Carnforth High School Geography Department.

GCSE Geography Case Studies and Examples Booklet.

Name:

Teacher:

Exam Specification

AQA Geography 8035

More information can be found here
https://www.aqa.org.uk/subjects/geography/gcse/geography-8035/introduction

Topic	Sub-topics
P1. The challenge of natural hazards	Natural Hazards Tectonic Hazards Weather Hazards Climate Change
P1. The living world	Ecosystems Tropical Rainforests Hot Desert Environments
P1. Physical landscapes in the UK	UK physical landscapes Glacial landscapes in the UK River landscapes in the UK
P2. Urban issues and challenges	Urbanisation Urban Growth LICs/NEEs (Mumbai) Urban Change HICs (Liverpool) Urban Sustainability
P2. The changing economic world	Economic Development Change in LICs/NEEs (India) Changes in HICs (UK)
P2. The challenge of resource management	Global Patterns Resource Insecurity Changing Demands in the UK Choice: Water

Examinations	Details
Paper 1: Living with the physical environment	1 hour 30 minutes 88 marks (including 3 for SPaG) 35 % of GCSE
Paper 2: Challenges in the human environment	1 hour 30 minutes 88 marks (including 3 for SPaG) 35 % of GCSE
Paper 3: Geographical applications	1 hour 15 minutes 76 marks (including 6 for SPaG) 30 % of GCSE Pre-release resource booklet

Paper 1: Living With The Physical Environment

Case Study 1 – Malaysia, Tropical Rainforests

CAUSES OF DEFORESTATION

Subsistence and commercial farming

Indigenous (native) tribes practice **subsistence farming**, however increasingly land is being cleared for **commercial farming by large companies** – crops and cattle. Malaysia is the biggest exporter of **palm oil** in the world. Huge areas of rainforest have been converted since the 1970's. **10 year tax incentives** for plantation owners encourage further development.

Logging

Hardwood trees such as **mahogany** and **teak** are highly valued for furniture and other uses. Smaller trees are used for fuel, paper or charcoal. Malaysia is one of the **world's largest exporters of tropical wood** – much of it involves **clear felling** (cutting everything down). About **80% of deforestation in Malaysia is due to logging**. Recently clear felling has been replaced by **'selective logging'** where only fully grown trees are cut down and trees with important ecological value have been left unharmed.

Road building

Roads gives access and supplies to new mining areas, new settlements and energy projects. In Malaysia, logging companies use an extensive network of roads for heavy machinery and to transport wood; for example, road construction and logging are occurring in **Sarawak, East Malaysia (island of Borneo)**

Mineral extraction

Tin mining is common in **Peninsula Malaysia** and it also has lots of **copper and gold**. Drilling for **oil and gas** has recently started in Borneo. **Coal** is an important source of energy, with **99% of Malaysia's supply in Borneo.**

Energy development

High rainfall areas create ideal conditions for **hydroelectric power dams (HEP)** and there are several large dams and reservoirs in Malaysia. For example, the **Bakun Dam in Sarawak, completed in 2011 is 205 metres high** (highest in Asia – aside from China) and flooded over **700km^2** of forest and farmland. It supplies energy for the industries in Peninsula Malaysia. Drilling for oil and gas has also started in Borneo.

Settlement and Population Growth

In the past, poor urban people were encouraged to move into the countryside from the rapidly growing cities – this is called **transmigration**. Between **1956 and the 1980's about 15,000 hectares** of the rainforest was felled for migrants. Many of these set up plantations. Furthermore, settlements have grown to service those who work in commercial farming and mineral extraction which has further driven population growth.

MALAYSIA: IMPACTS OF DEFORESTATION

Economic Development

Economic Gains	Economic Losses
Development of land for farming, mining and energy will lead to jobs both directly (construction, farming) and indirectly (supply and support industries)	Plants that could bring huge medical benefits and high profits become extinct
Companies will pay taxes to the government as will workers – can be used to improve public services such as education and water supply	Climate change could have economic costs as people have to adapt to living in warmer conditions and may destroy crops such as tea, fruit and flowers
Improved transport infrastructure opens up new areas for industrial development and tourism	Number of tourists could decrease as biodiversity decreases
Products such as palm oil and rubber provide raw materials for processing industries	
HEP will provide cheap and plentiful energy	
Minerals such as gold are very valuable	

Soil Erosion

Huge issue in Malaysia – once the land is exposed there is no protection (interception) from the canopy layer. The soil is also not held together by tree roots. When the heavy rain comes down the soil is easily washed away into local rivers (sedimentation). This can lead to flooding and disruption of aquatic life and also leave behind infertile soil (as there are no new trees to continue the nutrient cycle)

Loss of biodiversity

Habitat destruction and the subsequent negative chain reaction will result in a reduction of biodiversity. The **Main Range**, Peninsular Malaysia, is an upland region stretching for 500km and is really important because:

- it is the largest continuous forest left in Peninsula Malaysia
- it is really rich in biodiversity with over 600 species
- highland forests are home to over 25% of all plant species found in Malaysia
- there are still undiscovered plants that have medicinal qualities that could provide cures for diseases

Contribution to climate change

Trees **remove carbon dioxide** out of the atmosphere via **photosynthesis** and emit oxygen. By absorbing carbon dioxide trees help reduce the rate of global warming. Deforestation can affect climate because:

- trees give off moisture by transpiration and trap water by interception thus keeping water locked into an area; deforestation reduces air moisture resulting in a drier climate
- the process of evaporation uses heat up and cools the air; if trees are cut down, the cooling stops and temperature rises

THE VALUE OF TROPICAL RAINFORESTS TO THE PEOPLE AND ENVIRONMENT

Value to people	Value to the environment
Resources – wood, nuts, fruit and minerals. bananas, cocoa, sugar, vanilla and spices.	**Water** – TRF are important sources of freshwater. About 20% of the world's freshwater comes from the Amazon Basin
Medicine – about 25% of all medicines comes from rainforest plants. 2000+ have anti-cancer properties. Less than 1% of rainforest plants and trees have been tested by scientists for their medicinal qualities	**Biodiversity** – TRF contain 50% of the worlds plants and animals including 1000's of different species

Indigenous tribes – thousands live in the rainforest doing it no harm. For example, Achuar tribe in Peru number over 11,000, living in small communities relying on the TRF for food, building material and fuel.	**Climate** – 'lungs of the world'; TRF contribute 28% of the world's oxygen. Moisture emitted through transpiration ensures the air does not become too dry and evaporation helps cool the air.
Energy – HEP can provide light and power for local people and/or industries	**Climate Change** – trees absorb CO2 which helps reduce the rate of global warming
Employment – tourism, construction, mining, farming, HEP	**Soil erosion** – rainforests shelter and bind together the soil preventing harmful soil erosion which can silt up and pollute rivers

SUSTAINABLE MANAGEMENT OF TROPICAL RAINFORESTS

Sustainable management involves establishing an environmental balance, enabling the rich resources of the rainforest to be used without causing long-term damage to the ecosystem. Why bother?

- to ensure the TRF remain a lasting resource for future generations
- to allow valuable resources to be used without causing long term damage to the environment or local people

Selective logging and replanting

Clear logging or clear felling means just cutting great chunks of the forest down – it clears the forest and destroys the ecosystem – it is the **most damaging** way of logging. With **selective logging** experts choose the trees and manage their progress and regeneration carefully

Malaysia's Selective Management System was introduced in **1977** is set out below:

- **2 year before felling:** Pre-felling study to identify what is there
- **1 year before felling:** Trees marked for felling. Arrows painted on trees to indicate direction of felling to avoid damage to other valuable trees
- **Felling:** Only by licence holders
- **3-6 months after felling:** Survey to check what has been felled. Prosecution may result from illegal felling
- **2 years after felling:** Treatment plan drawn up to restore forest
- **5-10 years after felling:** Regeneration work by state forestry officials. Replacement trees planted.
- **30-40 years:** Cycle begins again

Ecotourism

Malaysia have promoted their rainforests for **ecotourism.** Ecotourism aims to introduce people to the natural world, to benefit local communities and protect the environment for the future. Through income generated by ecotourism, local people and governments benefit from retaining and protecting their rainforest trees – a more sustainable option than cutting down trees for short term profit. An advert for Malaysia's ecotourism industry is below:

Sungai Yu Forest Reserve, Pahang: For the Wildlife Advocate

Forming part of a tiger corridor connecting Taman Negara and Titiwangsa Mountain Range is the **Sungai Yu Forest Reserve**. As part of a **conservation project**, visitors can camp with the semi nomadic Batek tribe, join a local cave excursion team, trek across the jungle and witness breath-taking mountain views.
Along the way, you will help to collect animal tracks and presence data, which are in turn analysed by researchers in the effort to reduce poaching. In other words, you're helping to protect the wildlife in the area! Find out more here.

International Agreements: hardwood use

There are two key international agreements to control the use of hardwoods. This is important because it can take over 150 years for a mahogany tree to reach maturity

1. **Forest Stewardship Council (FSC)** is an international organisation that promotes sustainable forestry and ONLY products sourced sustainably carry the **FSC mark.** The FSC try to educate manufacturers and consumers about the need to buy sustainable hardwoods like mahogany (which takes 150 to reach maturity) and it aims to reduce the demand for rare and valuable hardwoods.

FSC
www.fsc.org
FSC® C008025
The mark of responsible forestry

2. **The International Tropical Timber Agreement (2006)** restricts trade in hardwoods by ONLY marking timber with a registration mark if it is from a sustainably managed forest.

ITTO

Debt Reduction

Most countries with tropical rainforests are less developed (LIC's or NEE's). To promote development, some have taken large loans, which they now find hard to repay. Some HIC's have agreed to write off debts (so the LIC's/NEE's do not owe any money = **debt reduction**) in return for the rainforests being protected.

For example, in **2010 the USA agreed to convert a Brazilian debt of £13.5 million** into a fund to protect areas of the rainforest – this is called **'debt for nature swapping'.**

Conservation and Education

Rainforest can be protected in areas such as national parks or nature reserves. These areas can be used for education, scientific research and tourism. A recent trend is large international businesses supporting conservation projects in exchange for carrying out scientific research or the provision of raw materials. An example is the **Swiss company Givaudian (perfume company)**, it works with **Conservational International** and aims to protect 148,000 hectares of the rainforest in Venezuela in exchange for using Tonka beans, used in the production of perfume.

Several charities (NGO's – non-governmental organisations), including the **WWF**, Birdlife International and Fauna International. support conservation and education programmes, training conservation officers and promoting rainforest conservation in schools.

WWF-Malaysia's protected areas (PA) programme is divided into two areas *(from website):*

Peninsular Malaysia

Our vision for the Peninsular Malaysia PA programme is the establishment and maintenance of a network of protected areas based on Peninsular Malaysia's most threatened and biologically significant ecosystems, that contributes to human well-being and species conservation.

Sabah and Sarawak

Our vison for Sabah and Sarawak is that the forest ecosystems are protected and managed through protected areas in the most threatened and biologically significant regions of the two states by 2020.

Case Study 2 – The Hot Deserts, The Thar Desert in India

Location and Key Facts:

- The Thar is located in the North western corner of India and crosses the border into Pakistan.
- The region of India where the Thar is located is called Rajasthan.
- It is a landscape dominated by sand dunes that can reach up to 152m in height.
- The desert has a population density of over 80 people per km2. (Other deserts have population densities below 10 per km2).
- Compared to other hot deserts it has a much higher population.

Opportunities For Development:

Subsistence farming: The desert area is not very fertile. Soils are quickly drained, and contain few nutrients. The farming is limited, typically a few animals on more grassy areas and fruit. Most is subsistence farming.
Commercial farming: Commercial farming has been possible since the building of the Indira Ghandhi Canal. This irrigates an area near Jodhpur. Wheat and cotton can be grown. The canal also supplies drinking water.
Mining industry: Resources such as limestone and gypsum (for making plaster) are found in this desert - and are valuable for the building industry. There are numerous valuable resources including marble, feldspar and kaolin also.
Tourism: Tourism is a growing industry, and locals can act as guides and provide transport – such as hiring out camels. The Thar Desert National Park attracts numerous visitors who want to see the 120 species found there.
Renewable energy: The Thar has a sunny climate making it ideal for solar energy. It has also seen development of wind power, with a wind farm consisting of 75 wind turbines. This energy can be sold across the border to Pakistan.

Challenges with Development:

- Extreme temperatures – in summer temperatures exceed 50°C and it makes working conditions difficult. Tourism, farming and mining all become difficult as it is simply too hot to be productive.
- Population pressure - the Thar Desert is the most densely populated desert in the world, with a population density of 83 people per square km, and the population is increasing. This is putting extra pressure on the fragile desert ecosystem and leading to overgrazing, overcultivation and ultimately desertification
- Water management - excessive irrigation in some places has led to waterlogging of the ground. Where this has happened, salts, poisonous to plants have been deposited on the ground surface. This is called salinisation and is a big problem in deserts. Elsewhere, excessive demand for water has caused an unsustainable fall in water tables. Water borne disease can be an issue as people share water ponds and rivers with animals.
- Infrastructure – there are limited roads, railways and transport routes making many areas very isolated. This makes it difficult to trade. Other infrastructure such as electricity and communication are also very limited to small areas.
- Soil erosion - overcultivation and overgrazing have damaged the vegetation in places, leading to soil erosion by wind and rain. Once eroded away, the soil takes thousands of years to reform.
- Fuel - reserves of firewood, the main source of fuel, are dwindling with the result that people are using manure as fuel rather than using it to improve the quality of the soil.
- Tourism - although tourists bring benefits such as employment and extra incomes, the environment that they have come to enjoy is fragile and will suffer if tourism becomes overdeveloped.

Paper 2: Challenges In The Human Environment.

Case Study 1 – Mumbai, A Major NEE City.

Location of Mumbai: Mumbai is located in Maharashtra state in the West of India. It borders the Arabian Sea and is a thriving megacity which has grown rapidly since the 1950's. Today it is estimated to be home to 23 million people.

The Importance of Mumbai:

Mumbai is a thriving megacity which has been experiencing an economic boom in recent years. It is important for many reasons and because of this property in Mumbai is fast becoming some of the most expensive in the world. However, it is a city with contrasts as many of the people live in slums or squatter settlements.

Regional Importance	***National Importance***	***Global Importance***
3 million people commute from surrounding areas for work	Mumbai is the commercial and financial capital of India.	In 2014 Mumbai was the most globalised city in S.E Asia
The Hi-tech industry is growing call centres, online banking and software development.	Mumbai handles 60% of India's sea trade.	Has the largest number of international companies in Asia
City contributes 40% of total income to the whole state of Maharashtra	Nationally, Mumbai contributes 33% of all income tax and 60% of all custom duty from trade.	Bank of America Volkswagen Walt Disney And many more have their headquarters in Mumbai
Mumbai has the highest percentage of internet access of any Indian city (12 million people in 2013)	Receives the largest amount of foreign investment of any other city in India	Mumbai has an international airport, helping to connect India with the rest of the world.
Mumbai's tourism industry is booming with thousands flocking to the area from all over the globe.	Mumbai is seen as a hub of India for smaller businesses such as jewellery and fashion.	
The population of Mumbai is constantly growing, taking the young work force from neighbouring cities.	Home to the biggest cultural industry in India – Bollywood	
	Mumbai is a transport hub with links to all major industrial cities India. ***Transport hub****=connecting point for transport links*	

Causes Of Growth: Natural Increase And Migration:

1. Rapidly grown over the last 50 years.
2. Population of 23 million.
3. Growth driven by rural-urban migration.
4. Migration rate of 1 person per minute!
5. Migrants average age was 20-21 and 64% are male. Natural increase also contributes to urban growth.
6. In 1947 Mumbai's population was 4 million

Push Factors (pushing people away from rural India)	Pull Factors (pulling people in to urban Mumbai)
Education and health standards are much lower in rural areas. Younger populations aspire to gain better qualifications and rural areas only offer poor skilled, low paid jobs.	Mumbai has some good **schools and universities as well as decent hospitals and dentists.** In Mumbai your **home** is more likely to have services such as water, electricity and sewage. Many migrants will already know people who have left the countryside to go to the city. They hope that these contacts will help them to find work and housing etc.
Farm jobs have become harder to find due to natural hazards such as **drought**, smaller plot sizes, The Green Revolution (a government programme to improve agriculture using chemicals) and over population. Only large farms can afford the chemicals and machinery. Many small farms cannot compete and people have sold up Young people see farming as hard work with long hours and low pay	**Improved Job prospects in Mumbai**. The traditional industries of textiles, shipping & freight and jobs brought by TNCs. Mumbai is the financial capital of India and many Indian companies have their headquarters there. All these jobs promise to offer higher pay than farm work but the reality is often that skills are required to take some positions that the majority do not have.

How Has Urban Growth In Mumbai Created Opportunities:

Social Opportunities

These are opportunities that help people in some way or other, Mumbai offers many opportunities to people via access to various public and private services;

Health care – we often take health care for granted in the UK, with our free at the point of use NHS, but access to quality healthcare matters to many people. In cities like Mumbai people have easier access to a wider range of medical services including doctors, hospitals and nurses. Even the poor have access to basic medical services that they either would not have in the rural areas or would have to travel very long distances for.

Education – this is another free at the point of use service in the UK, but education is truly life changing and often taken for granted. Not in poor countries, migrants often move to cities to have access to schools for their children, so that their children have a much better chance in life than themselves.

Water supply – This is variable in Mumbai, and in Dharavi slum the water pipes are only in use 2 hours a day and there are queues for this water. However, this is clean drinking water, which often not available in poorer rural areas or involves a time-consuming labour-intensive walk for (mainly) women to the local well. Having access to clean water that does not transmit parasites or cause cholera is another opportunity provided by living in an urban megacity like Mumbai.

Energy – some remote parts of India still have no electricity, whilst living in a large city like Mumbai allows people to live with all of the benefits of energy and electricity. This is another opportunity or pull factor, think of all of the opportunities that having regular energy supply offers to people.

Economic opportunities

The major pull factor of a city like Mumbai, like cities in LICs and NEEs across the globe, is the opportunity for employment. Most people around the globe want the chance to work, earn a living and provide a decent life for themselves and their families. Mumbai offers a huge range of job opportunities from the hugely attractive and often unobtainable like working for a major financial institution like a bank or in the Bollywood film industry, to the most basic such as rag pickers (people who sift through rubbish to find items of any worth).

Mumbai has many job opportunities because it alone accounts for 6% of India's GDP and 40% of its foreign trade. It is also a manufacturing hub which creates a lot of jobs, 25% of India's industrial production is in Mumbai. The port area also creates a lot of valuable jobs.

It also has the headquarters of a number of Indian financial institutions such as the Bombay Stock Exchange and the Reserve Bank of India, and numerous Indian companies such as the Tata Group. Most of these offices are located in downtown South Mumbai which is the nerve centre of the Indian economy.

The formal and informal economy

Many of the jobs in Mumbai are in the formal economy. These jobs are registered jobs where the workers' pay taxes to the government and the companies have a legal obligation to protect their workers, offer holidays and pay regular wages.

However, many of the jobs in Mumbai are also found in the informal economy. Here there is no minimum wage, the workers are unlikely to pay taxes, have no holiday rights and often work in dangerous or hazardous conditions. Jobs include rag picking, breaking up and recycling old electronic products, recycling waste, making pottery, selling

items on the street etc. The key to many these jobs is that they cost little to set up, use simple tools and are labour intensive (involve lots of human work).

Despite the difficulties of the informal industry, these industries offer poor often uneducated people a foothold in the city. They can earn money and start to improve their quality of life from that point. Dharavi slum has the following positives for people

1. Informal shopping areas exist where it is possible to buy anything you might need.
2. There are also mosques catering for people's religious needs.
3. There is a pottery area of Dharavi slum which has a community centre.
4. Rooms within houses have multiple functions, including living, working and sleeping. Many daily chores are done in social spheres because people live close to one another. This helps to generate a sense of community.
5. The buildings in the pottery part of the slum are all of different heights and colours adding interest and diversity.
6. 85% of people have a job in the slum and can work locally, and some have even managed to become millionaires.

How Has Urban Growth In Mumbai Created Challenges:

SOCIAL AND ECONOMIC CHALLENGES

Mumbai is a city that faces many challenges and those challenges are large because of its immense size and rapid growth. Physical Geography also plays a role, as Mumbai has been limited in where it can grow because it originally grew at the southern end of an island surrounded by the Arabian Sea and 2 rivers.

The major problem in Mumbai is the growth of **squatter settlements** known in India as **SLUMS**. These slums come with many issues for people including the lack of planned access to clean water and sanitation systems, poor health, lack of education, unemployment and the prospect of crime.

One of the world's most infamous slums is Dharavi slum, which is the largest squatter settlement located in Mumbai
(formally Bombay) in India. There are a million people crammed into one square mile in Dharavi. At the edge of Dharavi the newest arrivals come to make their homes on waste land next to water pipes in slum areas. They set up home illegally amongst waste on land that is not suitable for habitation. In the wet monsoon season these people have huge problems living on this low lying marginal land.

Challenging Conditions in the slums

In the slum people have to live with many problems;

Lack of sanitation is the MAJOR ISSUE - people have to go to the toilet in the street and there are open sewers because 500 people share one public latrine. Children play amongst sewage waste and doctors deal with **4,000 cases a day** of diphtheria and typhoid.

Lack of access to clean water – there are few water pipes in the slum and those that exist only have the supply switched on for **2 hours a day** by the city authorities. This means people have to queue for water and

have **LIMITED SUPPLY**. In addition, next to the open sewers are water pipes, which can crack and take in sewage. Dharavi slum is based around this water pipe built on an old rubbish tip.

Lack of legal rights - The people have not planned this settlement and have no legal rights to the land. In addition, the slum houses have little in the way of security. Mumbai as a whole has a problem with crime, such as pick pockets and organised begging.

POOR HEALTH – life expectancies in the squatter settlements are low because of these conditions, poor quality water, mosquitoes which thrive in nearby mangrove swamps and dangerous jobs (There are toxic wastes in the slum including hugely dangerous heavy metals) all serve to impact on people's health.

UNEMPLOYMENT and POOR QUALITY WORK - Many people have poor jobs, such as those who work to sift the rubbish in the tips where children and women sift through the rubbish for valuable waste. They have to work under the hot sun in appalling conditions. They earn around a £1 a day for their work.

Problems in the slums (Dharavi)

Sanitation is poor as there are few toilets	Toxic waste from industry flows through the slum
85% of people in Dharavi have a job	There is much land and area pollution from the factories and potteries
Dharavi is built on an old rubbish tip	Asbestos is used in the construction
Many parts of the slum vary greatly creating a diverse and interesting region	Children play in sewage, leading to 4,000 new cases of disease per day (diphtheria, typhoid, cholera)
There are 12 neighbourhoods and no maps or road signs	Shops and services within the slum can provide everything you need
Many people have become millionaires by setting up business in the slum	Houses are often as small as 12x12 feet
Water pipes run through sewage and often crack	Everything is recycled, from wires and plastic to hospital waste
80% of plastic is recycled, compared to 23% in the UK	The settlement was unplanned and the people have no rights to the land
Community and social areas provide a village type feel with people looking out for each other	Most people work locally so do not have to travel
Dharavi has a famous recycling zone, which helps the sustainability of Mumbai	15,000 one room factories in Dharavi generate income, including one that makes parts for suitcases
Water is rationed and only available for 2 hours per day from 5.30am	Women and children often do the recycling and ear £1 in appalling conditions
The famous clothes washing area has raw sewage flowing into it	500 people share one public toilet

ENVIRONMENTAL CHALLENGES: Mumbai has challenges to deal with protecting the natural environment and providing people with a clean environment to live in.

Water pollution is a major problem in Mumbai. A major study revealed that 77% of households suffer from poor water quality in the city. This poor water quality is leading to water borne diseases occurring in people and levels of things like total dissolved solids (TDS) and nitrates are higher than safe limits. Toxic chemicals such as arsenic and lead and disease-causing bacteria are also contributing to the alarming increase in the water contamination. Deadly waterborne diseases like cholera, jaundice, typhoid, diarrhoea are affecting people as a result.

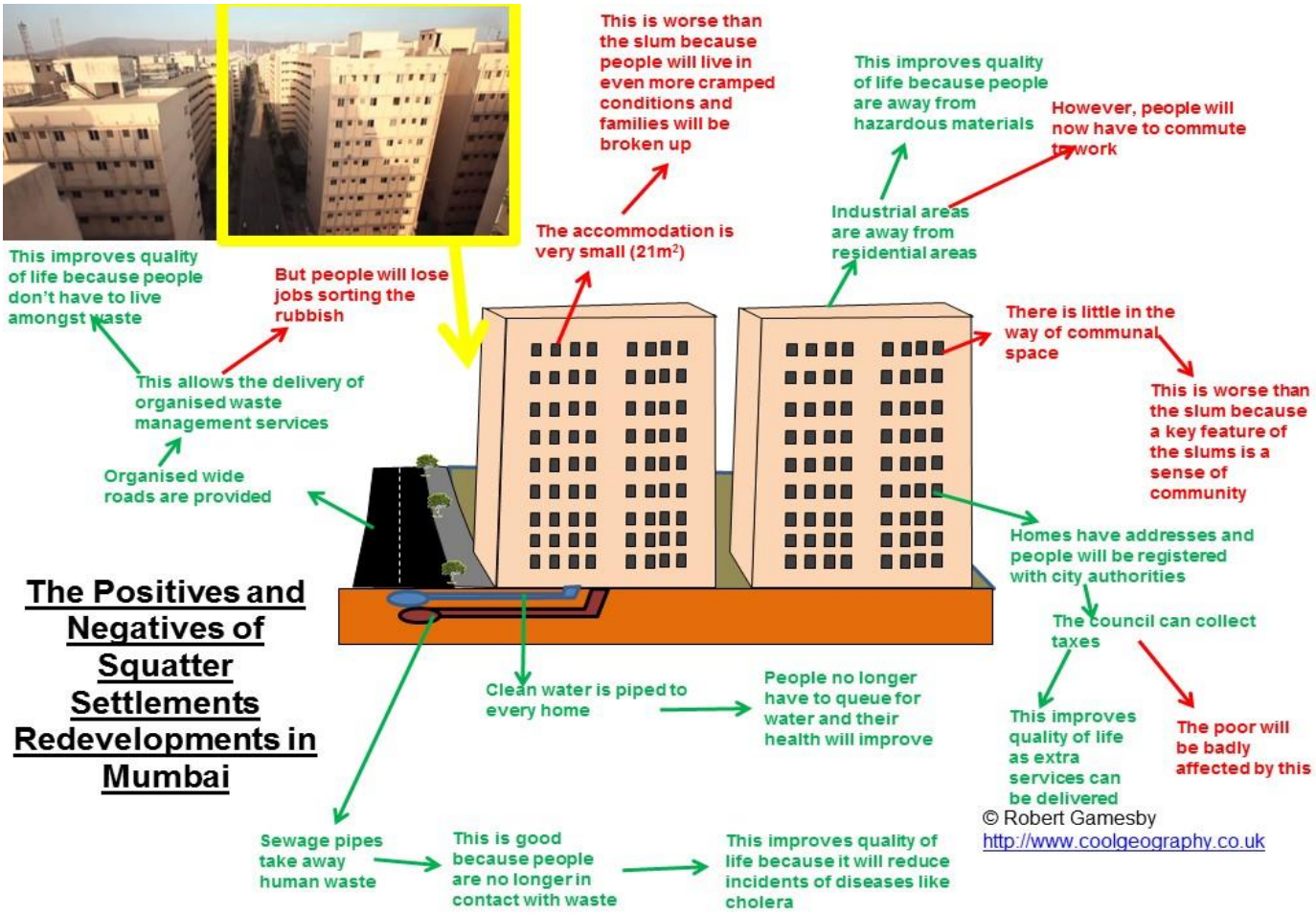
Air Pollution – Mumbai has some very dirty air including dangerous levels of Nitrous Oxides and small dust particles called particulate matter. These are harmful to human health and contribute to lung disease and asthma. This is due to the increasing numbers of industry, traffic congestion and construction dust.

Waste – Mumbai produces 7500 metric tonnes of waste every day. There is no city wide waste collection service and all the waste produced is hazardous to health. The slum of Dharavi has a recycling zone. Everything is recycled from cosmetic products to all electronic waste. Despite this there is still an issue with disposing of waste and the recycling is done in really dangerous conditions.

Traffic Congestion – There are more than 22 million vehicles registered in Mumbai. There are problems with noise and air pollution as people sit in standing traffic for hours. Roads are often gridlocked in Mumbai.

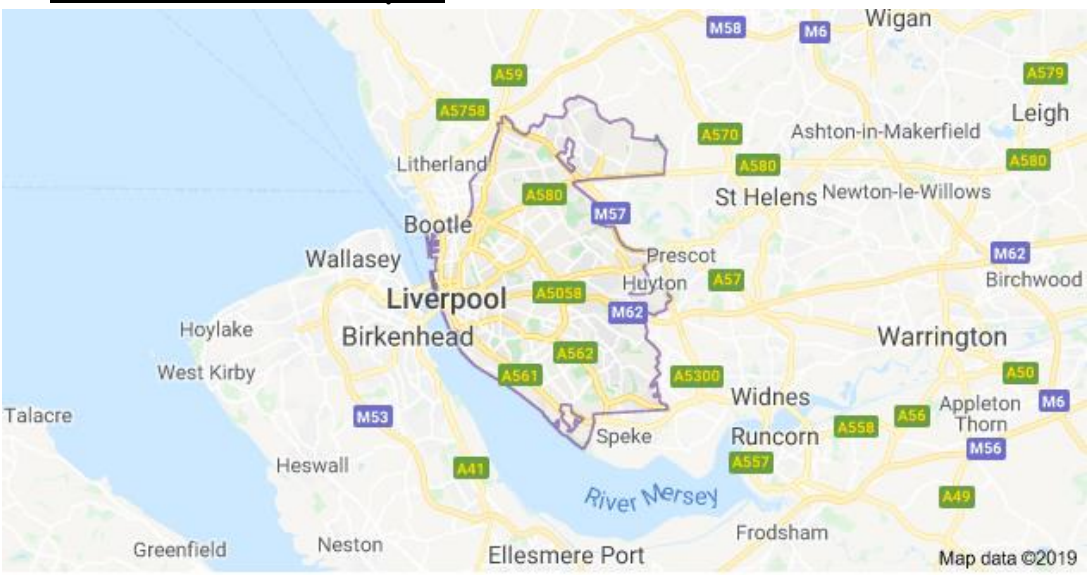
An example of how urban planning is improving the quality of life for the urban poor.

The city authorities of Mumbai want to improve the quality of life of the people who live there. This includes the slum or squatter settlement dwellers. Current approaches across Mumbai are for whole sale DEMOLITION of the slums which are replaced by high rise tower blocks for people to live in. The positives and negatives of these are shown below;



Case Study 2 – Liverpool

The Location of Liverpool



Liverpool is a major city located in the North West of England.

It is located close to the west coast of the Irish Sea and edges the banks of the River Mersey.

It is within driving distance of Manchester and is ideally situated just off the M58 motorway with easy access to the M6.

The Importance of Liverpool

Education – Two universities with great reputations including the world-renowned School of Tropical Medicine, and Liverpool John Moore University.

Religion – Paddy's Wigwam and the Anglican Cathedral are two iconic and contrasting architectural designs for the Roman Catholic and Anglican Cathedrals. Liverpool has a huge diversity of different religions.

Tourism – Albert Docks, Liverpool Arena, Liverpool One shopping attract visitors from all over the world. The Albert Dock and the Waterfront are visited by cruise ship passengers all the way through summer.

Industry Liverpool has a range of industry including:

1. Automotive industry (Ford and Jaguar at Halewood)
2. Glaxo Smith Kline (Pharmaceuticals at Speke)
3. a growing computer games and software hub within the city.
4. Liverpool 2 docks provides an excellent trading route.

Culture and entertainment – Birth place of the Beatles, several theatres including the Everyman and the Liverpool Empire. Liverpool hosts a number of festivals and events every year including Creamfields festival and the Giants festival. Sport is important through Liverpool and Everton Football clubs and home of the world famous steeplechase the Aintree Grand National.

International Importance:

- Liverpool has a major international airport – Liverpool John Lennon Airport.
- In 2008 Liverpool won the European Capital of Culture.
- Liverpool's waterfront is a world heritage site, ranking it alongside the Taj Mahal and the Great Wall of China.
- More music artists from Liverpool have had a number 1 hit than any other location in the world.

Impacts of Migration On The Growth and Character Of Liverpool:

- The city is home to the oldest Chinese community in Europe; the first residents of the city's Chinatown arrived as seamen in the nineteenth century.
- The Scouse accent is thought to have been influenced by the arrival of Irish and Welsh migrants to the city between 1851 and 1911.
- Today, up to 50 per cent of the local population is believed to have Irish ancestry.
- Liverpool is home to Britain's oldest Black community, dating to at least the 1730s.
- Liverpool University attracts large numbers of international students wishing to study in the UK.
- Liverpool is a multicultural city which hosts many multicultural events including the Caribbean Music Festival.

Opportunities Created By Urban Change in Liverpool.

Social and economic:

Cultural mix – Ethnic diversity has been created by the multiple migrations that have taken place over time in Liverpool. This has developed a range of cultural experiences in Liverpool that people come to the city to enjoy including Liverpool's famous China Town which has a thriving Chinese community, and the Caribbean Music Festival which is celebrated each year. There is a wide variety of places of worship across the city and many different ethnic groups.

Recreation and entertainment – The Albert Dock has been regenerated into one of the UK's most popular tourist attractions. The old warehouses have been converted into bars, restaurants and museums including the Beatles museum and the Liverpool Maritime museum. The Echo Arena and Liverpool One shopping centre also provide key attractions and areas for recreation and enjoyment.

Employment – Liverpool Science Park and other developments in the health and service sectors such as the development of Liverpool One has increased the number of employment opportunities available.

In 2016 Liverpool 2, a new container port created new opportunities in trading and there is a large car manufacturing industry at Halewood.

Integrated transport systems – Merseytravel operate the city's bus, train and ferry networks. A prepaid Walrus card enables people to travel across the full network making movement around Liverpool much easier.

Environmental:

Brownfield sites – The decline of industry and trade in Liverpool led to the decay of many areas into unattractive, polluted brownfield sites. These sites have become focus points for developers who have cleaned up the sites, removed the pollution and waste that has built up over time and regenerated them into attractive areas for people to live in and enjoy.

Urban greening – Redevelopment has included the urban greening of locations, providing a cleaner environment with more green, open spaces and public parks. This includes Chavasse Park in Liverpool One.

Greener Transport – as well as the integrated transport system encouraging the public to use more public transport, a network of cycle and pedestrian routes have been created across the city.

Challenges Created By Urban Change In Liverpool.

Environmental:

Waste Disposal – As Liverpool's population grows, the waste that the population generates has to be dealt with. There is criticism that Liverpool's waste management and recycling is not effective enough and a new recycling plant is due to be built in the Old Swan area.

Pressure on greenbelts – Urban sprawl in Liverpool is an issue. As the population grows more people want to live in the suburbs of Liverpool. Developments of large housing estates on the outskirts of Liverpool such as Mossley Hill have led to the destruction of habitats and the loss of green spaces.

Dereliction – As people move out of Liverpool or to the more desirable suburbs, areas in the inner city (E.G. Toxteth) became run down and derelict buildings became targets for graffiti and vandalism.

Social and Economic:

Industrial Decline – Many areas of the city were left very deprived after the industrial decline. Areas such as Anfield and Toxteth are some of the most deprived areas in England.

Inequality – Despite significant regeneration taking place, some parts of the city have been left behind. There is a large gap in standards of living with wealthier areas of Liverpool having better access to housing, education, employment and healthcare. Many children in deprived areas of Liverpool leave school without basic qualifications leading to low incomes and high unemployment – in Anfield the unemployment rate in adults is about 9%.

The impact of redevelopment – In areas that have received investment and redevelopment houses have been cleared and rebuilt with new modern housing. The population of local residents cannot afford the new housing and are forced out.

The impact of urban sprawl on the rural–urban fringe, and the growth of commuter settlements.

As the population of Liverpool increases and the number of people wanting to live in the Suburbs and semi rural locations on the outskirts of Liverpool continues to grow, a number of problems develop:

1. In commuter villages like Aughton, during the week the village is empty as everyone has gone to work in the city. The facilities such as the shop are no longer used and close down as a result.
2. Empty commuter villages and suburb areas become targets for crime, especially organised crime like burglaries, as houses are left empty all day during the week.
3. Traffic congestion from the number of people travelling into the city is a problem. It can take up to 1 hour to travel a short 1 mile stretch at rush hour in parts of Liverpool. This also increase CO2 emissions.
4. The fridge of Liverpool has become popular with developers who want to build new, expensive housing to meet the demand. This leads to habitat destruction and the loss of farm land and green spaces on the outskirts of the city.

Case Study 3 – India, A Case Study Of An NEE.

Location:

India is located in the continent of Asia. It is in the South East of Asia and the tip of the country juts out into the Indian Ocean.

It is bordered by 5 countries including Pakistan and China and to the North of India are the Himalayas which provide a physical border between India and Nepal.

Why Is India An Important Country?

Internationally – India has the 2nd largest population in the world (1.3 billion). It also has the 7th largest economy in the world. It has experienced rapid economic development. India has many different ethnic and religious groups - Hinduism is the dominant religion, yet the country has substantial minority populations of Buddhists, Muslims, Christians and Sikhs.

Nationally – India has the third largest army in the world and can help ensure stability in the area around it.

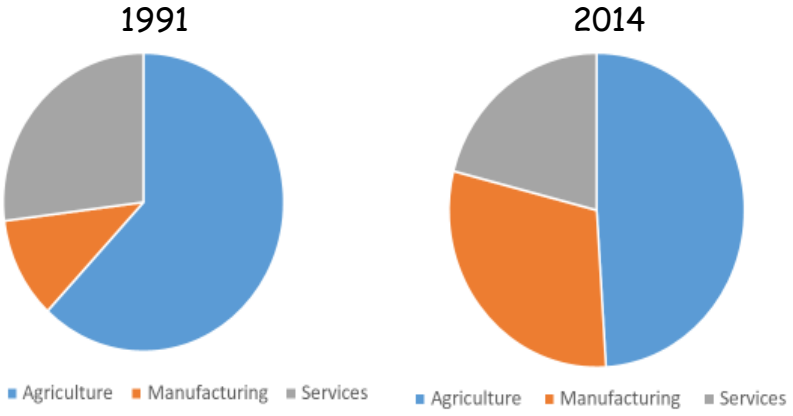
Regionally – India has a very successful Bollywood industry which helps to provide income and wealth within the country. India also has long coastlines with successful ports which enable the importing and exporting of products worldwide. This makes it an attractive country for industry to locate in, providing employment for the people of India.

The Context Of India:

Political Context	Social Context	Cultural Context
• India was a British Colony until 1947 when it became independent. • India is now the worlds largest democracy (the leader is voted in by the people in an election).	• India still only has a literacy rate of 70% despite education having improved. • India is one of the most culturally diverse countries in the world.	• Indian music and film has been increasingly popular across India and globally. • India is ranked in the top three in test cricket around the world.

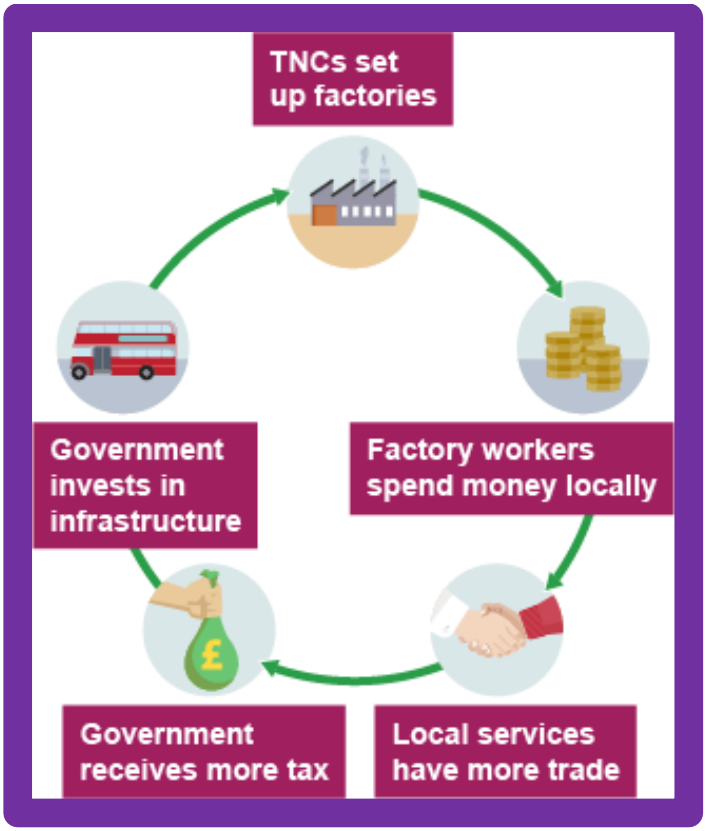
Industry And Economic Change In India:

Sectors of Employment In India



- Agriculture used to account for approximately 70% of the employment in India in 1991.
- Now Agriculture accounts for just under 50%.
- The amount of manufacturing has more than doubled between 1991 and 2014.
- Approximately 30% of India's population now work in manufacturing (2014).
- Agriculture is still the biggest employer.
- People employed in services has declined by around 10%.
- Around 20% of the population are employed in services in 2014.

The growth of the manufacturing industry in India has led to the growth of the economy and the number of jobs available. This can be explained by the multiplier effect.



India has a large proportion of its population who are of a working age. The population structure is very young which means there are many people looking for employment opportunities. The wages in India are low and the regulations about manufacturing are not as strict as in other countries which makes India an attractive country to locate factories. These businesses generate jobs and tax revenue which can be invested back into India's infrastructure, health and education. This is known as the multiplier effect.

TNCs in India:

Around 4000 TNCs operate in India. The majority of these companies have their headquarters in the UK, USA or Europe. Some TNCs such as Coca Cola and Unilever have invested in India with a range of consequences, some positive and some negative. Coca cola alone employs 25,000 people in India.

Advantages of TNCs	Disadvantages of TNCs
• Bring new investment into the country's economy. • Provide jobs, often at higher wage levels than average in the local economy. • Bring expertise and new skills that the country does not have. • Have international links that bring access to world markets. • Provide new technology that helps economic development.	• Take profits out of the country back to the HIC. • Exploit the workers and pay them low wages- often called "sweat shops." • Can cause environmental damage and deplete natural resources. • TNCs can withdraw their investment from a country at any time leaving the country in jeopardy. • They are powerful organisations and can exert political influence over the government in a country.

Coca Cola in India:

In Kerala the extraction of groundwater to produce Coca Cola by the factories has reduced the water table to 35m below ground level.

This has left many farmers without water to irrigate their crops.

Harvest dropped by 40% because fields could not be irrigated properly.

Local Villages now have to walk nearly 5km per day to fetch water as wells have dried up.

Villagers reported skin problems, burned eyes and other health problems as the water left was badly polluted.

The sale of Coca cola has been blamed for the decline in the traditional fruit juice vendors.

Political and Trading Relationships With The Wider World:

India used to be a country in the British Empire. Once independent however, it has set an example for other countries on democracy and leadership. It has a very powerful army and is involved in many peace keeping projects around the world. It is also a country that has nuclear weapons and has a strong influence in global politics.

India has successfully created relationships with other countries. Between 2006 and 2012 India's imports and exports have trebled helping the country become wealthier.

India's Imports:

India imports raw materials and products from many countries. The highest value imports come from China, the United Arab Emirates (UAE), Saudi Arabia and the United States of America (USA).

India's biggest imports are crude oil, gold, silver, electronic goods and machinery. Oil and machinery are used to run factories. Gold, silver and electronic goods are luxury items, which shows that the country is becoming wealthier.

India's exports:

India exports products to lots of different countries. The highest value of exports go to the USA, UAE, Singapore and China. The UK is the eighth biggest importer of Indian products.

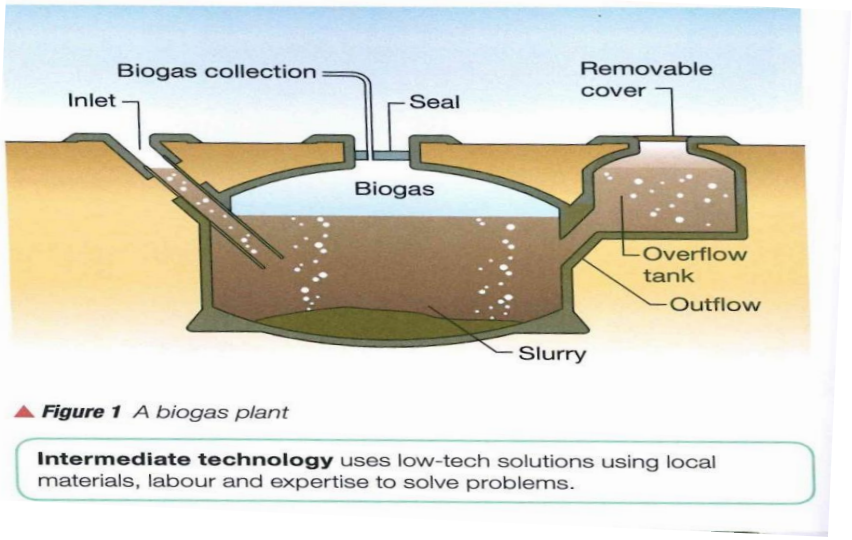
India's biggest exports are petroleum products, jewellery, pharmaceutical products, transport equipment and clothing. These are high value products. It is good for India to import cheaper raw materials and export more expensive finished products.

Aid and Development in India:

India has received aid from other countries in a number of different ways including:

- Oxfam and UK donations following the 2001 earthquake including £10 million, rescue teams and 1200 tents.
- £200million was sent every year until 2015 from the UK to help tackle poverty in India.
- Water aid have installed hand pumps in rural villages and toilets in larger towns and have trained local people to be able to repair and maintain the pumps/toilets.
- Biogas is a project to help improve people's quality of life in rural areas using intermediate technology.

Biogas in India:



▲ ***Figure 1*** *A biogas plant*

Intermediate technology uses low-tech solutions using local materials, labour and expertise to solve problems.

After speaking to people living in rural areas, they found that in India one of the biggest barriers for girls trying to get an education was that they had to collect fuel wood before they could attend school which was very time consuming and tiring, and as the population grows, fuelwood decreases meaning they have to travel further and further, missing school in the process. To help reduce the time used for fuel wood collection biogas was developed.

Biogas uses cow dung to create methane. The methane is collected in a specialist tank and then the methane gas can be piped through to homes to use for cooking and powering electricity generators. By 2010 4 million cattle dung biogas plants had been built. These created 200000 permanent jobs as well as:

- Improving health – biogas does not create the smoke that burning wood used to. This helps increase life expectancy and overall health.
- Less time spent gathering wood means better education and more equality between girls and boys.
- The waste dung from the plant can be used as fertiliser improving crop yields.
- Villages have electricity to provide light at night and to pump drinking water to homes. This water can also be used to improve crop yields.

The Environmental Impacts of Economic Development In India:

India's development has led to an increase in the consumption of energy including fossil fuels like coal and oil. India has problems with air pollution and Delhi the capital, is one of the most polluted cities in the world. Smog and poor air quality are responsible for a number of respiratory illnesses.

Water pollution is another large issue. In Bangalore, it is often called the city of burning lakes as the water in the lake has been so polluted that the chemicals burn on top of the lake, giving the impression the lake is on fire.

India has set up an environmental policy in which the 'polluter pays. Companies and individuals who generate pollution can be fined and forced to pay compensation to allow for the clean-up of environmental damage caused.

Demand for resources also leads to habitat destruction. India has a high biodiversity but habitats have been under threat from pollution and deforestation. However, because of the increased income from economic development some investments have been made into protecting the ecosystems in India. Since 1990 India's forest cover has started to grow. This trend is the opposite to what is being seen globally and around Asia and is helping to protect valuable habitats and increase biodiversity.

The Effects Of Economic Development On Quality Of Life For The Population:

- The quality of life for the people living in India has significantly improved for most people as economic development has increased.
- Life expectancy has increased from 38 to 68 years within a generation (approx. 30 years).
- Education has improved with a growth in literacy rates from 52.2% in 1991 to 74.04% in 2011.
- In rural areas 96% of children aged 6-14 now enrol in school.
- Average wages have increased by about 42 Rupees since 2010.
- *However, child labour is still an issue in India, with many children in the slums working in informal sector businesses.*
- *Sweatshops are notorious for employing people under poor conditions, with no health and safety and no workers rights.*
- *Around 360 million people in India still live in poverty.*

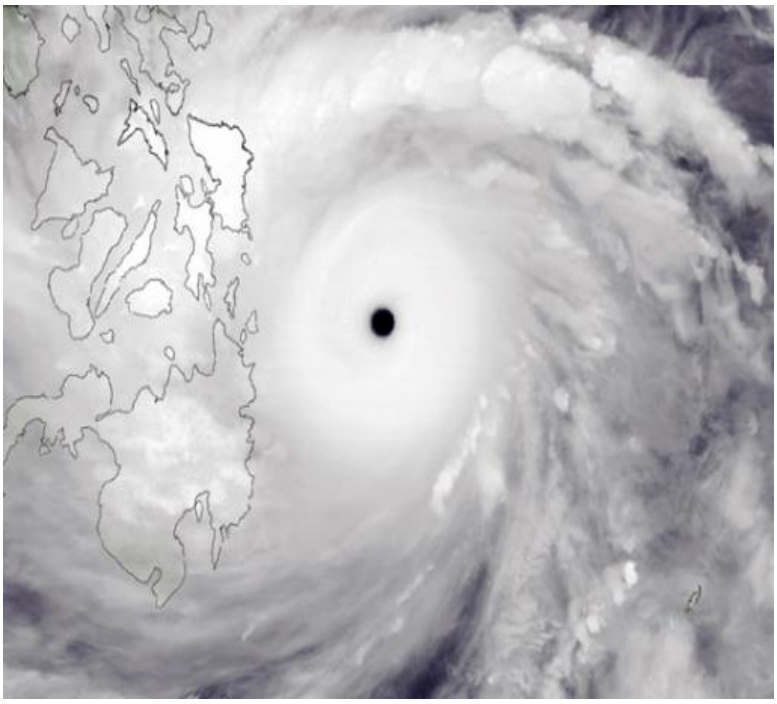
Paper 1 - Examples

Example 1 – Earthquakes (Haiti 2010 and Christchurch, New Zealand 2011).

	Haiti 2010	Christchurch 2011
Facts	7.0 on the Richter Scale. Location was Port Au Prince. 163rd in the world rank for the human development index – one of the poorest countries in the world.	6.1 on the Richter Scale. Location was Christchurch. 13th in the world rank on the Human Development Index.
Primary effects	200,000 people killed and 300,000 people injured. The main port was badly damaged Main roads were blocked by fallen buildings and smashed vehicles. Hospitals and health centres were damaged or collapsed and many government buildings were destroyed. About 100,000 houses collapsed and 200,000 were left damaged. Around 1.3 million people were made homeless.	181 people were killed in the quake. 1500 people were injured. Landslides and liquefaction occurred causing damage to infrastructure. The Canterbury Television Building collapsed and caught fire. Half of the deaths occurred in this building.
Secondary effects	Over 2 million people were left without food and water. Looting became a serious problem. People who were made homeless were forced to live in makeshift 'shanty' settlement or tents. Disease broke out in many areas, especially cholera. Many dead bodies lined the streets creating a health hazard as they decayed in the heat.	In Christchurch some businesses were closed stopping people from going to work. Schools were closed for a period of time. Many people had power cuts for weeks after the earthquake, disrupting their daily lives.
Immediate responses	People had to dig through rubble to try and save people as emergency services could not cope and were poorly trained. Tents were donated to give people shelter. Aid agencies such as Christian Aid opened make shift hospitals to treat injured.	Emergency services including 1200 police officers helped to rescue people who were trapped or injured. Areas around older buildings were cordoned off.

	The Army were sent in to clear the bodies. They were put in mass graves to try and stop the spread of disease.	Police and the fire service organised large scale evacuations. Media briefings were issued to inform the public.
Long term responses	1 year after the quake and only 5% of rubble had been cleared. More needed to be cleared from roads and collapsed buildings. Shanty accommodation has been built by residents who were made homeless by the quake. Aid agencies like Christian Aid and Oxfam have been helping to rebuild schools and hospitals.	Power lines were restored to 95% of homes within two weeks. Structural engineers were sent in to survey older buildings to ensure they were safe to re open.

Example 2 – Typhoon Haiyan, 2013.



Typhoon Haiyan affected the Philippines in SE Asia in November 2013.

It was one of the strongest cyclones recorded with winds of 313 km/h.

In some areas, 281.9 mm of rainfall was recorded, much of which fell in under 12 hours.

Waves of up to 7 m in height battered the coast.

The Philippines is a fairly poor part of the world with little investment in prediction, planning and protection schemes.

Typhoon Haiyan was classed as a super-typhoon.

Impacts

Economic impacts

- The overall economic impact of Typhoon Haiyan is estimated at $5.8 billion (£3.83 billion).
- Six million workers lost their sources of income.
- Major rice, corn and sugar-producing areas for the Philippines were destroyed affecting the country's international trade and farmers' incomes.

- Tacloban's city airport was severely damaged, affecting business and tourism.

Social impacts

- More than 7,000 people were killed by Typhoon Haiyan.
- 1.9 million people were left homeless and more than 6,000,000 displaced.
- There were outbreaks of disease due to the lack of sanitation, food, water, shelter, and medication.
- In the city of Tacloban, widespread looting took place in the days following the typhoon.

Environmental impacts

- Thousands of trees were uprooted leading to a massive release of carbon dioxide and loss of habitat with resulting effects on wildlife.
- Flooding knocked over Power Barge 103 causing an oil spill affecting mangrove ecosystems.
- Major roads were blocked by trees, and were impassable.

Responses

- The Philippines' meteorological agency broadcast warnings two days before Typhoon Haiyan hit, leading to the evacuation of approximately 750,000 residents.
- The Philippines asked for international help, one day after Typhoon Haiyan hit the country.
- The UK government provided food, shelter, clean water, medicine and other supplies for up to 800,000 victims.
- Several charities provided emergency aid such as water, food and shelter. In the longer term, they are helping people get their livelihoods back, for example by repairing fishing boats or distributing rice seeds.
- The United Nations launched an international aid appeal in December 2013 for £480 million to finance the humanitarian relief effort for 2014.

Example 3 - Storm Desmond, Cumbria, Lancashire and Yorkshire, December 2015.

Storm Desmond bought severe gales and heavy rainfall on the 5th and 8th December 2015. It released two months of rainfall in just a few hours. It was caused by an area of low pressure being blown across from the Caribbean. The area of low pressure contained warm moist air and when this hit the mountainous areas of the UK it created an extreme amount of rainfall.

Social Impacts –

- The NHS declared a major incident and cancelled all non urgent treatment as staff could not get to work because of flood water.
- 5200 homes were flooded making people homeless.
- 61000 homes in Lancaster were left without power as a substation was flooded.

Economic Impacts –

- Lancaster city centre was closed for a number of days. People were unable to get to work.
- Power cuts meant large superstores such as Sainsburys had to throw away their stock.
- Some small businesses were looted during the power loss.
- The environment agency estimates the overall cost of the winter storms to total £1.3 billion.

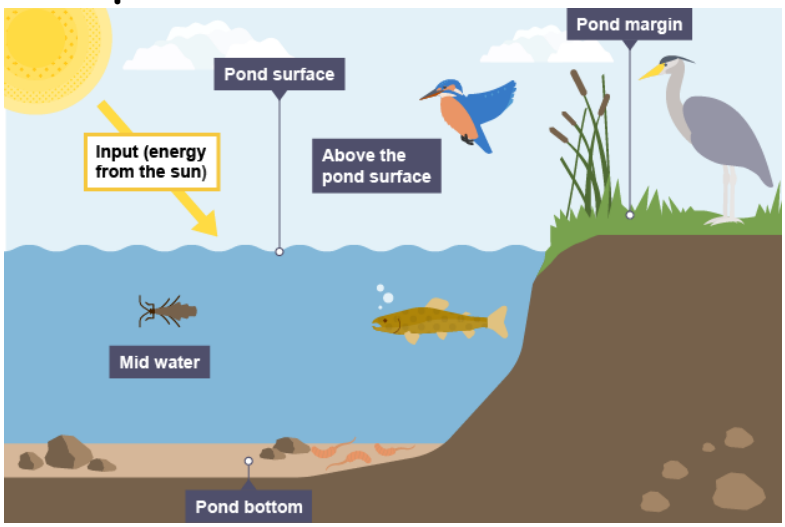
Environmental Impacts –

- Large amounts of the **fragile upland soils** were washed into rivers and lakes, affecting water quality and wildlife.
- Thousands of **trees** were ripped from river banks as well as **millions of tons of sediment** being **transported** by rivers and **deposited** on floodplains and in settlements.

Management Strategies to Reduce The Risk -

- On the River Lune afforestation has taken place in the upper course of the river, near Tebay.
- The electricity sub station has been raised and new flood defences have been built around it.
- £45m was spent by the government on flood defences in Cumbria during the last Parliament.
- A new £4.4m flood defence scheme was constructed in Cockermouth, Cumbria in 2013, which included the UK's first "self-closing" flood barriers, closing only when the river is flooded.
- Environment Agency officials said the Cumbria flood defences did work, but no matter how substantial any defences are, "you can always get water levels higher than that, in which case it will go over the top".

Example 4 – Fresh Water Pond.

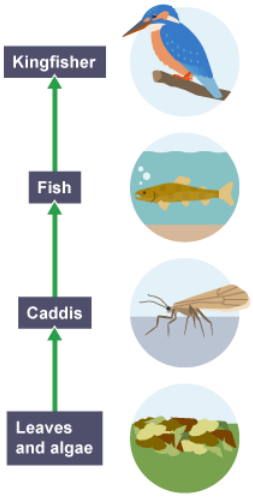


The interactions between the **living** and **non-living** components of the fresh water pond ecosystem are important. The freshwater pond ecosystem consists of the following:

1. **Pond bottom** - there is very little oxygen or light at the bottom of the pond. Decomposers and scavengers live here where they feed on dead material, e.g. water worms and rat-tailed maggots.

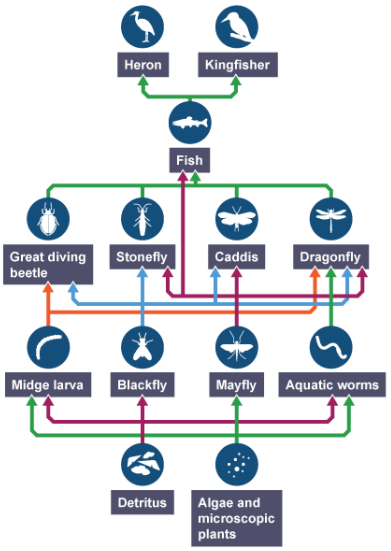
2. **Mid water** - fish are the main predators here. Food is found on the pond bottom or the pond surface. Animals here breathe through their skin or gills, e.g. stickleback fish, water fleas and dragonfly nymphs.
3. **Pond surface** - animals here breathe through their gills, skin or lungs. There is plenty of oxygen and light here. Animals found here include ducks, water boatmen, midge larvae and tadpoles.
4. **Pond margin** - plants provide a sheltered habitat for insects and smalls animals such as frogs. There is lots of light and oxygen so plants such as marsh marigold thrive.
5. **Above the pond surface** - birds such as kingfishers and insects like dragonflies are common here.

The freshwater pond ecosystem is finely balanced because of the food chain and the food web.

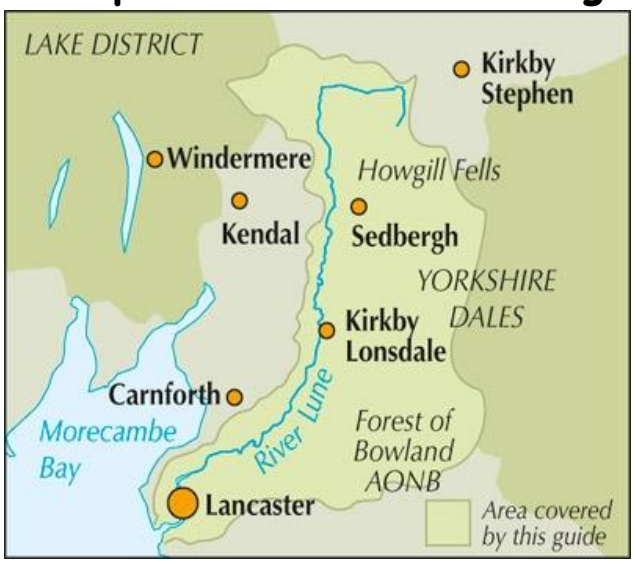


A food chain shows how each living thing gets food. In a food chain, energy and nutrients are passed from one organism to the next. The producer provides the basic source of food which other organisms, the consumers, then feed on.

The food web is more complex, showing all the connections within the ecosystem. The food web demonstrates how interconnected every part of the ecosystem is to other parts.



Example 5 – Landforms along the River Lune.



The River Lune flows from the Howgill fells, all the way down into Morecambe Bay. Along it's long profile you will find a range of river landforms.

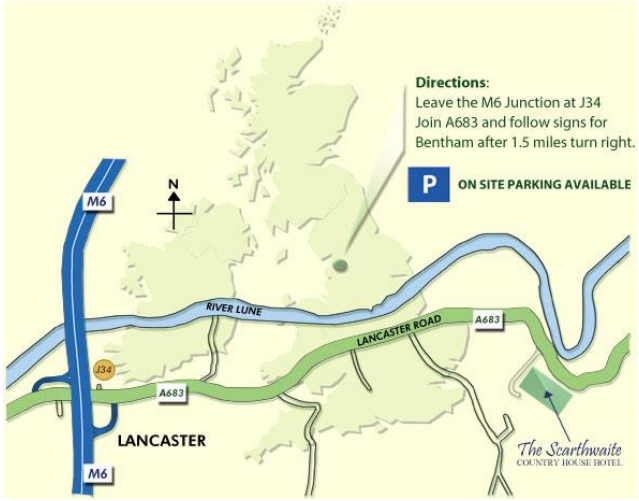
The source of the Lune is above Tebay. Here the river is narrow and the land marsh like.

In the upper course the River Lune has numerous tributaries. The Ingleton waterfalls can be found along one of the tributaries that flow into the main channel. The waterfalls include Pecca Falls and the more famous Thornton Force which has an impressive undercut and plunge pool which in the summer people can walk behind.

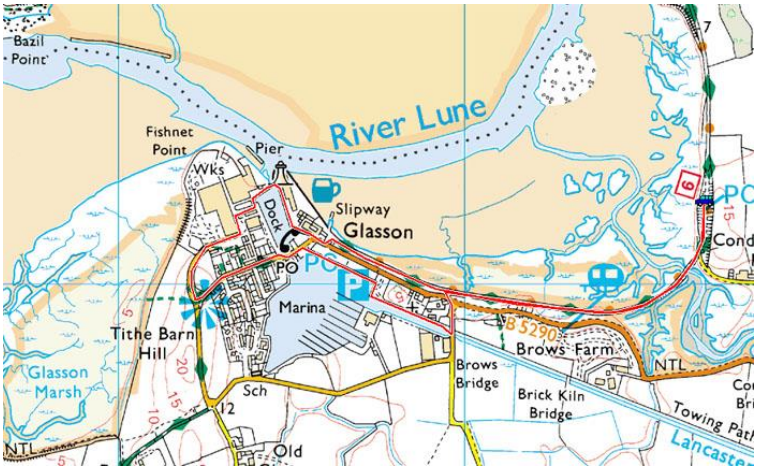
Pecca Falls:

Thornton Force:

In the middle course of the Lune are some impressive meanders cutting through the Lune valley. They have very clear slip off slopes and river cliffs. Erosion of the footpaths around the meander edges is a problem.



Towards the lower course the River Lune widens to form the impressive Lune Estuary. Th tidal flats are key feeding grounds for wading birds and migratory species. The mud flats are very visible on the OS map as pale yellow flat areas.



Example 6 – Flood management along the River Lune.

In the Lune catchment the main source of flooding is tidal, approximately 2,200 properties are potentially at tidal flood risk. There are approximately 500 properties at risk of flooding from rivers. By 2100, we estimate there will be 700 properties at risk of river flooding due to the effects of climate change.

Management strategy 1 -

The quay side of the River Lune in Lancaster has had a concrete wall built along the banks of the river. The wall has flood gates which are closed at times when river levels are high and there is a risk of flooding. The flood walls have recently been upgraded to strengthen them and improve their appearance.

Management strategy 2 –

Areas at risk of localised flooding have been provided with or have purchased their own temporary flood barriers. These help to protect businesses and homes in areas of higher risk.

Management strategy 3 –

Flood plain zoning has been used in various areas along the River Lune. The land around the meanders at the Crook O Lune are used for farmland so that in times of flood there is no valuable properties to be affected. In the city centre the land next to the Lune has been made into a public park with a skate park. If the river was to flood here no expensive buildings or infrastructure is present to be destroyed.

Management strategy 4 –

The area in the upper course of the River Lune has been afforested. Over time as the trees grow it is hoped that they will reduce the amount of water that gets into the lower course where flooding is the biggest risk.

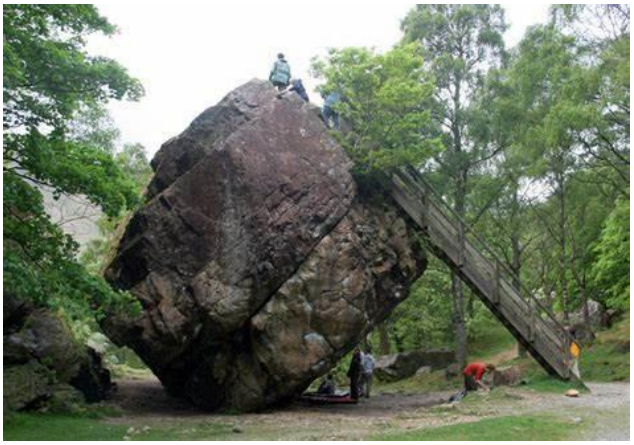
Example 7 – An upland area affected by glaciation, The Lake District.

The Lake District National Park has a unique landscape which has been shaped by ice ages and glacial processes. It is located in Cumbria in the North West of England and attracts millions of tourist visitors per year due to the glaciated landscape that has been created.

Helvellyn – Red Tarn, an Example of a Corrie and Striding Edge, an Example of an Arete.

Windermere – the largest ribbon lake in the Lake District.

The Bowderstone – A Famous Erratic in Borrowdale.



Example 8 – Tourism Impacts and Management in the Lake District.

Social Impacts – local residents are affected by noise and air pollution from the increasing number of cars. 15 million tourists visit each year, approx. 89% by car. House prices have risen rapidly due to the ownership of holiday homes pricing out first time buyers and locals. Jobs in tourism are mostly seasonal and low pay meaning local people do not have as many high paid job opportunities.

Economic Impacts – in 2014 tourists spent £1000 million in the Lake District. Many small businesses, local shops and hotels survive off tourist income. However, traffic congestion can slow down trade and communication between businesses.

Environmental – the number of tourists taking to the fells to hike has created large problems with footpath erosion. Damage to the water in the lakes from oil leaking from boats can disrupt the habitats and the waves from the boats erode the banks of the lakes causing loss of habitats. Walkers trample on farmland, trampling on plants and leaving litter.

Management strategies:

Several dual carriageways have been built around the Lake District to reduce congestion and make getting around easier.

Public transport in the more popular honey pot sites like Bowness has been invested in, encouraging more people to park and ride.

Traffic calming measures have been taken in busy spots such as roundabouts and road humps. Parking has been restricted on narrow roads and more car parking facilities have been built on the outskirts of popular towns and villages.

Fix the fells work to repair and resurface footpaths of popular routes with large stones to make footpaths more hard wearing and less prone to erosion.

The National Park Authority work to provide education, guided tours and mark out footpaths clearly. Their rangers look for areas that are needing to be protected and help to ensure that pollution and other problems are addressed.

Paper 2 – Examples

Example 1 – Mumbai slum improvements.

The slums of Dharavi have been improved through different methods of urban planning. The plan to improve Dharavi is called Vision Mumbai. This project involves replacing the squatter settlement with high quality high rise housing to provide residents with self contained flats. These have started but so far have had limited progress.

As well as the Vision Mumbai project, there have been a number of self help schemes. Some charities have offered small loans to the residents of Dharavi to enable them to make improvements to their existing squatter settlement homes including using concrete blocks to create more stable walls, hooking the houses up to electricity and water and painting their homes.

There is still a lot of improvement to take place in Dharavi and the Vision Mumbai project has come under a lot of criticism for destroying the culture and the community of Dharavi.

Example 2 – Albert Docks regeneration.

When the shipping industry started to use container ships, the containers became too large for the ships to fit in the docks. In the 1900's the docks went into decline. By the 1960's the docks themselves were filled with pollution and sediment, warehouses were abandoned and left to go derelict and the area decayed into a disused, unattractive brownfield site.

The regeneration of the Albert Docks began in the 1980's. In 1983 the Merseyside Development Corporation signed an agreement to transform the Albert Docks. The regeneration included the regeneration of the old warehouses into luxury apartments, which have bars, restaurants and attractions in the ground level, the construction of two museums and the Tate art gallery. In 1988 ITV began filming 'This Morning' in the docks and the floating weather map

became nationally famous. The Beatles Story Museum and the Maritime Museum help to protect and promote the heritage and culture of Liverpool. The regeneration has been a massive success with the Albert Docks being the most popular free tourist attraction in the North West of England. The Docks now have 2 hotels, 10 shops, 20 restaurants, bars and cafes and 115 luxury apartments.

Example 3 – Tourism in India.

India has become a popular tourist destination as it has a variety of climates and habitats, numerous places of worship and cultural heritage and log sandy coastlines with coral reefs, as well as many traditional crafts and arts that attract people from across the globe. Tourism has helped to improve India's economy and development in a number of ways:

1. Tourists love the wildlife in India. This means that conservation has become a focus. For example the coral reefs along the coast of India have had investment to protect them as they are a tourist attraction. Currently there are approximately 80 national parks in India with a range of species which are increasing in number. Ecotourism has become very popular.
2. Tourism contributes to 6.32% of India's GDP. Formal employment has been created and there is a minimum wage in these formal jobs of £80 per month. Workers also pay tax which helps to boost the economy.
3. Quality of life has improved as a result of the extra money and investment that has taken place partly due to tourism. Life expectancy increased by 5 years between 2001 and 2015.
4. Infrastructure has had new investment. 27% increase in the number of passengers at New Delhi airport has led to upgrades in the terminals and funding for two new airports. India have also been collaborating with Japan to open India's first bullet train network and is due to open the first bullet train in 2023.

Example 4 – Carnforth Quarry.

Aggregate Industries.

Location—Carnforth, Lancashire, North West England.

About— quarry is run by Aggregate Industries. It is used to quarry aggregates which can be used in concrete, drainage materials for sports fields and golf courses and gravels.

The rock is blasted from a 150 feet deep quarry. The blasts take place between 12 and 1 pm each day.

How Are they Being More Sustainable?

Climate - they have fitted a wind turbine to reduce the levels of CO2 emissions from the quarry site.

Recycling - the quarry is recycling more and has better recycling facilities on its site. It is also reducing the amount of waste product it sends to landfill. Some of the waste is being used as fuel to make cement at other sites.

Biodiversity - the site has a management plan to work to protect surrounding habitats around the quarry.

Water Management– the Environment Agency work closely with the quarry to monitor water pollution levels in nearby water courses. One on these runs by our school and the environment agency measure the water quality here every week.

People and the community - the quarry has restrictions on blast times to ensure that locals are disturbed as little as possible by the blasts.

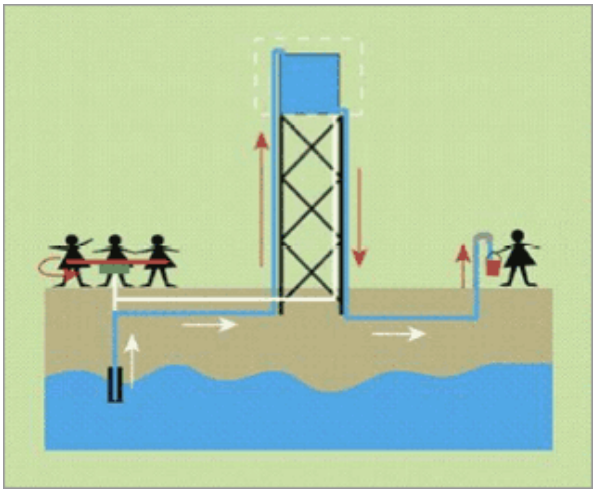
Example 5 – Lesotho Highlands Water Project.

Lesotho is a landlocked country bordered entirely by South Africa. It is a mountainous country with an abundance of rainfall but it is also a LIC with little else to trade. Water is the main commodity for Lesotho. Because it has no coastline it is very dependent on South Africa for trade and access to resources such as food imports. South Africa is an NEE. However, over the past two decades it has experienced massive issues with water supply and deficits as population and industry grow.

The Lesotho Highlands Water Project is a huge water transfer scheme where water is piped from the Katse Dam in Lesotho through the mountain pipelines to Johannesburg in South Africa, where it is needed to meet the demand of the population and industries such as mining. In total there are 200km of tunnels transferring the water.

Advantages for Lesotho	**Advantages for South Africa**
75% of Lesotho's GDP comes from the transfer of the water. The dams provide the country with all its hydro electric power.	Provides 10% of the population with clean, safe water that would not have a supply otherwise. It allows industries such as the mines and farms to continue to function.
Disadvantages for Lesotho	**Disadvantages for South Africa**
30000 people were displaced from their land to flood the first two dams. The flooding of farmland means 71 villages can no longer farm their crops.	40% of the water transferred to South Africa is then lost through leaks, wasting South African money. The cost of water has increased making the water bills too high for the poorest people.

Example 6 – Play Pumps in South Africa.



Play pumps use a simple roundabout that is attached to a pump to move groundwater to the surface. The water is then safely stored in a tanker until the water is needed. The play pumps are built in schools and areas where children are present.

They are a form of intermediate technology as anyone can use them, they are cheap to install and easy to maintain and repair.

Advantages of Play Pumps:

1. The water supply is tested to ensure it is safe. This means there are less waterborne diseases.
2. In poor rural areas girls would have normally been sent to collect water. Because the supply is close the girls no longer have to walk miles to get water which means they can get to school, improving the equality between males and females.
3. Children want to go to school to play. This means the literacy rate can improve.
4. The equipment is cheap and easy to install. The local people can be easily trained to maintain the pump.

Disadvantages:

1. Children can get bored of playing on the play pump.
2. It requires more energy to generate water through a play pump than it does to use a normal hand pump. If the children don't play on it enough it can be hard work to get a good amount of water.

EXAM QUESTIONS TO THINK ABOUT

1. Why are tropical rainforests suitable for the development of HEP?

2. Explain the impacts of deforestation.

3. Explain why deforestation can contribute towards climate change.

4. Explain how tropical rainforests are valuable for medicines, climate and energy.

5. Define the term 'sustainable management' in relation to tropical rainforests.

6. How is selective logging and replanting a good example of sustainable management.

7. Explain how ecotourism can be an effective strategy in the sustainable management of tropical rainforests.

8. With reference to a case study, to what extent do the economic benefits outweigh the losses?

9. To what extent is the tropical rainforest of more value to people than the environment?

10. With reference to a case study, assess the view that mineral extraction is the main cause of deforestation.

11. *'Countries that need money to develop should be allowed to use the tropical rainforest resource however they want'*. Do you agree with this statement? Justify your view.

12. *'International co-operation is the only way to protect rainforests in the future'*. Do you agree with this statement. Justify your view.

Explain how vegetation adapts to the climate and soils of a hot desert area. (6 marks)

Using a case study of a hot desert area discuss whether economic development is sustainable. (6 marks)