UNIVERSITY OF CAMBRIDGE INTERNATIONAL EX
International General Certificate of Secondary Educati

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CAN NUMBER

1345298969

ENVIRONMENTAL MANAGEMENT **0680/23**

Paper 2 **May/June 2013**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Electronic calculators may be used.
Answer **both** questions.

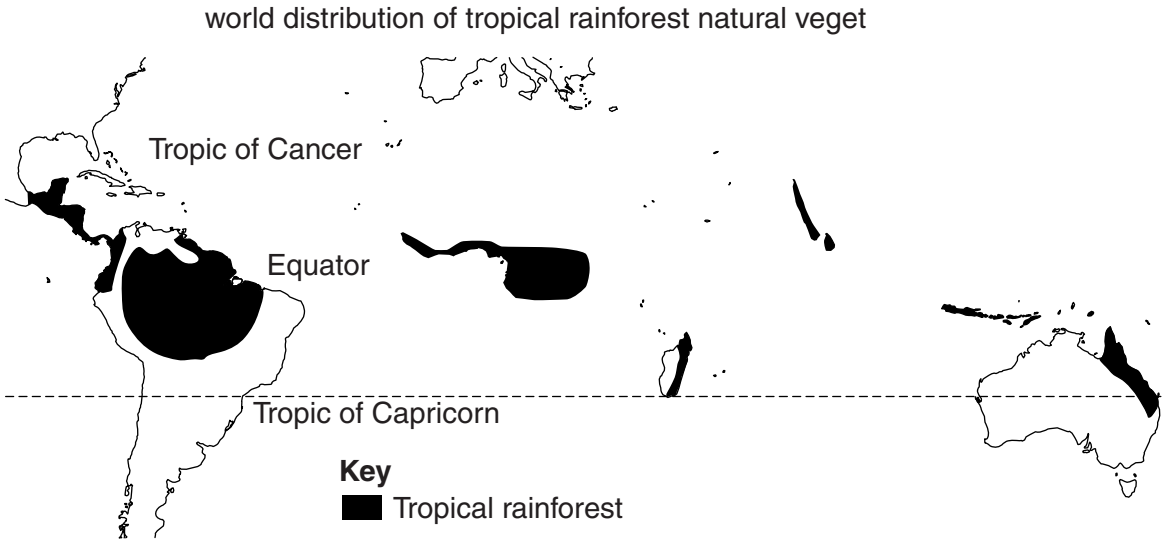
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
1	
2	
Total	

This document consists of **14** printed pages and **2** blank pages.

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1 **(a)** Look at the map showing the distribution of the tropical rainfo



(i) Describe the main features of the world distribution of natural rainforests.

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.....[3]

(ii) Look at the climate data for a weather station with an Equatorial climate in the DR Congo in Africa. Tropical rainforest is the natural vegetation in the area around it.

equatorial climate – Kisingani – DR Congo												
	J	F	M	A	M	J	J	A	S	O	N	D
Temperature (°C)	26	26	26	26	26	26	25	24	25	25	25	25
Precipitation (mm)	53	84	178	158	137	114	132	165	183	218	198	84

An Equatorial climate is usually described as 'hot and wet all year'.
Describe how the data shows that this place has an Equatorial climate.

hot all year .....

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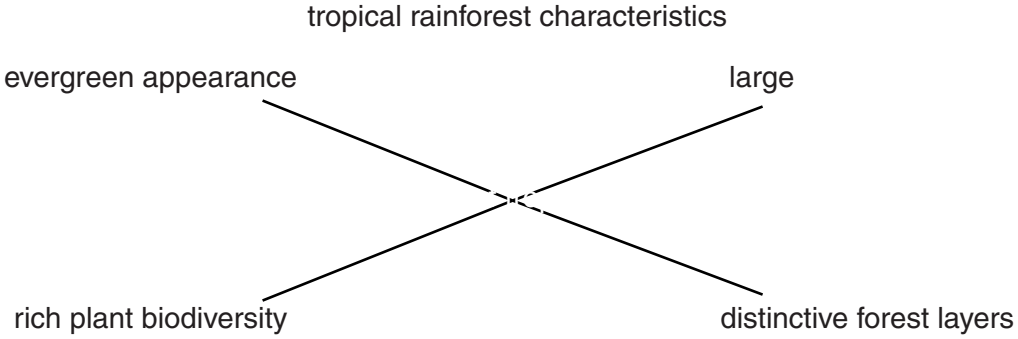
wet all year .....

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.....[4]

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(iii) The Equatorial climate supports the densest forests on greatest competition between plants. Some of the main rainforests are shown in the spider diagram.



Explain how the Equatorial climate causes these tropical rainforest characteristics.

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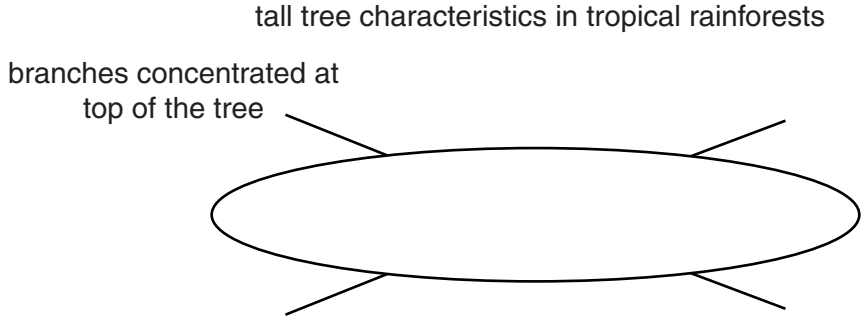
(iv) There are many examples of plants occupying ecological niches within the rainforest community. What is meant by niche? Name a rainforest example.

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(v) The tall trees within these forests have developed certain characteristics which have allowed them to adapt to the Equatorial climate.
Add another three characteristics of tall rainforest trees to the spider diagram.



[3]

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(b) Many of the world's remaining natural rainforests are being th
Read the newspaper report about tropical rainforests in Afric

Africa's rainforests under threat

The largest area of African rainforest is in the Congo Basin. It is under attack like never before
– from farmers with more and more mouths to feed in the family
– from mining companies because of the high world prices for oil and other minerals
– from illegal loggers because of the great demand for hardwood timber.
About four million hectares of forest are being destroyed every year.

Mining and logging companies build roads right through the middle of previously untouched forests. T
forests for others. H
animals, particularly
them for their meat
controls have led to
hunting, to the point where several species of monkey are under threat of extinction.

The rainforest is Africa's richest ecosystem. It may not have the great herds of big animals of the savannas of East Africa. What it does have is more than half of Africa's species of wild plants and animals. It is species rich.

(i) State from the report what shows that Africa's rainforests are places of great biodiversity.

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.....[1]

(ii) Are the human activities mentioned in the newspaper report sustainable or unsustainable? Explain your answer as fully as you can.

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.....[4]

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(c) Threats to tropical rainforests are greater in some African
Information about two countries in the tropical rainforest zo
boxes.

	Cameroon	
• area of country still covered with rainforest	25%	
• total population	18.9 m	
• density of population	39.8 km^2	
• income per head	US$1,230	US$7,620
• economy	suffered from 20 years of economic decline	oil deposits make it one of Africa's richest countries
• logging	much illegal activity	selective logging of okoume trees

(i) In which one of these two African countries would the rainforest appear to be at greater risk of destruction?

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(ii) Give reasons for your choice.

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.....[4]

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(d) Cocoa is a major crop in the Equatorial lowlands of Africa, S and Asia. Cacao trees, which produce the pods containin between four and eight metres high.

Details about two different types of plantations, **A** and **B**, Central America are given in the information box.

	plantation **A**	
description	grown under the forest canopy	monoc grown
pollination	by midges which breed in the leaf litter on the forest floor	the same; however, there are fewer midges because their habitat is reduced
pesticides	optional, as a variety of plants, mammals and insects provide a natural system of management	essential in this type of farming. Cocoa plants are vulnerable to a variety of diseases.
maintenance costs	little use of pesticides, herbicides and fertilisers. Trees remain productive for 25 years and suffer little from disease	need expensive chemical pesticides, herbicides and fertilisers. Cacao trees are productive for only 10 years
income	shade crops (cashews, avocados) supplement farmers' incomes. Organically grown cocoa fetches higher prices	high income from cocoa with successful crops. No back-up income if the crop is ruined by disease
output	150–500 kg of cocoa beans per hectare	500–1200 kg of cocoa beans per hectare
environmental impacts	....	....

(i) Fill in the last box for the likely different environmental impacts of plantations **A** and **B**. [3]

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(ii) Why is plantation **A** more sustainable as a system of f
Answer using the headings biological reasons and meth

biological reasons .....

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methods of farming .....

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.....[4]

(iii) Most of the world's exports of cocoa are grown in plantations like the one described in **B**. What is the great advantage of plantation **B** which explains this?

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.....[1]

(iv) Ivory Coast in West Africa is the world's largest producer of cocoa, with almost 40 per cent of world output. There was a great increase in the number of cocoa trees planted in the 1970s, 80s and 90s. Since 2000, however, total cocoa output has gone down, yields per hectare have decreased and cocoa quality is lower.

Suggest reasons to explain the decline since 2000 in Ivory Coast.

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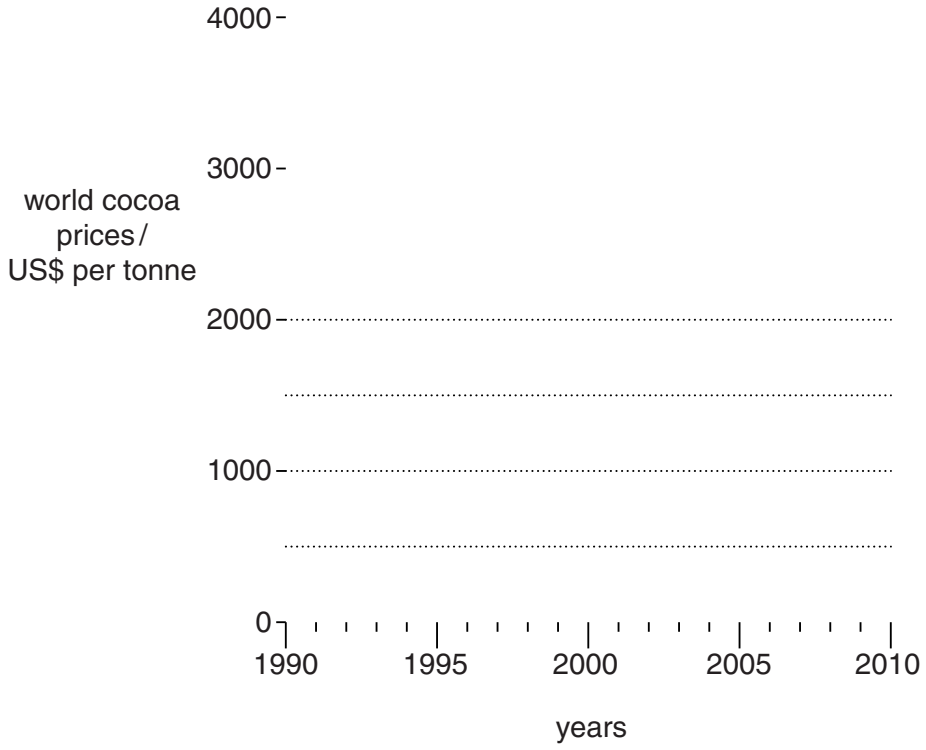
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(e) Look at the graph showing world cocoa prices from 1990 to 2



(i) Describe the **two** main characteristics of world cocoa prices shown in the graph. Use values from the graph to support your choices.

1 .....

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2 .....

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.....[4]

(ii) For **one** of the characteristics, suggest reasons to explain it. Your reasons may be physical or human, or both physical and human.

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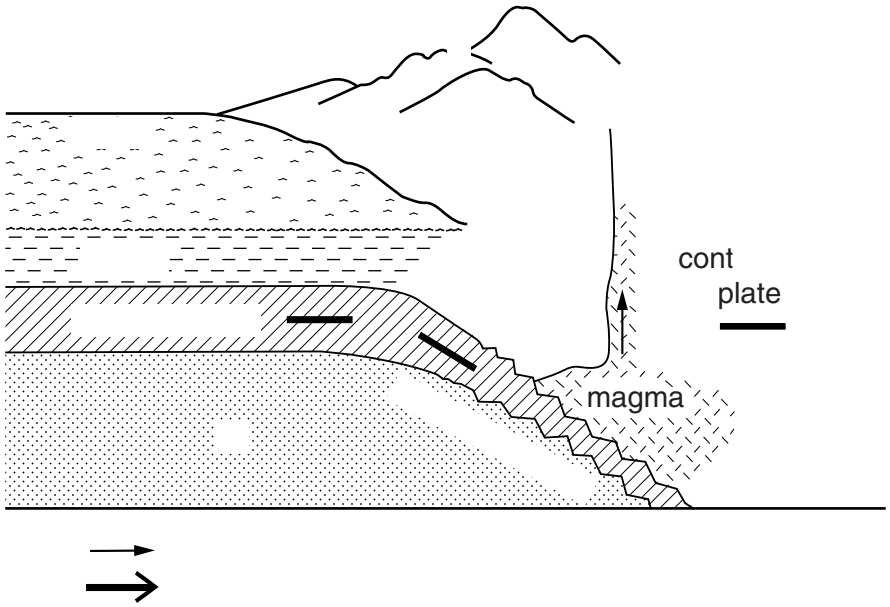
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.....[2]

[Total: 40 marks]

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2 **(a)** Look at the diagram of a destructive plate boundary.



On the diagram,

(i) add arrow heads to the **three** black lines to show directions of plate movement, to match the arrow for direction of plate movement that is in the key;

(ii) label a volcanic crater with the letter **C**. [2]

(iii) In the spaces below, name the part of the Earth marked **D** and the landform labelled **E**.

D ..... **E** ..... [2]

(iv) Explain how processes in the subduction zone lead to the formation of volcanoes and earthquakes at destructive plate boundaries.

volcanoes .....

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earthquakes .....

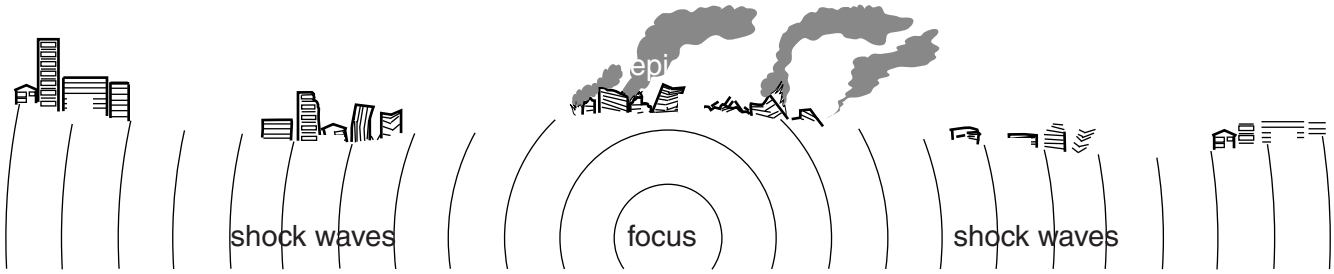
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(b) The diagram shows how the strength and destructive effects with distance away from the centre.

immediate (primary) effects of an earthquak



(i) What is the difference between the focus and the epicentre of an earthquake?

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.....[2]

(ii) How and why do the effects of an earthquake change with distance from the centre?

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.....[3]

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(c) New Zealand lies on the destructive boundary between the P
There are 100 faults around New Zealand associated with thi
these faults are just 20 km from central Christchurch. Since
September 2010, 7500 aftershocks have been recorded ne
damaging of these was in February 2011.

earthquakes in Christchurch, New Zealand

	September 4th 2010 (first earthquake)	Febr
magnitude on Richter scale	7.1	6.3 followed within two hours by two severe aftershocks 5.6 and 5.5
focus	10 km below the surface	4 km below the surface
epicentre	40 km west of Christchurch city centre outside the main built-up area	5 km from city centre many people living within 10–20 km
time	4.35am – Saturday morning	12.51pm – Tuesday afternoon
effects	100s of buildings destroyed, causing damage estimated at US$3billion	1000s of buildings destroyed or beyond repair. Final cost still to be estimated
loss of life	0 described as a 'miracle'	181 many of them in collapsed city centre offices The city centre looked like a 'war zone'

(i) Suggest why the effects of the main earthquake shock in Christchurch in September 2010 could have been expected to be greater than those from the February aftershock.

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.....[1]

(ii) State and explain four different reasons why the effects from the February aftershock were actually greater than those of the main earthquake in September.

1 .....

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2 .....

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3 .....

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4 .....

.....[5]

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(iii) In June 2011 there were still about 20 aftershocks Christchurch. The Prime Minister of New Zealand said be knocked down, and that some suburbs of Christchur suitable for people to live there. The government was of in the affected areas the amount of money their hous September earthquake.

New Zealand is a developed country. Suggest how response might have been different in a developing coun

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(iv) Many residents of Christchurch were willing to accept the government's plan. Suggest reasons, other than economic reasons, why many were ready and willing to agree to the plan to leave their houses and home areas.

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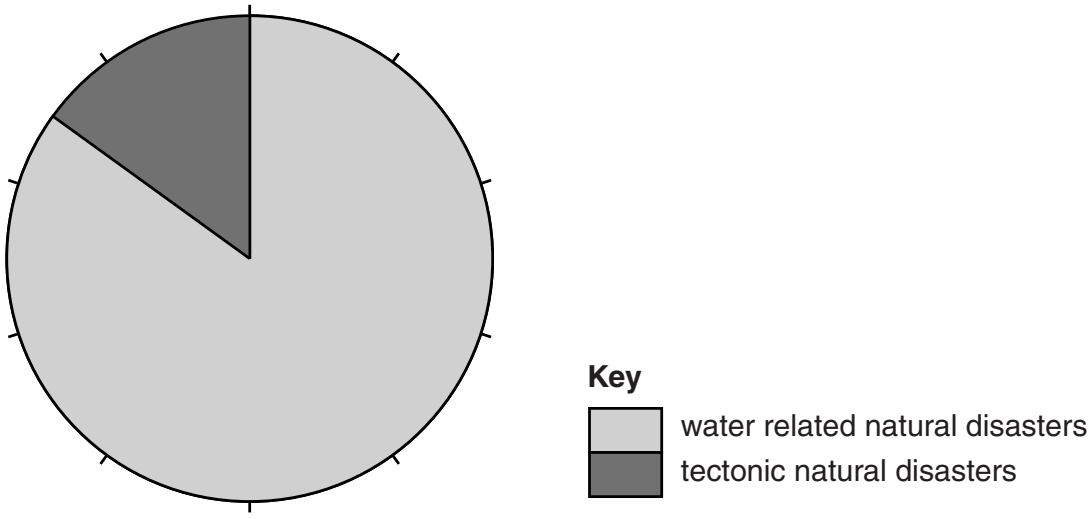
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(d) Earthquakes are examples of tectonic natural disasters. They make up only a small percentage of the total number of natural disasters in the world.

number of different types of natural disasters



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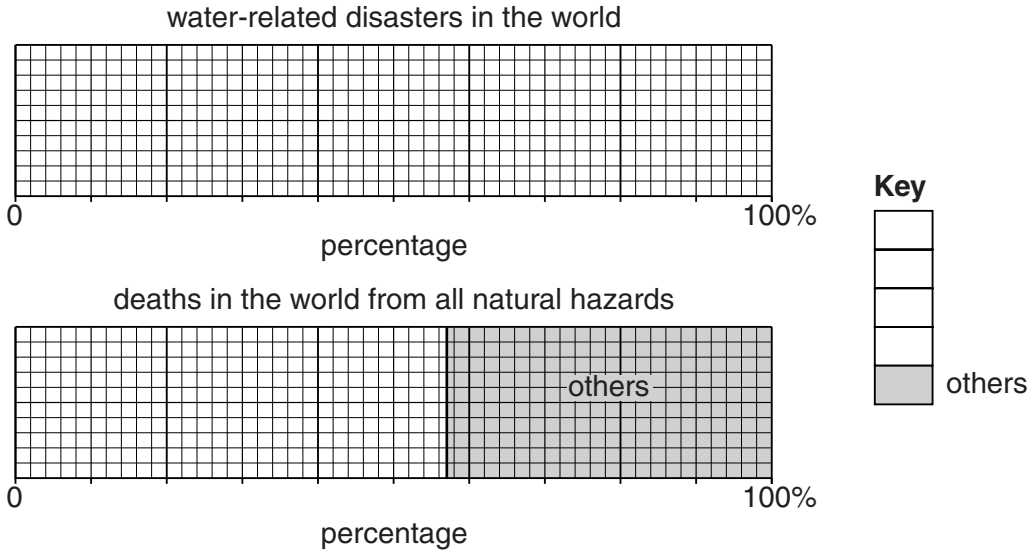
(i) What percentage of the number of natural disasters in th

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(ii) The table gives further information about water-related d

water-related disasters in the world	
type	percenta total n
flood	50
drought	13
landslide and avalanche from heavy rains	9
disease epidemics (water-related)	28

deaths in the world from all natural hazards	
type	percentage (%) of total number
flood	15
drought	42
others	43



Complete the **two** divided bar graphs and key to show these percentages. [4]

(iii) Look at the percentages in the table. How do they suggest that drought is a bigger killer of people than floods?

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.....[1]

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(iv) Suggest reasons why the loss of life from droughts is gr

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.....[4]

(e) Malaria and cholera are examples of water-related diseases that cause disease epidemics after natural disasters such as floods and earthquakes, killing many people.

Choose **one** of these diseases.

(i) Describe how and why every year it causes many deaths.

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(ii) Why does the disease that you have chosen often occur after a natural disaster, causing even greater numbers of deaths? Explain your answer.

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.....[3]

[Total: 40 marks]

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