UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

GEOGRAPHY **0460/01**

Paper 1

May/June 2004

1 hour 45 minutes

Additional Materials: Answer Booklet/Paper;
Ruler

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen on both sides of the 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 **three** 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.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.
The insert contains Figs 3 and 4 for Question 2 and Fig. 6 for Question 3.

This document consists of **12** printed pages and an insert.

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1   **(a)**   Read the information about population growth in Nigeria, a developing country in Africa (Fig. 1).
With the help of this information answer the following.

(i)   Why did Nigeria not worry about controlling the rate of population increase before 1980s?
[2]

(ii)   Why was a policy for population control introduced in the 1980s?   [2]

(iii)   How did the population problem worsen in the 1990s?   [3]

(iv)   Why are improvements in education important if Nigeria is to reduce its population growth?   [2]

(v)   Give reasons why it is difficult for governments of developing countries, such as Nigeria, to achieve a reduction in the rate of population growth.   [6]
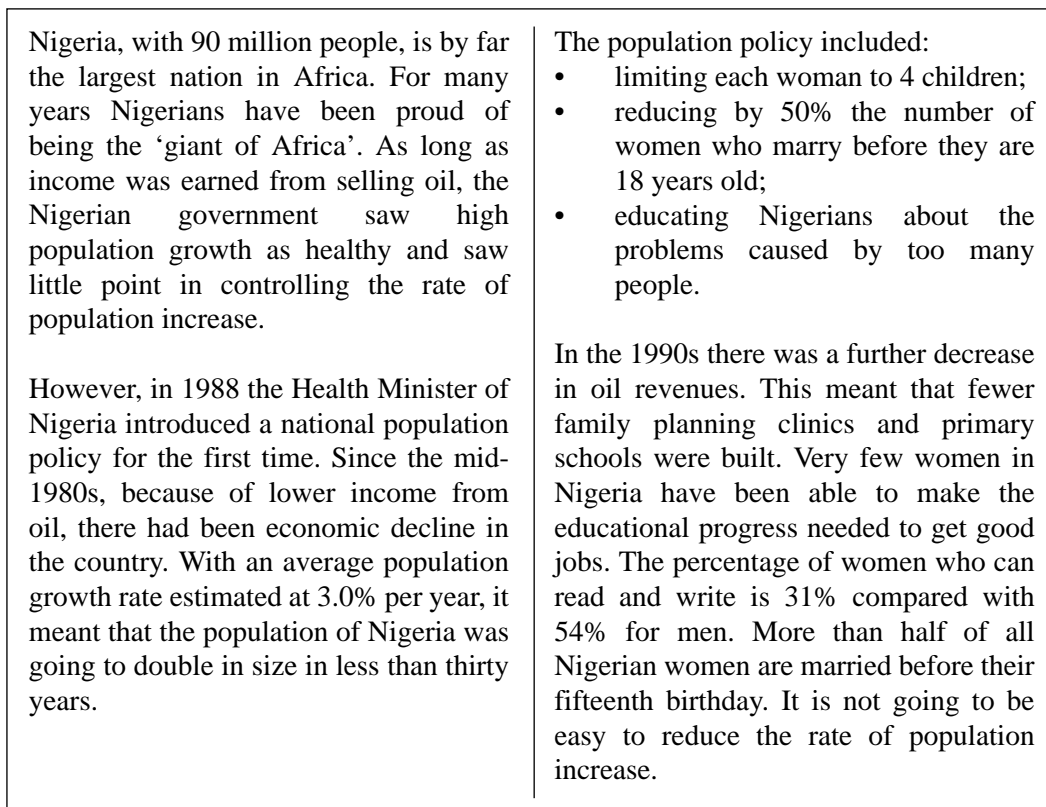
Nigeria, with 90 million people, is by far the largest nation in Africa. For many years Nigerians have been proud of being the 'giant of Africa'. As long as income was earned from selling oil, the Nigerian government saw high population growth as healthy and saw little point in controlling the rate of population increase.	The population policy included: • limiting each woman to 4 children; • reducing by 50% the number of women who marry before they are 18 years old; • educating Nigerians about the problems caused by too many people.
However, in 1988 the Health Minister of Nigeria introduced a national population policy for the first time. Since the mid-1980s, because of lower income from oil, there had been economic decline in the country. With an average population growth rate estimated at 3.0% per year, it meant that the population of Nigeria was going to double in size in less than thirty years.	In the 1990s there was a further decrease in oil revenues. This meant that fewer family planning clinics and primary schools were built. Very few women in Nigeria have been able to make the educational progress needed to get good jobs. The percentage of women who can read and write is 31% compared with 54% for men. More than half of all Nigerian women are married before their fifteenth birthday. It is not going to be easy to reduce the rate of population increase.

Fig. 1

(b) Fig. 2 shows percentage changes in the fertility rate for women in different age groups in a number of developed countries.
(Fertility rate is the average number of children born to each woman.)

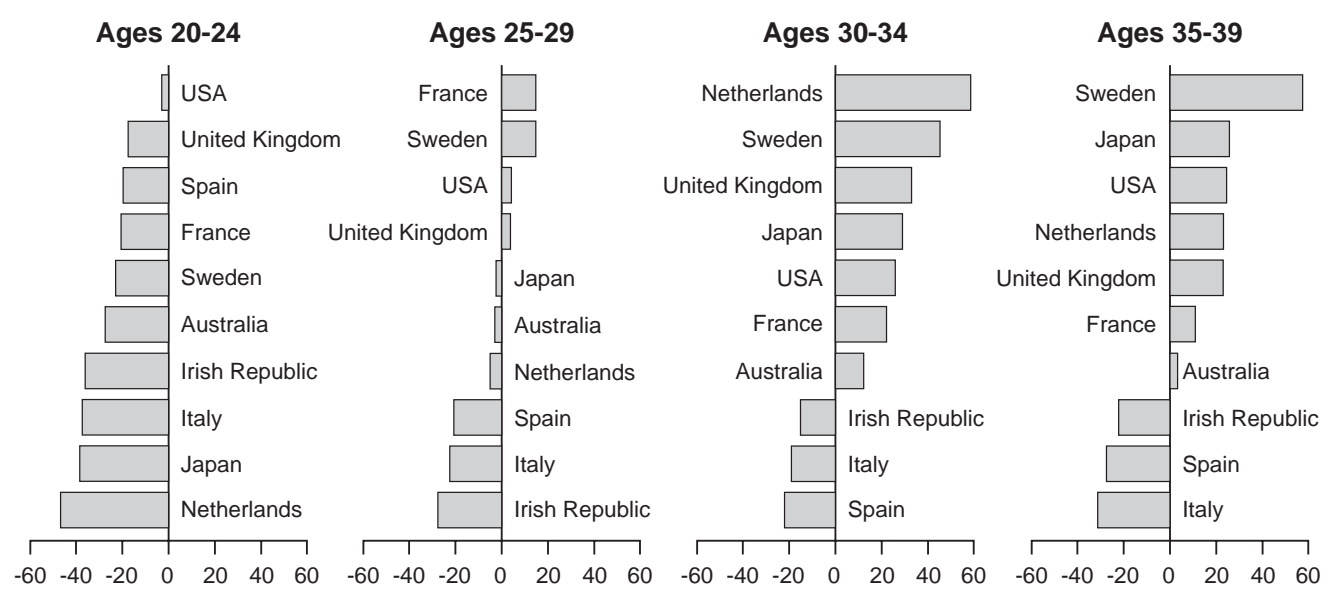**Percentage changes in fertility rate over a 20 year period**

Fig. 2

(i) What is the main difference in the percentage change when the 20-24 year age group is compared with the 30-34 year age group? [1]

(ii) State the percentage change shown for Spain for the age group 30-34 years. [1]

(iii) Describe, using data, how changes in the fertility rates in Sweden compare with those in the Irish Republic. [4]

(iv) Suggest reasons why a greater number of women in developed countries now have their children later in life. [4]

2 **(a)** Fig. 3 (Insert) shows the distances that people from a residential area in a large obtain a selected number of services.

    (i) How far will people from this area travel to visit:
        A a cinema;
        B a hospital? [2]

    (ii) Two services have been left off the diagram;

        • a gymnasium 4 km from the centre of the residential area,
        • a post office 1 km from the centre of the residential area.

        Add these positions to Fig. 3. [2]

    (iii) Explain why people are willing to travel greater distances for some services than for others. [3]

(b) Now study Fig. 4A (Insert) which shows a section across a major city in the developed world.

    (i) On Fig. 4B (Insert), draw a line graph to give a general idea of the differences in *residential* population density across the city. [3]

    (ii) Add notes to Fig. 4B to justify the shape of your graph. [3]

    (iii) There is a plan to remove older houses in Zones 2 and 3 to use the land for other purposes.

        A Suggest reasons why such urban renewal takes place in cities. [3]
        B Why do some people prefer the houses in these zones to remain and to be improved? [3]

(c) For a residential area in a named settlement you either know or have studied, describe the changes which have been caused by **either** an inward **or** an outward movement of people. Include in your answer changes in housing, services and amenities. [6]

3 **(a)** **(i)** **A** What name is given to the wooden box shown in Fig. 5 which houses s_____r instruments at a weather station?
B Describe its main features.
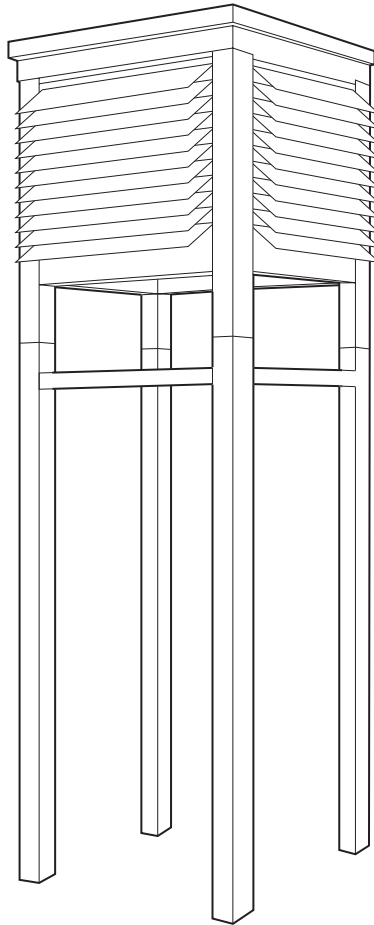**C** Why is it used at weather stations?

Fig.5

(ii) The weather instrument shown in Fig. 6 (Insert) is kept in this wooden box at a weather station.
A With the help of labels added to Fig. 6 describe the main features of this weather instrument. [3]
B Explain how you would take an accurate reading from it. [3]

(b) Fig. 7 shows how types of rock weathering are related to mean annual temperature and annual rainfall.
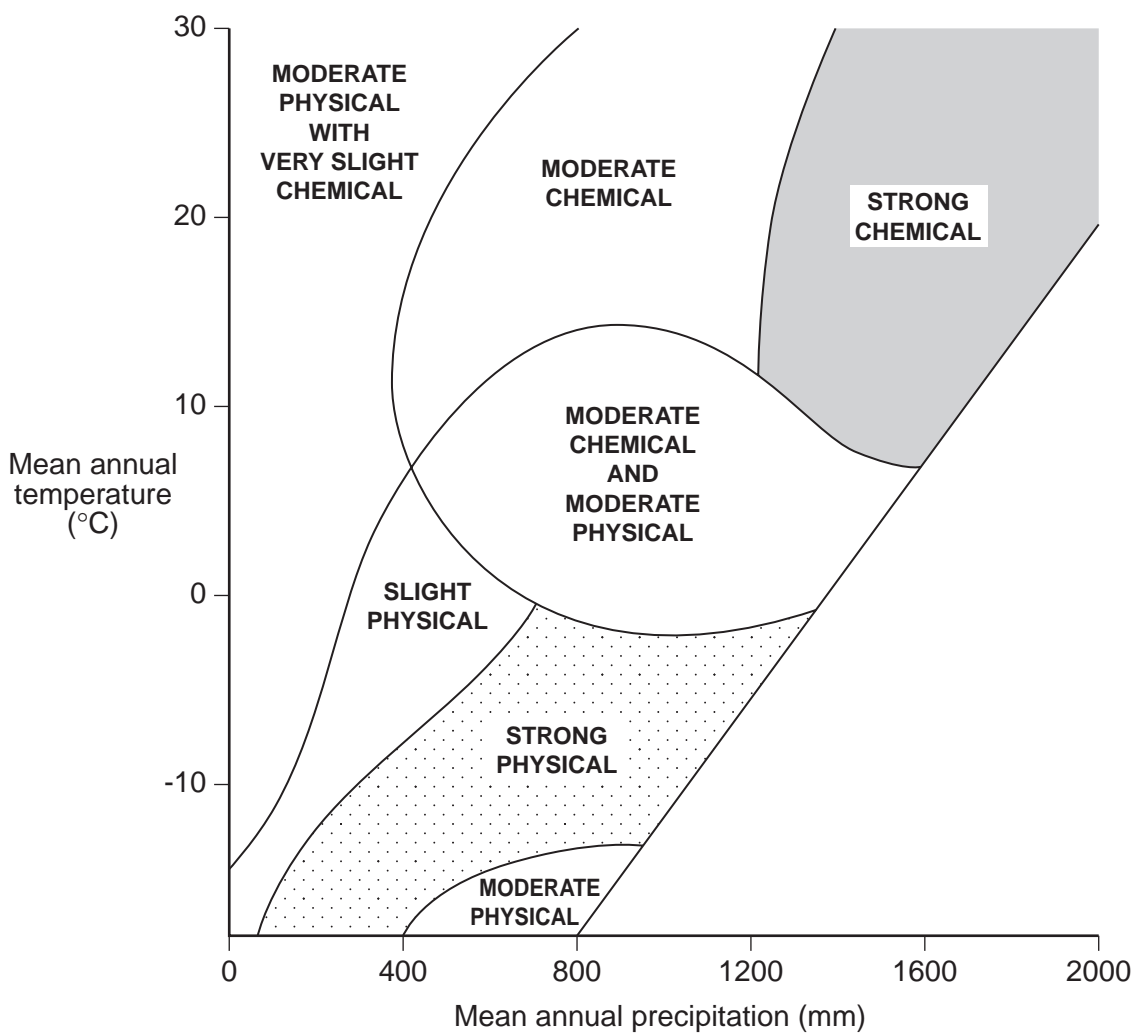

Fig. 7

    (i) Describe the conditions of temperature and rainfall where
        A strong chemical weathering takes place,
        B strong physical weathering takes place. [2]

    (ii) Describe **one** main weathering process and the results of this weathering in areas of strong physical weathering in the conditions shown on Fig. 7. [5]

    (iii) Explain how **one** named process of chemical weathering operates in areas of strong chemical weathering. [3]

(c) Describe **two** rock features which influence the rate of weathering. [2]

4 Fig. 8 shows the 'Ring of Fire' region around the Pacific Ocean.
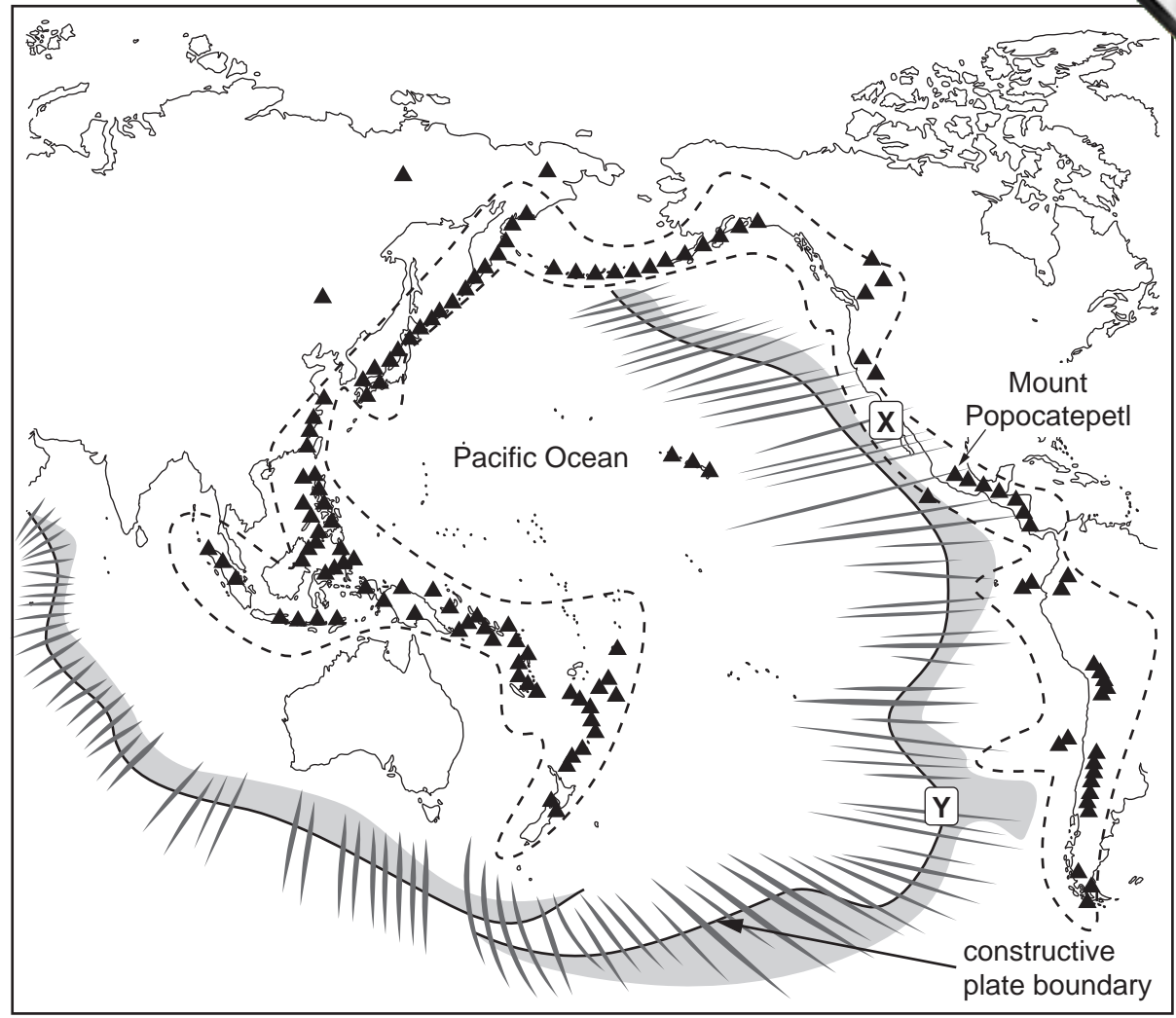
Key: ▲ Active volcanoes

▲▲ Ring of Fire

Fig. 8

(a) Give **four** reasons why volcanic eruptions are concentrated in certain areas of the world such as the 'Ring of Fire' region. [4]

(b) Mount Popocatepetl in Mexico, shown in Fig. 8, is a composite volcanic cone and when it erupted in 2000 it developed mudflows.

    (i) With the aid of a labelled diagram, describe **four** of the main features of a composite volcanic cone. [4]

    (ii) **A** Why do mudflows develop with some volcanic eruptions? [2]
         B Why may mudflows present problems for people living around such volcanoes? [2]

(c) Describe the processes and structural features associated with a mid-oceanic plate boundary such as the one labelled **Y** on Fig. 8. [4]

(d) (i) Earthquakes often occur in the same regions as volcanoes.
Short-term effects of earthquakes on people include loss of life and injuries,
damage to buildings and communications.
What may be done before an earthquake occurs to reduce these short-term effects?

(ii) Long-term effects may occur in the weeks or months after a large earthquake.
Explain why these long-term effects might be difficult to deal with. [5]

5 **(a)** Fig. 9 shows pie graphs which describe how employment in different types of industry changed in four countries of the developed world from 1980 to 2000.

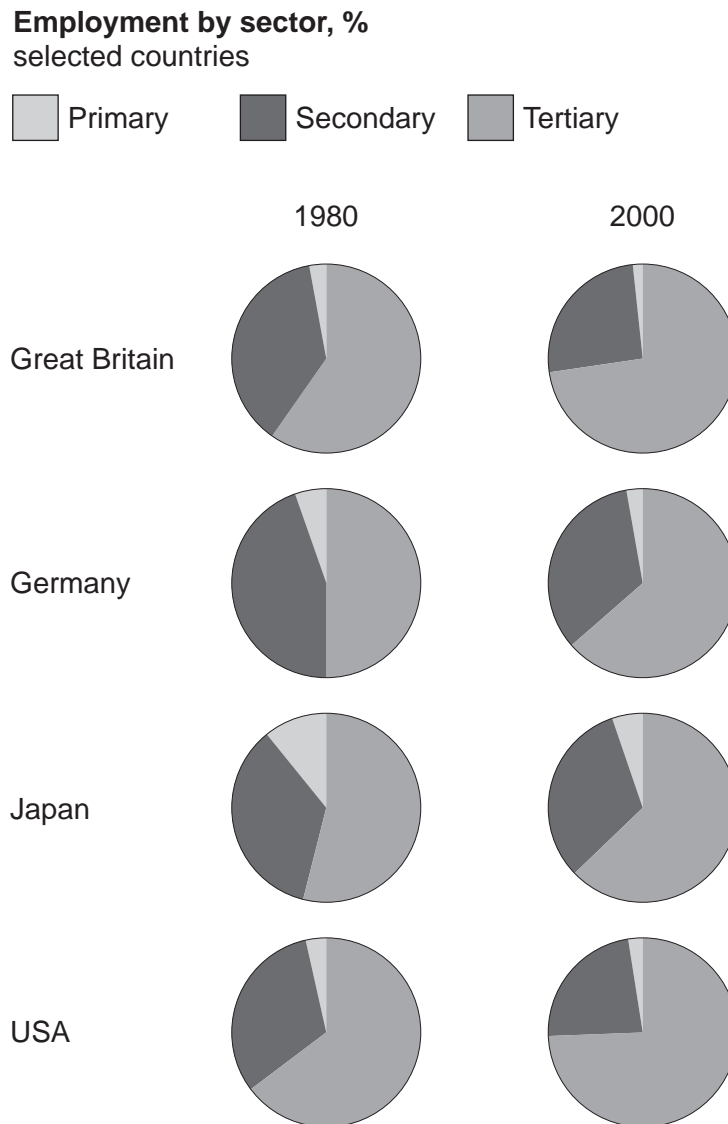**Employment by sector, %**
selected countries

Primary   Secondary   Tertiary

Fig. 9

(i) Why was the percentage employment in primary industries low in all four countries in 2000? [2]

(ii) Apart from the low percentage employed in primary industries, what other features are common to all of the pie graphs? [2]

(iii) What changes are shown by the diagrams for all four countries from 1980 to 2000? [3]

(iv) Suggest reasons for these changes. [4]

(v) How would you expect a pie graph showing employment sectors for a developing country to differ from the general structure shown by the pie graphs in Fig. 9? [3]

(vi) Explain the differences you have given in your answer to **(a) (v)**. [3]

(b) For **either** high-technology industries **or** small-scale cash crop farming, explain

- transport,

- labour,

- markets,

- *at least* **one** other factor

influenced its growth at a named location you have studied. [8]

6 In 2002 a report on the global environment was produced for the United Nations. The report contained details of problems for the environment which had occurred over the last 30 years and made forecasts for the next 30 years.

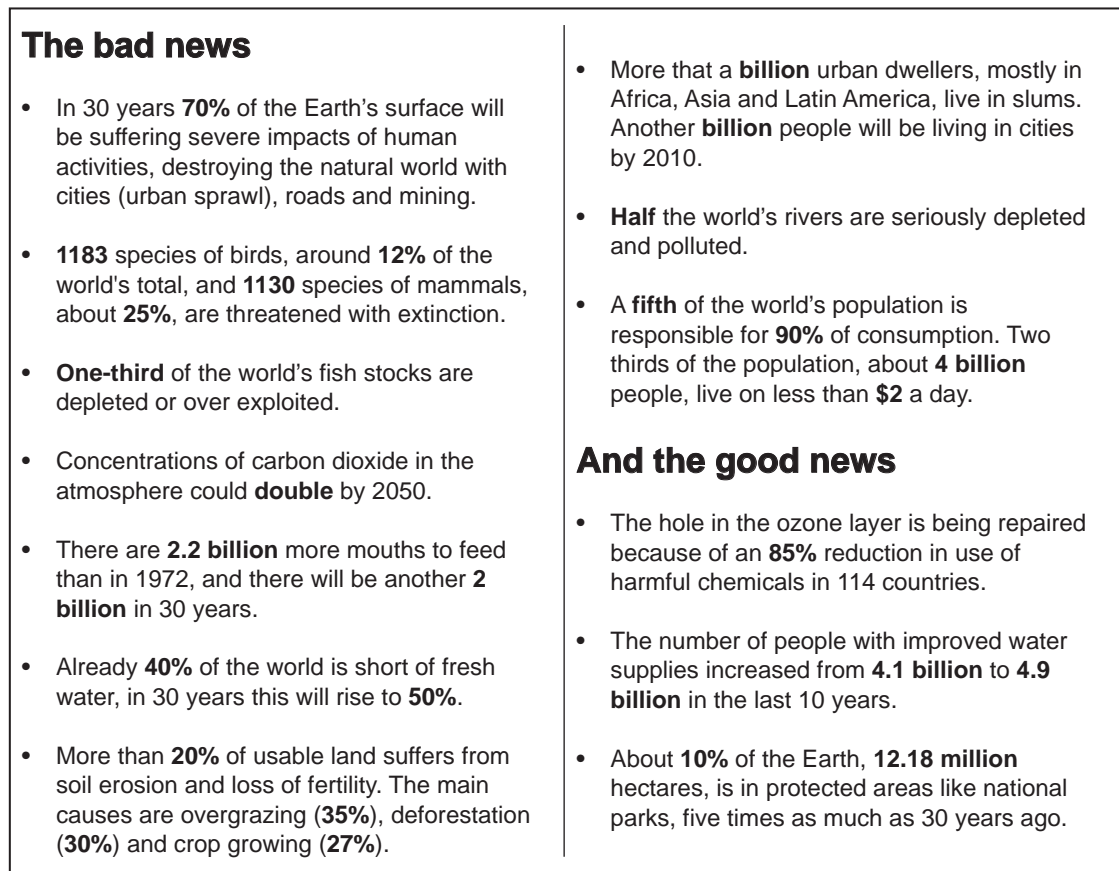Some of the information in the report is given in Fig. 10 below.

The bad news

- In 30 years **70%** of the Earth's surface will be suffering severe impacts of human activities, destroying the natural world with cities (urban sprawl), roads and mining.

- **1183** species of birds, around **12%** of the world's total, and **1130** species of mammals, about **25%**, are threatened with extinction.

- **One-third** of the world's fish stocks are depleted or over exploited.

- Concentrations of carbon dioxide in the atmosphere could **double** by 2050.

- There are **2.2 billion** more mouths to feed than in 1972, and there will be another **2 billion** in 30 years.

- Already **40%** of the world is short of fresh water, in 30 years this will rise to **50%**.

- More than **20%** of usable land suffers from soil erosion and loss of fertility. The main causes are overgrazing (**35%**), deforestation (**30%**) and crop growing (**27%**).

- More that a **billion** urban dwellers, mostly in Africa, Asia and Latin America, live in slums. Another **billion** people will be living in cities by 2010.

- **Half** the world's rivers are seriously depleted and polluted.

- A **fifth** of the world's population is responsible for **90%** of consumption. Two thirds of the population, about **4 billion** people, live on less than **$2** a day.

And the good news

- The hole in the ozone layer is being repaired because of an **85%** reduction in use of harmful chemicals in 114 countries.

- The number of people with improved water supplies increased from **4.1 billion** to **4.9 billion** in the last 10 years.

- About **10%** of the Earth, **12.18 million** hectares, is in protected areas like national parks, five times as much as 30 years ago.

Fig. 10

(a) (i) What is meant by each of the terms
- urban sprawl,
- overgrazing, and
- deforestation? [3]

(ii) What evidence is given in Fig. 10 that there will be problems in providing sufficient food in 30 years time? [2]

(iii) Why are many species of birds and mammals threatened with extinction? [2]

(b) With reference to Fig. 10 and studies you have made, explain the causes of **two** of the following problems:

- urban sprawl,
- high concentrations of carbon dioxide in the atmosphere,
- deforestation,
- shortages of drinking water,
- soil erosion. [4,4]

(c) Two encouraging features in the report concern the reduction in the thinning of the layer and the expansion of the parts of the natural world which are protected from development.

   (i) Why is it important to reduce the depletion of the ozone layer?
   How is this being achieved?   [2]

   (ii) Give your views, with reasons, on the importance and difficulties of extending protected areas in the world.   [8]