

Oxford Revise | Geography | Answers

Chapter 37

All exemplar answers given are worth full marks.

1.1 C

1.2 Water stress is extremely high in the Middle East and parts of central Asia. North America and Europe have largely low-medium or medium-high levels of water stress. Water stress is lowest across sub-Saharan and central Africa, as well as most of South America.

1.3 Water availability is determined by several factors. Physical factors such as climate and geology are important: if an area receives low rainfall, then there will be less water available, and areas with impermeable rock types will be able to build up underground water supplies. Poverty also influences water availability, because communities may not have access to shared water supplies or the required infrastructure to transfer water.

1.4 This question is level-marked:

Level	Marks	Description
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound, organised and relevant throughout, using supporting evidence and examples • Communicates good knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives) • Uses geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Explanations are partial • Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: *Economic development could lead to increased water consumption because it will lead to more factories, which use large amounts of water and require energy which again requires water in its production. Economic development is also often linked to urbanisation and as cities increase in size, more water is needed for drinking, sanitation, and drainage. Economic development also leads to rising standards of living and changing lifestyles and diets, which will increase the amount of water used domestically, such as in showers and dishwashers in homes.*

1.5 This question is level-marked:

Level	Marks	Description
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound, organised and relevant throughout, using supporting evidence and examples • Communicates good knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives) • Uses geographical terms and vocabulary

Level	Marks	Description
1 (basic)	1–2	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Explanations are partial • Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: *Water insecurity can have impacts on agricultural production because there could be a lack of water for irrigation, which means that less food will be produced each harvest. Egypt is a country that has faced water shortages and due to this is expected to see a 30% loss in food production in the next 30 years. Secondly, droughts can lead to complete crop failure where nothing is produced at all, meaning a sudden and often devastating loss of food.*

1.6 A sustainable water supply is ensuring affordable supplies of water for the growing population in a way that is not environmentally damaging for current or future generations.

1.7 This question is level-marked:

Level	Marks	Description
3 (detailed)	5–6	<ul style="list-style-type: none"> • Thorough, detailed, organised, and relevant throughout with supporting evidence and examples • Communicates detailed, clear knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) • Good use of geographical terms and vocabulary
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound throughout with some supporting evidence and examples • Communicates some knowledge and understanding • Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) • Some use of geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Communicates using simple statements that are not developed • Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: *Water conservation and water recycling are sustainable ways to manage water supply. Water conservation involves reducing excessive consumption and waste. This is done by reducing leakages and making the public aware of water waste and sensible use of water through education and introducing water meters. This will change people's behaviour, such as not washing cars, using rainwater to water gardens, and turning the tap off when brushing teeth.*

Water recycling involves reusing water that has been used in homes and factories and using it for activities such as irrigation and industry or power stations. An example of this is in the Palo Verde nuclear power station in Arizona, USA, where recycled water is used for all cooling processes and in Kolkata, India, where

sewage water is used for fish farming. Both conservation and water recycling are sustainable because they focus on limiting demand for water in a way that does not harm the environment or people's quality of life.

1.8 This question is level-marked:

Level	Marks	Description
3 (detailed)	7–9	<ul style="list-style-type: none"> • Thorough, detailed, organised, and relevant throughout with supporting evidence and examples • Communicates detailed, clear knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) • Good use of geographical terms and vocabulary
2 (clear)	4–6	<ul style="list-style-type: none"> • Sound throughout with some supporting evidence and examples • Communicates some knowledge and understanding • Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) • Some use of geographical terms and vocabulary
1 (basic)	1–3	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Communicates using simple statements that are not developed • Little or no use of geographical terms and vocabulary
	0	No relevant content

3-marks: SPaG (spelling, punctuation, grammar, and specialist terminology)

Marks	Description
3	<ul style="list-style-type: none"> • Accurate spelling and punctuation • Rules of grammar followed • Effective control of meaning • Uses wide range of specialist terms
2	<ul style="list-style-type: none"> • Generally accurate spelling and punctuation • Most rules of grammar followed • General control of meaning • Uses good range of specialist terms
1	<ul style="list-style-type: none"> • Reasonably accurate spelling and punctuation • Some rules of grammar followed – errors do not hinder meaning • Some control of meaning • Limited use of specialist terms
0	<ul style="list-style-type: none"> • Writes nothing • Does not relate to question • Basic grasp of spelling, punctuation, and grammar prevents clear meaning

Example answer: *Water transfer is one of several strategies to increase water supply that involve moving it from areas of surplus to areas of deficit. It aims to redistribute water to ensure that supply meets demand to support economic development. However, although these schemes can be effective in meeting this aim, they can also have some serious negative impacts.*

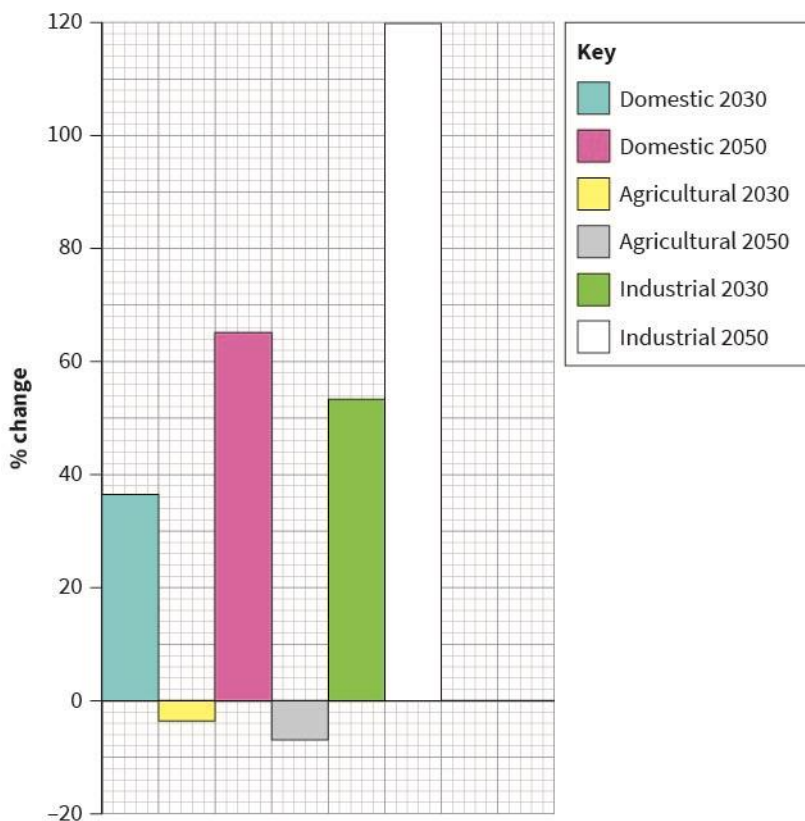
Water transfer involves the building of systems of canals and underground pipelines to take water from one river basin to another, providing a supply of water for communities that need it. In Lesotho, the Highlands Water Project successfully provides 10% of South Africa’s drinking water through the building of the Katse and Mohale dams and a 200 km network of tunnels. Selling this water contributes 75% of Lesotho’s GDP and this has improved people’s quality of life and improved the ecosystems in South Africa.

On the other hand, there are some disadvantages evident in water transfer schemes which make them less reliable in solving water shortages. It is estimated that 40% of the water that is sent through the scheme is lost through leakages. Furthermore, the poorest people in South Africa cannot afford the cost of the water, which means that their standard of living is not improved. In addition there are major environmental concerns about water transfer schemes as is evident in the destruction of valuable wetland ecosystems in Lesotho.

It is therefore clear that water transfer schemes can be successful in redistributing water to those that need it. However, the cost of the schemes, both at the outset and for the communities that want to buy the water and the impact on the environment make it doubtful whether these schemes will solve water supply issues alone. They need to work alongside schemes to reduce overall demand and conserving our water supplies.

2.1 56.9

2.2 The bar chart should be completed as below:



2.3 This question is level-marked:

Level	Marks	Description
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound, organised and relevant throughout, using supporting evidence and examples • Communicates good knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives) • Uses geographical terms and vocabulary
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	0	No relevant content

Example answer: *Water use is expected to increase at a rapid rate in the industrial and domestic sector due to global improvements in levels of economic development. Economic development will often lead to industrial and factory growth which uses large amounts of water in the cooling process. Industry requires large amounts of energy that also require water in their production. There will also be greater demand domestically due to economic development. Improved levels of economic development lead to changing lifestyles that increase water demand, such as owning more home appliances, showers, and baths.*

2.4 Water insecurity is also known as water scarcity, and it means when there is not enough safe water to meet the needs of the population.

2.5 This question is level-marked:

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Example answer: *There is increasing global water insecurity because of several factors. Firstly, a steady increase in the world's population means that increasing amounts of water are needed. Increased population means a greater demand for food and more water needed for irrigation. Secondly, economic development also results in greater demand for water because there will be more factories requiring more energy. Both factories and energy production require water to function and can also lead to pollution of water supplies, further affecting water security. Economic development also leads to changing lifestyles that include the use of more domestic appliances such as showers and washing machines. Lastly, there are increased pressures on water supply due to climate change.*

2.6 Water stress is when the water supply does not meet demand or the quality of the water is not good enough to meet the needs of the population.

2.7 This question is level-marked:

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Example answer: *There are several ways that water supply can be increased, either by finding new sources or by moving it from areas of surplus to areas of deficit. Desalination is a complex process where salt is removed from seawater so that drinkable water is created. As well as being complicated, this is also an expensive process so is often only used when there are no other options.*

Dams can also be used to control water supply by storing water in reservoirs in times of heavy rainfall and releasing it gradually in times when there is low rainfall. A good example is Kielder Water, which is the UK's largest reservoir. It was created after the River Tyne was dammed.

Water transfer schemes aim to divert water away from areas where there is a surplus to areas that have a deficit. They involve building a dam across one or more rivers, storing the water in reservoirs, and then transporting the water through pipelines to other areas where demand is not being met. One of the largest examples is the south-north water transfer scheme in China, where water is transferred through canal systems from the Yangtze River in the south to the drier Yellow River region in the north.

2.8 This question is level-marked:

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Example answer: *There are a range of sustainable water supply options that aim to manage existing water sources without harming the environment or jeopardising supplies for future generations. A large focus for the sustainable management of water is conserving supplies through reducing demand and reducing waste. Therefore, conservation involves improving public information so that people make small changes in their homes, such as not washing cars or only using full dishwashers and washing machines. Alongside this, water meters can be installed, which help to make people more aware of how much water they are using.*

These strategies would be quite cheap to implement and if all families made changes could be quite effective.

A second major sustainable strategy is recycling water and using 'grey' water (water that has been used before) for uses that do not need clean water. Uses include watering gardens, irrigation, or industry. In Kolkata, India, sewage water is reused for fish farming and crop production. This could be harder to implement than conservation because it may require expensive new technology to be introduced in homes and offices. It also relies on people changing their attitudes to the idea of reusing water.

Finally, groundwater management can be an effective way of managing water supplies. This involves the careful monitoring of how much water is abstracted from underground water supplies so that levels are maintained at sustainable levels and contamination does not risk the supply.

In conclusion, there are a range of sustainable ways to improve water supply, all of which come with advantages and disadvantages. For maximum effectiveness, both aspects – reducing demand and maintaining and protecting supply – need to be implemented together.