

CASE STUDY: KATSE DAM IN LESOTHO

<https://www.bbc.co.uk/programmes/p00xf8dh> 5 mins 41

Where is the dam located?	Where does the water from the dam go?
COSTS of building the dam (disadvantages)	BENEFITS of building the dam (advantages)
People affected by the building of the dam	

Who benefits from the building of the dam?

Who suffers from the building of the dam?

What do you notice?

Which other topics on Paper 1 or Paper 2 could this case study be useful for?

EXTENSION: SEE the advantages and disadvantages

SAMPLE PAPER QUESTIONS

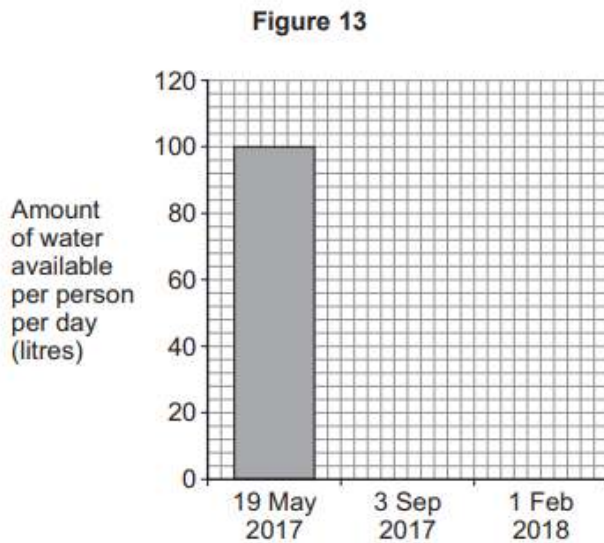
Study Figure 12, information about the water crisis in Cape Town, a city in South Africa, a LIC/NEE country.

Figure 12 Restrictions on the amount of water available per person per day:

- 19 May 2017–100 litres
- 3 Sep 2017–90 litres
- 1 Feb 2018–50 litres
- If the water crisis continues people will be rationed to 25 litres. For comparison, the average Californian usage – 321 litres per person per day.

1. Calculate the difference between the average Californian usage and restrictions in Cape Town on 1 February 2018. [1 mark]
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Study Figure 13, a graph showing how the water restrictions in Cape Town have changed.



2. Use the data in Figure 12 to complete the graph in Figure 13. [2 marks]
3. Describe the trend shown in Figure 13. [2 marks]

CASE STUDY: Sand dams in North-East Kenya

<https://www.excellentdevelopment.com/what-is-a-sand-dam> Clip to watch

Sustainable / small-scale development project / appropriate technology

How do sand dams work?	How does it help people and improve the level of economic development?	How does it help the environment?

Which other units would this case study be useful for?

CASE STUDY: Irrigation using water from the rivers feeding into the Aral Sea

Water transfer / Water diversion / Dams / Large-scale development project

<https://www.bbc.co.uk/newsround/31673854>

What did they do and why?	What were the advantages? Benefits / Good things	What were the disadvantages? Costs / Bad things

EXTENSION: SEE the effects

Which other topics would this be useful for?

CASE STUDY: BedZed in London, a sustainable settlement

<https://www.youtube.com/watch?v=TFrqRJbCmIQ> BedZed

Sustainable water use	Sustainable energy use	Other
Reduced water use by% by doing:	Reduced energy use by% by doing:	

They aim to live at the One Planet Level. What does this mean?

They did not achieve their aim. Why not?

<https://www.youtube.com/watch?v=dTEp5FggBwo> water conflict

Which two countries are involved?

Why is there conflict?

I. Multiple Choice Questions

1. What is a fossil fuel?
 - a. Energy resource formed from the remains of plants and animals that lived millions of years ago
 - b. Natural source of energy
 - c. Infinite energy resource formed from the remains of plants and animals that lived millions of years ago
 - d. Energy resource created by humans

2. The burning of fossil fuels causes a build-up of gases in the atmosphere called:
 - a. Air pollution
 - b. Greenhouse gases
 - c. Carbon credits
 - d. Biomass

3. What is a water transfer scheme?
 - a. Transfer of water from an area of deficit to an area of surplus
 - b. Transfer of water through pipes
 - c. Transfer of water from an area of surplus to an area of deficit
 - d. Water transferring from one river to another

4. Which of these is the correct definition of sustainable energy management?
 - a. Using energy resources in a way which ensures that they are not exploited and will hopefully be able to meet the needs of future generations
 - b. Using energy resources in a way which ensures that they are exploited and will hopefully be able to meet the needs of future generations
 - c. Using energy resources in a way which ensures that they are not exploited and won't be able to meet the needs of future generations
 - d. Using energy resources in a way which ensures that they are exploited and won't be able to meet the needs of future generations

5. What is fracking?
 - a. Drilling down into oil-bearing rock; blasting it with water, sand & chemicals at high pressure to release the oil inside the rock layers
 - b. Drilling down to get gas out of the earth
 - c. Drilling down to get oil out of the earth
 - d. Drilling down into gas-bearing rock; blasting it with water, sand & chemicals at high pressure to release the gas inside the rock layers

6. Which of these is the correct definition of energy mix
 - a. Using different types of energy in a country
 - b. Proportion of different energy sources used in a country
 - c. Mixing different types of energy used in your home
 - d. Volume of different energy sources used in your home

7. What is an onshore oilfield?
 - a. Oil drilled from under the sea
 - b. Oil drilled on land
 - c. Oil transferred from ships on to the land
 - d. Oil transferred from the land on to ships

8. Which of the following is a consequence of resource exploitation?
 - a. Deforestation
 - b. Water surplus
 - c. Afforestation
 - d. Large reserves of coal

9. Which countries produce the most carbon emissions?
 - a. Russia & India
 - b. China & India
 - c. China & USA
 - d. Russia & USA

10. Where is the biggest growth in energy demand?
 - a. Developing countries
 - b. Developed countries
 - c. Emerging countries
 - d. HICs (High Income Countries)

11. Which of these activities is not energy efficient?
 - a. Switching lights off when you leave the room
 - b. Washing clothes at 30°
 - c. Insulate house properly
 - d. Leave doors open

12. Which of the energy sources listed is NOT a renewable source of energy?

- a. Coal
- b. Solar
- c. Tidal
- d. Wind

13. Which of the following gases are greenhouse gases:

- a. carbon monoxide & methane
- b. carbon dioxide & nitrous oxide
- c. chlorofluorocarbons & helium
- d. hydrofluorocarbons & carbon monoxide

14. What is the name of the source of energy created with burning of decaying plant/animal waste?

- a. Biosphere
- b. Biodegradable
- c. Biomass
- d. Biodome

15. What is the name of the renewable energy supply generated by capturing sunlight in panels to create electricity?

- a. Solar
- b. Wind
- c. Tidal
- d. Biomass

16. Which energy source is derived from the movement of sea water in and out of turbines to generate electricity?

- a. Solar
- b. Wind
- c. Tidal
- d. Biomass

17. Which statement is NOT an advantage of tidal energy?

- a. Low running cost
- b. No harmful polluting gases are produced
- c. Effective
- d. Disturbs habitats & ecosystems

18. Which of these is NOT a way that households can reduce their use of water?

- a. Have a bath instead of a shower
- b. Have a shower instead of a bath
- c. Turn tap off while brushing your teeth
- d. Dual flush toilets

19. A carbon footprint is:

- a. The amount of carbon monoxide trapped in the biosphere as a result of the activities
- b. The amount of carbon dioxide released into the atmosphere as a result of the activities
- c. The amount of carbon monoxide released into the atmosphere as a result of the activities
- d. The amount of carbon dioxide trapped in the biosphere as a result of the activities

20. Energy resources that, once used, can replenish themselves are called:

- a. Renewable
- b. Finite
- c. Fossil fuels
- d. Non-Renewable

21. What is another term used to mean non-renewable?

- a. Renewable
- b. Finite
- c. Fossil fuels
- d. Infinite

22. What is a water deficit?

- a. More rainfall than evaporation and transpiration
- b. More evaporation and transpiration than rainfall
- c. Water supplies fall below 1000m³ per person
- d. Not enough water to meet people's needs, below 1700 m³ per person per year

23. What is water scarcity?

- a. More rainfall than evaporation and transpiration
- b. More evaporation and transpiration than rainfall
- c. Water supplies fall below 1000m³ per person
- d. Not enough water to meet people's needs, below 1700 m³ per person per year

24. What is water stress?

- a. More rainfall than evaporation and transpiration
- b. More evaporation and transpiration than rainfall
- c. Water supplies fall below 1000m³ per person
- d. Not enough water to meet people's needs, below 1700 m³ per person per year

25. What is the key word to this definition: The process of removing salt and other minerals from sea water to make it suitable for human consumption:

- a. Waterisation
- b. Saltations
- c. Desaltation
- d. Desalinisation

II. Short Answer Questions

Write answers in full sentences **ON LINED PAPER** and use geographical terminology where possible.

Answers should not be longer than 1 paragraph.

Water Resources

1. What is the meaning of the term 'water scarcity'?
2. Describe the advantages of large scale water transfer schemes.
3. Explain the disadvantages of large scale water transfer schemes.
4. Explain why demand for water is increasing.
5. Suggest reasons why developed countries (HICs) consume more water than developing countries (LICs)
6. Describe the factors that affect water usage.
7. Explain why the global demand for water has changed over the past 100 years.
8. Explain how technological advances have affected global supply of water.
9. Explain why water needs sustainable management.
10. Describe how people in developed countries (HICs) are trying to conserve and recycle water.

11. Describe the advantages of biomembrane reactors?

12. Explain how economic development has affected global demand for water.

III. Annotation

1. Water supply & technology:

Where is the water supply in this area? What evidence is there? What impact may this have on the local population?



Figure 2: Kenya water containers. Sarah Bannister PiXL ©

2. Factors affecting water supply:

Does this area have a water surplus or deficit? Why might this be? What factors will affect the access to water in this area? What will the economic, social and environmental impacts be?



Figure 3: Kenyan drought. Sarah Bannister PiXL ©

IV. Long Answer Questions

Write in essay format, with good structure and full sentences.

BUG the question

Use PDL paragraph structure:

- Make your Point
- Develop it (with named examples or data if you can)
- Link it to the question

Write approximately 500 words per question.

Water Resources:

1. Evaluate the impacts of over exploitation of water in developed countries.
2. Assess where the biggest water supply problems occur.
3. 'Desalination is the best solution to water shortages.' Discuss the extent to which you agree with this statement.
4. Assess how successful high income countries (HICs) have been in sustainably managing water.