the danger. This affects local businesses such as cafes, hotels, shops and taxis. •Barton Golf Course has had to expand inland as some of its land has been lost to coastal erosion.	•Cliff collapse makes the area look unattractive. •The cliffs near Naith Holiday Village at New Milton are being eroded but they've not been protected as they're classed as a SSSI (site of special scientific interest). •Cliff collapse exposes different types of rocks and fossils. •Bird-nesting sites and green land at the top of the cliffs are being lost.

Holderness – coastal management

Place	Strategy
Bridlington	4.7km sea wall and wooden groynes
Hornsea	Sea wall, wooden groynes and rock armour
Mappleton	Two rock groynes - they were built in 1991 costing £2million and were built to protect the village and a coastal road from flooding
Withernsea	Groynes and a sea wall. Some rock armour was placed in front of the sea wall after it was damaged by severe storms in 1992
Spurn Head	Groynes and rock armour

These strategies do help to protect the coastline but they do cause problems as well.

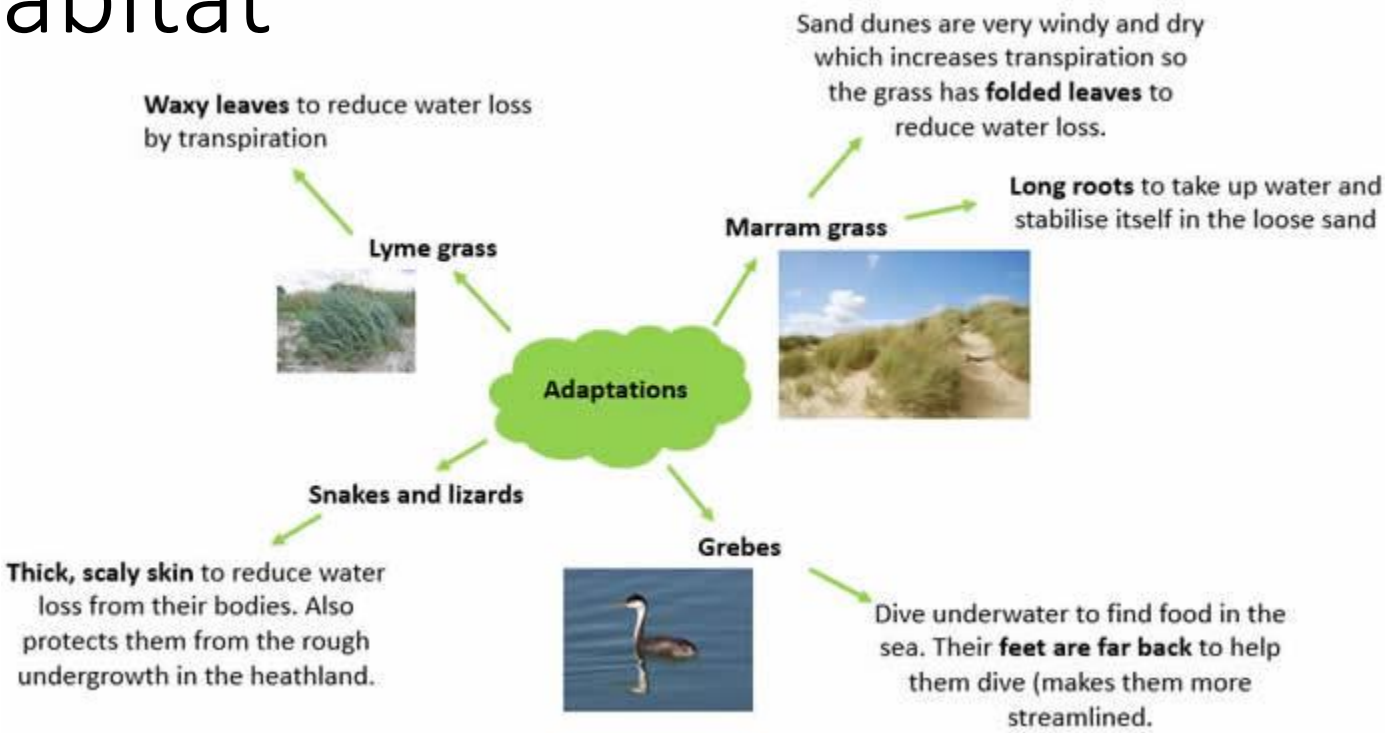
- The groynes do protect the area they are directly in front of but reduce the amount of material transported by the longshore drift along the coast. This increases the rate of erosion further along the coasty as beaches become narrower e.g. Cowden Farm, which is south of Mappleton, is now at risk of falling into the sea.
- The material created from the erosion of the Holderness coastline is normally transported south across the Humber Estuary and along the Lincolnshire coast. By reducing the amount of material that is eroded and transported the risk of flooding further south is increased.
- The rate of coastal erosion and retreat along the Lincolnshire coast is also increased due to a lack of material supplying the beaches there.
- Spurn Head (a spit) is at risk of being completely eroded away because less material is being added to it.
- Bays are forming between the areas protected by sea defences and the areas which are protected are becoming headlands. This makes the headland areas more prone to erosion and means that it becomes more difficult and expensive to maintain the sea defences there.

Studland Bay – coastal habitat

Studland Bay is a bay in Dorset which is in the southwest of England. It's a sheltered bay so mostly doesn't feel the effect of the highly erosive waves. However, the southern end of the bay is being eroded. There are sandy beaches in the bay which attract many tourists. Behind the beach are sand dunes and heathland. The heathland is a site of special scientific interest (SSSI) and a nature reserve.

Studland Bay provides a habitat for many species:

- Plants - marram grass and lyme grass on the sand dunes, heather on the heathland
- Birds - Dartford warblers, shelducks, grebes
- Fish - seahorses (Studland is the only place in Britain where the spiny seahorse breeds)
- Reptiles - adders, grass snakes, sand lizards, slow worms



Due to the range of human activities in Studland Bay, there are conflicts between land use and the need for conservation.

- Many people visit Studland Bay and walk across the sand dunes which causes lots of erosion. The National Trust, who manage the area, so people can access this area without causing too much damage. The strategies they use include boardwalks to allow people to walk across the dunes without damanging the sand beneath. Some sand dunes which have previously been damaged have been fenced off and replanted with marram grass to stablilise them. Information signs have also been put up to educate people about why the sand dune habitat is important and to let them know how to enjoy the environment without damaging it.
- Many bots use Studland Bay and their anchors are destroying the seagrass where seahorses live. Seahorses are protected by law so boat owners are being told to not damage the seagrass.
- The heathland behind the sand dunes is also an important habitat but they can be easily damaged by fires caused by people dropping cigarettes (e.g. in 2008 a fire destroyed six acres of heathland). The National Trust is educating people on the dangers of causing fires and has provided fire beaters to extinguish flames if something does catch fire.
- Facilities for tourists including a shop, cafe and toilets are provided close to the car parks to focus all the visitors in one place.

Population Change

Human Geography

China’s One Child Policy

- During the 1970s the Chinese government realised that the country would be heading for disaster unless population growth was dramatically reduced.
- The one-child policy was introduced in 1979 and it set out that:
- women could not marry until they were 20 years old and men 22 years old.
- couples must apply for permission to marry and to try to have a baby
- couples could only have one successful pregnancy (and therefore, usually only one child)
- policy only applied to native (Han) Chinese
- in rural areas, where sons are essential to work the family land, a second pregnancy was allowed if the first child was a girl, in the hope of having a boy
- second children born abroad are not penalised, but they are not allowed to become Chinese citizens

Benefits if policy followed	Sanctions if policy not followed
Priority housing Pension Family benefits Free education for the only child	10% salary decrease Fine was so large that it bankrupted many households Family would have to pay for education of both children and for healthcare for all the family

- If you didn't follow the one-child policy the pressure to abort a second pregnancy was immense. The government would even cut the pay of the couple's co-workers so they would make life unbearable. The 'Granny Police' were older women in the community who were entrusted with keeping everyone in line. They checked regularly on couples of childbearing age, even accompanying women on contraception appointments to ensure that they attended.

Did it work?

- Essential yes, China's one-child policy has prevented the births of over 400 million babies and the population is lower than it would have been had the policy not been enforced. Population growth has slowed down enough for all people to have enough food and jobs. Increased technology amd exploitation of resources have raised living standards for many. This is partly due to the one-child policy but also because of technology from other countries.

However, it has created a lot of problems for China as well.

- Chinese society prefers sons over daughters. Some daughters were placed in orphanages or left to die (female infanticide) in the hope of having a son the second time round.
- Due to preference for boys, China now has a gender imbalance. By 2020, it is estimated that men in China will outnumber women by 30 million, which might lead to social tension and unrest as more and more men find themselves unable to marry.
- Little emperors: children have become over indulged by their two parents and four grandparents as they are the only child.
- The only child will have to support two parents and four grandparents to support. Could lead to an ageing population. They will need supporting financially in their old age which includes an increasing need for expensive healthcare.
- Many experts believe that China's growing economy won't have enough workers to keep expanding whilst also supporting the increasing number of dependents.
- The **one-child policy is now changing.** The policy is mostly still strongly enforced in urban areas whilst in rural areas the policy is relaxed to allow two children if the first child is a daughter. In urban areas couples are often allowed to have two children if they were both only children themselves.

Kerala's alternative population control (non-birth control policy)

- Kerala's government has taken a very different approach to managing its population growth. It has a population of approximately 32 million and is one of India's most densely populated states but it has one of the country's lowest birth rates. Its population growth of 9.8% per decase is less than half of India's average (21.3% per decade).
- India was the first developing nation to launch a national family planning programme as early as 1952. Not only have they encouraged the use of contraception but have included many social changes such as healthcare and education.
- Kerala's success of a variety of strategies:
  - improving education standards and treating girls as equals to boys
  - providing adult literacy classes in towns and villages
  - educating people to understand the benefits of smaller families
  - reducing infant mortality so people no longer need to have so many children
  - improving child health through vaccination programmes
  - providing free contraception and advice
  - encouraging a higher age of marriage
  - allowing maternity leave for the first two babies only
  - providing extra retirement benefits for those who have smaller families
  - following a land reform programme (land redistributed so that no-one was landless, no family was allowed more than 8ha and everyone could be self-sufficient)
- Kerala has managed to control its population growth by investing in social changes while still allowing people the freedom to choose their own family size.

France – managing an ageing population

One way of managing an ageing population is to encourage people to have more children. In France they have adopted this policy.

France was a country with concerns that professional women were choosing not to have children. The government were worried that the population was not going to replace itself over time.

The policies that were put in place to encourage three-children families were:

- a cash incentive of £675 monthly (nearly the minimum wage) for a mother to stay off work for one year following the birth of her third child
- the 'carte famille nombreuse' (large family card), giving large reductions on train fares
- income tax based on the more children the less tax to pay
- three years paid parental leave, which can be used by mothers or fathers
- full-time schooling starts at 3 years, fully paid for by the government
- day care for children younger than three is subsidised by the government
- the more children a woman has, the earlier she will be allowed to retire on a full pension

This has resulted in mothers considering having children and remaining in work. The *fertility rate* in France is one of Europe's highest.

Migration within the EU: Polish migrants move to the UK

When Poland and seven other Eastern European nations joined the EU in 2004 it started a wave of migration to the UK. By 2008, over 850,000 had registered to work in the UK. Many of these migrants were Polish.

Polish migrants moved to the UK to find work. There was high unemployment in Poland at the time. Most migrants were under 34 (85%) and only 15% wanted to stay permanently. Most wanted to work in the UK for a couple of years, earn money and then return home. Wages in the UK are much higher than they are in Poland (in 2006 a Polish migrant could earn an average of £20,000 a year in the UK compared to £4,000 in Poland).

IMPACTS	UK	Poland
Positive	• Holes in the labour market filled by migrants. Many of the jobs filled are those that UK citizens do not want E.g. in the building industry. • Economic growth as migrants spend money in shops and on services. (Polish migrants contributed £1.9 billion to the government in tax and national insurance in 2007).	• Remittances – money sent back to Poland from wages earned in UK. • Returning Polish bring back new skills with them. • Unemployment numbers are reduced. • Allies created between countries. • Less pollution due to lowered population • Less pressure on resources, such as land.
Negative	• Increased population • Increased strains on health and education services. • Pressures on housing sector, high rents as housing is in short supply. • Increased tension in some areas of country • Many Polish migrant have poor access to health and education, often as a result of the language barrier • Pressure on A+E services as few migrants register with a GP • Many workers demand training – especially in English • Contributions to pollution and carbon emissions in the UK	• Ageing population as young profession working age move to UK leaving shortfall in pension contributions. • Holes left in the labour market as people migrate to UK. • Brain drain – high skilled workers move for higher paid jobs (Doctors are paid 4x as much in UK than Poland)

Migration into the EU: Afghan refugees move to the UK

The EU receives over 2 million asylum claims each year. Refugees are often forced away from areas because of wars. In recent years many refugees have come from Afghanistan were there are problems with ongoing conflict, corruption, poverty and unemployment. Many of these refugees went to Pakistan and Iran but some have attempted the difficult journey to the UK.

Under EU immigration laws refugees should claim asylum in the first EU country which they reach. However, many of the refugees want to get to the UK (as they say it is a 'good' and 'safe' country for refugees) and make their way to Calais to try and cross the English Channel. The 'Jungle' has built up on wasteland on the edge of Calais. It is a makeshift settlement of homemade tents and shacks, hygiene is very poor. In August 2009, between 700 and 800 Afghans were living there waiting for a chance to cross to the UK (usually hidden in a lorry or train). Early on the 22nd September 2009 the migrants in the camp were arrested and the settlement was bulldozed. Many people hoped that the migrants would be able to remain in France or be sent home. However, most were just released and made their way back to northern France to attempt to cross to the UK.

Tourism

Human Geography

Blackpool – effective management strategies needed for continued success of UK tourism

Blackpool is an iconic tourist resort whose coastal location is the main reason for its initial development as a tourist resort. Blackpool is the 4th largest settlement in the North West of England after Manchester, Liverpool and Warrington. In the 2011 censes its population was registered at 142,064, a decrease of around 200 people on year 2001.

People currently go to Blackpool for a range of reasons;

- The Pleasure Beach is a theme park which is the UK's most visited tourist attraction
- The sandy beach and its piers
- Blackpool Illuminations - a spectacular light show running since 1879 during the Autumn months to prolong the tourist season
- Party political conferences can take place there
- Concerts and shows happen there

The vast majority of activity within the service sector is tourism related, 31.4% of economically active people in 2006 worked in the distribution, hotels and restaurant sector. The town caters for more visitors than any other UK resort. There are nearly 91,000 bed spaces with the majority in small guesthouses. Many of the visitors to Blackpool have limited disposable income and the jobs generated are typified by low pay and short term contracts. It is not unusual for people to hold 2 or 3 part time low paid jobs as a means of achieving a sustainable income.

Like many other British Holiday resorts Blackpool suffered a decline in tourist numbers. This was because;

1. Foreign travel to the Mediterranean grew in popularity in the 1960s and 70s with its more reliable hot sunny and dry weather, and sandy beaches.
2. The expansion of package holidays and cheaper flights, plus more competing destinations
3. The growth of budget airlines and cheaper accommodation from the 1990s onwards
4. People are changing to self-catering and buying time shares or holiday homes abroad.
5. Overcrowding in Blackpool and a shift in the market to late night drinking, stag and hen parties

To combat this decline Blackpool launched a £300 million regeneration project in 2000 and launched a failed bid for a super casino. More recent projects to improve the town for visitors include;

Brilliance: This is a fantastic town centre lighting scheme which aims to encourage visitors to explore the town centre further at night and in the day

St John's Square: This area is an important public space in the centre of Blackpool. This area has been pedestrianised and new planting, paving and lighting has been added. This is to attract and enhance the character, appearance and atmosphere of the area. A Wave sculpture has been added and WiFi connectivity included too.

Houndshill Shopping Centre: This Shopping Centre has been redeveloped to improve shopping in the town centre.

The Beach - Coastal Protection The sea defences had been damaged ion Blackpool. They have been replaced with 'Spanish steps' leading down to the sea that will protect the coastline and increase public access to the seafront.

Kenya – mass tourism

Kenya is located in East Africa, its capital city is Nairobi and it is home to approximately 36 million people. Kenya earns about US$850 million from tourism each year.

Why is Kenya so popular?

- it has an attractive climate (tropical) with sunshine all year round, hot and humid at the coast; temperate inland and dry in the NE (rainy season - April-June and Oct-Dec, heavy rainfall in the afternoon and early evening)
- Safari holidays are popular - e.g. in the Maasai Mara / Nakuru National Park - Kenya has spectacular wildlife - including the big 5 - Lion, Elephant, Rhinoceros, Leopard and Buffalo
- Cultural experience - many tourists visit local tribes such as the Maasai to find out more about their lifestyle and traditions
- Coastal Holidays - SE of Kenya has fine sands and coral reefs with spectacular marine life - e.g. Mombasa

Strategies for the future?

The Kenya National Tourism Master Plan emphasises the need to:

- diversify the country's tourist product range, by opening up new avenues of tourism. such as adventure activities on rivers and lakes (rafting, canoeing, sailing and cruising)
- achieve a better distribution of tourist activities throughout the country to reduce environmental pressure on tourist hot spots.
- At a local level there are environmental concerns that need to be addressed. Under a new programme announced in 2007, the Kenya Tourist Board aims to curb tourist numbers in over-visited parks like the Masai Mara while at the same time increasing income by more than doubling park entry fees, setting a higher minimum price level in hotels and camps, and adding a premium to be used for game park improvements.
- In the future the emphasis is going to be on quality not quantity; when the place is crowded, the magic of the safari is lost. There are also big hopes for ecotourism as a way of spreading tourist dollars among more people and increasing the involvement of tribespeople in preserving wildlife and the environment.

Positives	Negatives
• Conservation - tourism has supplied the economic incentive to set up national parks and conservation areas which protect wildlife. • Employment - tourism has generated jobs, improving the living standards for local communities. Direct employment = 250,000 and indirect employment is responsible for another 250,000. • Tourism also boosts demand for goods and services in agriculture, drinks, transport, entertainment, textiles and crafts. • Infrastructure - roads, airports and other facilities have been built. • Investment profits from tourism have been invested in education and other programmes for local communities. • Tourism is Kenya's biggest foreign exchange earner (US$1 billion) • Tourist revenues account for approximately 15% of total GDP • Each full time worker supports on average 7-12 other people	• Visitor numbers go up and down. Violence in parts of Kenya and other parts of Africa affect tourist numbers even though they are miles are away and tourist destinations are unaffected. • Environmental damage - roads and tracks for safari jeeps can erode grass cover, damaging plants and animals and disturbing local habitats. The removal of trees and other vegetation for the construction of roads can lead to soil erosion. On the reefs off Mombasa, boats drop their anchors into the coral and some tourists take it away as a souvenir. • Inequality - often the profits of tourism are reaped by wealthy landowners or the hotel and travel companies in MEDCs. • Loss of traditional cultures - the Masai's way of life and traditional farming methods have been disrupted by the setting up of the Serengeti National Park. • Water cycle damage - diverting water for tourists can exploit local water reserves, leaving local people, plants and animals short of water. Tourist hotels sometimes dump waste into rivers

Antarctica – extreme tourist destination

Small-scale tourism began in Antarctica in the 1950s when commercial shipping began to take a few passengers. The first specially designed cruise ship made its first voyage in 1969.

Antarctica is classed as extreme because:

- Antarctica is centered around the South Pole and is surrounded by the Southern Ocean
- Antarctica is a continent and has an area of 5 million square miles (one and a half times the USA)
- No-one lived in Antarctica until 1897 and hardly anyone live there now except scientists. There are about 50 research stations dotted about Antarctica.
- The temperature is generally below freezing. Incredibly cold temperatures have been recorded inland, such as -60C! On the coast, temperatures can sink to -30C but it can also warm up in summer - sometimes as high as freezing point!
- There are hardly any people and hardly any buildings (outside the research stations). The natural, largely white, landscape is home to wildlife like penguins, especially along the icy coastline.

Some 9,000 tourists in 1992-93 have now grown to over 37,000 in 2006-07 and to 46,000 in 2007-08. This is thousands more than the scientific workers and their support staff who are there temporarily for research purposes. Over 100 tourist companies are involved. In 2006, 38.9% of visitors were American, 15.4% British, 10.3% German and 8.4% Australian. Tourists from the northern hemisphere usually fly to New Zealand or Argentina, taking their cruise ships onwards for one to two weeks. Smaller boats take them ashore at key locations for short visits, mainly to the peninsula or nearby islands.

Impacts of tourism

- At the moment, tourism's impact on Antarctica is limited. This is because tourism there is internationally controlled and carefully monitored (plus very expensive; a 7 day trip to Antarctica costs about £25,000). Tourists spend most of their time on board their cruise ships and don't venture far inland.
- With the number of visitors set to double in the next ten years, possible impacts include sea and coastal pollution, littering, damage to flora and fauna. and distruption of breeding patterns - since the peak tourist and the peak breeding seasons coincide. The possibility of bigger ships, helicopters and commercial air strips also threaten the environment. Already large cruise ships with up to 1000 passengers sail to Antarctic. Although their passengers do not visit the continent it would be an enormous environmental disaster should one of the cruise ships hit ice and sink. Unlike the smaller ships they are not ice-strengthened and they use heavy fuel oil, which disperses more slowly than marine fuel oil.

Managing tourism in Antarctica

- All tour operators are members of IAATO (International Association of Antarctica Tour Operators) which directs tourism to be safe and environmentally friendly.
- Guidelines on things liek the number of people allowed onshore, activities and wildlife watching.
- Tour operators are not allowed to leave anything behind - no rubbish of any sort.
- Cruise ships carry their used (grey) water back to port.
- In 2010, the British Government suggested to other Antarctic Treaty members that they limit the number of tourists visiting Antarctica and where they should go, plus also ban any hotel building.
- Since 2011, ships aren't allowed to use heavy fuel oil.
- From 2013, the new Polar Code will limit the number and size of shops visiting Antarctica. Ships carrying more than 500 passengers won't be allowed to land anyone, and only 100 tourists will be allowed ashore at any one time.

All these strategies have been put in place to allow some visitors to enjoy Antarctica without spoiling it for the future - in other words to manage tourism sustainably.

Ecuador and the Galapagos Islands - ecotourism

Yachana Ecolodge, Ecuador

- The ecolodge is a small environmentally guest house where a small number of ecotourists can stay.
- It is next to the Napo River - a tributary of the Amazon - close to the village of Mondaña. It is set in its own, protected, 1200-hectare section of rainforest, which is home to thousands of species of tropical plants and animals. Every room has a view of the river, safe drinking water and a private bathroom with a hot shower. Its dining room serves the guests meals made from locally grown food.

Why is it sustainable?

- Most of the people who work at Yachana are local. They have jobs in the kitchen, dining room, garden - and help to look after the guests and their bedroms.
- Employs Amerindian guides to show guests the forest environment and its creatures, how local people live, and how they use the plants for medicines.
- Offers a range of ecotourism activities. They involve visiting the natural environment in small groups and causing as little harm as possible to the area and to the local people. The activities help tourists to better understand the environment and the lives of local people.
- Activities include: rainforest hiking, birdwatching, swimming in the Napo River, canoeing, photography, visiting the local village, learning to make traditional 'mokaua' pottery, taking part in a traditional ceremony, visiting a nearby biological research station.

Galapagos Islands

- The volcanic Galapagos Islands lie in 1000km off the west coast of South America in the Pacific Ocean. They belong to Ecuador. Around 90% of the islands are designated as National Parks or Marine Reserves. Protection began in the 1930s and became the first UNESCO World Heritage Site in 1979. Tourists visit under strict rules that evolve around small numbers of people being allowed only in specific places. The Galapagos Conservation Trust receives £25 from every visitor and this pays for the conservation of the islands. Tourism has brought great benefits to the Ecuador because it supports the National Park and generates income.

Why is it sustainable?

- Environmentally local people view specially designed tourism as less damaging than agricuture and other industry and therefore see well planned eco-tourism as helping to protect the land. It also educates people about how important it is to protect unique landscapes.
- Economically, local businesses have started to provide for the needs of tourists. Tourists usually stay in small guest houses often run by a single family. This ensures that the profit goes directly in to the local economy and spending on area facilities can improve.
- Socially, people’s lives improve through eco-tourism as they are employed in guest houses and as guides. Often, tourists give generous tips that significantly improve the quality of life for the local people.

The Development Gap

Human Geography

Case study of a natural hazard affecting development - Haiti earthquake

Haiti is the poorest country in the Western hemisphere. The average income is $480 and unemployment is 40%. Only half the population can read and write and infant mortality is 60 per 1000. It has one of the most corrupt governments in the world. About 1% of the population own 50% of the wealth. Haiti suffered a huge earthquake in January 2010. It was the strongest earthquake in the region for over 200 years. The earthquake was close to the capital, Port-au-Prince.

The main impacts were:

- estimated 200,000 people died
- 300,000 houses were either destroyed or damaged, this meant that money would need to be spent on rebuilding these instead of on development. This would also affect people's quality of life.
- 1.3 million people were made homeless
- the capital was virtually wiped out, all infrastructure would need to be replaced taking money away from development. Many businesses were destroyed meaning that they couldn't contribute to the country's economy.
- cholera spread rapidly through the country, this affected people's quality of life and meant that they were too ill to work, having further knock-on effects on development.
- any aid efforts/redevelopment projects were completely wiped out by Hurricane Sandy in 2012

This natural disaster, in combination with the political factors, means that Haiti continues to be the poorest country is the Western hemisphere and levels of development are low.

Development Project Case Studies

	WaterAid in Mali	**Cahora Bassin Dam, Mozambique**
What type of aid has been given?	•Voluntary aid •Long-term development aid	•Government aid •Bilateral aid
What is the main focus of the development project?	Pilot scheme in the slums surrounding Mali's capital Bamako, aims to provide clean water and sanitation services to the poorest people. Water Aid have financed the construction of the area's water network and is training people to manage and maintain the system. They are also educating locals about hygiene and sanitation.	The dam was begun by the Portuguese government of Mozambique in the 1960s but was only completed in 1997as civil war had prevented construction. It is the 2nd largest HEP scheme in southern Africa and has 5 huge hydro-electricity turbines.
How does the project aim to improve people's quality of life?	The combination of safe water, sanitation and hygiene education improves people's health meaning that they are healthy and can go out to work and school. This means people are better educated and earning more money than before. They can then use this to improve their own quality of life and the government can use the tax income to help the country develop further.	By providing electricity people would be able to increase productivity in their work and it would have also improved quality of life as they could light their homes and use electricity for cooking. Increased productivity would help the country develop economically.
How successful has the project been?	Very successful, there has already been significant improvement in the general health of the community.	Not very, only 1% of Mozambique's rural homes have a direct electricity supply. Most of the electricity is sold to South Africa which makes money for the Mozambican economy but does little for the citizens. Some success has been experienced but with more careful control much more could be achieved.
Is the project sustainable?	Yes, they have trained local people to manage and maintain the system so they won't have to rely on WaterAid in the future.	It could be more sustainable if more local people were to benefit from its electricity supplies. The potential environmental damage also poses threats to sustainability.
Are there any problems with the project?	It is only helping people in the slums of Bamako but by training local people to manage the system themselves this means that WaterAid can move on and help other areas.	Environmental damage - river flow is low because so much water is held in reservoirs. The shrimp fishing industry in the lower valley has been almost destroyed.

Conditions leading to different levels of development in two contrasting countries of the EU

	Population (million)	GNI per capita (US$)	Jobs (% in P/S/T)	Trade balance (US$)	Life expectancy (years)	Infant mortality (per 1000 births)
Germany	82	38,860	2/30/68	+300 billion	80	3
Bulgaria	8	4,590	9/34/57	- 11 billion	71	14

Bulgaria is less developed than Germany because:

- The climate is temperate (not too hot and not too cold) but there are droughts in summer, and high snowfall and storms in winter. This makes farming difficult.
- Part of Bulgaria is very mountainous e.g. the Rhodope mountains cover 12,233 sqkm of Bulgaria. The land on the mountains is steep and has poor soil, also making farming difficult in these areas.
- Bulgaria was a communist country between 1944 and 1990, the government didn't invest in developing the economy.
- There have been problems with political corruption since 1990 so there was little investment in developing the economy.
- Bulgaria only joined the EU in 2007 which meant that trading was more expensive before then.
- It only has a population of 8 million so has fewer workers to boost the economy.
- Literacy rates are slightly lower than elsewhere in Europe meaning the workers are not as skilled.
- Lots of young people have migrated to elsewhere in Europe meaning that they have lost workers.

Germany has:

- High population of 82 million meaning lots of workers to boost the economy
- Good trade links; it was a founding member of the EU
- A stable government which has meant constant investment in developing the economy
- Flat, fertile land which is good for agriculture
- Rhine-Ruhr valley which has attracted industries due to its location on the River Rhine (for exporting products) and its mineral deposits (coal)
- Well developed manufacturing and service industries which are very profitable