

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

ENVIRONMENTAL MANAGEMENT

8291/02

Paper 2 Hydrosphere and Biosphere

May/June 2005

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

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, table or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Section A

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Section B

Answer **one** question from this section.

Answer the question on the separate answer paper provided.

At the end of the examination,

1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid opposite.

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.

For Examiner's Use	
Section A	
1	
2	
Section B	
TOTAL	

This document consists of **11** printed pages and **1** blank page.



Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1** Fig. 1.1 shows the transfers and stores within the global hydrological cycle.

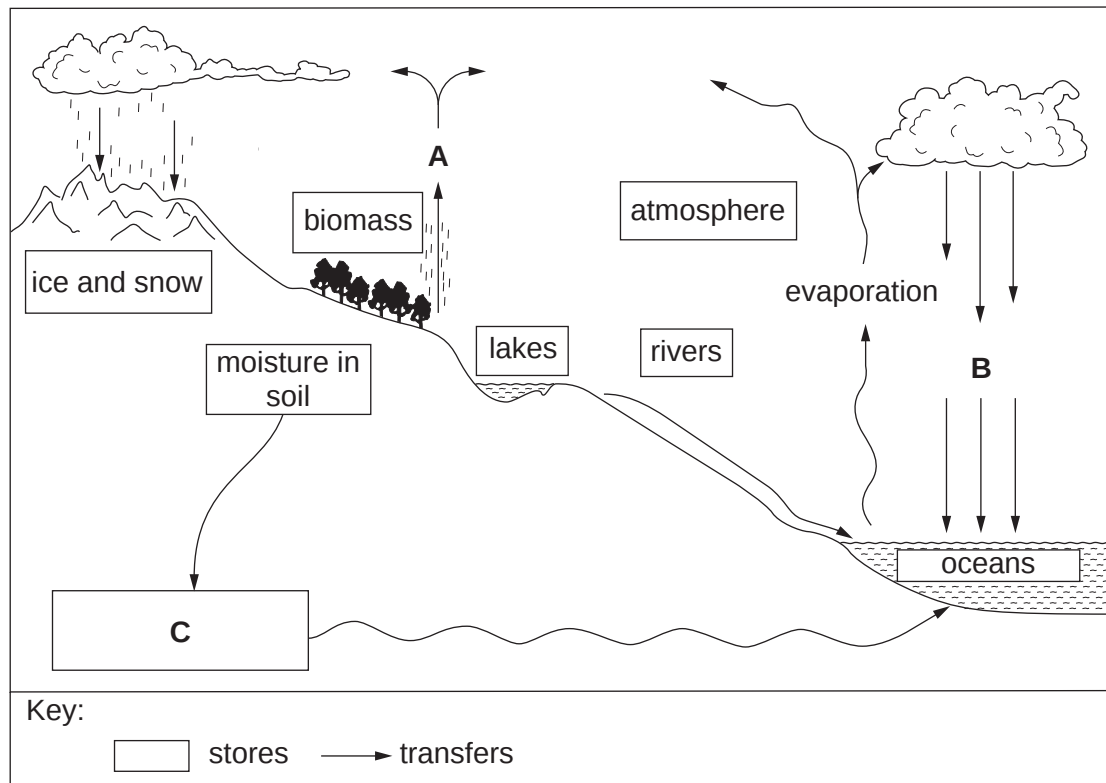


Fig. 1.1

- (a) (i)** Identify components **A**, **B** and **C** in Fig. 1.1.

A

B

C

[3]

- (ii) Describe how water is lost from the land.

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.....[3]

- (iii) Explain the processes by which water is returned to the land.

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.....[3]

- (iv) Name and describe **one** atmospheric process that would cause **either** a long term increase **or** a long term decrease in the volume of water stored in the oceans.

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.....[3]

(b) Fig. 1.2 shows a geological structure in which water is stored naturally.

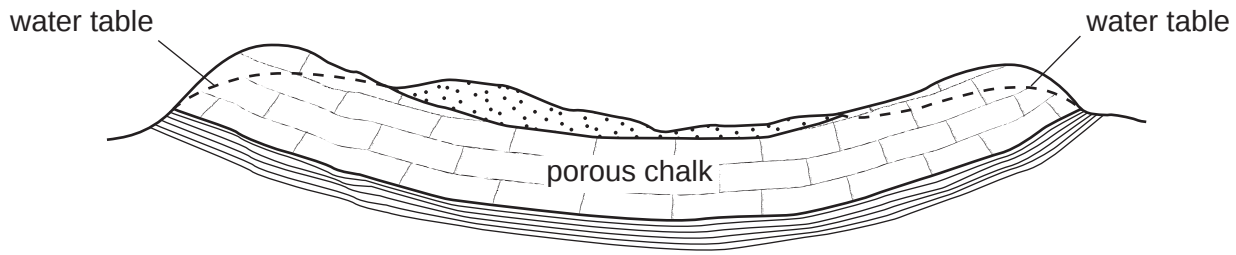


Fig. 1.2

(i) Name the geological structure shown in Fig. 1.2.

.....[1]

(ii) Explain why urban and rural areas would find such structures a useful source of water.

.....

[4]

(iii) Describe how the water contained in structures such as Fig. 1.2 can become polluted.

.....

[3]

[20 marks]

- 2 (a) Fig. 2.1 shows part of a food web for an English woodland ecosystem.

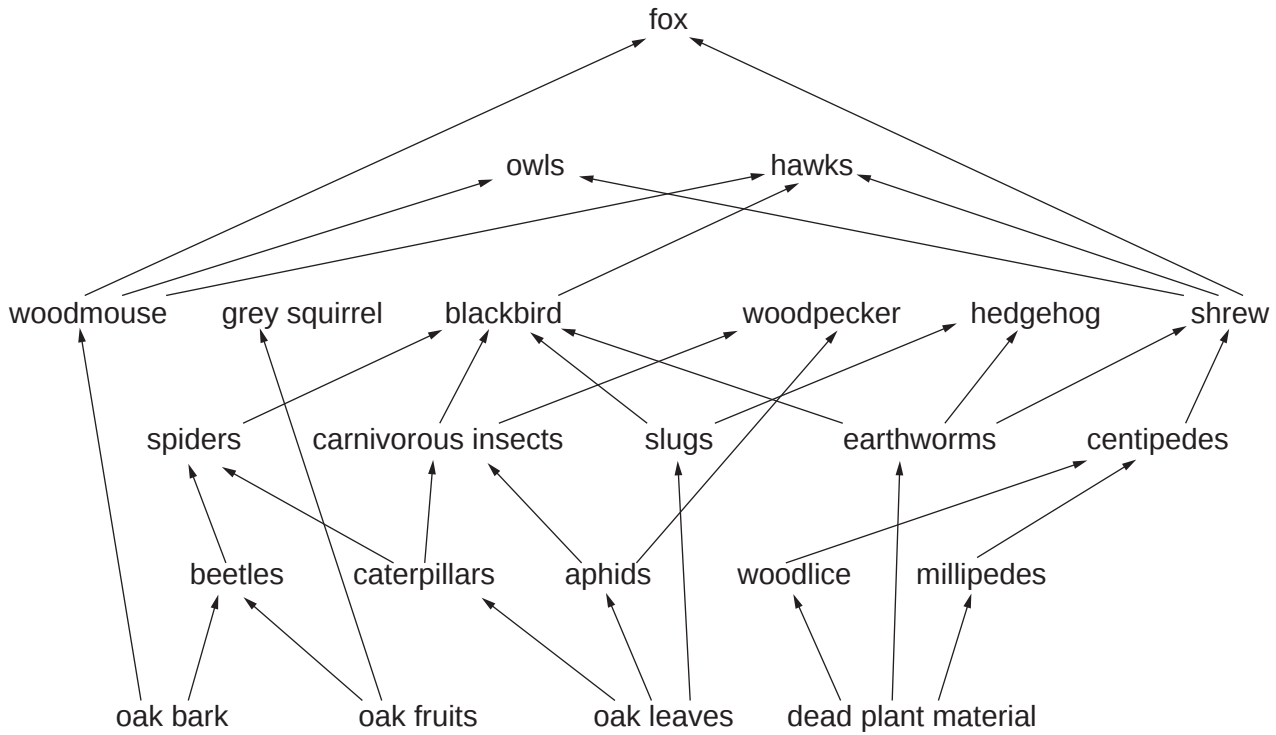


Fig. 2.1

- (i) Explain the term *foodweb*.

.....

[2]

- (ii) Give **one** example, from Fig. 2.1, of

- a primary producer,
 - a primary consumer,
 - a detritivore.
- [3]

- (iii) How would the ecosystem be affected by a reduction in the population of foxes?

.....

[2]

- (iv) Fig. 2.2 shows a pyramid of biomass for the woodland ecosystem.

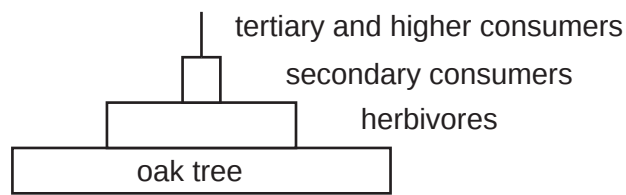


Fig. 2.2

Why does the biomass decrease at each trophic level?

.....

.....

.....

.....[2]

- (b) Fig. 2.3 shows the effects of the farming system of bush fallowing upon an area of rain forest.

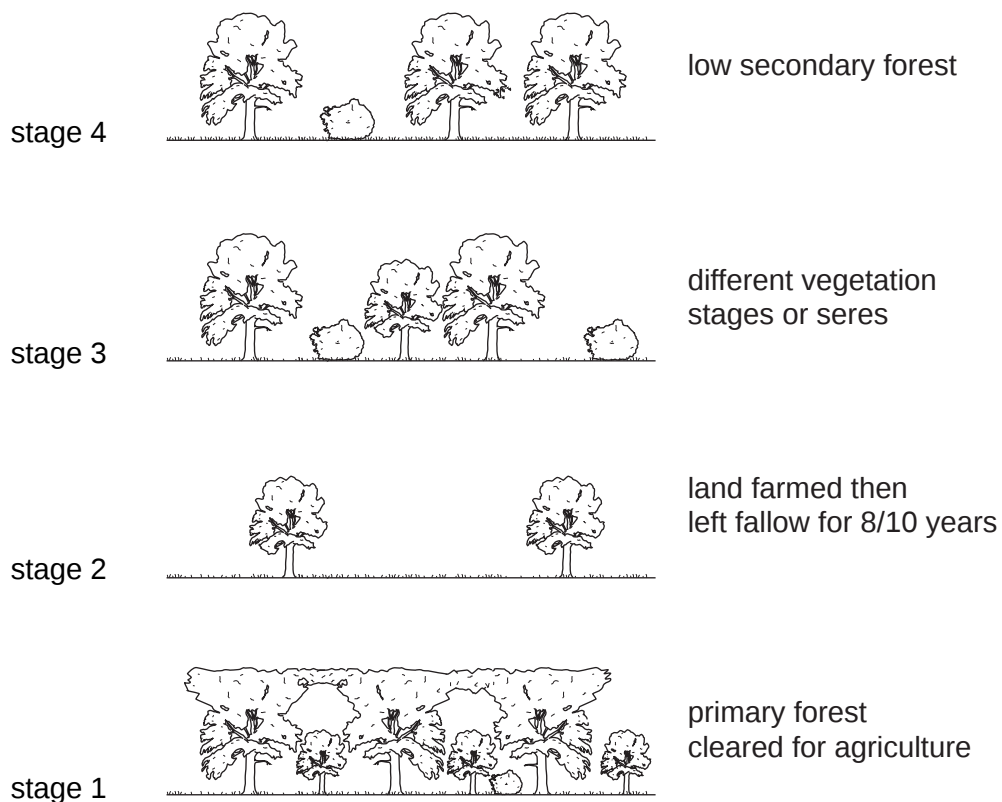


Fig. 2.3

- (i) Describe **one** way in which the ecosystem would be affected by the clearance of the primary forest.

.....

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.....[2]

- (ii) Explain the changes that would be taking place to the soil and vegetation cover between stages 2 and 4 in Fig. 2.3.

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.....[4]

- (iii) Outline **two** ecological differences between the secondary forest in stage 4 and the primary forest in stage 1.

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.....

.....[2]

- (iv) What would be the impact of an increase in the human population in an area similar to that depicted in Fig. 2.3?

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.....

.....[3]

[20 marks]

Section B

Answer **one** question from this section.

Answers must be in continuous prose.

Write your answers on the separate answer paper provided.

- 3 (a)** The Aral Sea is located in the lowlands of Turan, occupying land in the Republics of Kazakhstan and Uzbekistan. From ancient times it was known as an oasis. Traders, hunters, fishers, and merchants populated this fertile site littered with lagoons and shallow straits that characterized the Aral landscape.

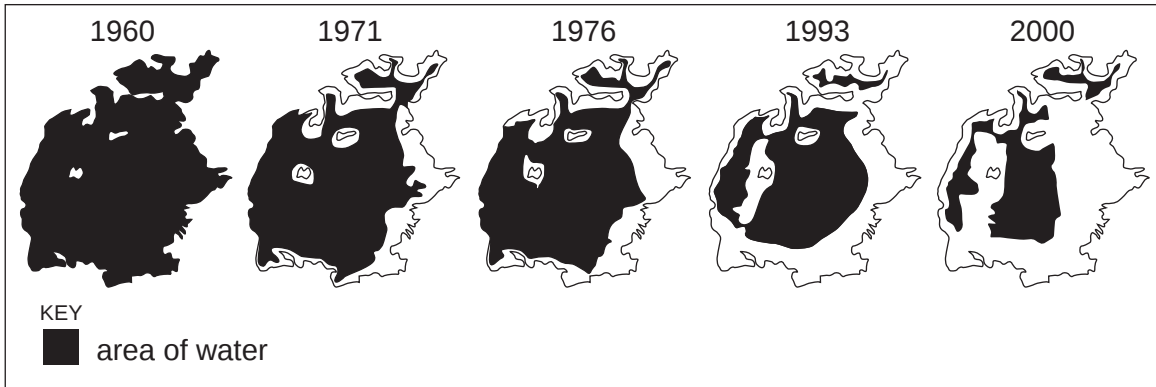
Use Fig. 3.1 (opposite) to suggest reasons for the changes which have taken place to the surface area of the Aral Sea. [10]

- (b)** For **one** named environment with which you are familiar, describe and explain the methods that have been used to conserve and restore its ecosystems.

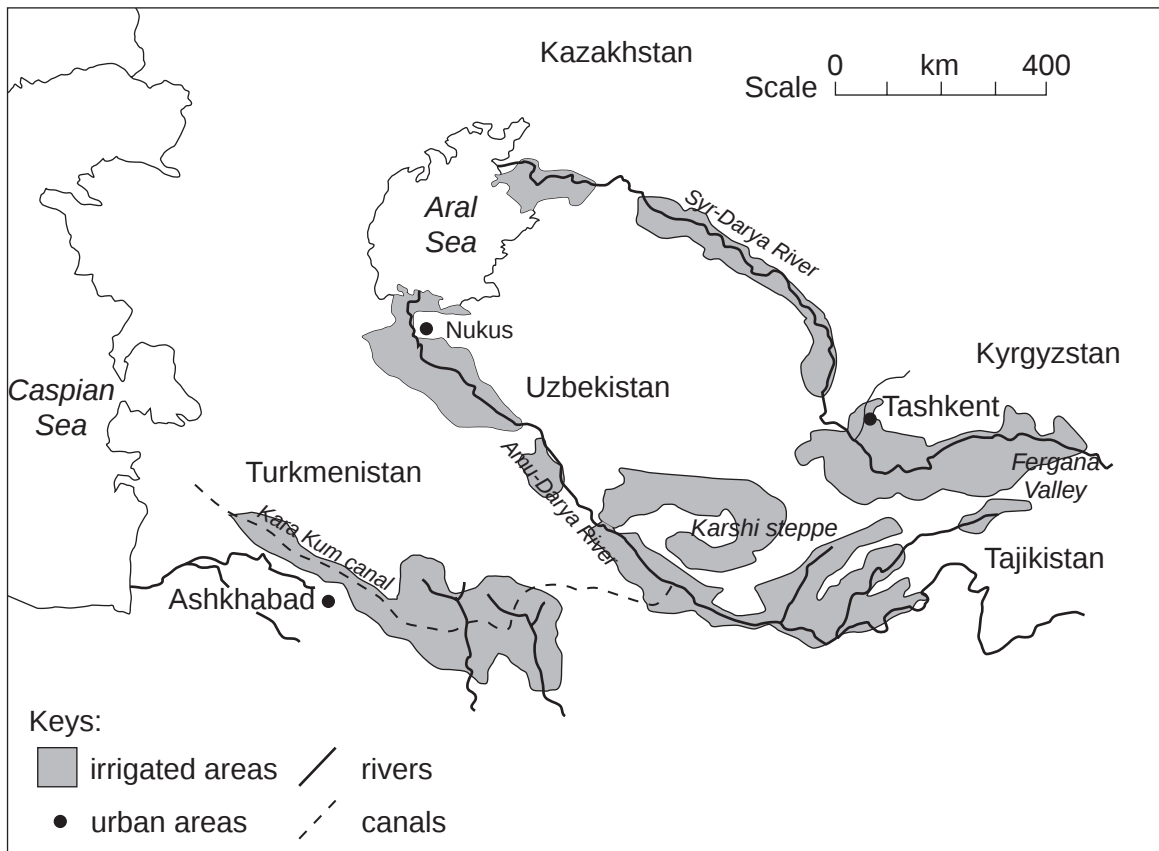
To what extent have these methods been successful? [30]

[40 marks]

A Changes to the surface area of the Aral Sea



B Irrigated areas in Central Asia



C Climatic chart for Nukus

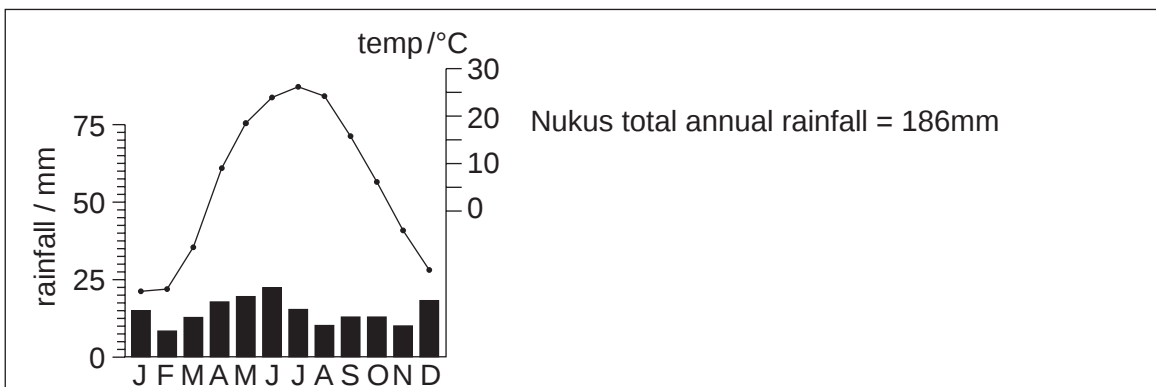


Fig. 3.1

- 4 (a) Suggest how human activity can introduce changes to the supply and quality of water within the drainage basin shown in Fig. 4.1. [10]

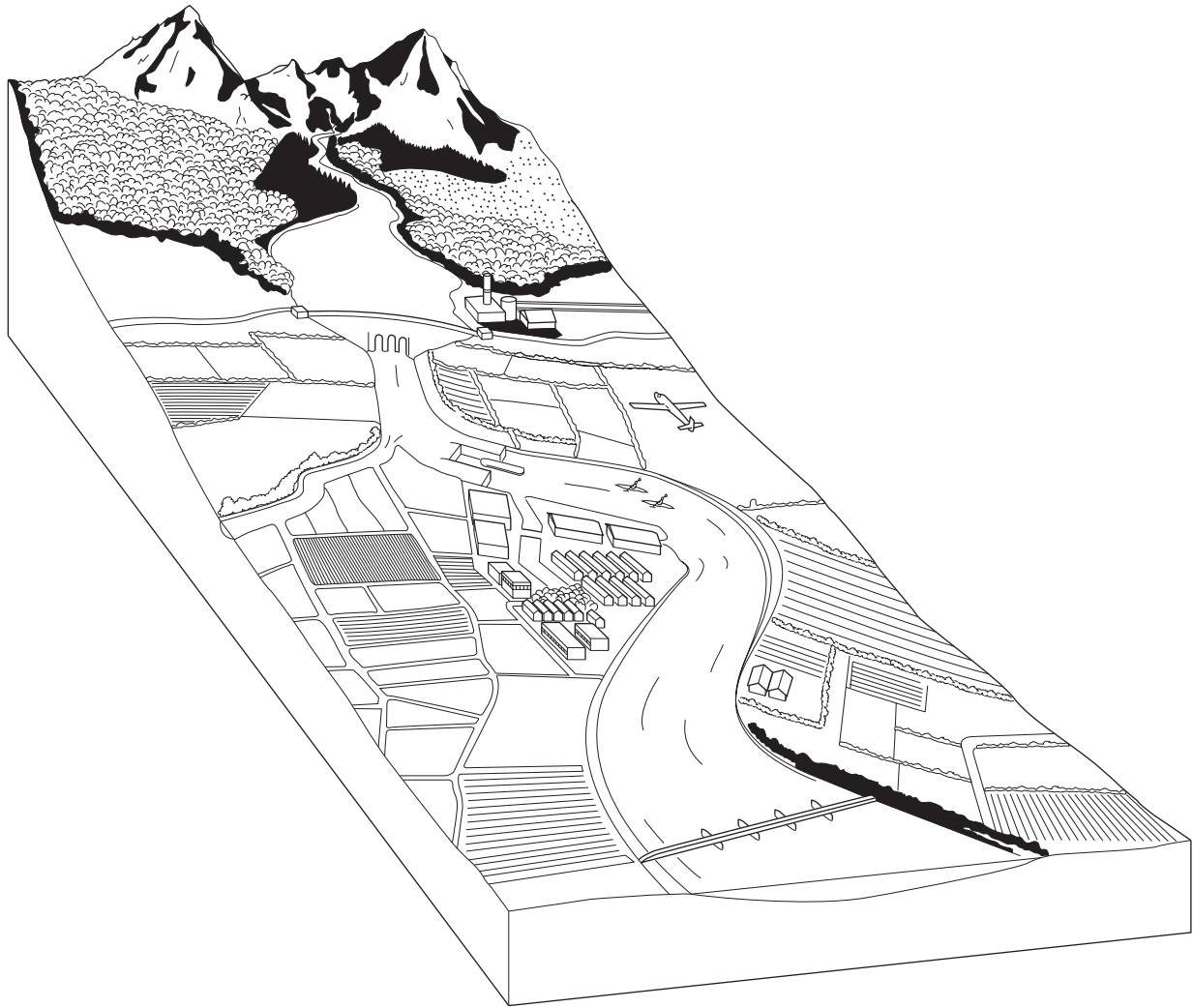


Fig. 4.1

- (b) With reference to one or more rivers you have studied, describe and evaluate the strategies that have been adopted for long and short term management of pollution and flooding. [30]

[40 marks]

- 5 (a) In 1972 the Club of Rome published its landmark report, *Limits to Growth*. This dramatically predicted the inevitable collapse of civilization unless economic growth was halted immediately. Some predictions made in the report are summarized in Fig. 5.1.

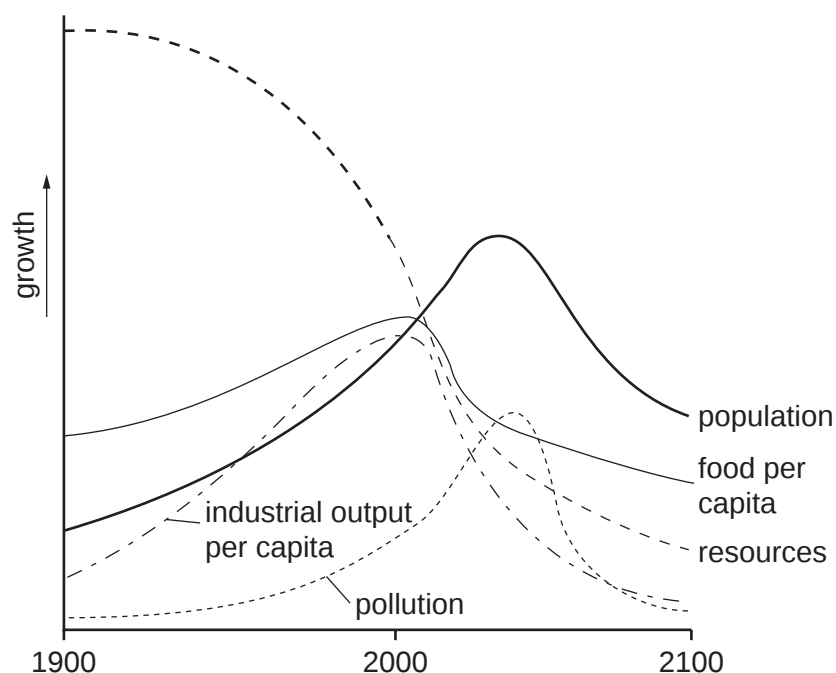


Fig. 5.1

Outline **one** reason why you would agree with the predictions made in Fig. 5.1 and **one** reason why you would disagree with them.

Give an example in each case.

[10]

- (b) Using examples with which you are familiar, describe and evaluate the strategies that have been adopted to achieve a more sustainable use of agricultural land whilst increasing food production.

[30]

[40 marks]

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