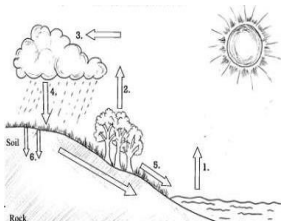
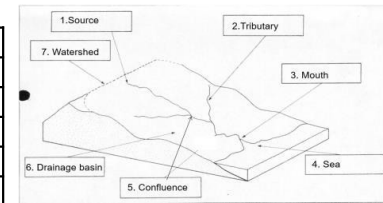


Year 8 Term 3 Geography



1. Evaporation	When the sun heats up water from the sea and it goes into the air.
2. Transpiration	When the sun heats up water from the leaves of trees.
3. Condensation	When water vapour cools and turns into clouds
4. Precipitation	Rain, hail, sleet and snow that falls from the clouds
5. Surface run-off	When the water runs off the surface of the ground.
6. Groundwater flow	When water goes into the ground (infiltration) and flows through the rocks/soil underground.

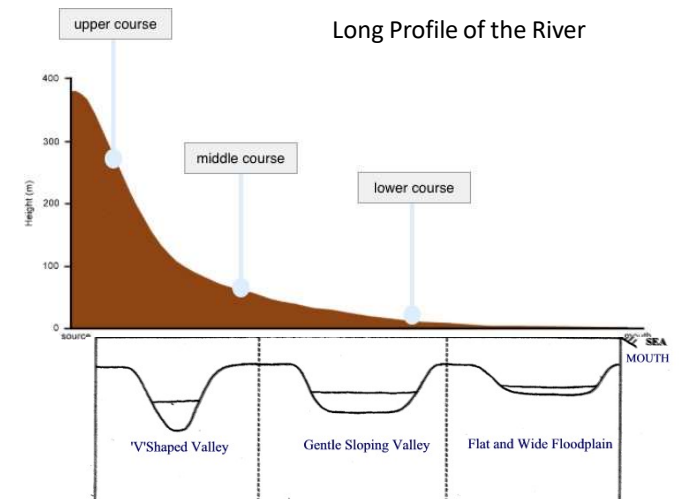


Drainage Basin	The area of land in which water drains into a specific river.
Watershed	The boundary of a drainage basin. It separates one drainage basin from another. It is usually high land.
Source	The point where the river begins.
Tributary	A stream or small river that joins a larger stream or big river.
Confluence	A point where two streams or rivers meet.
Mouth	The point where the river meets the sea or ocean.

Erosion	The wearing away and removal of material due to fast flowing water.
Transportation	The river carries the eroded material downstream.
Deposition	The river drops the material it is carrying when it loses energy (slower)

Oxbow Lake	A U shaped lake found near to a river – caused by the erosion of a meander
Meander	A bend in a river created by erosion and deposition
Waterfall	a steep descent of a river or other body of water over a lip or ledge of hard rock
River Source	the original point from which the river flows. It may be a lake, a marsh, a spring or a glacier. This is where the stream starts. The source is the farthest point of the river stream from its estuary
River Mouth	The place where the river flows into the ocean- this is the widest part of the river
Sea Level	The level of the surface of the sea. This is used to calculate the height of land in comparison.

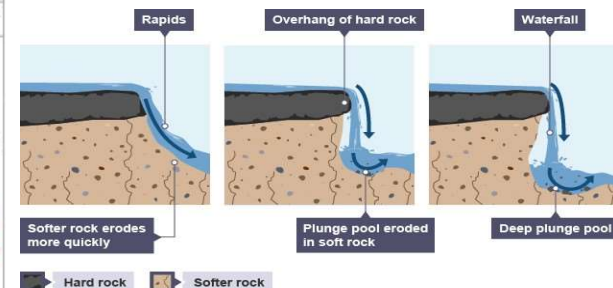
Meander – a bend in the river
1. It starts with a slight bend. Water moves faster on the outside of the bend and slower on the inside.
2. The fast water erodes the outside of the bend. The slower water deposits material on the inside of the bend.
3. Continued erosion and deposition makes the bend bigger.



River Severn



<i>"Material being removed"</i>	<i>"Material Being moved along the river"</i>	<i>"Material being dumped at another point on the river"</i>
Hydraulic action Force of the water hitting the bank breaks pieces off.	Traction Large boulders and rocks are rolled along the river bed by the river's power. <i>Like bowling at an alley.</i>	
Corrosion Some rocks are dissolved by the acids carried in the water.	Saltation Sand sized particles are bounced along the river bed <i>like a basketball.</i>	
Attrition Material carried along in the river bashes into other bits of material and breaks into smaller bits.	Suspension Very small particles are carried along by the river, think of it <i>like being carried along in a rubber ring, in a swimming pool rapids.</i>	
Abrasion aka Corrasion Bits of material carried in the water rubs away the bank like sandpaper.	Solution Material is dissolved into the water and carried, just <i>like putting sugar in a cup of tea.</i>	Happens where the river loses energy and can't carry the material anymore. Heaviest stuff gets dropped first. <i>Like carrying loads of shopping bags and then being really tired (no energy). What do you do? Put some bags down....</i>



A flood is an overflow of a large amount of water beyond its normal limits, especially over what is normally dry land

Physical causes of flooding:

- heavy rainfall
- long periods of rain
- snowmelt
- steep slopes
- impermeable rock (doesn't allow water through)
- very wet, saturated soil
- compacted or dry soil

Human factors increasing flood risk:

- urbanisation, because towns and cities have more impermeable surfaces
- deforestation, because removing trees reduces the amount of water intercepted and increases run-off

COCKERMOUTH FLOODS

Causes: A massive downpour of rain (31.4cm), over a 24-hour period triggered the floods that hit Cockermouth and Workington in Cumbria in November 2009. The ground was already saturated, so the additional rain flowed as surface run-off straight into the rivers

- The steep slopes of the Cumbrian Mountains helped the water to run very rapidly into the rivers
- The rivers Derwent and Cocker were already swollen with previous rainfall
- Cockermouth is at the confluence of the Derwent and Cocker (i.e. they meet there)



Embankment (levees)	High banks built on or near riverbanks. +: Raising the riverbank allows the river to hold more water. -: Sometimes they can be ineffective after very heavy rainfall.
Flood Relief Channel	A man-made river channel connected to the main river channel to divert water after heavy rain. +: Controls the amount of water in the main river = control flooding. -: Unnatural and expensive.
Channelisation	Deepening and/or straightening the river. +: The water moves through the channel more quickly = the water never has time to build up and flood. -: More water is taken downstream = flooding downstream. Unnatural and expensive.
Afforestation	Trees are planted in the drainage basin. +: Trees intercept and store water = reduces the amount of water in the river channel. They are environmentally friendly. -: Land cannot be used for other activities (e.g. farming)
Land Use Zoning	Land is allocated for different uses according to the risk of flooding. <i>Land closest to the river, at high risk, is used as parkland/playing fields. Land further from the river is used for housing and industry.</i> +: Reduces cost of flood as less expensive land is destroyed. -: Flood still occurs. Land value next to rivers is less.
Flood Warning System	Rivers are carefully watched and if the water level rises, an alarm is sounded. +: People can prepare for the flood or evacuate. -: Flood still occurs. People don't always have enough response time.

SOCIAL EFFECTS	ECONOMIC EFFECTS	ENVIRONMENTAL EFFECTS
• Over 1300 homes were flooded and contaminated with sewage • A number of people had to be evacuated, including 50 by helicopter • One man died – PC Bill Barker • The train station and tracks were flooded meaning people were isolated	• Many businesses were flooded causing long-term difficulties for the local economy • People were told that they were unlikely to be able to move back into flood-damaged homes for at least a year. The cost of putting right the damage was an average of £28,000 per house • Insurance companies estimated that the final cost of the flood could reach £100 million	• Animal habitats destroyed • Farmland lost and farm animals killed

Cockermouth Responses

- The government provided £1 million to help with the clean-up and repairs and agreed to pay for road and bridge repairs in Cumbria
- The Cumbria Flood Recovery Fund was set up to help victims of the flood. It reached £1 million after just 10 days
- Network Rail opened a temporary railway station in Workington
- The 'Visit Cumbria' website provided lists of recovery services and trades, and people who could provide emergency accommodation



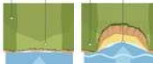
Bangladesh Floods (1998)

- Most of the country consists of a huge flood plain and delta
- 70% of the total area is less than 1 metre above sea level
- Bangladesh has a monsoon climate and the annual torrential rains which result often result in the rivers exceeding their capacity and flooding

SOCIAL EFFECTS	ECONOMIC EFFECTS	ENVIRONMENTAL EFFECTS
• Over 1300 people were killed • 7 million homes were destroyed • 25 million people were made homeless • There was a serious shortage of drinking water & dry food	• Overall the floods cost the country almost \$1 billion	• Diseases spread such as bronchitis and cholera/diarrhoea • As the waters receded - it left fields of rotting crops, wrecked roads and bridges and destroyed villages • 2 million tonnes of rice was destroyed • 1/2 million cattle and poultry were lost

KS3 Geography Knowledge: Russia

Russia Key Facts															
 - Russia (The Russian Federation) is the Largest country in the world. It cover 1/10th of ALL the land on the earth. - Russia twice the size of Canada (2nd biggest country in the world) and is the 70 times the size of the UK. - Russia is so large that it spans across two continents (<i>Asia and Europe</i>). It is mostly in Asia, but most people live in the European part. - The Ural Mountains physically separate Asia and Europe. - Russia spans across 11 time zones. - It has 14 neighbouring countries and a coastline on two oceans (35,000km of coastline). - It is also home to Lake Baikal, the world's oldest and deepest lake. It is the largest freshwater lake by volume, containing about one-fifth of the fresh water on Earth's surface															
Russia's Ecosystems															
There are four biomes distributed across Russia. ➤ Temperate forest (Red) ➤ Taiga (Green) ➤ Steppe (Orange) ➤ Tundra (yellow) Most of Russia is dominated by Taiga and Tundra 	<table border="1"> <thead> <tr> <th>Taiga</th><th>Tundra</th></tr> </thead> <tbody> <tr> <td>✓ Coniferous forest</td><td>✓ The coldest of all biomes</td></tr> <tr> <td>✓ Made up of pines, larch's, spruce</td><td>✓ It is too cold for trees to grow</td></tr> <tr> <td>✓ The largest biome in the world (apart from oceans)</td><td>✓ Located in the north-eastern Russia 60-80N</td></tr> <tr> <td>✓ The largest biome in Russia</td><td>✓ Winters are long and summers are short</td></tr> <tr> <td>✓ Contains 55% of the world's conifers</td><td>✓ Soil forms very slowly</td></tr> <tr> <td>✓ The largest forested area on the earth (larger than the Amazon)</td><td>✓ Much of the land is permafrost (permanently frozen)</td></tr> </tbody> </table>	Taiga	Tundra	✓ Coniferous forest	✓ The coldest of all biomes	✓ Made up of pines, larch's, spruce	✓ It is too cold for trees to grow	✓ The largest biome in the world (apart from oceans)	✓ Located in the north-eastern Russia 60-80N	✓ The largest biome in Russia	✓ Winters are long and summers are short	✓ Contains 55% of the world's conifers	✓ Soil forms very slowly	✓ The largest forested area on the earth (larger than the Amazon)	✓ Much of the land is permafrost (permanently frozen)
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Russia's Climate															
Continent al Climate Russia experiences a continental climate , this means two main seasons. ➤ (1) Long dark cold winters with (2) brief warm summers ➤ Precipitation is low throughout the year   Yakutsk Yakutsk is the coldest city in Russia and on Earth. Temperatures can reach -45C. Yakutsk is built on permafrost (frozen ground, in fact 65% of Russia is land.															
Russia's Population															
 144 million people live in Russia, but they are not evenly spread out, they are unevenly distributed. - Russia is the largest country in the world, BUT, it is ranked 9th in terms of population size. - Most people in Russia live in areas where it is easier to live (good soils, good communication, good weather conditions) 77% of the Russian population live on the European part of the country (West to the Ural Mountains) - Russia is one of the most sparsely populated countries in the world. - But even in an extreme climate people decide to live there if there is an economic gain (Yakutsk) or a strong culture and way of life such as the Nenets in Siberia.															
Russia and The Arctic															
✓ The Arctic is a region surrounding the North Pole that is made up of a large ocean. ✓ It is the Northernmost region of Earth. ✓ There are many natural resources located here. ✓ Taking these resources can have social and environmental impacts.   															
Environmental impacts ➤ Greenpeace are concerned about the damage to the environment. ➤ A campaign 'Save the Arctic' wants to make people aware of the issues. ➤ An oil spill under these icy waters would have a catastrophic impact on animals and the pristine water. ➤ Russia produces 12% of the world oil it is responsible for roughly half of the world's oil spills.'															
Social Impacts ➤ Nenets herders have always moved seasonally with their reindeer. ➤ The Yamal Megaproject was developed to extract the large gas reserves of the region. ➤ The Nenets migrations routes are now affected by the gas and oil pipelines, making it difficult to move the reindeer herds. ➤ If they cannot migrate, their people, their way of life might disappear forever and culture lost.															
Russia's Major European Cities															
Moscow is Russia's capital city with about 12 million people. It is visited by many tourists and also has the Kremlin, which is where the president lives. St Petersburg is Russia's second largest city (and used to be the capital). 5 million people live here. It has a port and lots of industry such as ship building. The North Caucasus is mostly a farming region. This is where Mt Elbrus (a dormant volcano) is found, it is the highest mountain in Europe (5,642 m). Sochi is located next to the Black Sea. It is Russia's top holiday resort with warm summers. In 2014 the Winter Olympics took place here. Kaliningrad is an enclave (area surrounded by other countries) and surrounded by Poland and Lithuania. It has a port on the Baltic Sea and has lots of manufacturing jobs (e.g. cars) Murmansk is the Kola Peninsula's (far north) main city and is also a port. It is important for fishing. It is the biggest city in the Arctic. Crimea is a Peninsula south of Ukraine, it belongs to Ukraine, but Russia controls it.															
Russia's Natural Resources															
Natural Resource ➤ A natural resource is something that occurs naturally that we can make use of. ➤ There is an abundance of natural resources in Russia. ➤ It produces 20% of the world's natural gas and the world's leading producer of oil ➤ Russia is self-sufficient in all major raw materials (e.g. Iron, Bauxite) 															
The problem - Many resources are in Siberia, which has very harsh weather and extreme cold temperatures. - It is very hard to work in these areas as steel become brittle at these low temperatures - The roads are in poor condition due to the weather, this is not good when they are trying to export goods															

COASTS		ECOSYSTEMS		ECONOMIC DEVELOPMENT IN THE RAINFOREST	
HEADLAND AND BAY  Headland and bays occur along coastlines that have different types of rock, as the rocks erode at different speeds. - The hard rock (granite) erodes more slowly than the soft rock, creating headlands that jut out to sea. - The soft rock (clay) will erode more quickly than the hard rock, creating bays. - Bays are sheltered = deposition = beaches are formed.		Producer		Large areas of the rainforest are cleared for cattle ranches. In 2017, 744,000 cows were sold for their meat.	
		Consumer		Good: <i>jobs, better income, government gets more taxes = money for development (improve healthcare, education...etc.)</i> Bad: <i>deforestation, habitat loss, less photosynthesis = more global warming</i>	
		Decomposer		In the 1970s large areas of the rainforest were cleared and made into massive palm oil plantations (farms). Their fruit gives palm oil which we use in cooking oil, bread, cake, chocolate & candles.	
MASS MOVEMENT Mass movement is the downhill movement of material caused by gravity.		Food Chain		Good: <i>jobs, better income, government gets more taxes = money for development (improve healthcare, education...etc.)</i> Bad: <i>deforestation, habitat loss, less photosynthesis = more global warming</i>	
Hard engineering	Using manmade, artificial structures to prevent erosion and flooding.. More effective, long lasting and need less maintaining than soft engineering, however more expensive and less natural/environmentally friendly.	Nutrient Cycle		Palm Oil Production	
Sea Wall	A strong concrete wall built in front of the cliff/settlement that absorbs the wave's energy. A curved sea wall reflects the wave back to sea. - They absorb the power of the wave = less erosion. Tourists also like to walk along it. - It can, however, be expensive and ugly.	Animals adapt to survive in the ecosystem they live in. <i>Adaptation = changing to suit the surrounding environment</i>		Logging	
Rock Armour	Large rocks placed in front of the cliff or settlement, that absorb the wave's energy. - They absorb the power of the wave = less erosion. They look quite natural. - It can, however, be expensive and make access to the beach difficult.	Camel (desert)	- Long eyelashes which keep sand out of their eyes. - Camouflage - their colour helps them blend in. - They store fat in their hump which can be used for energy. Therefore they can go months with no food.	Good: <i>jobs, better income, government gets more taxes = money for development (improve healthcare, education...etc.)</i> Bad: <i>deforestation, habitat loss, less photosynthesis = more global warming, trees can take 100s of years to regrow.</i>	
Gabions	A wire cage filled with rocks that are placed in front of the cliff or seaside settlement, that absorb the wave's energy. - They absorb the power of the wave = less erosion. They are cheaper than rock armour. - The sea can corrode the metal cages = broken gabions which can be dangerous to tourists..	Giraffe (savannah)	- Long necks help them to reach tall trees for food. - Long legs help them run very fast. - Camouflage: their colour helps them blend in.	Mining	
Groynes	Wood or rock fences built out into the sea. They trap sediment transported by longshore drift and make the beach larger. - Groynes - Beach becomes wider = waves lose energy as they rush up the beach = less erosion. Big beaches boosts tourism. - They prevent sediment reaching beaches further along the coastline = problem is shifted and not solved. More expensive than soft engineering.	Cheetah (savannah)	- Spots help them stay camouflaged. - Paws help them to run quietly so they are able to sneak up on their prey. - Large nostrils and enlarged hearts and lungs help them to circulate oxygen efficiently = they can run fast.	There are huge deposits of minerals (copper, tin) in the Malaysian rainforest. Land is cleared and mined to access these minerals which are then sold to other countries. Roads are created to improve access to the mines. Good: <i>jobs, better income, government gets more taxes = money for development, better transport routes.</i> Bad: <i>deforestation, habitat loss, less photosynthesis = more global warming, pollution from machinery, chemicals used in mining poison ecosystem.</i>	
		Spider monkey (rainforest)	- Their long limbs (arms and legs) allow spider monkeys to swing through the trees with ease. - Their strong tails allow them to hang suspended up in the trees and aids their swinging. 90% of their diet comes from nuts, seeds, fruit and insects.	Hydro-electric power	
		Poison Dart Frog (rainforest)	- Is very small to prevent being eaten - Has skin that releases poison when touched	The high quantity of water in the rainforest can be used to create cheap energy in hydro-electric power stations. The Bakun Dam is a dam in Malaysia that generates electricity for its people. It is the highest dam outside of China (205m). Good: <i>jobs, income, money for development, provide sustainable clean energy to locals and industries.</i> Bad: <i>when you build a dam, a massive reservoir (lake) is created behind it, which floods large areas of land = loss of habitats/settlements. Tribes lose their homes, land and culture. The Bakun Dam flooded over 700km2 of forest.</i>	
		Polar Bear (tundra)	- Thick white fur to help camouflage help them keep warm. - Layer of fat under their skin helping them stay warm. - Large feet help to spread their weight over a larger surface area. This prevents the ice breaking beneath them.		

CAUSES OF CLIMATE CHANGE		RESOURCES	POPULATION AND URBANISATION	
Methane Humans are to blame because....	Cows produce a methane when they fart, belch and poo. Methane is a greenhouse gas that traps longwave radiation in the earth's atmosphere. <i>The world's population is rising and countries are becoming more developed = there are more people and more families that have money to spend on food (e.g. meat) = rising demand for meat = more animals farmed = more methane produced.</i>	Solutions to Using Oil (Renewable Energies)	Urban growth has created a number of opportunities in Mumbai	
		HEP (Hydro-Electric Power) This uses fast flowing water to turn generators to produce electricity. <i>Good: This type of energy makes little pollution. Bad: Dams are needed and can be very expensive, flood farmland and people's homes.</i>	Jobs	- Over 3 million people commute each day to work in Mumbai. - Mumbai generates 6.16% of India's GDP
Carbon dioxide Humans are to blame because....	Carbon dioxide is the greenhouse gas that people are most worried about, as it is the one we are adding to the atmosphere fastest. - Fossil fuels (coal, gas, oil) are burnt to make energy = carbon dioxide is released into the atmosphere. - Humans drive cars, which release carbon dioxide, nitrous oxide and methane into the atmosphere. <i>Rising population and more developed countries = increased demand for electricity = more carbon dioxide produced.</i>	Solar Power Solar power is the conversion of the suns energy into electricity through a solar cell. <i>Good: instant electricity and no harmful gases are produced so there is no pollution Bad: less effective in areas that have lots of cloudy days. In some places such as the UK there are large fields of solar panels that take up lots of space. It can be very expensive as the cells cost lots to make.</i>	Jobs in a variety of industries	- Jobs in factories producing electronic items, jewellery, textiles. - Jobs in high-tech industries: call centres, online banking and software development. - Many TNCs have their headquarters in Mumbai: Bank of America, Volkswagen, Walt Disney.
			Higher & reliable wages	- The highly skilled jobs = higher wages. - The high number of jobs means there are more reliable wages.
CASE STUDY OF HOW CLIMATE CHANGE AFFECTS LICs: BANGLADESH FLOODS			Access to services	- There is much better access to education and healthcare. - Mumbai has the highest percentage of internet access of any Indian city (12 million in 2013)
Location:	Southern Asia, along the Tropic of Cancer. It neighbours Burma, India and the Indian Ocean.		Entertainment	Restaurants, clubs, bars, theatres, festivals, shops...etc.
How has climate change increased flooding?	- It's low altitude (<10m above sea level) and long coastline (580km) makes it vulnerable to sea level rise. - The Himalayas lie to the north of Bangladesh. The ice and snow melts in the summer, which then rushes down into the rivers in Bangladesh. This occurs more due to increased temperatures. - Bangladesh is prone to cyclones and monsoonal rains which bring a huge amount of rain. Due to climate change, these storms will occur more often.	Biomass Biomass burns plants, trees and organic matter to heat steam to drive turbines. <i>Good: sources are always available, It is a much cheaper source of energy compared to fossil fuels and whilst it does release Carbon Dioxide, it produces less than fossil fuels. Bad: As it uses trees it can lead to deforestation.</i>	Transport	Train, airplanes, boats, buses...etc. Mumbai has links to all the major industrial cities in India as well as connections to globally important cities.
Primary effects	1000 people died 7 million homes destroyed - Hospitals flooded 400,000 factories closed down. - Fields were flooded. 2/3^{ds} of the country was flooded. - Roads and railways were flooded.	Wind power Wind turns large turbine blades to generate electricity <i>Good: Electricity produced is cheap in the long run, produce clean energy, can be very effective in places with high winds Bad: Negative visual impact on the landscape and can create nuisance (noise and light) for people living near them. Birds can also fly into the blades and die. Wind / Nuclear energy is not renewable but is recyclable and a nuclear reaction releases energy. Good: little pollution is produced. Bad: The power plants are expensive to build and there are social and environmental concerns if an accident happened</i>	Cultures	People live in Mumbai from different ethnic backgrounds (people from different races and religions). This enriches the city's culture with different cuisines, places of worship and cultural festivals.
			Urban growth has created a number of challenges in Mumbai	
Secondary effects	- Dead bodies spread disease and illness 30 million people homeless. - Temporary hospitals did not have the necessary equipment or medicine. - Many people losing their jobs. 700,000 hectares of crops were destroyed. - Blocked transport routes mean that aid could not reach victims.		Squatter settlements	40% of the population in Mumbai live in poor quality housing or on the streets. - The poorest live in squatter settlements on the outskirts of the city. People arriving to Mumbai cannot afford rent so build a house using whatever they can find, close to the city centre. Overtime squatter settlements are formed. - Homes are very small and made out of wood, cardboard, metal and plastic sheeting - They are overcrowded and lack services (healthcare, clean water) = diseases are common. - Pollution (air, water, waste)
			Lack of services	- As populations rise rapidly it is very difficult to supply services to the population. They cannot develop the necessary infrastructure (water pipes, electricity lines, sewage pipes) fast enough to support the rising population - Lack of teachers and schools = lack of education. Around 24 % of children are illiterate. - Lack of sewage pipes = people dispose of sewage into nearby rivers and streams. These are used by locals to clean clothes and for drinking = waterborne diseases (typhoid, cholera and dysentery). 83% diseases in Mumbai are waterborne. Everyday in Dharavi, 4000 people are affected by waterborne diseases. - Lack of hospitals = lack of healthcare.
			➤ Education ➤ Sanitation	
			➤ Hospitals	
			Water pollution	Sewage and industrial waste from factories is poured into rivers. The Mithi River in Mumbai is very polluted because: - Large companies dump industrial waste straight into the river and the airport uses it to dump untreated oil. 800 litres of sewage goes straight into the river every day. This results in waterborne diseases, death of wildlife and destruction of ecosystems.
			Air pollution	Vehicles and factories pollute the air. In 2018 - The World Health Organisation ranked Mumbai as the 4th most polluted megacity in the world. 89.6% of deaths in slums are due to respiratory diseases.
			Waste pollution	100,000s of tons of waste is produced every day in Mumbai. This is often left on the streets because they do not have the infrastructure (roads, lorries) to collect the rubbish and the do not have the money to build this infrastructure.