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*6714474304*

**ENVIRONMENTAL MANAGEMENT** **0680/12**

Paper 1 Theory **October/November 2023**

**1 hour 45 minutes**

You must answer on the question paper.

No additional materials are needed.

**INSTRUCTIONS**

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

**INFORMATION**

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

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## Section A

**1** **(a)** The table shows data for the extraction of mining products from eight countries in one year.

| country | mass of mining product extracted / million tonnes |
|---|---|
| Australia | 1196 |
| Brazil | 474 |
| China | 4084 |
| India | 1014 |
| Indonesia | 668 |
| Russia | 1659 |
| Saudi Arabia | 689 |
| USA | 2176 |

**(i)** State the country with the largest mass of mining product extracted.

..... [1]

**(ii)** Iron is one of the mining products extracted.

62% of the mining product extracted in Brazil was iron.

Calculate the mass of iron extracted from Brazil.
Give your answer to the nearest whole number.

..... million tonnes [1]

**(b)** Explain why a more economically developed country (MEDC) might decide **not** to extract iron from the Earth.

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..... [2]

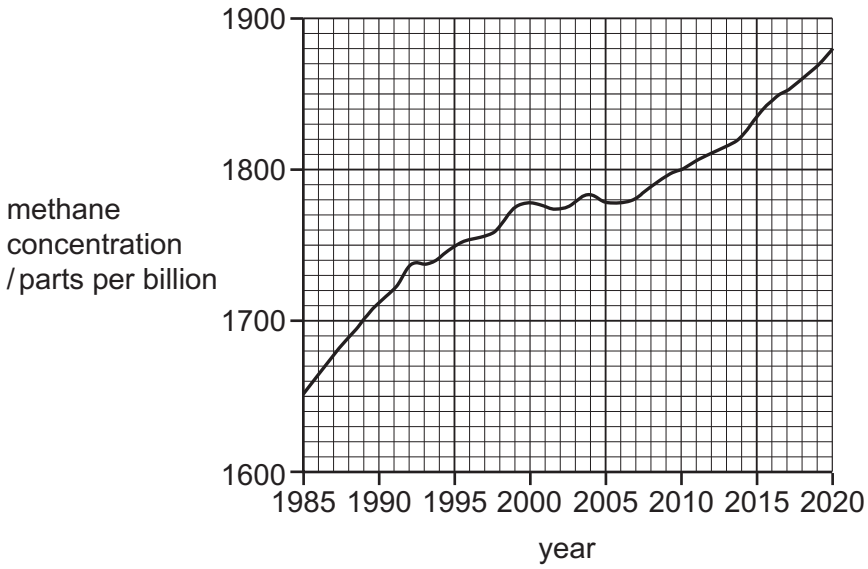
**(c)** State **one** strategy for restoring landscapes damaged by rock and mineral extraction.

..... [1]

[Total: 5]

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**2** The graph shows methane concentration in the atmosphere from 1985 to 2020.




**(a)** Calculate the increase in methane concentration between 2010 and 2020.

..... parts per billion [1]

**(b)** Circle the 5-year period that had the greatest increase in methane concentration.

**1985–1990** **1995–2000** **2005–2010** **2015–2020**

[1]

**(c)** Suggest reasons why methane concentration in the atmosphere increased between 1985 and 2020.

.....

.....

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..... [3]

[Total: 5]

**3** The photograph shows part of a forest.



**(a)** Describe the activity that has happened in this part of the forest.

..... [1]

**(b)** Explain why there is a risk of soil erosion in this part of the forest.

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..... [2]

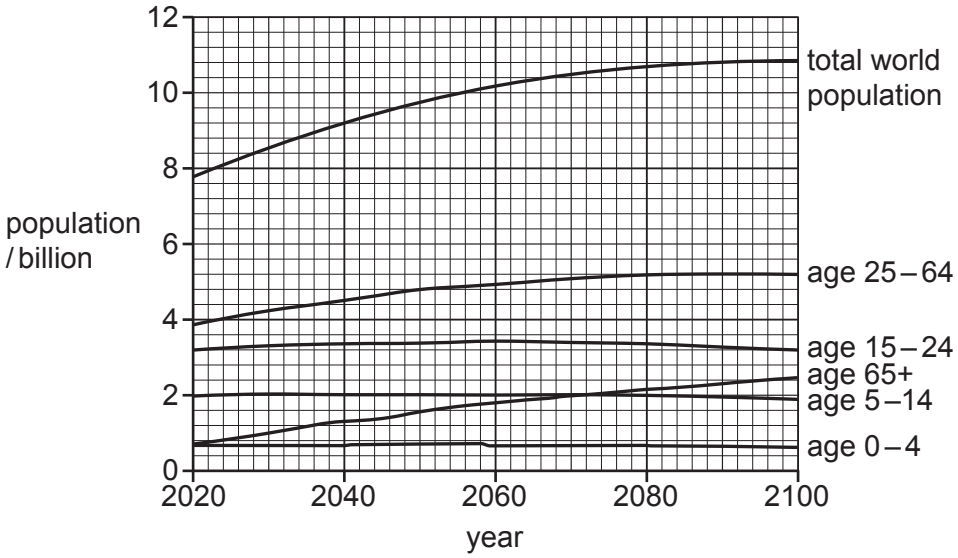
**(c)** State **two** reasons, other than soil erosion, why forests need to be conserved.

1 .....

2 .....
[2]

[Total: 5]

**4** The graph shows predicted world population from 2020 to 2100.




**(a)** State the year in which the total world population is predicted to reach 10 billion.

..... [1]

**(b)** Suggest why the 65+ age group is predicted to increase between 2020 and 2100.

.....

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..... [2]

**(c)** State **two** strategies a country can use to limit the size of the national population.

1 .....

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2 .....

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[2]

[Total: 5]

## Section B

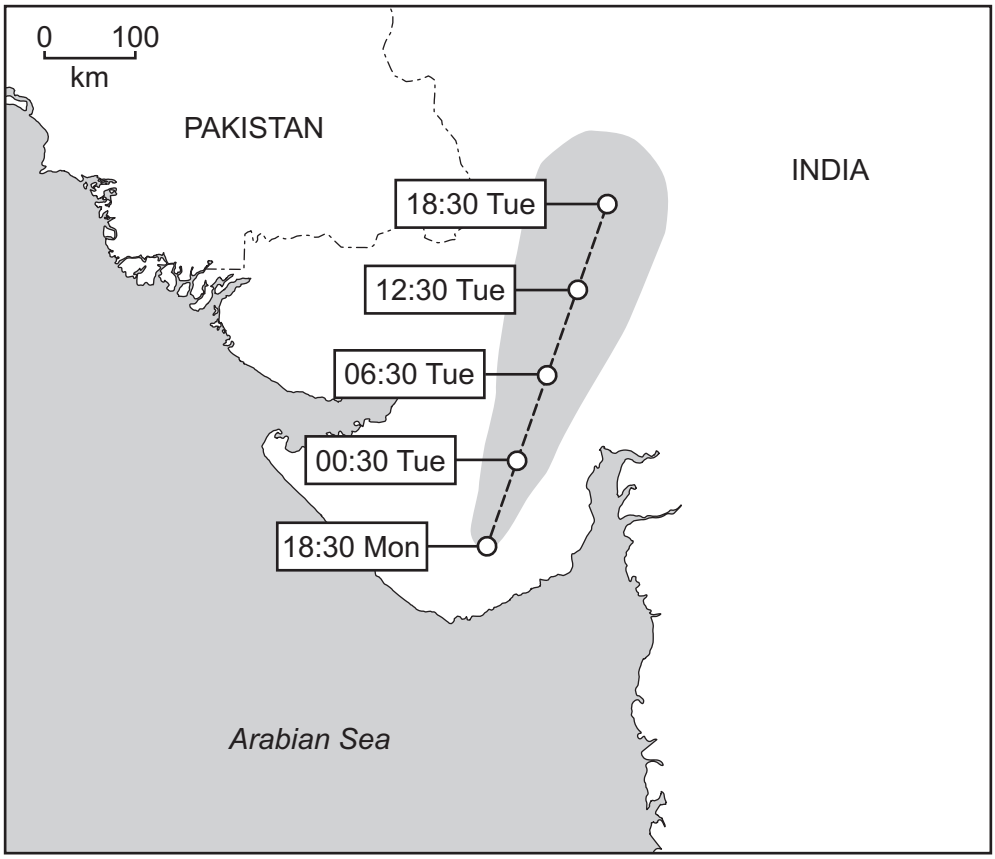
**5** A newspaper report on Cyclone Tauktae is shown.

### Cyclone Tauktae hits the west coast of India

On Monday 18 May 2021, Cyclone Tauktae hit the west coast of India.

The cyclone caused widespread damage and the loss of 100 lives.

The cyclone moved inland over the next 24 hours, as shown in the map.




**(a) (i)** Estimate the distance the cyclone moved between 18:30 on Monday and 06:30 on Tuesday.

..... km [2]

**(ii)** Describe the impact caused by Cyclone Tauktae over the period shown on the map.

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..... [3]

**(b)** Describe the strategies that can be used to manage the impact of tropical cyclones.

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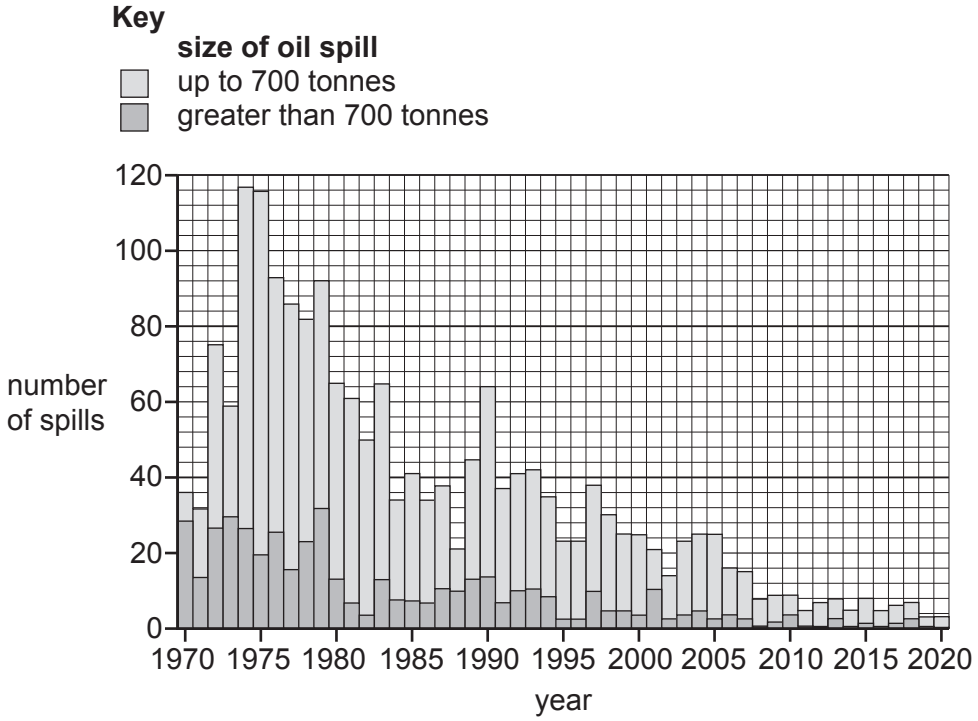
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..... [4]

[Total: 9]

**6** The bar chart shows the number of oil spills at sea between 1970 and 2020.




**(a) (i)** State the year with the highest number of oil spills greater than 700 tonnes.

..... [1]

**(ii)** Describe the trends shown by the bar chart.

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..... [3]

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**(b) (i)** Describe the impact of oil pollution on coastal ecosystems.

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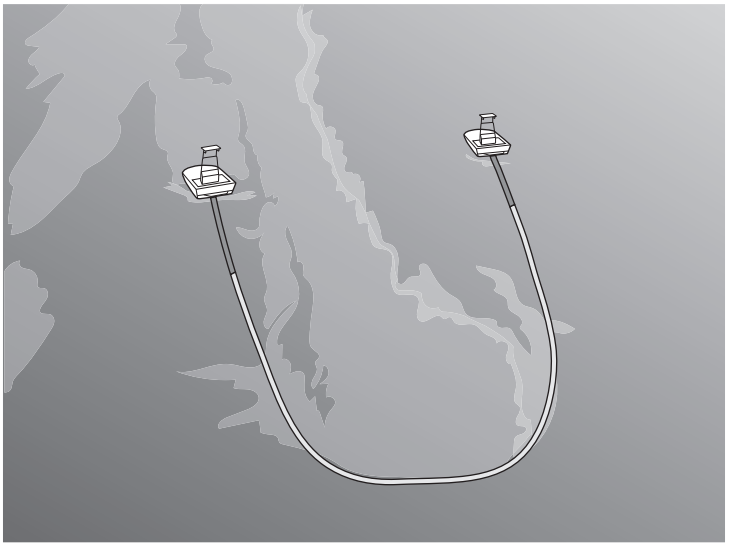
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..... [3]

**(ii)** The diagram shows a boom being used to reduce the impact of an oil spill.



Discuss the effectiveness of using a boom as a strategy for reducing the impact of oil spills at sea.

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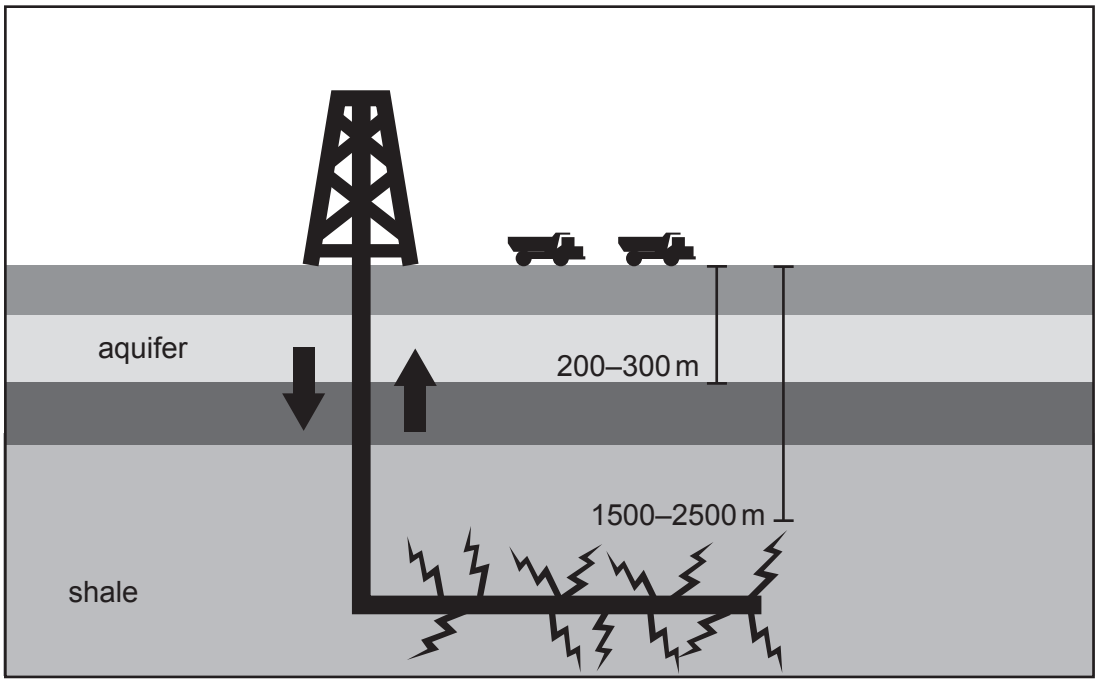
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..... [4]

**(c)** The diagram shows the process of fracking.




**(i)** Describe the process of fracking as a means of extracting oil.

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..... [3]

**(ii)** Suggest why some people are concerned about fracking.

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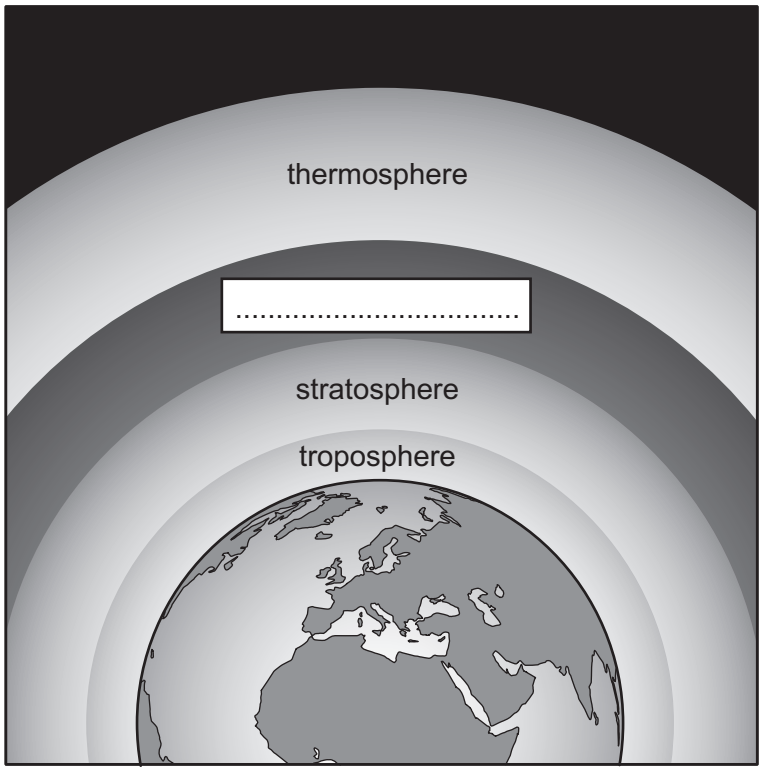
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..... [3]

[Total: 17]

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**7** The diagram shows the structure of the Earth's atmosphere.




**(a)** Complete the diagram with the name of the layer. [1]

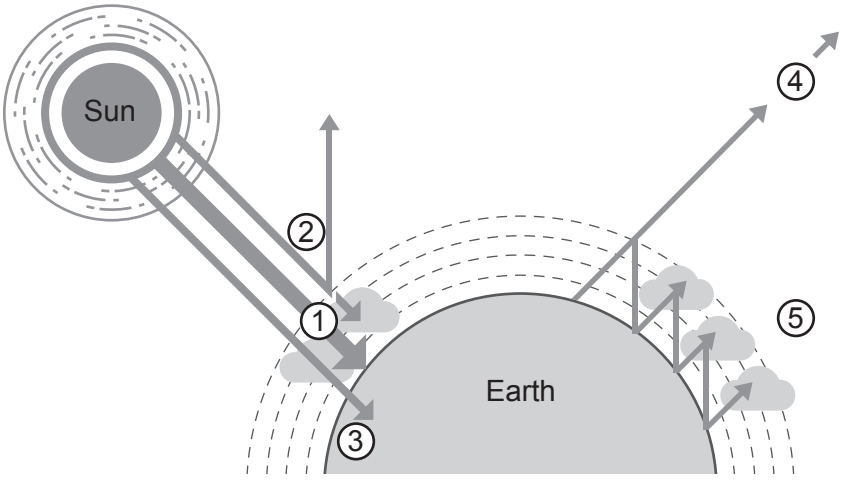
**(b)** The table shows some gases found in the troposphere.

Complete the table.

| gas | percentage in troposphere |
|---|---|
| ..... | 78.09 |
| oxygen | 20.95 |
| carbon dioxide | ..... |
| other gases | 0.92 |

[2]

**(c)** The diagram shows the processes in the natural greenhouse effect.




Match the following statements to the numbered processes shown in the diagram.

| statement | numbered process in diagram |
|---|---|
| Greenhouse gases absorb some of the infrared radiation. | ..... |
| Some ultraviolet radiation is absorbed by the Earth's surface. | ..... |
| Some ultraviolet radiation is reflected and absorbed by the Earth's atmosphere. | ..... |
| The Earth re-emits infrared radiation back towards space. | ..... |
| Ultraviolet radiation travels through the Earth's atmosphere. | ..... |

[3]

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**(d)** A government introduces a national policy to limit vehicle emissions.

Suggest reasons why this policy is **not** enough to reduce the enhanced greenhouse effect.

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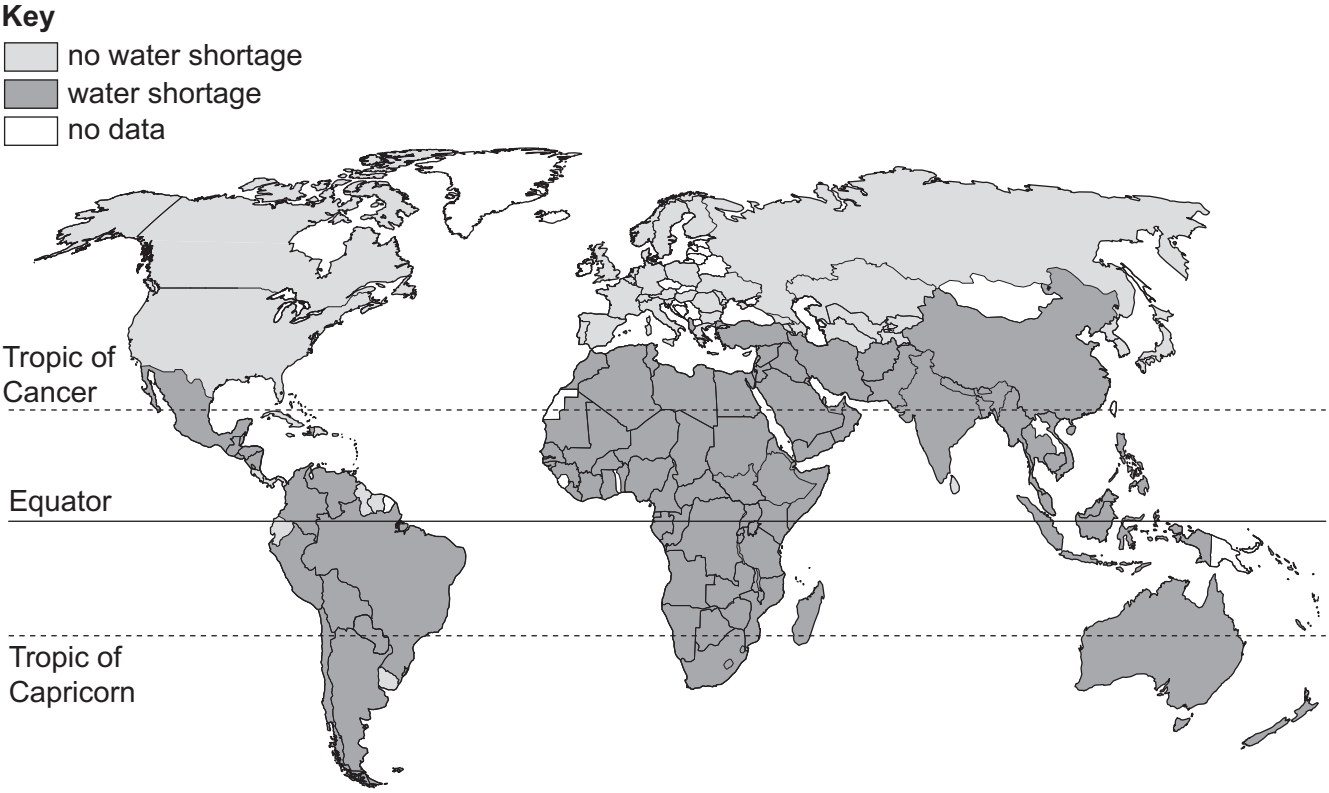
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..... [5]

[Total: 11]

**8** The map shows predicted water shortage for 2025.




**(a)** Describe the distribution of water shortage predicted for 2025.

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..... [3]

**(b) (i)** Describe how water can be extracted from aquifers and made safe for drinking.

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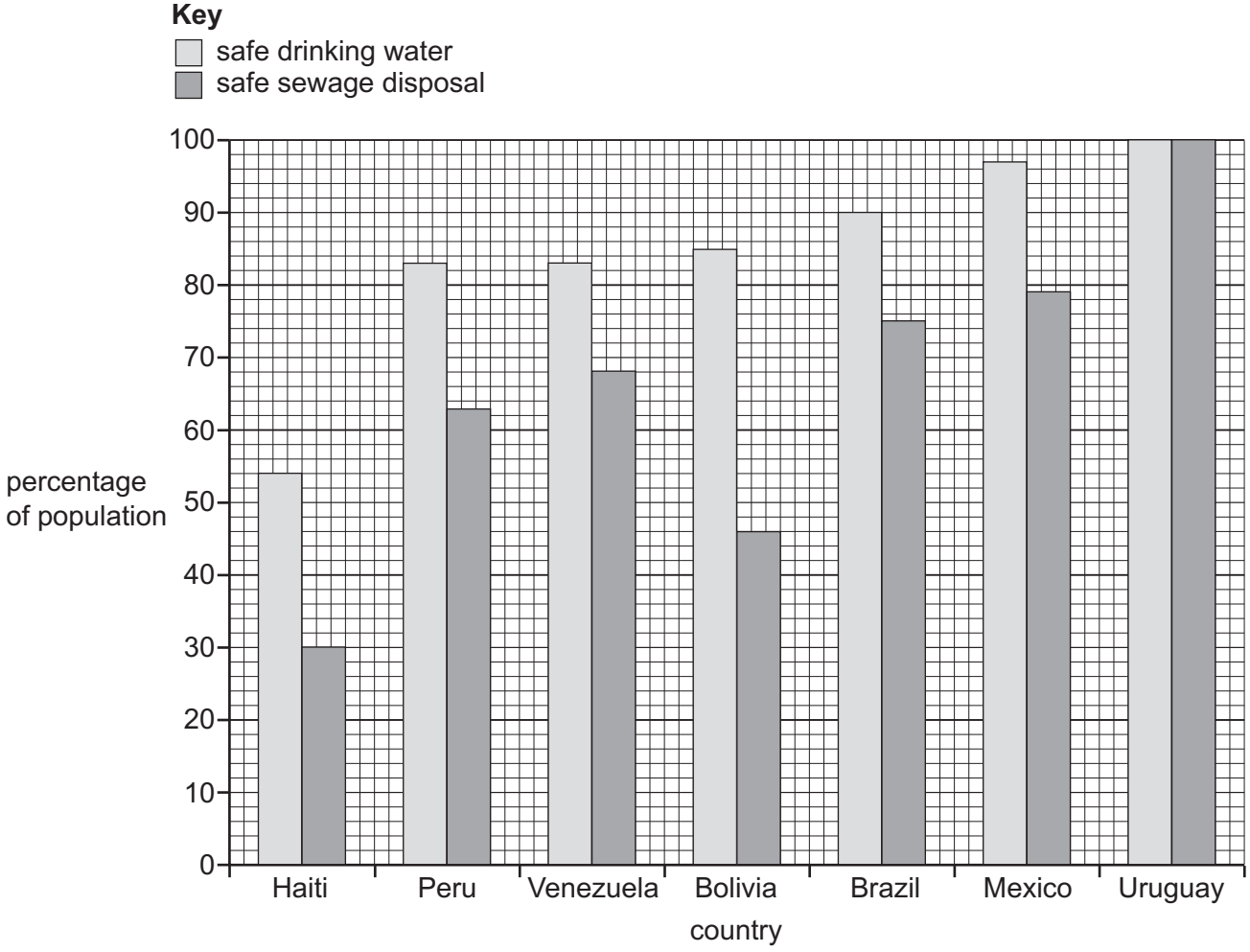
..... [3]

**(ii)** State the names of **two** other sources of fresh water.

1 .....

2 .....
[2]

**(c)** The graph shows the availability of safe drinking water and safe sewage disposal for several countries.




**(i)** State the name of the country with:

- the lowest percentage of safe drinking water

  .....

- the largest difference in percentage between safe drinking water and safe sewage disposal.

  .....

[2]

**(ii)** Suggest why the people living in Uruguay are at very low risk from cholera.

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..... [3]

**(d)** Describe how overuse of fertilisers can impact lakes and rivers.

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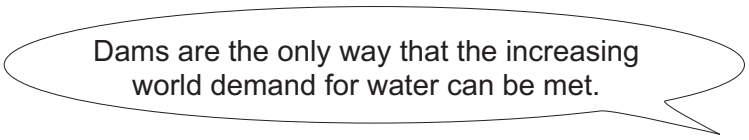
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..... [4]

**(e)** A student says:




To what extent do you agree with this statement? Give reasons for your answer.

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..... [6]

[Total: 23]

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