

CANDIDATE  
NAME

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--



**ENVIRONMENTAL MANAGEMENT**

**8291/22**

Paper 2 Hydrosphere and Biosphere

**October/November 2017**

**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 an HB pencil for any diagrams or graphs.  
Do not use staples, paper clips, glue or correction fluid.  
**DO NOT WRITE IN ANY BARCODES.**

Electronic calculators may be used.  
You may lose marks if you do not show your working or if you do not use appropriate units.

**Section A**

Answer **all** questions in this section.  
Write your answers in the spaces provided on the question paper.

**Section B**

Answer **one** question from this section.  
Write your answers 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.

	For Examiner's Use
<b>Section A</b>	/
1	
2	
<b>Section B</b>	/
<b>Total</b>	

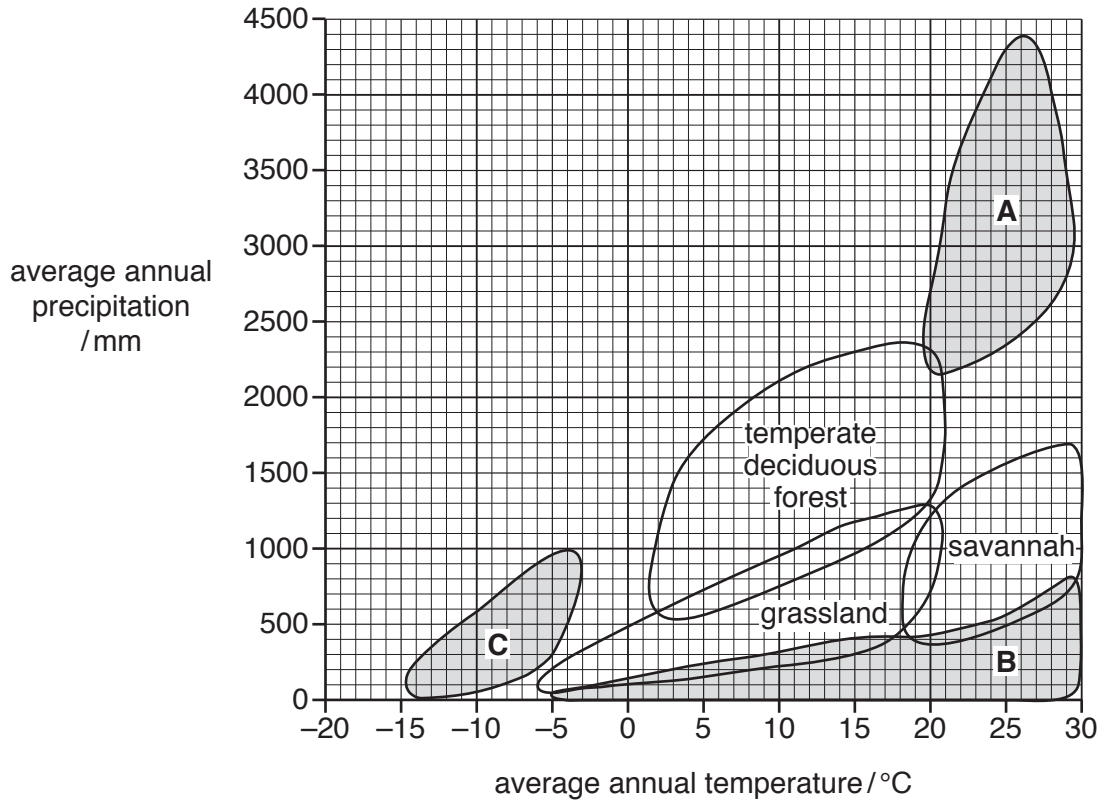
This document consists of **14** printed pages and **2** blank pages.

**Section A**

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 (a) Fig. 1.1 shows the relationship between precipitation and temperature for some major biomes.



**Fig. 1.1**

- (i) State what is meant by the term *biome*.

.....  
 .....[1]

- (ii) Use Fig. 1.1 to name the biomes labelled **A**, **B** and **C**.

**A** .....

**B** .....

**C** .....

[2]

(iii) Use Fig. 1.1 to state the range of temperature and precipitation within the temperate deciduous forest biome.

range of temperature .....

range of precipitation .....

[2]

(iv) State **one** factor, other than temperature and precipitation, which determines the distribution of the major biomes.

.....

.....[1]

(v) Suggest why the boundaries between some of the biomes shown in Fig. 1.1 overlap.

.....

.....

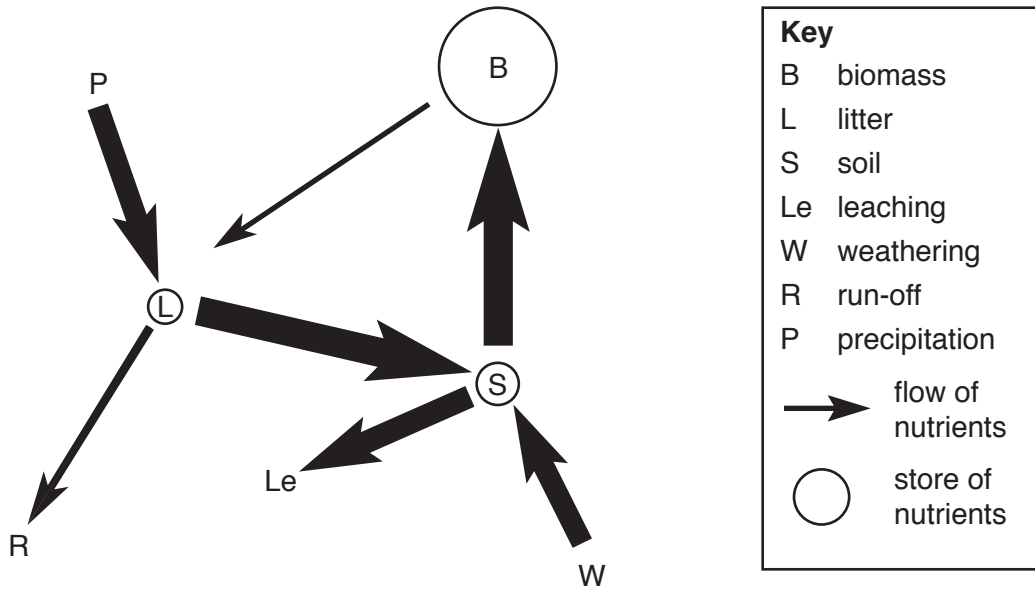
.....

.....[2]



(b) Fig. 1.2 shows the stores and the flows of nutrients within a tropical rainforest ecosystem.

In this diagram the sizes of the circles and the width of the arrows are proportional to the quantity of nutrients.



**Fig. 1.2**

(i) With reference to Fig. 1.2, describe how the nutrient balance of a tropical rainforest ecosystem is maintained.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[4]

(ii) Fig. 1.3 shows three different ways human activity impacts on tropical rainforest ecosystems.



photograph X



photograph Y



photograph Z

**Fig. 1.3**

Describe the impacts of human activity on tropical rainforest ecosystems. Refer to Fig. 1.2 and Fig. 1.3 in your answer.

.....

.....

.....

.....

.....

.....

.....

.....

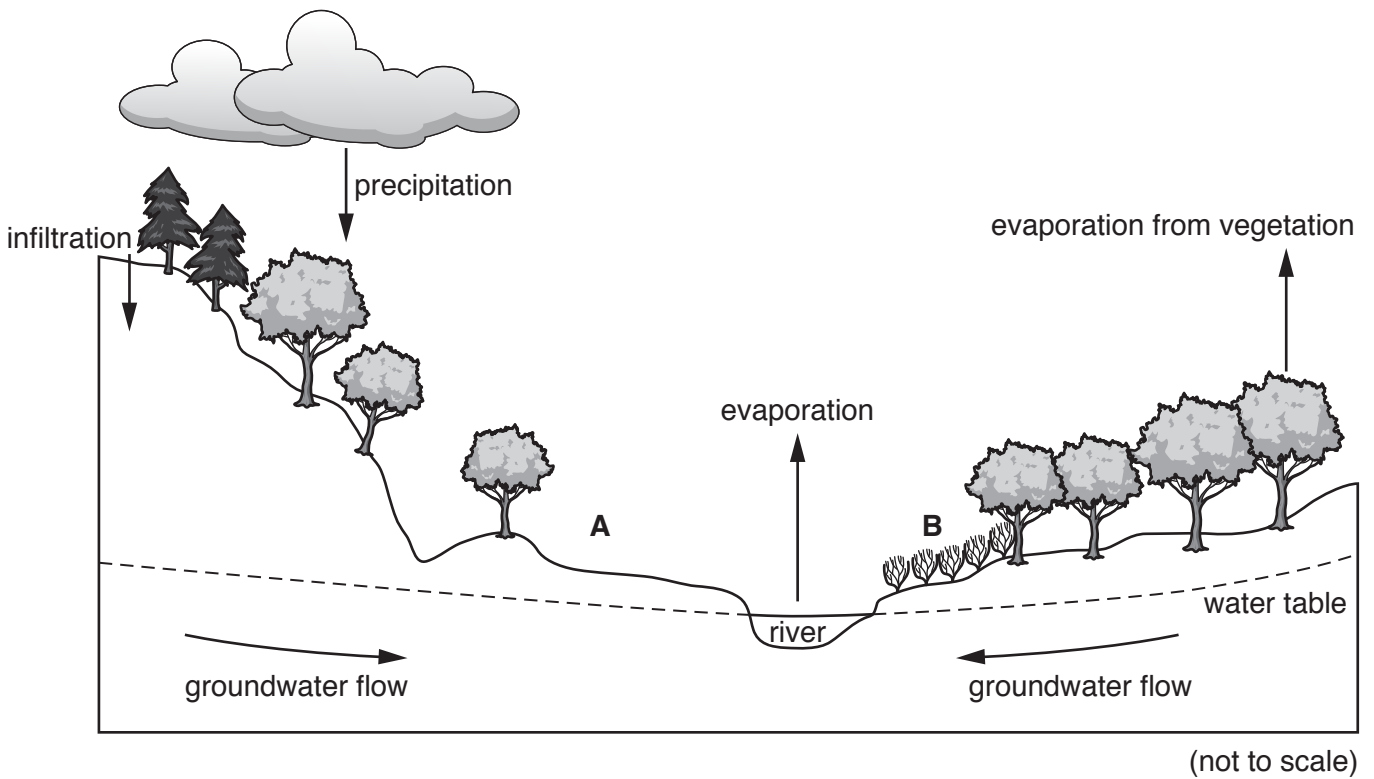
.....

.....

.....[8]

[Total: 20]

2 (a) Fig. 2.1 shows a diagram of a local water cycle.



Key	
A	proposed urban development
B	agricultural activity

Fig. 2.1

(i) With reference to Fig. 2.1, state **one** input and **one** output of the local water cycle.

input .....

output .....

[1]

(ii) Use Fig. 2.1 to explain why the level of the water table may rise and fall.

.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....[3]





(b) Fig. 2.2 shows effects of a single event of organic pollution on a river.

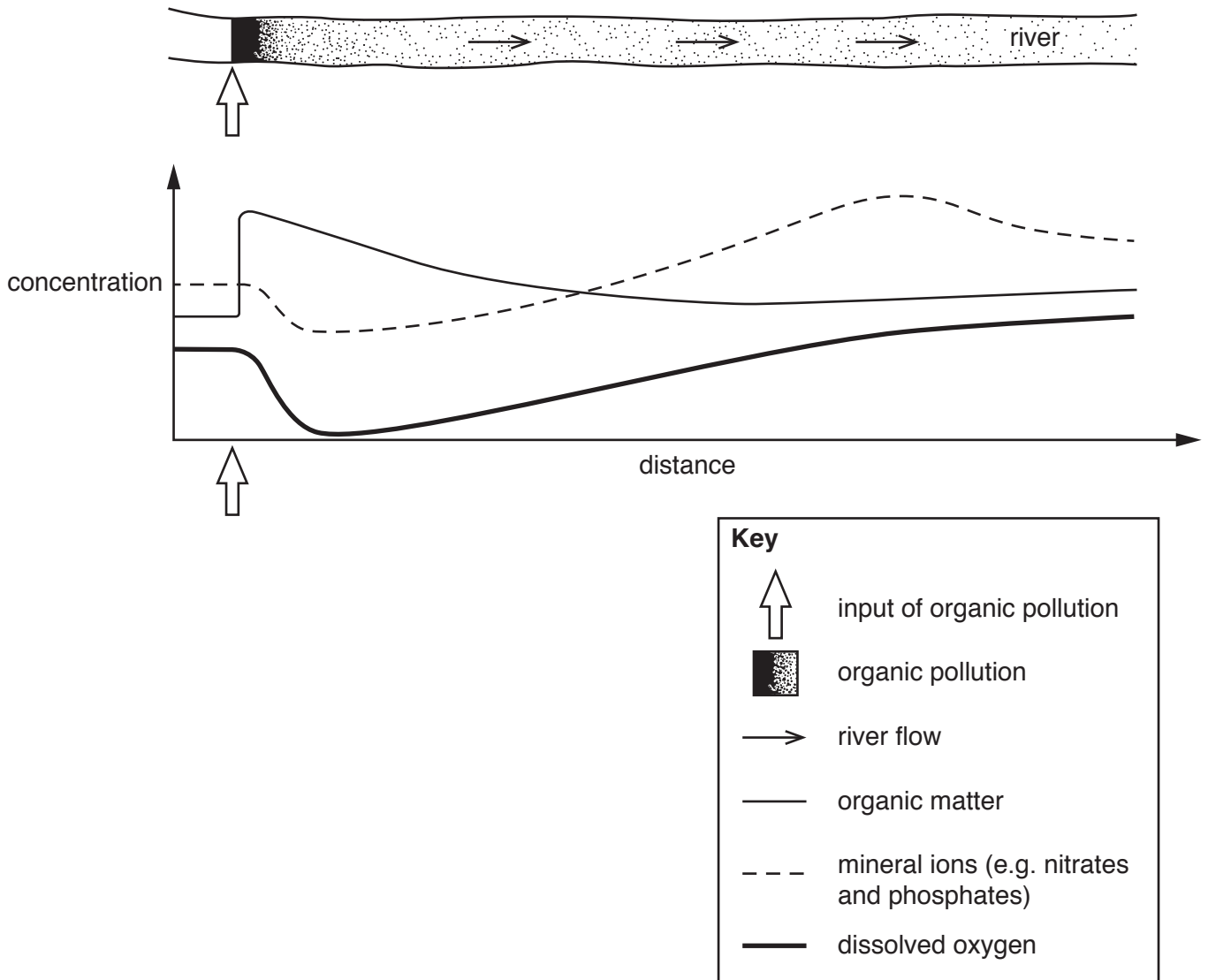


Fig. 2.2

With reference to Fig. 2.2, describe and explain the changes in the quality of river water with increasing distance from the input of organic pollution.

.....

.....

.....

.....

.....

.....

.....

.....

.....

---

---

---

---

---

---

---

---

---

---

---

---

---

[8]

[Total: 20]

## Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

- 3 Fig. 3.1 shows some of the protected areas in the tropical savannah biome in Tanzania, East Africa.

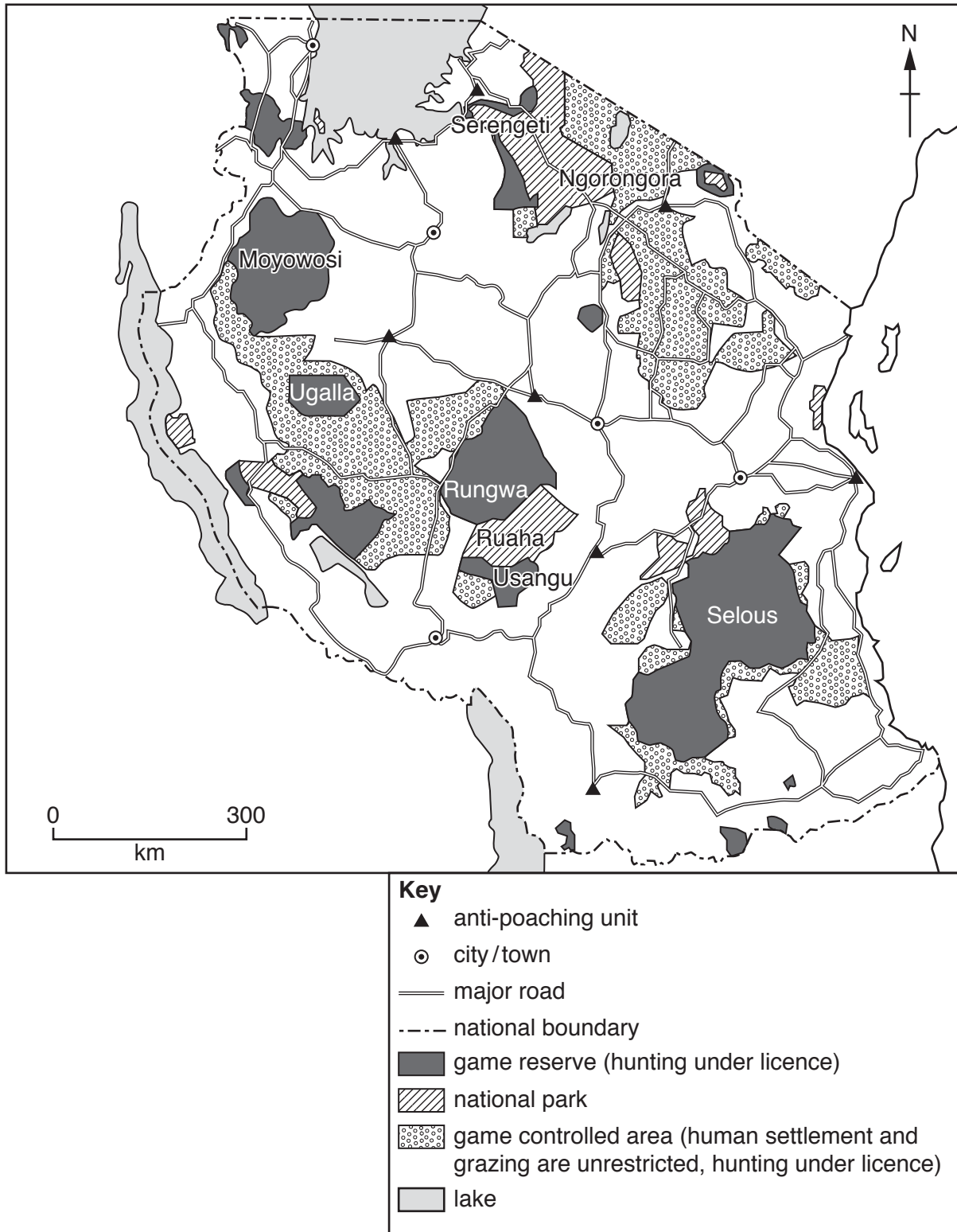
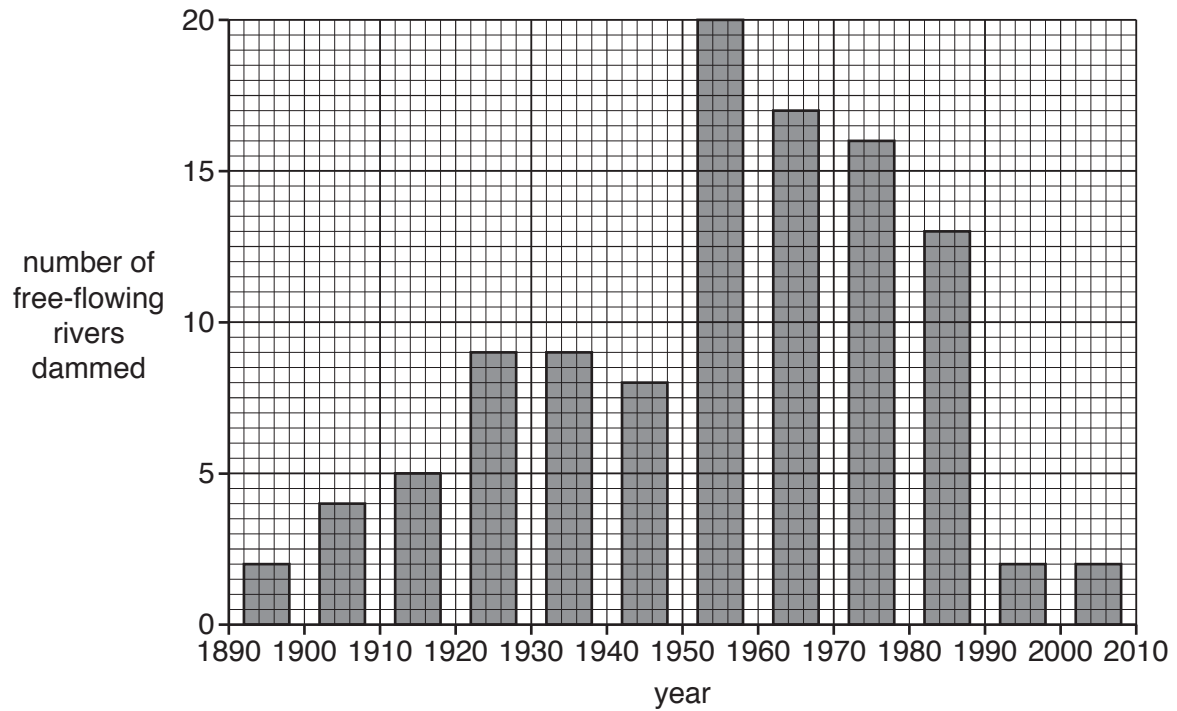


Fig. 3.1

- (a) Briefly assess the methods for managing wildlife in the tropical savannah in Tanzania shown in Fig. 3.1. [10]
- (b) Using examples, describe and evaluate **two** other methods of managing the natural environment for wildlife. [30]

[Total: 40]

4 Fig. 4.1 shows the number of free-flowing rivers that were dammed in each decade.

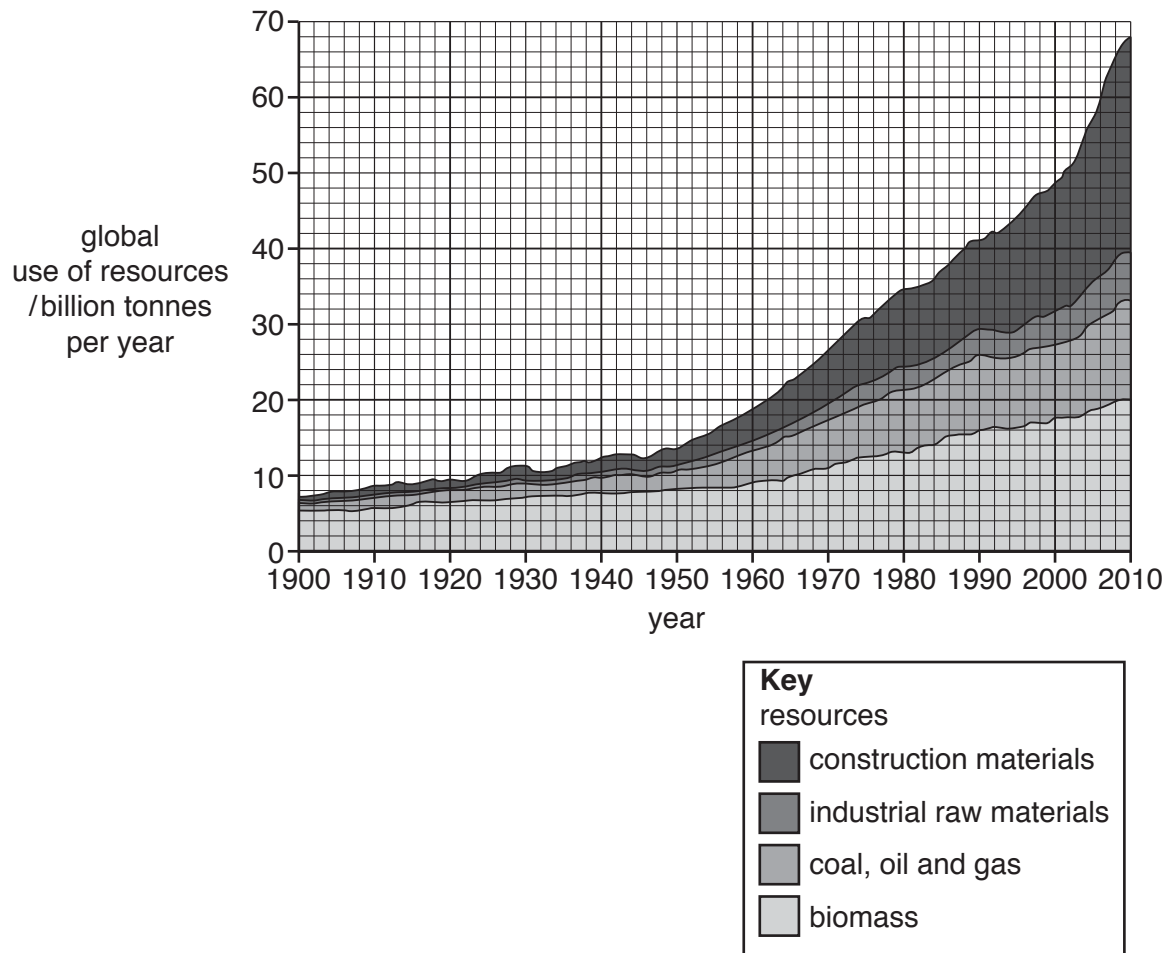


**Fig. 4.1**

- (a) With reference to Fig. 4.1, describe and suggest reasons for the changes in the numbers of free-flowing rivers that were dammed. [10]
- (b) Using examples, assess the advantages and disadvantages of building dams and reservoirs. [30]

[Total: 40]

5 Fig. 5.1 shows the global use of some resources.



**Fig. 5.1**

- (a) Describe the trends in the global use of resources shown in Fig. 5.1. Briefly explain these trends. [10]
- (b) 'The problems of overpopulation are more effectively solved through the sustainable management of resources than through population policies.' How far do you agree with this statement? Use examples in your answer. [30]

[Total: 40]

**BLANK PAGE**

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.