


Question(s) **AQA GCSE Geography Revision** 

Give 3 ways in which we use water in our lives.

Answer(s) 


Domestic Use – drinking, cooking bathing etc.
Agricultural use – irrigating crops / water for livestock
Industrial use – use in manufacturing
Energy use – used in the generation of HEP
Leisure use – as in sailing / waterskiing, filling swimming pools etc.

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Question(s) **AQA GCSE Geography Revision** 


What is meant by the terms:

Water surplus
 Water deficit

Answer(s) 


Water surplus – a supply of water which exceeds demand
Water deficit – where demand exceeds supply

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Question(s) **AQA GCSE Geography Revision** 


Define the terms:

(i) Water security
 (ii) Water Insecurity
 (iii) Water stress


Answer(s) 

(i) Water Security – means having access to enough clean water to sustain well-being, good health and economic development.
(ii) Water Insecurity – this is where regions do not have access to sufficient water supplies.
(iii) Water Stress – countries experience this when there is less than 1700m³ available per person per year.

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Question(s) **AQA GCSE Geography Revision** 

Describe patterns of global water scarcity and surplus.

Answer(s) 

- large areas of Africa / Southern Asia suffer water stress (located close to areas of low or no water).
 In contrast areas to the north of the northern hemisphere have plenty of water.

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Question(s) **AQA GCSE Geography Revision** 

Describe the pattern of water availability in the UK

Answer(s) 


There is sometimes water stress in the SE of England – greatest risk of drought – here rainfall totals tend to be lower (but greater proportion of population / demand).
 There is less water stress in Wales / North of England where rainfall totals are much higher.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE


What are the main reasons for increasing global water consumption?

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Answer(s) 


- **Growth of world population – greater demand** (much of the growth of population has been in LICs / NEEs)
- **Economic development results in higher consumption** - e.g. for manufacturing industries
- More water required for **increasing energy production**
- **As people become richer** – demands for water increase e.g. more domestic appliances, watering golf courses etc.
- **As demand for food increases** – more intensive farming requires huge quantities of water
 - **Increasing urbanization** – increases demand for water for drinking, sanitation etc. – much of this urbanization is in Africa and Asia

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE


List the main factors affecting water supply

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Answer(s) 


1. Geology
2. Climate
3. Poverty
4. Pollution of Supply
5. Over-abstraction
6. Limited Infrastructure

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INSPIRING BEYOND MEASURE


What is an aquifer and why are they so important?

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Answer(s) 


Aquifers are water bearing rocks (such as chalk) – water can build up as groundwater in these rocks and provide an important water supply (e.g. the chalk aquifer which feeds London’s supplies).

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What is meant by the term over-abstraction?

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Answer(s) 

This is the pumping of water out of the ground faster than it is replaced by rainfall which lowers the water table and can cause wells to dry up.

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List the main impacts of water insecurity

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Answer(s) 

1. Waterborne disease and water pollution
2. Food production
3. Industrial output
4. Water conflict

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INSPIRING BEYOND MEASURE


Give examples of waterborne diseases

Answer(s)  St. Ivo Grammar School


Cholera and Dysentery – from drinking untreated water (water can be contaminated by wastewater from agriculture, chemical from manufacturing).

Rivers such as the Ganges – are used for many uses including bathing and irrigation but is also highly polluted.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

How does water insecurity affect food production?


Answer(s)  St. Ivo Grammar School

Agriculture uses 70% of global water supply. Areas of water insecurity will suffer from low food productivity. Water availability from the Nile in Egypt has been reduced by demands from countries using water from upstream in the Nile. Egypt now must import 60% of its food.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE


Why does industry have a high demand for water?

Answer(s)  St. Ivo Grammar School


Food processing, paper, textiles and other manufacturing has a heavy demand for water

Water is also required for some forms of energy production (e.g. Nuclear and HEP-)

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

How can water insecurity lead to water conflict?


Answer(s)  St. Ivo Grammar School

Where water sources cross national / political borders – any pollution, building of dams / reservoirs / over-abstraction can have an impact on one or more countries. Egypt will not allow other countries to build dams or affect the Nile's flow – leads to tension over water rights.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

State four strategies that can be used to increase water supply.


Answer(s)  St. Ivo Grammar School

1. Water diversion and increasing storage
2. Dam and reservoir construction
3. Water transfers
4. Desalination

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What does water diversion involve?

Answer(s)  St. Ivo Grammar School

Where high evaporation is a particular problem, surface water can be pumped underground to be stored in aquifers rather than on the surface to reduce water loss by evaporation – technique used in Florida.

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What are the benefits of dams and reservoirs for increasing water supply?


Answer(s)  St. Ivo Grammar School

Dams control water flow – store water in reservoirs so it can be transported to where needed, used for irrigation and used to help prevent flooding. It can also be used to generate HEP.

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What are the potential issues with the use of Dams and Reservoirs to increase water supply.


Answer(s)  St. Ivo Grammar School

- can reduce flow of water downstream
- in hot arid areas – lots of water may be lost by evaporation
- can involve the forced movement of people from land to be flooded
- dams are expensive

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 **Question(s)** AQA GCSE Geography Revision  Astrea Academy Trust
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What do water transfer schemes involve?

Answer(s)  St. Ivo Grammar School

These schemes move water from areas of surplus to deficit using pipelines or canals – but they are expensive.

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How does desalination work?


Answer(s)  St. Ivo Grammar School

This involves extracting salt from seawater to create fresh drinking water

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Question(s) **AQA GCSE Geography Revision** 


What are the problems with desalination as a strategy to increase water supply.

Answer(s) 


- very expensive
- Can cause environmental problems due to salt waste – can be harmful to marine environments
- Process involves high energy demand (carbon emissions)

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Question(s) **AQA GCSE Geography Revision** 

Name and describe a large scale water transfer scheme


Answer(s) 

Lesotho Highland Water project


A highland country surrounded by South Africa – has a water surplus BUT S Africa has a water deficit. Project aims to help solve water shortage in South Africa – transferring 40% of the water from Segu River (Lesotho) to the River Vaal (South Africa)

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Question(s) **AQA GCSE Geography Revision** 

Describe the benefits of the Lesotho Highland Water Project

Answer(s) 

BENEFITS TO LESOTHO


- provides 75% of Lesotho's GDP
- Supplies all HEP for Lesotho
- Will help sanitation coverage go from 15-20%

BENEFITS TO SOUTH AFRICA


- more reliable water source for irrigation and industry
- increased safe water access to an extra 10% of population
- benefits to the river system from larger quantities of water.

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Question(s) **AQA GCSE Geography Revision** 

Describe the costs of the Lesotho Highland Water Project

Answer(s) 

COSTS TO LESOTHO


- unique wetland ecosystem and wildlife disrupted
- 30,000 people already displaced by building of first two dams
- corruption has meant compensation payments haven't reached people.

COSTS TO SOUTH AFRICA


- cost estimated at US\$4 billion
- 40% of water could be lost by leakage
- some poor people may not be able to afford the costs of the water.

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Question(s) **AQA GCSE Geography Revision** 



What does the **sustainable development** of water resources mean?

Answer(s) 


Meeting the water needs of the present without comprising the ability of future generations to meet their own needs with regards to water supply.

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 **Question(s)** **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What two things are required to achieve a sustainable water supply?


Answer(s)  ST IVS GERRARD

1. A balance between water consumption and water supply
2. Maintain this balance as the water demand continues to rise.

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 **Question(s)** **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Give four possible sustainable water use strategies


Answer(s)  ST IVS GERRARD

1. Water Conservation
2. Groundwater Management
3. Water Recycling
4. The use of 'Grey Water'

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 **Question(s)** **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Give examples of water conservation techniques which can be used to reduce water use / use it more sparingly.


Answer(s)  ST IVS GERRARD

- 1.Reducing Leakages (replacing old pipes / fixing broken pipes)
- 2.Water meters in homes to reduce water usage
- 3.Greater efficiency of water use in homes (showers rather than baths; energy efficient appliances and the use of 'hippos' in toilets to reduce volume of water used in flushes)
- 4.Use of more efficient irrigation techniques – e.g. drip irrigation

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 **Question(s)** **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What does water recycling involve?


Answer(s)  ST IVS GERRARD

Involves using treated waste water for a range of purposes – including irrigation, electricity generation (cooling) and industry) – e.g. Kolkata – India – treated sewage water is re-used for agriculture.

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 **Question(s)** **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE


What is 'Grey Water'?

Answer(s)  ST IVS GERRARD


Grey water is the used water from sinks / showers / baths and washing machines – used both inside and outside of the home.

Used for things such as flushing toilets / watering gardens – to minimise use of expensive treated drinking water.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE


What does groundwater management involve in HICs?

Answer(s)  ST. IVS GARDIAN


The monitoring of water tables and quality of groundwater by local authorities

Regulations imposed on water abstraction to ensure aquifers remain healthy.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
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Name and locate an example of a local scheme in a LIC / NEE to increase sustainable water supply.


Answer(s)  ST. IVS GARDIAN

Gravity-fed scheme in Hitosa, Ethiopia

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe how the gravity-fed sustainable water scheme in Hitosa, Ethiopia works.


Answer(s)  ST. IVS GARDIAN

- Hitosa is a semi-arid rural area 160km south of Addis Ababa.
- In the 1990s – a 140km gravity fed water transfer scheme was installed
- Water is moved by pipeline from mountain springs to the lowland villages in the Hitosa district
- This is made available to households using public standpipes and used by farmers to irrigate fields.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

What are the main successes of the gravity-fed sustainable water in Hitosa, Ethiopia


Answer(s)  ST. IVS GARDIAN

1. Very successful – reliable and safe water provided for over 65,000 – with 25 litres per person per day
2. Scheme is completely community managed (simple to operate and maintain) and has united all communities within the project area
3. Provision of water has had direct economic benefits – many families became involved in cattle fattening and new businesses established.

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Question(s) **AQA GCSE Geography Revision**  Astrea Academy Trust
INSPIRING BEYOND MEASURE

Describe some possible issues with the gravity-fed sustainable water scheme in Hitosa, Ethiopia.

Answer(s)  ST. IVS GARDIAN

- As people and livestock are using the water – some disputes and affected hygiene at some tap stands
- Little local interest / awareness / commitment to hygiene education which was implemented as an afterthought
- Initial costs are high and the Pipeline may be too costly / inaccessible to replace in 30 years time.

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