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Centre Number	Candidate Number	Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/02**

Paper 2

May/June 2004

1 hour 45 minutes

Candidates answer on the Question Paper.
Additional Materials: Ruler (cm/mm)

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 in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **both** questions.
The number of marks is given in brackets [ ] at the end of each question or part question.

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

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1	
2	
TOTAL	

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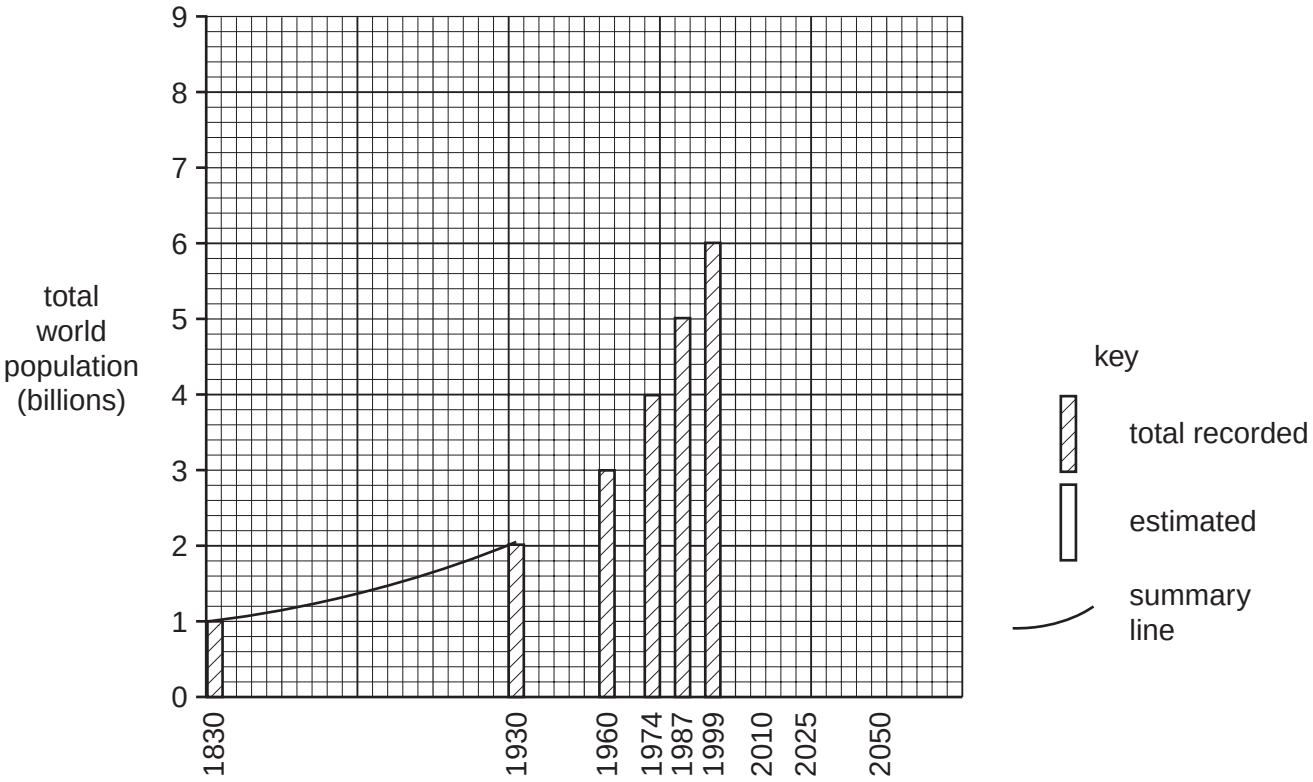
1 **(a)** Look at the graph below which shows total world population.



(i) Complete the graph and key to show estimates for future total world population given below.

Year	Total (billions)
2010	7
2025	8
2050	9

[3]

(ii) On the graph, complete the summary line for world population growth. [1]

(iii) Between which two dates was the rate of population growth fastest?

.....[1]

(iv) State the evidence from the graph that shows future world population growth is expected to slow down.

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.....[1]

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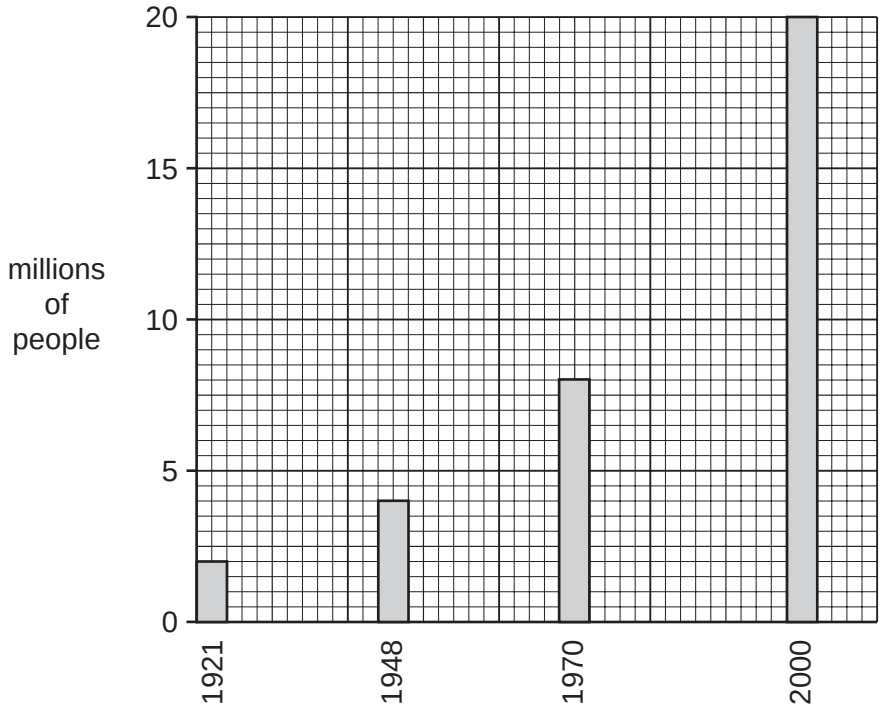
(b) Look at and read the information below about population in Ghana, a country in West Africa.



Ghana mid-1990s

birth rate	40 per 1000
death rate	12 per 1000

Ghana is a country of young people. Half its population is aged 15 and under. During the next 20 years many children will reach child bearing age. This means that Ghana's population explosion is unlikely to be stopped. Government policy is to reduce the birth rate, but it is going to be a major task to educate people and to provide contraception.

In rural areas, where 70% of Ghana's people still live and where most are farmers, children are seen as assets. They provide income and status for the family. Despite the government working with churches, schools, hospitals and village chiefs, in only 15% of families is birth control practised.

In urban areas, peoples' attitudes are different. One government worker said 'I am the youngest of 8 children. My seven brothers and sisters, who still live in rural areas, have a total of 26 children already, but my wife and I have just 2 children. We are planning not to have any more children. Prices are high in the city and life is hard'.

(i) Why was population growth high in the mid-1990s in Ghana? Use the values stated for birth and death rates.

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.....[2]

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(ii) Government policy in Ghana is to reduce the birth rate; however, the birth rate is unlikely to fall by a great amount for many years. State **two** different reasons for this.

1 .....

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2 .....

.....[2]

(iii) Why are government strategies for reducing population growth usually more successful in cities than in rural areas in developing countries?

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.....[2]

(iv) Name **one** country in which there are government strategies for reducing population growth.

Describe the strategies used in this country and explain how successful they have been.

Name of country .....

Strategies used .....

.....

.....

.....

How successful? .....

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.....[4]

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(v) Why have birth rates fallen more quickly in some developing countries than in others?

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.....[2]

(c) World population growth is putting great pressure on the Earth's natural resources.

The time taken to replace the amount of crops, animals and biomass used by people in **12 months** is **14.4 months**.

How does this show an **unsustainable** use of the Earth's natural resources?

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.....[2]

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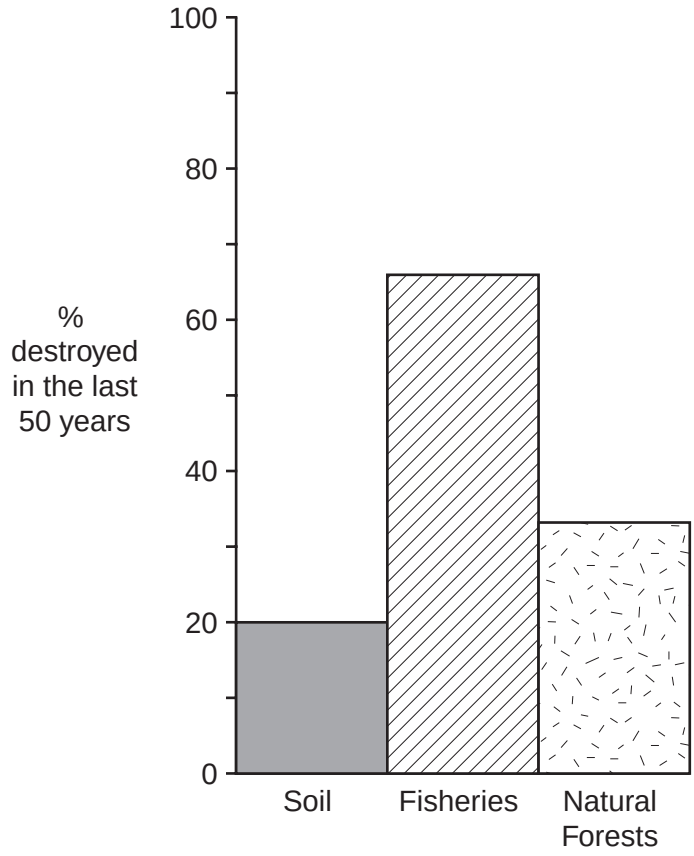
(d) The graph below shows population pressure on three natural resources.



Explain why destruction of soil is a serious problem for farmers.

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.....[2]

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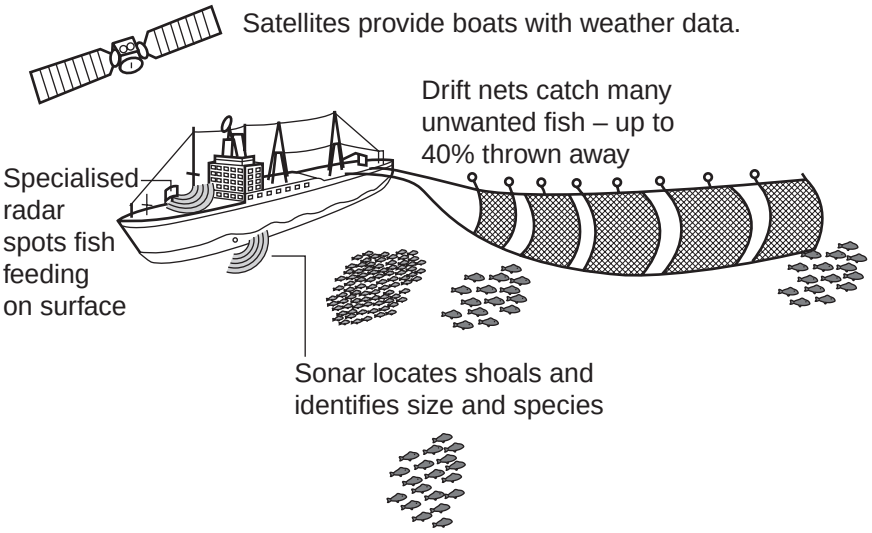
(e) Look at the diagram below. It shows how modern technology helps to decrease fish stocks.

How hi-tech fishing leads to greater decline in stocks



(i) Explain how the use of modern technology can lead to over-fishing.

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.....[3]

(ii) Name and describe **one** strategy for a sustainable way of harvesting fish from oceans.

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.....[2]

(iii) What might prevent this strategy from being successful?

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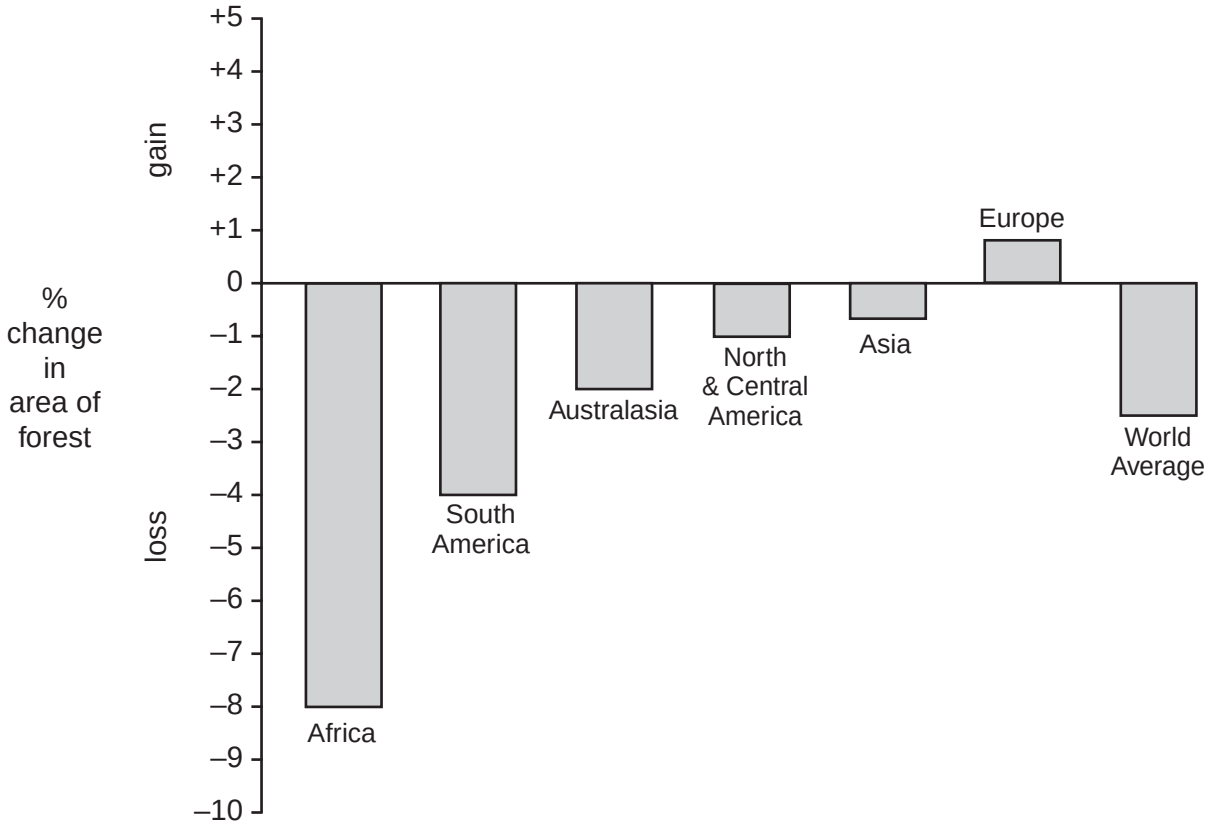
(f) The graph shows forest losses from 1990 – 2000.



(i) In what ways are forest losses in Africa different from those in other parts of the world? Use information from the graph.

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.....[2]

(ii) Why is more forest being lost in some parts of the world than in others?

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.....[2]

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(g) (i) Name **one** area in which deforestation is occurring. Give reasons why this deforestation is taking place.

Name of area .....

Reasons .....

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.....[4]

(ii) Explain why humans depend on forests to recycle carbon dioxide.

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.....[3]

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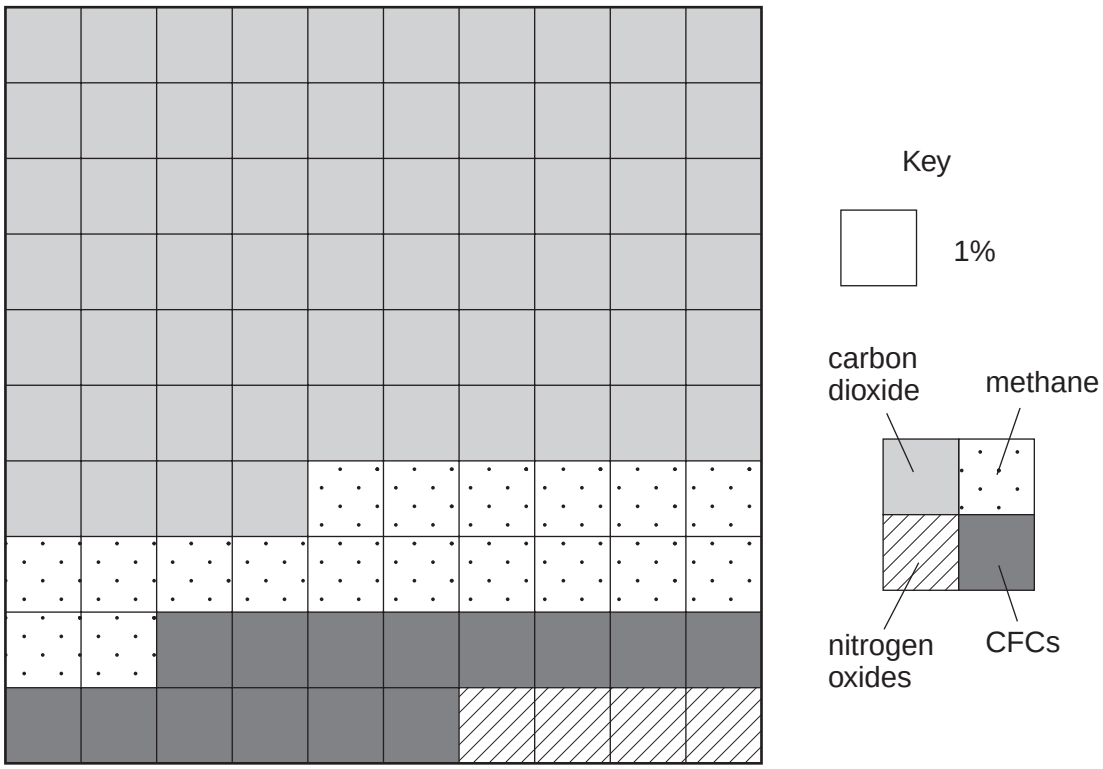
2 **(a)** Information about greenhouse gases is given in the table below.

1	2	3	4
Greenhouse gas	**Sources**	**% contribution to the greenhouse effect**	**Number of years it stays in the atmosphere**
Carbon dioxide		64	up to 200
Methane			12
CFCs			1000 or more
Nitrogen oxides	chemical fertilisers car exhausts		120

(i) Complete column **2** in the table by naming some of the **sources** of carbon dioxide, methane and CFCs in the atmosphere. [4]

(ii) Fill in column **3** in the table using percentages shown in the graph below. [2]



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(iii) Explain how the information in the table shows that CFCs make a greater contribution to the greenhouse effect than methane.

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.....[2]

(iv) Describe **two** strategies for reducing emissions of greenhouse gases into the atmosphere.

1 .....

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2 .....

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.....[4]

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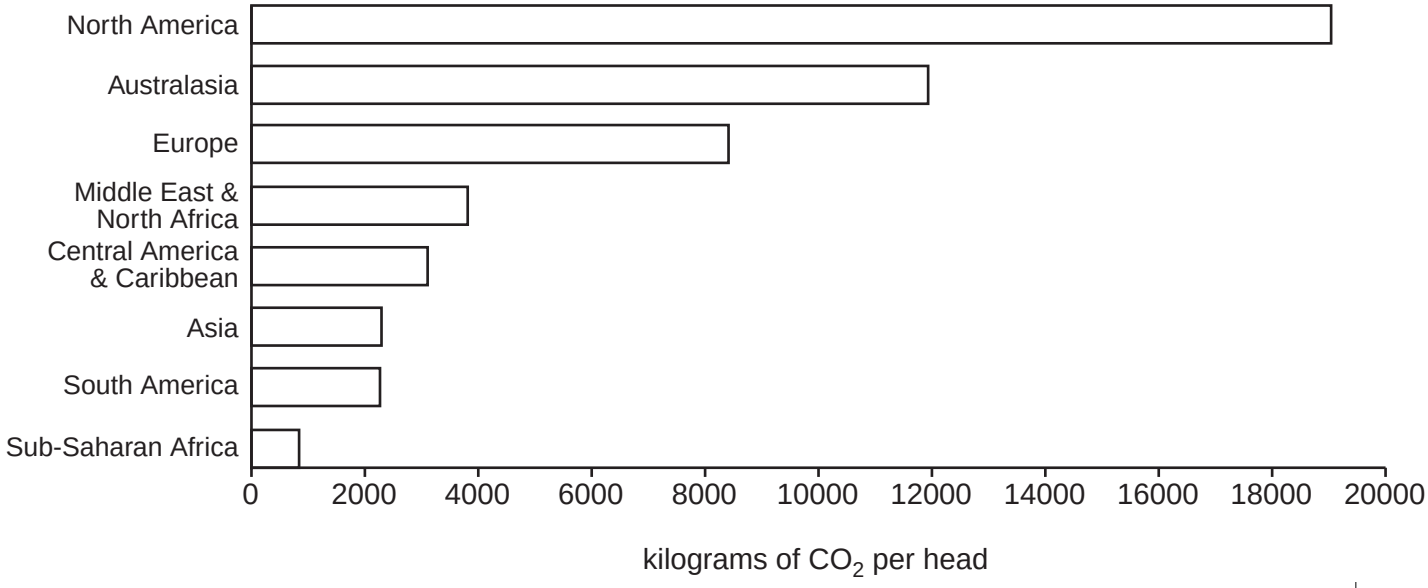
(b) Look at the graph below. This shows carbon dioxide emissions per head in 2000 in major world regions.

Emissions of carbon dioxide per head in 2000 (in kilograms)



(i) How many times greater were carbon dioxide emissions per head from Europe than from sub-Saharan Africa?

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.....[1]

(ii) Describe what the graph shows about differences in emissions per head between developed and developing regions of the world.

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.....[3]

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(c) Some attempts have been made to reduce carbon dioxide emissions by international action, but with limited success.

(i) Describe the **international** attempts that have been made to reduce carbon dioxide emissions.

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(ii) Why have these international attempts not been totally successful?

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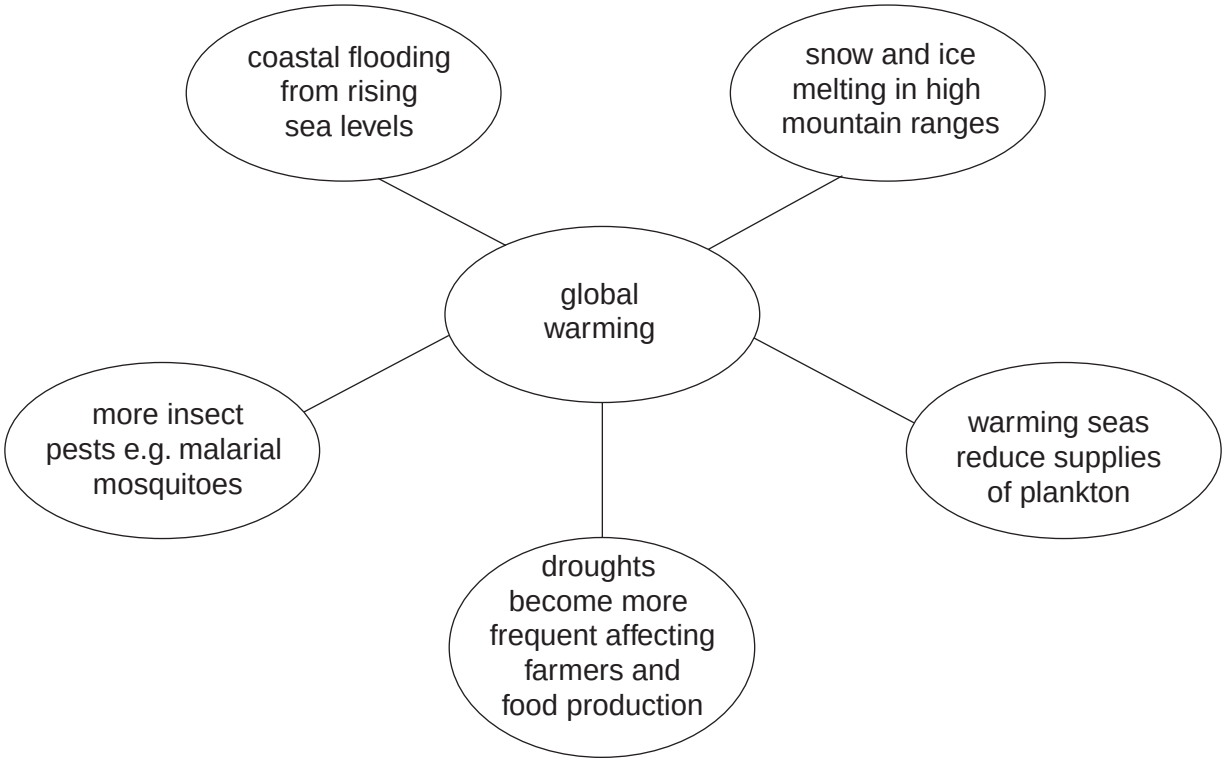
(d) The diagram shows some possible effects from global warming.



Explain why governments and people in some countries are much more worried about the possible effects of global warming than in others.

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.....[4]

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(e) Read this newspaper report from August 2002 about the Asian brown cloud.

Yesterday a group of international scientists said that they had discovered the 'Asian brown cloud'. This is a three kilometre thick haze of pollutants, caused by human activities, across much of the continent of Asia. The area it covered in August 2002 is shown on the map below.

'We used to think that human impact on climate was just global warming', said a scientist, 'Now we know that it is not as simple as this. Greenhouse gases like carbon dioxide are distributed equally across the Earth, but the pollutants that make up the brown cloud are concentrated only in certain parts of the world'. The cloud is described as being like a 'heavy soup' - a mixture of pollutants from motor vehicles and industries, and small soot particles from forest burning and from burning wood for cooking in many rural houses.

Up to 15% of sunlight is blocked by this cloud. This reduces plant photosynthesis. It causes less evaporation from the sea, so that monsoon rains are reduced. Up to 3 billion people in Asia rely upon monsoon rains for farming, which means that the cloud can have big effects on the livelihoods and health of people.

Air pollutants can be carried many thousands of kilometres by winds. Most of the emissions are coming from India and China. The pollution is likely to worsen as population increases and countries such as these industrialise rapidly. Scientists have also discovered smaller pollution clouds over parts of Africa and South America, which may be helping to make the weather less predictable around the globe.

(i) Describe where the Asian brown cloud was located in August 2002.

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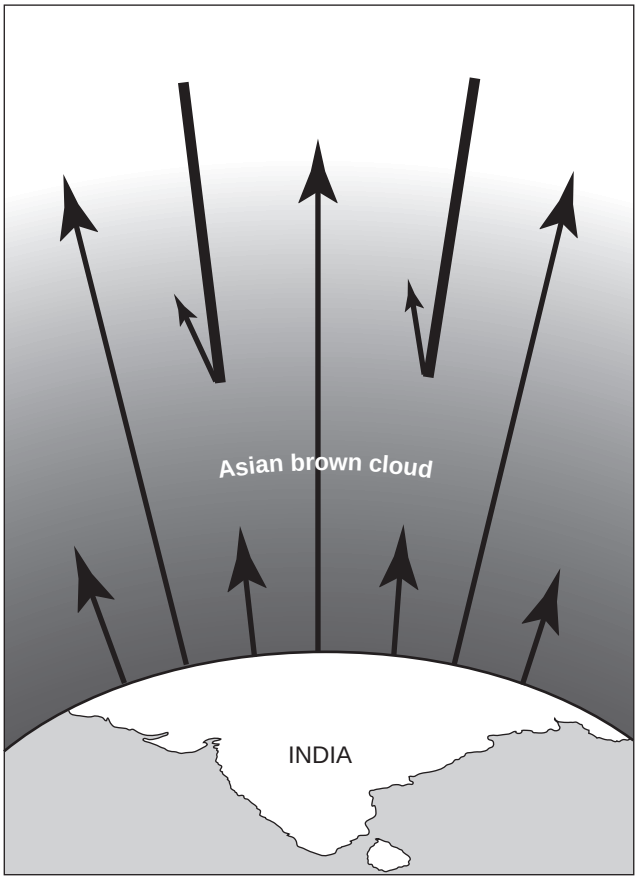
(ii) Look at the diagram below of the Asian brown cloud.



Write the two labels given below in suitable places on the diagram.

Label 1 Air pollutants such as carbon monoxide
Label 2 Some sunlight is reflected [2]

(iii) In what ways are the effects of the Asian brown cloud on sunlight different from those of the greenhouse effect?

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.....[2]

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(iv) Should people living outside Asia be worried about the existence and growth of the Asian brown cloud? Explain your answer.

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.....[3]

(f) One member of the UN environment programme said 'The Asian brown cloud is caused by the actions of people, therefore people can destroy the cloud as well'.

In order to do this, he said that the following **changes** are needed

- more controlled burning
- cleaner traffic and less of it
- more use of sustainable (renewable) energy.

(i) Choose **one** of these changes. Describe how it might help to reduce and destroy the Asian brown cloud.

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(ii) Is the Asian brown cloud likely to be reduced in size and destroyed by the actions of people? Explain your views on this.

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