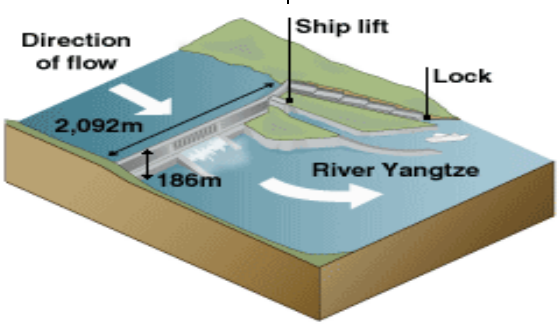
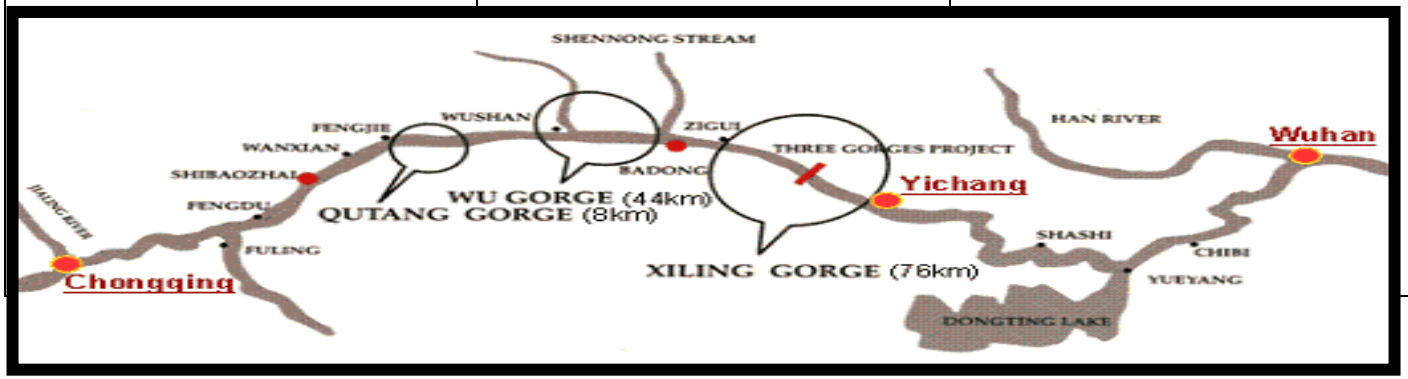
GCSE Geography Case Studies

Paper.1 Physical		Paper.2 Human	
Flooding event	Severn Floods 2007	**International migration to a EU country**	Polish migration to the UK
Sustainable river management	Three Gorges Dam, China	**LEDC shanty town settlement**	Kolkata, India
Sustainable coastal management	Holderness Coast	**Inner city redevelopment**	Stratford Olympic site, London
Impact of climate change on an LEDC	Bangladesh	**Global strategy to reduce the development gap**	CAMFED, Zambia
Impact of climate change on an MEDC	Alps, France	**Impact of globalisation on an LEDC**	Coke, India
Strategy to deal with climate change	North Hoyle, wind farm, North Wales	**Appropriate technology**	Solar Cookers International, Kenya
Earthquake in the British Isles	Market Rasen, 2008	**Sustainable traffic management**	Freiburg, Germany
Earthquake in an LEDC	Sri Lanka, 2004- Asian Tsunami	**Resource exploitation**	Coal, China
Earthquake in an MEDC	La Aquila, Italy, 2009	**Renewable energy**	North Hoyle, wind farm, North Wales
*You won't be able to digest all the information, but try to remember **two** or **three** 'facts' about each case study.*		**Sustainable waste management**	Nottingham, UK
		Sustainable tourism	Nam Hi, Laos

Example of sustainable flood management- Yangtze, Three Gorges Dam, China.

Background	Social	Economic	Environmental
Why build? To protect the millions of people that live downstream of the dam, many large important cities like Wuhan, Nanjing, and Shanghai are situated adjacent to the river. Fertile farmland and China's most important industrial areas are also beside the river. **Example flood event-** In **1998**, a flood in the area caused billions of dollars in damage; 2,039 square kilometres of farmland were flooded. The Chinese government asked for support from its military to fight the flooding. The flood affected more than 2.3 million people, and 1,526 were killed.	- 20,000 people lost work. - 1.2 million forced to relocate. -13 cities, 140 towns and 1,350 villages were flooded.  	- $30 billion, will pay for itself in ten years. - Once operational 80 cracks appeared in the dam. - Relocation of businesses.	- Weight of water has increased seismic activity. - Reservoir water quality is poor, contaminated by flooded industrial sites. 50 treatment sites needed. - Sedimentation is slowly reducing the capacity of the reservoir. - Farmers relocated to valley slopes increased sedimentation. - Increase in landslides. - Loss of biodiversity i.e. Siberian dolphin, Baiji, Siberian Cranes. - **Flood risk increased in Shanghai due to lack of sediment transport.** **- Flood risk not tackled on the lower tributaries.** **-River velocity has increased in the lower course.** **- Reduction in sediment has reduced leeves on the lower course increasing flood risk.**
	+ Stored water released to aid irrigation of farm land in summer.		+ Renewable energy 38 generators. + Flood water used to generate electricity. + Saves 31 million tonnes of coal a year. + **No major flood events since 2007.** **+ Managed flood waters has resulted in less erosion downstream.** **+ Frequency of floods risk cut from every 10 yrs to 100 yrs.** + Stored water can be released during drought season to aid navigation.

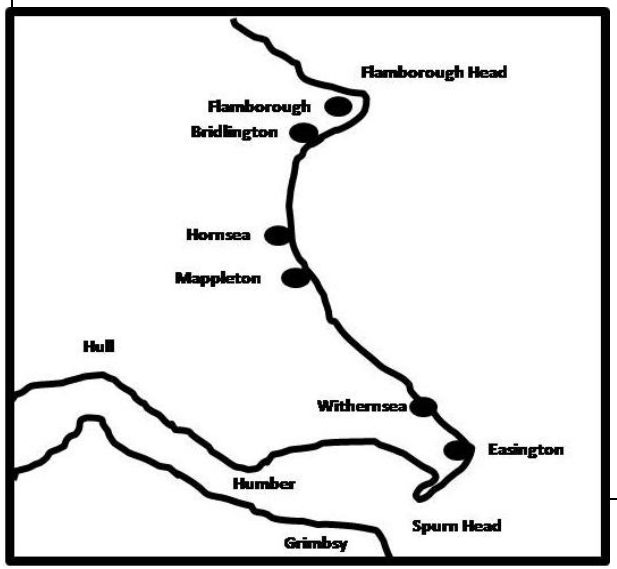


Case study of a British Isles flooding event- Severn Floods- 2007

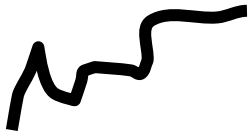
Physical Causes	Human Causes	Social Impacts	Economic Impacts	Environmental Impacts
• June: 221% of previous average rain for month. • High water table. • July: 4-5" rain in couple of days • La Nina effect- unusual number of depressions over the UK, due to high pressure over Iceland. • Steep nature of the Severn basin, increasing surface run-off. Severn source in the Cambrian Mountains. • Number of confluences increasing risk of flooding events i.e. Severn and Avon at Tewkesbury.	• Farmers? Overgrazing in upland areas. Irrigation of lower course for arable land. Use of heavy machinery compacting soil. • Deforestation within the drainage basin. • Rapid urbanisation and the introduction of storm drains, particularly in floodplain areas. • Victorian infrastructure. Some sewers and storm drains shared the same pipes. Many not maintained, for example blocked. • Lack of local flood defences and preparedness.	• 3 deaths. • Panic buying of essential food items. • Some looting of homes and vehicles. • 350,000 homes without water. • 300 bowsers sent by Severn Trent. • Water supplies contaminated by sewage and industrial contaminates. • 48,000 homes left without electricity. • Up to 1000 individuals left homeless several weeks after the flood.	• Cost £25-30 million. • Fall in property prices by a 1/3. • Increase in insurance payments. Some homes no longer can be insured. • Increase in water bills to pay for new infrastructure and defences. • Tewkesbury, Tudor architecture, loss of tourism during peak session. • Fishing locations destroyed along river banks. • Farmers crops and seed destroyed. Livestock drowned. Machinery damaged.	• Small mammals, mice and voles, drowned. • Young nesting birds drowned. • Decline in large predators such as owls, less prey. • Decline in fish stocks, young fish, i.e. perch, left stranded on floodplains. • Wildflowers killed by flooding.

Case study of sustainable coastal management: Holderness Coast.

Why is coastal management needed?	Strategies used.	How sustainable is the management?
• The coastline is made of soft **glacial till** called **boulder clay**. This was deposited in the area during the last **glacial** advance- 12,000 years ago. • There are no wide sandy beaches to protect the cliffs, because the cliffs are made of fine clay. This is transported away or held in **suspension**. • The coast has little protection from waves from the **North-East**. These have a **long-fetch** and are powerful. • Between **Flamborough** and **Spurn Head** an average of two metres of coast is lost each year. • Needed to protect important settlements reliant upon the tourist economy and key infrastructure, such as gas terminals.	• **Bridlington** has 3.6 km of **sea wall** and **groynes** to stabilise the beaches. **Bridlington** is a popular tourism destination, and has a popular of 34,000. • **Hornsea** has 1.6 km of **sea wall**, **groynes** and **rock armour**. • **Mappleton** was only allowed defences after an **economic** case was made. There is a road that links many of the coastal villages, this was threatened by the cliff retreat. 450 metres of cliff are protected at **Mappleton**, using 61,500 tons of rock **armour**, two **groynes** and a sloping **revetment**. • **Withernsea** has 2.3 km of **sea wall**, **groynes** and **rock armour**. A small offshore **rock armour** defence has also been developed. • Major North Sea gas terminals are located to the north of the village of **Easington**. The **Easington** defences needed carefully consideration, as there are two **Environmentally Sensitive Areas** nearby. At **Easington** a 1km **revetment** was built along the base of the cliff near the gas terminal, using 133,000 tonnes of rock. To ensure that beach material is not maintained, the defences hug tightly to the cliff at **Easington**- allowing material to be transported to the **ESAs**. • 10 The local district councils have a **roll-back** policy when considering new development. This means that existing caravan sites will be closed, and then moved 400 metres from the coast. It is hoped that the policy of roll back will help maintain the local economy. • New developments need to justify a coastal location. They must also be 30 to 200 metres from the present coast.	• Limiting **erosion** along the Holderness coast would mean less material travelling south to the **Humber estuary** and coast of **Lincolnshire**. Nearly 50,000 people live around the **Humber estuary**. Material from **Holderness** is deposited on the mudflats and salt marshes of the **Humber estuary** and the coast of **Lincolnshire**- protecting the areas from flooding. • Most of the land at risk is farmland, this has limited value and makes protection hard to justify. • The policy of protection is to defend larger settlements but to do nothing to prevent erosion elsewhere. • Preventing erosion along the entire coastline would be highly expensive, hence decision for the roll-back policy.



Asian Tsunami, Sri Lanka 2004.

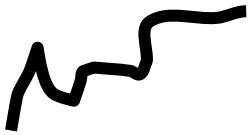


A case study of an earthquake in an LEDC.

You should know at least **two** specific facts, or figures, under each heading.

Causes	Preparation before	Impacts	Responses	Preparation now
0.58 am 26.12.2004 9.1 Richter Scale Subduction of the Indo-Australian plate under the Eurasian plate. Tsunami triggered as the seabed dropped, created a wave that travelled at 530 mph. Wave was 3-10 metres in height along the Sri Lankan coastline.	Very little- the country had not experienced a tsunami event on this scale. There was little education about such an event, when the tide receded, people ran to collect shells! Houses were built close to the coastline, and densely packed together. Many were **informally** built. People had ignored a Government directive that said people shouldn't build within 45 metres of the coastline. Houses were close to palm trees; the leaves caused many injuries due to their serrated edges. Major road and railway lines were located along the coastline; few went into the centre of the country. Sand dunes had been removed and mangrove forests felled.	**Social** 30,000 people died, over 20,000 were injured. Sewers and latrine pits overflowed, increasing the risk of diseases such as cholera and malaria. **Economic** An estimated 350,000 people lost their jobs. Mainly in the tourist industry. 6.5% of the economy impacted, particularly tourism as facilities destroyed. 759 km2 of paddy fields destroyed by sea water, vehicles and equipment damaged. Fishing industry devastated, many of the deaths were fishermen, 2/3's of the country's fishing fleet was destroyed. **Environmental** **Natural** Many animals retreated to higher land in the Yala National Park. **Built** 88,000 homes were damaged and 50,000 destroyed. 176 schools were destroyed. 30 hospitals and health centres were destroyed.	**Short-term** 20,000 soldiers deployed to help victims and stop looting. 53,000 temporary shelters provided by the government. The Sri Lankan people helped each other, donating food and clothing to those in need. Red Cross rehabilitated 420 wells and built another 550. Royal Navy sent a ship to provide resources such as a field hospital and medical supplies. **Long-term.** Sri Lanka needed $1.5 billion to start a recovery and building programme. $3 billion in aid was pledged by governments around the World, but the civil war made it difficult to deliver this to where it was needed. Governments around the World cancelled Sri Lanka's debts. The World Development Bank offered grants to homeless people to help rebuilding. $1000 for damaged homes, $2500 for rebuilds. KHCTSC paid for the building of a nursery! We continue to sponsor it.	Mangrove forests and sand dunes have been restored, these will break the power of any future tsunami event. 200 metre building buffer zone has been implemented at the coastline for all new developments. Shelters have been developed, which are 5-10 minutes walk from the coastline. Indian Ocean tsunami early warning system has been established, alarms provide time to move to higher ground. The Government is planning to develop new transport routes leading into the centre of the island.

L'Aquila Earthquake, Italy 2009.



A case study of an earthquake in an MEDC.

You should know at least **two** specific facts, or figures, under each heading.

Causes	Preparation before	Impacts	Responses	Preparation now
5th April 2009. 5.8 magnitude on the Richter Scale. Focus- 6 miles depth- shallow Epicentre L'Aquila. African plate, colliding with Eurasian plate- subduction. Resulted in fault stress. Area of medieval buildings. Ineffective retrofitting and building.	National government seismic department- raises public awareness about preparedness. All students learn about earthquakes. National seismic risk map, updated regularly. All building must be retrofitted or built to withstand earthquake events- dependent on the seismic map. National volunteer force to help in the event of a natural disaster.	**Social** 291 victims dead. 1,500 people injured. 88,000 people left unemployed 28,000 students left without access to the University. 58,000 people homeless. **Economic** $4bn impact the economy. Business disrupted. **Environmental** 11,000 buildings damaged. Medieval buildings collapsed. Damage to the cathedral. Streets impassable and bridges collapsed. Some landslides triggered by the earthquake.	**Short-term** 11,000 volunteers helped with the aftermath. 34,000 homeless housed in 161 tented settlements. Red Cross set up a field kitchen, providing 10,000 meals a day. Italian post office sent mobile offices to homeless camps to allow access to money and pensions. Italian Sky stopped billing people and provided TVs to homeless camps. Italian train companies provided free tickets and carriages for people to sleep in. Mobile companies provided free mobile phones. 30,000 short-term hardship grants worth 2.4 billion Euros; All tax payments stopped by the government. **Long-term.** Government to pay for 100% of rebuilding and reconstruction. New towns to be funded by the Government, to generate economic growth.	Updated seismic map. Improved vetting and monitoring of building companies- some had cut corners using a greater proportion of sand in their concrete. Prediction? Based on radon emissions from the ground. Controversial practice?

Case study of an earthquake event in the British Isles: Market Rasen 2008.

Date/Time/Location **Focus and Epicentre** **Size on the Richter Scale**	Wednesday 27th of February 2007. 0.56 a.m. . 5.4 magnitude on the Richter Scale. 10 seconds duration. **Focus** was 18.6 k.m. below the surface of the ground. **Epicentre** was 4 k.m. off Market Rasen.
Causes	Example of an **intraplate** earthquake Caused by a **slip** in the rocks at a **fault**. E**urasian** plates being pulled by the **North American** and **African plates.**
Impacts on People	People woken. 5,000 calls to police. No deaths One reported injury- broken pelvis by a collapse chimney stack.
Impacts on Infrastructure	Short period of power loss in some areas of the Midlands.
Impacts on buildings	Collapse chimneys, church spire in Waltham damaged. Loss of roofing tiles. Some breakages inside homes. Tall buildings reported as swaying for 30 seconds.
Economic impacts	Insurance claims estimated to be under £10 million.
Ecological Impacts	Reports of birds becoming agitated . Reports of a new natural spring forming near a Church in March, Cambridgeshire.
Reasons for the Severity of the impacts	Severe earthquakes occur at the edge of tectonic plates at boundaries- U.K. is within the Eurasian plate- away from the plate boundaries.

Impact of Climate Change

Impact of Climate Change on Bangladesh (LEDC)

Social

Increased floods are contaminating water, increasing water borne diseases such as cholera, diarrhoea etc. Bangladesh has an issue with drinking water- groundwater supplies are already contaminated with arsenic.

Increased flooding, and droughts, are destroying crops therefore decreasing food security, and could result in an increase in malnutrition.

A rise of temperature will result in an increase in pests and pathogens; this will increase diseases such as dengue fever, malaria and diarrhoea. Bangladesh's health system will struggle to cope.

Injuries, disabilities, stress and death are increasing due to the frequency of floods, fires, droughts, heat waves and cyclones. For example, increasing numbers of fisherman have lost their lives due to more stormy conditions in the Bay of Bengal.

Rural-urban migration, resulting in overcrowding and an increase in slum areas. People are struggling to farm in rural areas.

Some scientists predict that a sea level rise of a metre by the end of the century could create 20 million refugees- Bangladesh is one of the most densely populated countries in the World.

Economic

Warmer sea temperatures threaten the shrimp industry; fish diseases have also seen a rise.

In Bangladesh, 93 natural disasters have occurred since 2000, resulting in a loss of US$ 590 million, agriculture and infrastructure have been severely damaged.

About 830,000 ha of farmland have been damaged by saline water intrusion from Bay of Bengal since 2000.

23.8 tonnes of rice has been damaged due to flooding since the year 2000.

Rainfall patterns are changing due to climate change – crops yields are expected to drop significantly. It is predicted that crop production will decrease by 30% by 2100. Production of rice and wheat will reduce by 8.8%, and 32% by 2050 respectively. Again food security for the country is at risk.

Environmental

106,300 ha river bank has eroded due to climate change induced floods since 2000. This makes flooding even more likely.

Scientists predict a 2DC rise in temperature which could see the loss of 30% of all land species.

The Monsoon season is becoming more intense leading to flooding, but the dry season is becoming longer, leading to drought.

Cyclonic activity has increased due to warming seas in the Bay of Bengal.

Corals are vulnerable to thermal stress. If the sea surface temperature increases by 1-3° C then coral bleaching will occur frequently.

About 75% of the mangrove forest Sundarban (60007 Sq. km) will be submersed if the sea level increases by 45 cm. If sea level rises by 1 m then the islands in the Bay of Bengal and whole of Sundarban will be destroyed. Mangroves provide protection from cyclones. The area also provides important tourist income.

Impact of Climate Change

Impact of Climate Change on French Alps (MEDC)

Social

Winter sports jobs are in less demand due to shorter winter seasons.

Small communities are concerned that the loss of tourists may result in the migration of young people to urban areas, resulting in the loss alpine traditions and the ghosting of settlements.

Traditional alpine grazing on the lower slopes is dying out, as farmers intensify cultivation due to warmer temperatures. Local tour guides are facing falling numbers, whilst some of their routes, passed from generation to generation, are no longer safe to follow.

Increases in avalanches and rock slides have resulted in a steep rise in the number of deaths and rescues on the slopes.

Economic

Shorter winter seasons, and more rain instead of snow, are reducing the skiing season. Tourism is worth $71 billion and employs 12% of the population. Settlements are facing a loss of income.

Snow generating equipment is being used to extend the length of the skiing season, whilst some slopes are being extended into the mountains.

To provide water for snow making machines over 20 artificial reservoirs have been constructed across the area.

Warmer temperatures means that farming has intensified in the valley bottoms and lower slopes, but this has resulted in a lower biodiversity.

Many resorts are looking to diversify their economies; some are looking to attract more summer visitors by offering health breaks in the mountain air- a throw back to the Victorian age.

Tour guides are abandoning some mountains routes due to safety, whilst some glaciers have retreated so far they are not worth the journey to look at.

Melting permafrost is threatening the stability of buildings, roads, communication towers and cable car structures.

A reduction in melt water from glaciers in summer is threatening farmers in the valleys who use it to irrigate their crops.

HEP schemes also rely on melt water to generate electricity in the area.

Environmental

The temperature in the Alps over the last century has been two degrees above average.

Warmer temperatures are resulting in more winter rainfall rather than snow, increasing the risk of flooding.

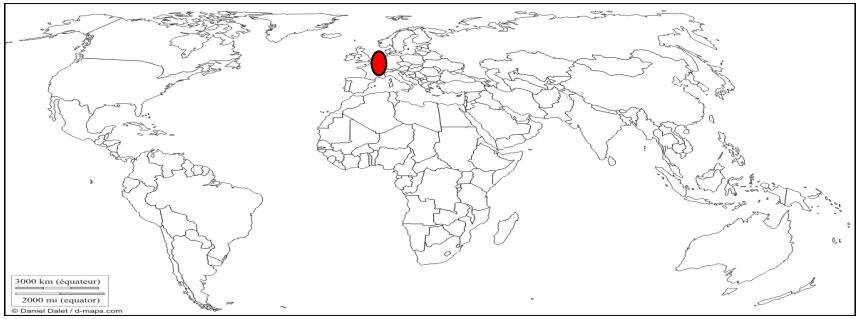
Snowline is rising by 150m for every degree of warming.

Invasive species- from gardens and homes are colonising the natural woodland on the slopes, including coniferous trees and even palm trees!

Permafrost layers on slopes are melting, resulting in more frequent rock falls and mudslides.

Glaciers are receding. They are a source of fresh water for settlements in the area- drought is increasingly common in summer.

Alpine plants are retreating up the mountain slopes at a rate of 4 metres over the decade. By the end of the century 60% of all plants could face extinction.



Polish Migration to the United Kingdom

Evaluate the positive and negative impacts of international migration using **one case study of a country within the European Union**:

-numbers migrating, their origins and destination;

Background	Push/Full Factors	Social	Economic
2004 – A8 countries join the European Union, includes Poland. Treaty of Rome states that EU citizens are free to travel and work within other EU nations. The A8 nations had a standard of living which was 40% of the EU average. To prevent mass economic migration other EU countries were able to limit migrants from these countries, but these controls must be removed by 2011. 2007 official figures showed that 431,000 Polish migrants were registered to work in the UK. 50% registered came for summer work. 63% of Polish migrants were aged 25-34, 40% had a university degree. 33% of migrants were employed in administration. 36,000 dependents also migrated.	Push (from Poland) The average income in Poland was $12,500 a year. Average wage a month was £150. 18.5% unemployment rate in 2005, 40% in rural areas. Polish economy still struggling to adapt from Communist era. Pull (to UK)	Positive Cultural exchanges- Nottingham Polish festival, Polish products within supermarkets. Migrants pay National Insurance and Council Tax, therefore contribute to local services and the Welfare State. Migrants contributed to the National Health Service, over 500 migrants were doctors. 10% Polish migrants were employed in the NHS. 10% of migrants settled within rural areas, supporting local services which were in decline. Increase in Church attendance, which had been steadily declining in the UK. Negative	Positive Source of cheap labour with a strong work ethic. Workers kept wage inflation down. Young workers needed due to ageing population. Agricultural industry benefitted from temporary workers during harvest time. Construction industry benefited, bricklayers, plumbers in short supply. Increased economic output- 0.5-1% of GNP in 2006. Additional £2.8 billion a year from the A8 country migrants. Research indicated that the migration had little impact on UK unemployment. Additional consumers, supermarkets stocking Polish products. Negative

	Average income in UK is $30,000. Minimum wage in the UK is £6 an hour. Pound was strong against the Zloyt, every pound could be exchanged for 7 Zloyts. Established communities within the UK. UK accepting of economic migrants if registered. UK will support registered working migrants via benefits, unemployment benefit, if employed for more than 12 months. Migrant dependents can register for benefits, such as child benefit. Unfilled vacancies for low and semi-skilled jobs- 607,000 in 2007. Low unemployment rate, 5.1% in 2007. Cheap flights via low cost airlines such as Ryanair. Opportunity to pay off debts and save for the future.	Additional strain on local services, primary school places, doctors, additional costs of translators, printing leaflets in target language. Increase in rents, due to increased competition. Estimate that continued migration could increase house prices by 10% over the next 20 yrs. Migrants tended to locate in urban areas, friction caused- young males, noise and drunkenness. Increased social security payments (But only 7,000 claimed for income support.) 26,000 additional child benefit applications. Migrants targeted by right-wing parties such as the BNP. Increase in hate crimes, 42 in 2007. Increase in homeless migrants, unable to work or not registered, 400 alone in London. Political pressure to curb migration. Concern over the rising population of the UK- 65 million by 2016.	Wages pushed down in low skilled jobs, created competition with UK workers. Migrants send home more £1 billion pounds a year, this could have been spent within the UK. Concerns that some employers were exploiting migrants. 98% of jobs created since 1997 have been filled by migrants.

Case study of a shanty town settlement- Kolkata, India.

Reasons for development	Location	Construction/Amenities	Employment	Quality of life.
Rural-urban migration. **Push factors** • Mechanisation of agriculture in rural areas- less employment. • Lack of access to services. • Environmental disasters i.e. drought. • Conflict- i.e. Bangladesh independence- bustee settlements. **Pull Factors** • Employment opportunities. • Access to services. • Cheap accommodation. • Family members already present. **Rapid Growth** • Young people move. • Lack of education and access to contraception.	• Outskirts of the city • Alongside roads, railways and canals. • Next to industrial developments. • Land prone to flooding or on steep relief. Land not deemed economically important, close to employment opportunities.	• About a third are not legally recognised, at risk of being bulldozed. • Informal, constructed from wood, plastic sheeting. • Small floor space- 45 sq metres occupied by 13 people. • 90% of accommodation has one family occupying one room. • Cramped conditions. • Tend to lack amenities such as electricity, gas *(unless hooked up illegally)* and drainage. • Shared community standpipes and latrines. • Limited access to local schools and healthcare, some provided by NGOs.	• Mostly informal service industry (35%), for example rag picking, clothes washing, paper folding. • Working for wealthy urbanites. • Industrial jobs i.e. cigarette making. • Tend to be long hours for low pay.	• Exploitation by landowners. • Cramped conditions, lack of privacy. • Noisy. • Limited police presence, risk of being a victim of life. • Life expectancy lower. • Tuberculosis ten times higher than in the city. • Skin disease 2.5 times higher. • Respiratory diseases 1.4 times higher. • Heart and circulatory system 10 times higher • Allergic diseases 1.9 times higher.

Olympic Park Site Redevelopment- Stratford and New Town Ward, East London

Case Study of Inner City Redevelopment.

	Positive	Negative
Housing	• 9,000 homes will be converted from athletics village- targeted at Key workers.	• Clays Lane Estate demolished- 450 individuals relocated. • Compulsory purchase. • Loss of community ties. • 150 traveller families moved to new site. • Redevelopment is causing a rise in local house prices. • Half of new homes will be on the open market- lack of affordability for local residents.
Economic	• 12 thousands permanent jobs at the site, thousands temporarily during the Olympics. • 9% of workers on the site were unemployed before. 25% from local area. • Redevelopment will act as an anchor for further development in the area. Positive economic multiplier effect. • Westfield retail development over 200 shops. • 150 km^2 media and broadcast centre will encourage creative businesses to the area • Increase in tourism already.	• Construction 1 in 3 were foreign workers • 300 local businesses have been forced to relocate; many can't afford to do so. • Compensation has been inadequate • Some estimated that 11.000 local jobs have been lost. • Concern over the death of Stratford high street. • Replacing industrial jobs will low skill, part-time jobs in the leisure industry.
Environment	• 52 pylons and overhead cables placed place underground • Brownfield site- 500 acres. • Being decontaminated, 1.8 million cubic metres of soil cleaned and reused • 70,000 tonnes of domestic and industrial landfill waste being used and recycled in the Park. • 1,500 arces of landscaping- 2,000 native shrubs and trees, 300,000 wetland plants, to promote wildlife in the centre of London. • 100 new arces of open parkland. • Lea Valleys waterways will be cleaned and new habitats developed. • An ecology management plan was developed which included translocating 4,000 smooth newts, 100 toads and 300 common lizards as well as fish including pikes and eels. • 525 bird boxes, 150 bat boxes • Venues and bridges developed with living habitat spaces.	• 87 plots at the Manor Gardens allotments will be lost. • 500 mature trees in the area will be cut down. • River Lees Trust- landscaping will be inappropriate and may disrupt wildlife habitats and key migrations routes. • Waterways are key breeding grounds for toads, newts and frogs, • Environment Agency concerns over flood prevention-
Sustainable?	• No private parking to encourage walking, cycling and use of public transport. • Park will be accessible by extension of Docklands Light Railway, improved capacity on Jubilee Line and redevelopment of Stratford train station. • New wind turbine on Eton Moor, energy centre with biomass boilers. 20% of electricity for the site from renewable sources. • Buildings include rainwater collectors to reduce water use. Water used in the swimming centre will be recycled for toilet flushing in the park. • Sporting facilities will be redeveloped after games for community use. • 97% of materials generated through demolition were used in the park.	

Camfed
When You Educate a Girl, Everything Changes

Camfed in Zambia- a case study of an organisation attempting to narrow the global development gap.

Why needed?	Strategies used	Community Outcomes	Individual Outcomes
• Female literacy rate is 74% compared to 84% for males. • Only 25% of females are enrolled in secondary school compared to 30% of males. • Schools may not be available, particularly in isolated rural areas. • Secondary education may involve fees, or payment for equipment such as books and uniforms. • Children may need to work to help support their families. • Traditionally males provide for the family, therefore are worth the expense of education to improve employment opportunities. • Women marry into new families, therefore any investment is lost. • Women traditionally take the role of nurturing children and looking after the home- no education is needed for this!	• Support females in primary, secondary and tertiary education, i.e. Fees, uniform, mentors. • Provide business training, non-repayable grants for start-ups. Loans to expand successful businesses. • CamFed Association (CAMA)- past graduates of the scheme- provide support and mentoring within communities.	• 193,000 children in 646 schools supported. • 1,488 female teachers trained, particularly in rural areas where role models are needed. • 1,424 women provided with grants to set-up businesses. 305 provided with loans to expand. • 571 CAMA members trained as community health advisors, focusing on HIV.	• Improved employment prospects- earn 25% more. • Greater financial security. • More likely to invest in their family to improve their prospects. • Improved knowledge of health- 3 times less likely to contract HIV. • Have fewer healthier children, 40% more like to five past the age of five. • Provide role models for other females within the community.

Question- Describe **one** named strategy that is attempting to narrow/reduce the global development gap and explain how it attempts to do so.

Coca-Cola in India.

Know and understand how globalisation both helps and hinders development **with reference to one case study from an LEDC or NIC.**

Remember you must refer to two specific facts in case study questions.

	Social	Economic	Environment	Political
+ve	6,000 employees. Indirectly employs 150,000 people. In Asia, every one Coke job creates another ten in the local community. **Positive multiplier effect.** Mobile training units for retailers, developing their skills. Has spent $10 million dollars on community programmes, including drinking water and sustainable energy projects. Hand pumps and wells have been provided in bottling plant communities.	Coke has invested over $1 billion in India. Increased tax revenues for local and national government. Increased demand for local suppliers. *600,000 employees.* *In India indirectly employs 150,000 people.* *In Asia, every one Coke job creates another 10 in the local community.* ***Positive multiplier effect.***	Coca-Cola has invested in water harvesting schemes in India; they state actual recharge has been five times what they extract from the ground. *Has spent $10 million dollars on community programmes, including drinking water and sustainable energy projects.*	
-ve	Reported long working hours for low pay- reported 12hr shifts for 50 US cents. Workers not provided with appropriate safety equipment- in the purification process of bottles- this involves chlorine. Bottling plants hire temporary workers- reducing worker protection. Union memberships, holidays etc. Coke uses franchise system, so can distance itself from working practices in bottling plants. *See also negative environmental impacts.* Indian researchers reported that Coke products in India contained 24 times the EU recommended pesticide residues.	Coke has brought out home brands, leading to concerns about a monopoly developing with Pepsi. Accused of causing the decline of traditional fruit drink vendors. Retailers are only allowed to stock Coke in provided fridges, reducing consumer choice. Profits leak aboard to American shareholders. In Kerala Coke has been accused of avoiding tax payments to the local government. *But states have offered subsidized water, land and tax breaks to Coca Cola.*	It takes 3.8 litres of water to make one litre of Coke. In Kerala, water tables have decreased by a metre a year. This has impacted on local subsistence farmers. Local rivers have been polluted from bottling plant waste. Women had to walk 5km for water. In Kerala, waste from Coke plants was been given to farmers as fertiliser, it contained heavy metals, such as cadmium, which is a carcinogen. Pollution from the bottling plant has been linked to low birth weights.	India has strict laws on ownership of companies. 50% must be 'home' owned. Coke has set up 'Indian' companies, which are controlled by Coke.

Appropriate Technology- The use of solar cookers in Kenya.

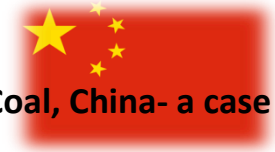
(i) Investigate **one case study from an LEDC** of a sustainable project that uses appropriate technology, and describe and explain how it aims to use technology to progress economic, environmental and social improvements;
(ii) Evaluate the success of this appropriate technology project.

Scheme Background	Why is it suitable for Kenya?	Social benefits	Economic benefits	Environmental benefits	Drawbacks
• *Solar International.* • Programme *'Sunny Solutions'*. • 23 women trained to make and sell *Cookit* solar cookers. • 3000 kits sold. • 75,000 community members educated about solar cooking. • 15,000 cookers supplied to the Kakuma refugee camp.	• Sustained periods of intense sunlight. • Large rural population, 78%. • Low GNP - $,1600 • Low cost of cookers- can be produced from recycled material. • Easily to replicate. • Reliant upon wood for fuel- 79% of energy.	• No smoke- therefore reduces risk of respiratory illness, such as bronchitis and asthma. • Reduces accidents and fire risks. • Lower home temperatures in summer periods. • Diarrhoea cases have fallen by 40%- cookers used to sterilise water. • Diets have improved because people can eat grains and beans that would have been expensive to cook using wood. • Longer cooking times result in less cases of food poisoning. • Nutrients aren't destroyed by the heating temperatures. • Children and women freed from wood collecting, hard work and potentially dangerous. • Local educated and skilled in the production and benefit of solar cookers.	• Sunlight is free and renewable, fuel costs have been reduced by 40%. • Source of income for the originally trained women. • Other Individuals have begun to replicate, manufacture and sell their own cookers, independently of the scheme. • Individuals have diversified their use of the cookers to generate incomes, i,e, bread making, dye fabrics. • Improved income benefits quality of life.	• Reduction in trees being felled. • Habitats maintained. • Risk of desertification in semi-arid areas reduced. • Renewable energy resource. • Reduces carbon emissions – majority of future population growth is from the developing world.	• Huge cultural shift needed. • Cookers depend upon the weather; have been found to be unreliable in highland areas. • Meals hottest during the hottest part of the day, people less likely to eat then. • Take longer to cook; therefore food preparation must be completed several hours before. • Small scale of the project? • Only suitable for diets which are low in protein? • Long-term? Emphasis taken off the government to provide correct infrastructure for gas/electricity. • Is it a step forward?

A city within the European Union which is attempting to manage traffic in a sustainable way- **Freiburg, Germany**.

Why needed?	Strategies	Success?
• 1970's concern about growing traffic congestion. • A city of 200,000 people, growing rapidly.	**Increasing public transport use** Cheap public transport passes. Trams maintained and new routes opened. Building of a railway to link suburban areas. 3000 km of public transport lines. **Discouraging car use** • Centre of Freiburg pedestrianised. • City centre roads calmed using traditional pebble surfaces. • Car speed was restricted to 30km per hour. • Car parking was restricted; is no free car parking in the city centre. • Car and ride facilities for commuters. • Residential only parking areas, residents must pay for a pass. • 120 streets in the city are 'Play Safe Streets' where children take priority over cars. **Encouraging cycling** • 500 km of bicycle lanes. • 5000 parking spaces for bicycles centre of the city. • Bicycles have priority over cars at junctions. **Limiting city urban sprawl** • New resident developments are five storeys, close to tram stops.	• Use of public transport has doubled. • 70% of the population live within 500 m of a tram stop. • 70% of all local journeys are by tram. • 90% of students at the University walk or cycle. • 35% of residents choose to live without a car. • Between 1976 and 1992, the % of car use fell from 60% to 46%. • 4000 fewer car journeys each day, compared to 20 years ago, despite a growing population. • CO_2 emissions have been reduced by 10% per capita.

Question- Evaluate the success of a city within the European Union which has attempted to manage traffic in a sustainable way.



Coal, China- a case study of growing resource exploitation on the people and the environment of an LEDC country.

Why needed?	Coal facts	Impact on the environment	Impact on people
Support population growth • 1.3 billion people. • Natural increase of one million people per month. • 20% of World's population. **Support a growing economy** • Rapid economic growth, average GDP increase of 10% per annum. **Support a growing quality of life.** • Rising quality of life. 1990 - $700 GDP per capita, 2009- $4900. • Colour TVs per 100 people. 1986 29, 2003 131.	• 14% of the World's known coal reserves. • World's biggest producer, 2.8 billions tonnes a year. 39% of World production. • 70% of China's energy needs are from coal. • 10,000 coal mines. • 2,500 coal-fired power stations.	• Mining causes subsidence and landslides, causing damage to homes and infrastructure. • Mining coal is contributes to the release of methane gas- a major greenhouse gas. • Miners using abandoned mines for shelter have often set light to coal piles/heaps, these fires can spread and contribute an estimated 360 million tonnes of C02 to the atmosphere. • The extraction and washing of coal creates spoil tips, 1500, of which 389 have self- ignited! • 6000 coal storage facilities without anti-dust protection, release 10 million tonnes of coal dust each year. • 2/3 of all cities have moderate/severe air pollution. • Soot mixes with rain and coats urban areas. • The water table lowers, as water is	• It is estimated that 2,000 people need to be moved for each 10 million tons of coal produced due to subsidence and landslides. • 1% of urban dwellers breathe air considered safe by the EU. • 750,000 people die each year from respiratory problems. • Over 300 million do not have access to clean water. • Poor water quality is reckoned to be the cause of 60,000 deaths a year. • 10 million tonnes of food a year are contaminated by heavy metals such as mercury. • Crop yields have declined as smog and soot reduce sunlight. • There has been a 40% increase in birth defects in coal mining areas. • Falling groundwater levels

		pumped from the mines. • Washing coal produces waste water which is contaminated with heavy metals, salts and sulphur. This is returned to watercourses. • Pollutants have run into groundwater supplies, 90% of all groundwater in cities is polluted. • 60% of ecosystems within coal mining areas of China have been damaged. • Increase in greenhouse gases, 30% of total World emissions are from China. • Sulphur dioxide emissions mean that at least 30% of the country is affected by acid rain, damaging trees, water courses and changing soil ph.	means wells have to be dug deeper. • During the Beijing Olympics, industry was closed down to improve visibility and air quality. • 5 million people employed in the coal mining industry. • 4,700 people die per year in mining accidents. • 600,000 miners suffering from pneumoconiosis- caused by dust inhalation underground.

Question- With reference to an LEDC you have studied, explain how demand for resources is having an impact on the population and the environment.

North Hoyle Wind Farm- Case Study of Renewable Energy/Tackling Global Warming

Facts	Positives	Negatives
Began producing in April 2003. Operating life of 20-23 years. Will generate electricity for 50,000 homes. 1.5% of Wales electricity needs will be met by the farm. **Why North Wales?** Good source of wind from the SW/W. Relatively shallow depth to the seabed. Stable seabed. Not an environmentally sensitive area. Experiments show there will be little damage from destructive waves. Ports available nearby for construction and maintenance. Good electrical infrastructure at the coastline. Most of the shipping traffic passes five N miles away from the farm.	**Economic** Power produced will cost the consumer no more than conventional electricity. 53 jobs created during construction. 5 full time people are required during construction. Creation of a new industry for North Wales, the turbines are constructed in Bangor. **Environmental** 1.5% of Wales' electricity needs will be met by the farm. Will generate electricity for 50,000 homes. It will save 160,000 tonnes of carbon dioxide from being released in the atmosphere each year. Cables were laid during winter to limit the impact on fish breeding cycles. 4-5 miles off shore from Rhyl. This will impact visual and noise impacts. The farm is at a 350-degree angle to the coast to reduce visibility. The turbines were painted light grey so that they blend in with the sky. Restoration of the damaged onshore habitats where the cables come ashore. Sea life will colonise the wind turbine bases. The military have said the wind farm will have no impact on their activities. Electricity cables buried under the sea so that the electrical navigational systems of fish/mammals aren't affected.	**Economic** There will be a loss of fishing grounds. They will interfere with radar systems for aeroplanes and ships- they could crash into them! **Environmental** Laying the cables will disturb seabed sediment and will damage fish stocks. You will hear the wind farms on the coast. This will also affect mammals in the area including seals and could disrupt the migration of fish. The turbines will be seen from the coastline this will affect tourism. The wind farm will cause the death of sea birds. It will generate little energy compared to conventional power *Only 1.5% of Wales' electricity needs will be met by the farm.* *Will generate electricity for only 50,000 homes.* Submerged heritage i.e. wrecks will be damaged during construction.

A city within the European Union which has attempted to manage waste in a sustainable way- **Nottingham, United Kingdom.**

Why needed?	Strategies	Success?
• 300,000 people live in the City of Nottingham. • Each resident produces .0.5 tonnes of household waste a year. • Before the recycling scheme only 4% of household waste was recycled. • 10 million bins are emptied each year in the city. • The City has government targets to meet; by 2020 50% of **all waste** should be recycled. • The E.U. landfill directive states that 75% of all **biodegradable household waste** should be recycled by 2020. • The City estimates that 85% of household rubbish could be recycled. • Councils are charged a tax for each tonne of waste that goes into landfill, £32 for active **waste** (decomposes or reacts), £2.5 for inactive **waste** (rocks, glasses etc) • The City uses five landfill sites in Nottinghamshire, it is estimated that they have an active life of two more years (2010).	• New bins, separating food, glass, paper, plastic, garden and general waste. Each collected fortnightly with the exception of food waste, which is collected weekly. • Smaller bins and an assisted pull-out service are available for elderly residents. • Residents can ask for additional bins. • Community Support Officers can fine residents who leave their bins for long periods on the streets. £100. • Bulky waste can be left on the streets on Monday mornings to be collect by the council. • Residents can compost waste by purchasing cut price composters. • There are a number of recycling points across the city and one recycling centre in Lenton. • Eastcroft Incinerator burns general waste and generates heat, therefore reducing landfill. • The general public has been educated about kerbside recycling and waste management through leaflets and door to door explanations. • A city wide school education programme was launched- WISE (Waste in Schools).	**Positives** • Recycling rate has increased from 4% to 30% since beginning the scheme in 2008; in 2010 the aim is 50%. • The average recycling rate since the introduction of the bins in residential areas has been 47%. • The recycling hubs and centre recycle 80% of waste brought in. • Heat generated from the Eastcroft Incinerator generates heat for a number of areas across the city, including the Victoria Centre and St.Anns estate. • 2010, 80% of non-recyclable waste is burnt to generate electricity, only 20% is sent to landfill. **Negatives** • Many inner city terraces only have small yards; the bins take up a lot of space. • Residents have complained that fortnightly collections have lead to more flies and smelly bins! • Moving bins around the entrances and alleyways has been difficult, particularly for elderly residents. • There has been much confusion about what is acceptable within each bin, particularly in areas with high numbers of migrant workers- bins are often left without being emptied. • Many bins are left outside on the street for long periods; they are unsightly and block the pavement. • Plans to increase the capacity of the Eastcroft Incinerator have been actively fought against; residents believe this will have a detrimental impact on air quality.

Question- With reference to a city within the European Union, explain how waste has been sustainably managed.

An example of sustainable tourism:- Nam Ha, Luang Namtha Province, Laos.

Why needed?	Attractions	Strategies	Success?

Human
• Exploit growing tourist market.
• Therefore raise quality of life.
• LEDC country in transition from a communist planned economy.
• 44% population of the country is below the international poverty line.
• 80% of the economy based upon subsistence agriculture.
Physical
• Protect the National Park of Nam Ha
• Under threat from
  ○ Commercial logging
  ○ Hunting
  ○ Growing population reliant upon slash and burn agriculture.
	Human
	• Ethnically diverse, over 33 different groups.
	• Opportunity to view and experience traditional village life.
	• Area well known for traditional handicrafts.
	• Different pace of life.
	Physical
	• 2224km2 of thick deciduous forest.
	• 37 large mammal species, including leopard, tiger, gibbon and Asian elephant.
	• 288 species of bird, including kingfishers and woodpeckers.
	• Many species are rare and endangered.
	• Scenic landscape.
		• UNESCO funded project working democratically with villages.
		• Villagers act as local guides through the area.
		• Tourists can lodge with villagers.
		• Rafting, trekking, mountain biking, and bird watching activities are also offered.
		 
			Positives
			• Fees are paid direct to the villagers, thereby providing additional income—on average $9 per tourist per day.
			• 8% of the income has been used to develop improved sanitation, water and healthcare for villages.
			• Income has helped diversify the economy of some villages, i.e. accommodation for tourists.
			• Has helped maintain traditional village life, particularly handicrafts.
			• Villagers have developed new skills to help cater for tourists.
			Negatives
			• Some villagers are concerned about increasing materialism, including begging.
			• Some tourists have complained the village stays are somewhat voyeuristic.
			Sustainable
			• Caters for small groups of tourists,

			limiting the impact. • Accommodation for tourists is small scale and fits with the surrounding village. • Most tourists spend four days in the area. • Villagers have a raised awareness of conservation- damage the environment- damage your income. • Slash and burn agriculture has reduced. • Hunters have been deterred by the presence of outsiders. Whilst locals are regulating hunting themselves by imposing local fines. • Two roads schemes aimed at opening up the area have been postponed due to the success of the scheme.

Question- Outline the strategies used within an area you have studied to ensure the sustainable development of tourism.