

Part 2: challenges for the planet



Task:

- List 2 natural **external** factors that effect climate
- List 2 natural **internal** factors that effect climate
- List 2 human causes of climate change

Reasons for climate change- natural

External

- **Solar output-** solar output (energy from the sun) changes constantly
- **Orbital geometry-** shape of the earth's orbit and the tilt of the axis

Internal

- **Volcanic activity-** release large amounts of sulphur dioxide- cloak which reduces the amount of solar radiation reaching earth
- **Surface reflection-** snow and ice reflect sun
- **Tectonic activity-** plate movement affects circulation patterns

Current causes

Fossil fuels - Non-renewable resources that can be burned such as coal, oil or natural gas that have been formed in the Earth's crust.

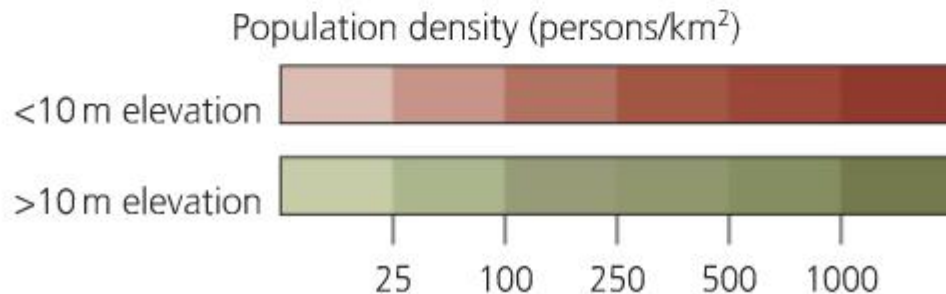
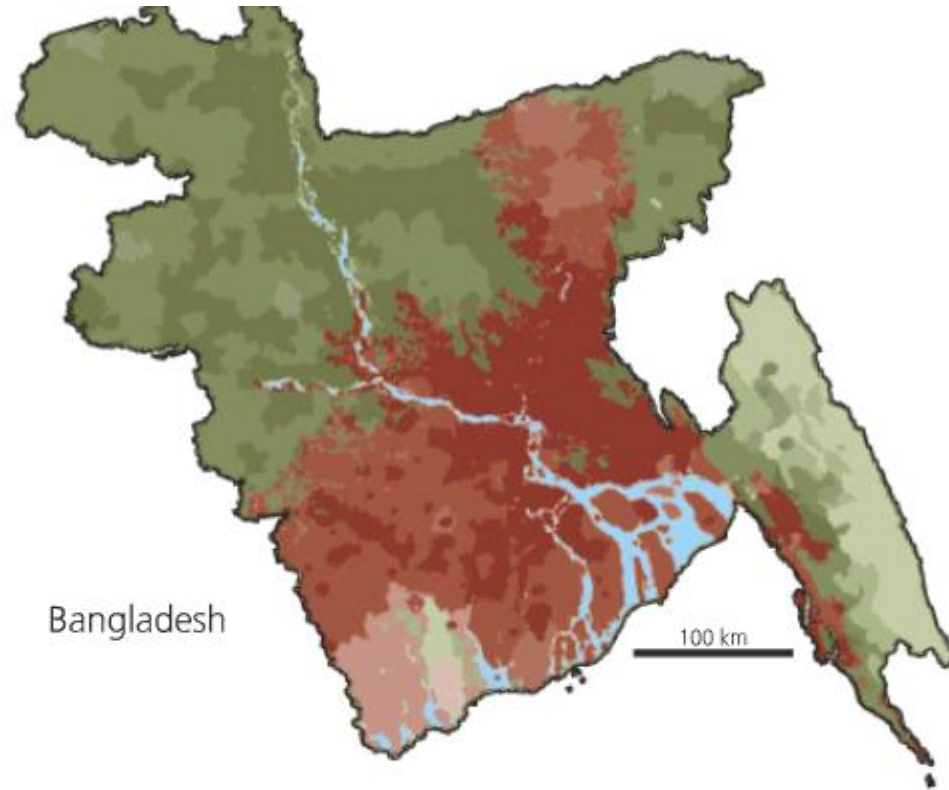
- Burning of fossil fuels e.g. power stations, vehicles etc
- Greenhouse gases: methane (wetlands, growing rice, landfills, animals) , carbon dioxide, nitrous oxide, CFCs , water vapour

Impacts

- Local and international:
- **Changing crop yield:** Africa more drought so less ability to grow crops, desertification in farming belt in USA. Other areas (Canada, UK benefit?)
- **Retreating glaciers** Antarctica, Ganges River
- **More storms and floods**

Mini case study Bangladesh

Rising sea levels:
Threaten low lying
areas e.g.
Bangladesh



(ii) Explain why sea levels have risen since the last ice age.

(4)

Question Number	Acceptable Answers	Reject	Mark
3 (a)(ii)	<p>1 mark per point Up to 2 marks for descriptive points. Descriptive points such as: Sea levels are rising because of global warming. (1) Explanation such as: Due to the greenhouse effect which traps gases in the atmosphere the earth is becoming warmer. (2) This is causing ice caps to melt and more water to be stored in the sea causing sea levels to rise. (2) Description: There has been an increase in temperature (1) Explanation: This has caused thermal expansion of the sea which because of the greater volume has also caused sea levels to rise. (2)</p>		4

(iii) Why has the rate of sea level rise increased significantly over the past 20 years?

(2)

Question Number	Acceptable Answers	Reject	Mark
3 (a)(iii)	One mark per point or expanded point can be credited. There has been an increase in energy production from fossil fuels due to more people using electrical equipment. (1) More people own cars which burn fossil fuels. (1)		2

Responses

Global

- **Kyoto protocol**- countries agreed to cut emissions by 5.2 % also could trade carbon credits to support LICs
- **NGOs**- e.g Greenpeace creating renewable sources of energy

Local

- **Transport schemes**- e.g. London Congestion charge
- **Live simply**- scheme run in schools to consider how they are living e.g. switching off lights

(b) There have been a range of responses to climate change on a local level, such as the 'live simply' campaign.

Choose **one** scheme that you have studied.

Outline the main details of the scheme.

(4)

Chosen scheme

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Question Number	Acceptable Answers	Reject	Mark
3 (b)	<p>One mark per descriptive point. Credit explanations if given but can still get max marks with descriptive points. No mark for the name of the scheme. 1 mark per point Live Simply campaign can be their chosen study. Points such as switch off lights when leaving a room (1) Don't leave computers on stand-by (1) Walk or take the bus to school.(1)</p>		4

London's Congestion Charging Scheme – A Case Study of Urban Congestion Management

- Before charging began, some 334,000 vehicles entered the central zone each day
 - In 2006, around 70,000 fewer vehicles entered it each day – a drop of 21%
 - Traffic levels in the western extension have dropped by 25%.
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- Greenhouse gas emissions in the zone have been reduced by almost 20%
 - Pollutants that adversely affect Londoners' air quality and health have fallen by 12%.

(iii) Park and Ride is a sustainable transport scheme used in many urban areas.

Explain how Park and Ride is a sustainable transport scheme.

Use an example in your answer.

(4)

Question Number	Acceptable Answers	Reject	Mark
4 (a)(iii)	<p>1 mark per point</p> <p>Unspecific points which do not relate to an actual example or descriptive points, max 2</p> <p>Credit points about what is meant by Park and Ride.</p> <p>People park their cars in a car park on the edge of the city. (1)</p> <p>They do not pay to park but pay for the bus journey. (1)</p> <p>It is sustainable because people are not driving into the city (1)</p> <p>which stops congestion (1) it helps to cut down use of fossil fuels (1) helps to decrease global warming. (1)</p>		4

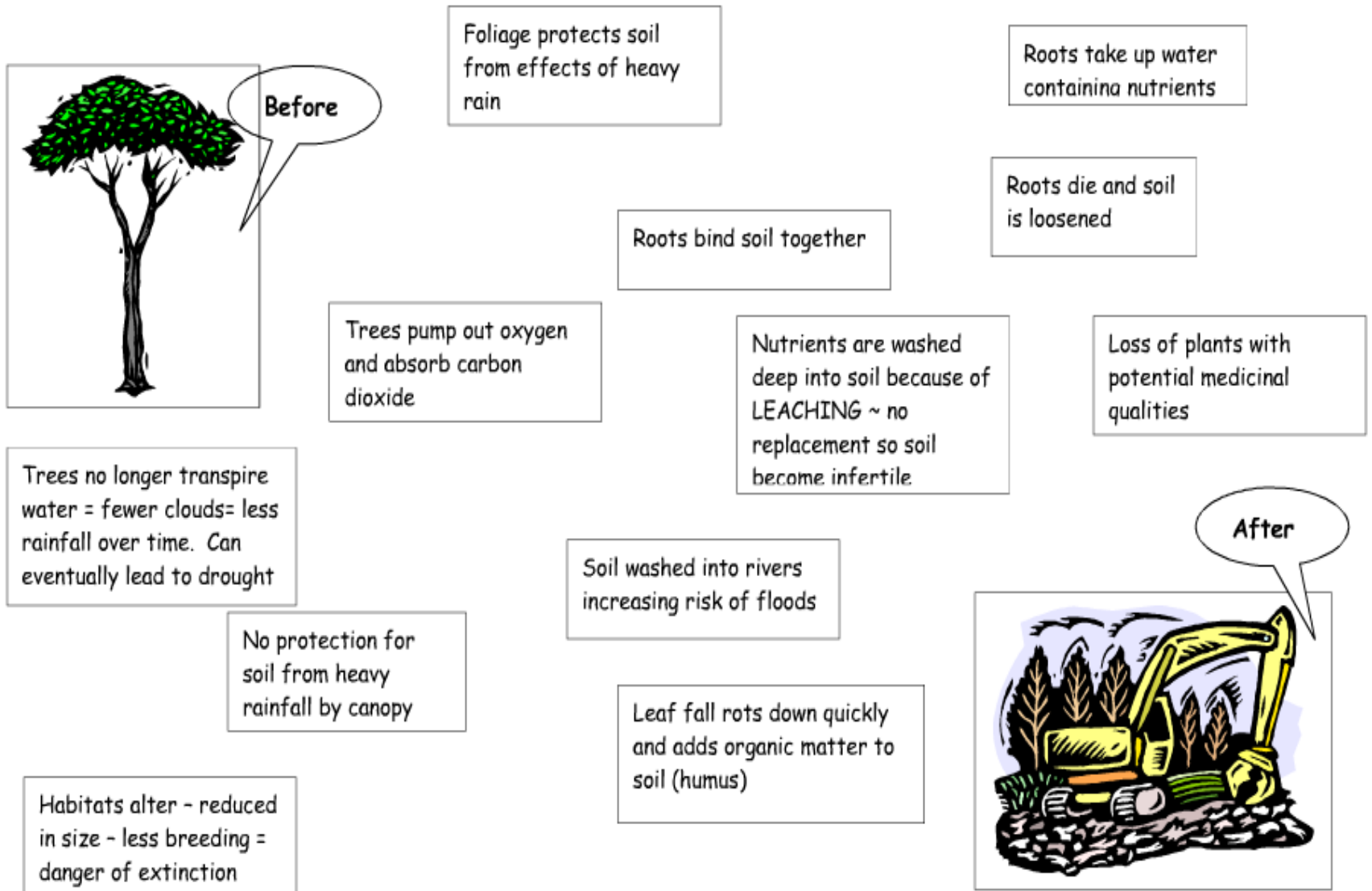
Malaysia case study: Tropical Rainforest

CAUSES

Palm oil: Increase in demand for palm oil areas of lowland forest have been converted to palm oil plantations- Malaysia is now the worlds major exporter of palm oil.

NIC: New land is needed to house and feed the growing population of Malaysia

Consequences of Human Interference in the Tropical Rain Forest Ecosystem



Sustainable forestry in Malaysia

- Ensuring logging companies only use selective cutting methods- e.g. only a certain number of tree per hectare.

C Using *selective logging*. Only between seven and twelve mature and fully grown trees per hectare are cut down in each logging cycle. This allows the logged area to regain full maturity after 30–50 years. The forest recovers because the younger trees and saplings are given more space and sunlight to grow.



Solutions continued

- Restricting the use of bulldozers
- Increasing the number of National parks
- Helilogging- removing wood via helicopters

Carbon credits

LIC's can set aside some of their forest and receive carbon credits.

Industrialised countries can then buy these credits off the country and in this way the developing country earns money from its forest.

The largest carbon credit project in the world is in Bolivia. The project is based in the Noel Kempff National Park which is an area of 1.5m hectares and has been an UNESCO World Heritage site since 2000. Bolivia has received £25m by selling the carbon credits of this area. The money has gone straight to the communities who live in the areas as compensation. This means that they are no longer dependent upon logging and destroying the forest to farm to earn a living.

*(b) The extraction of resources from tropical rainforests is having a major impact on the environment.

Explain the effects of resource extraction from tropical rainforest areas.

Use examples in your answer.

(6)

Question Number	Indicative content	
4b QWC	<p>A number of examples are expected.</p> <p>Effects must be resource extraction from rainforest areas not examples of farming destruction such as in the Amazon.</p> <p>The question states areas so more than one area must be discussed.</p>	
Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	<p>A basic answer</p> <p>Simple descriptive statements about the effects of resource extraction from rainforest areas. Could be about anywhere.</p> <p>Basic use of geographical terminology, spelling, punctuation and grammar.</p>
Level 2	3-4	<p>A clear answer</p> <p>Level 2 is reached by there being an explanation of the effects of resource extraction or a specific point. The top of the level requires a range of specific points or a number of explanations.</p> <p>Clearly communicated, but with limited use of geographical terminology, spelling, punctuation and grammar.</p>
Level 3	5-6	<p>An explicit answer</p> <p>A range of specific and explained points. The answer should deal in detail with a number of specific examples which concentrate on different types of resource extraction in different rainforest areas. Well communicated with good use of geographical terminology, spelling, punctuation and grammar.</p>

*(c) In many areas of the world tropical rainforests are under threat.
With the use of examples explain some of the ways in which tropical rainforests
are being managed.

(6)

Question Number	Indicative content	
5(c) QWC i-ii-iii	Management of tropical rainforests, such as: <ul style="list-style-type: none"> • some are managed sustainably - some are not 'managed' effectively other than for profit and frequently unsustainably • selective logging rather than clear cutting which is damaging to whole ecosystem and unsustainable • protection for some hardwoods like mahogany • only licensing the companies that buy from sustainable forestry projects • empowering local communities by establishing land rights and ownership • encouraging diversification from ecotourism to crafts to limit dependency on timber • examples should be included, eg in the Amazon forest 91 areas have been designated for protection • The Living Rainforest Foundation promotes conservation in the Ecopark outside Manaus. 	
Level	Mark	Descriptor
Level 0	0	No acceptable response.
Level 1	1-2	Attempts to explain in general terms at least one method of management. Basic use of geographical terminology, spelling, punctuation and grammar.
Level 2	3-4	Explains one method of management in general terms. Attempted a second explanation, but this may not be clear. Clearly communicated, but with limited use of geographical terminology, spelling, punctuation and grammar.
Level 3	5-6	Explains two or more methods of management with good descriptive data. Explanation offers link to sustainability. Well communicated with good use of geographical terminology, spelling, punctuation and grammar.