

FEBRUARY 2017

**WATER
SCARCITY**

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DEBATING MATTERS
**TOPIC
GUIDES**

www.debatingmatters.com

MOTION:

**“SOLUTIONS TO WATER
SCARCITY IN THE UK
ARE TECHNOLOGICAL,
NOT ENVIRONMENTAL”**

IN PARTNERSHIP WITH:

Institute of Ideas



ABOUT DEBATING MATTERS

Debating Matters because ideas matter. This is the premise of the Institute of Ideas Debating Matters Competition for sixth form students which emphasises substance, not just style, and the importance of taking ideas seriously. Debating Matters presents schools with an innovative and engaging approach to debating, where the real-world debates and a challenging format, including panel judges who engage with the students, appeal to students from a wide range of backgrounds, including schools with a long tradition of debating and those with none.

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KEY TERMS

[Aquifers](#)

[Cloud seeding](#)

[Desalination](#)

[Reservoir](#)

[Streamflow](#)

INTRODUCTION

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According to a report published by Water UK [Ref: [Water UK](#)] and headlined by the Guardian newspaper as: “Increased drought could see Londoners queueing for water” [Ref: [Guardian](#)], the capital potentially faces a “one in five probability of queueing in the street at standpipes for their water for days or weeks during a sweltering summer in the coming 25 years, owing to drought brought about by climate change and a lack of water infrastructure” [Ref: [Guardian](#)]. Many European countries were hit by severe drought in 2015 [Ref: [Guardian](#)] and worldwide there is concern that: “As fresh water reservoirs dry up across the world, a billion people have no access to safe drinking water. Rationing and a battle to control supplies will follow” [Ref: [Guardian](#)]. In the UK there are many suggestions about how to ensure the water supply meets our needs, including the redirection of river water to areas of high need such as London and the south east [Ref: [Telegraph](#)], the building of new reservoirs [Ref: [Guardian](#)], and desalination [Ref: [BBC News](#)]. But those critical of the idea that we should rely on technical solutions to environmental problems, including water shortages, note that this amounts to “an alibi for excess” [Ref: [Guardian](#)]. They note that such solutions are “misguided, and a retrograde step in UK environmental policy”, and suggest instead that people should be encouraged, “to use less water, not more.” [Ref: [Wikipedia](#)] However, opponents of the “hair-shirted, back-to-the-land, anti-industrial and de-growth prescriptions” [Ref: [Guardian](#)], argue that we need more radical thinking and new technological innovations to solve problems – not limits and restrictions. So, who is right? Should we embrace the promise of technological innovation to solve issues such as our water needs? Or should we accept that that behaviour change informed by not taking water for granted, is what’s required to ultimately tackle these issues?



THE WATER SCARCITY DEBATE IN CONTEXT

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Are we really running out of water?

“Water enables civilization. It is the magic stuff of life” argues one writer in a historical overview of its importance to us all [Ref: [Atlantic](#)]. Our planet is approximately 71% water and 29% land; 96.5% of that water is ocean salt water, and just 3.5% is the freshwater (much of that held within glaciers and icefields) which humanity relies on for life, including hydration, agriculture and farming, industrial and energy production [Ref: [Phys.org](#)]. In seeming contradiction to the current debates about water shortages, it’s important to understand, argues a respected leader in water science and conservation, water isn’t in fact a diminishing resource, and that: “Today there is just as much water on the planet as there was when the first signs of life appeared” [Ref: [National Geographic](#)]. Brian Richter continues that we currently only use about 10% of rainfall for our needs, and that: “Every bit of the water that falls on land or in the ocean or is used for human endeavours, is eventually evaporated back up into the sky as water vapor, replenishing our planet’s never-ending freshwater cycle. No water is actually ‘lost’ in that global cycle” [Ref: [National Geographic](#)]. Therefore, the issue is not that there is a new shortage of freshwater through the natural rainfall cycle, but that it isn’t evenly distributed, and the nature of rainfall means it doesn’t necessarily fall where its most needed [Ref: [National Geographic](#)]. In the UK, for example, despite record rainfall in the winter of 2015, experts were still warning of water restrictions because “nearly all the rain, from a succession of storms, fell in the north of England where water supplies are largely drawn from rivers and reservoirs, and very little fell in the south where supplies come mainly from underground aquifers” [Ref: [Guardian](#)]. With an increasing demand on the quantity of

the world’s freshwater some suggest that: “What is required...is integrated water resource management that takes into account who needs what kind of water, as well as where and how to use it most efficiently.” [Ref: [Reuters](#)]

Can technology resolve an impending water crisis?

Water is a “vital resource that has long been poorly managed or taken for granted in much of the world....The search for solutions to uneven and inadequate water supply has already led to improvements in irrigation, desalination and wastewater recycling, and is spurring development of innovative technologies such as waterless fracking in the energy industry and water-saving devices at home” [Ref: [Financial Times](#)]. Advocates of technological solutions to issues such as water shortages argue that: “It’s not true that we can’t solve big problems with technology; we can. We must.” [Ref: [MIT Technology Review](#)]. In this spirit, to deal with water shortages in the south east of England for example, it has been proposed that it might be possible for, “the River Severn and the River Thames (to) carry up to 65 million gallons of water per day to top up supplies to 14 million households in the region” [Ref: [Telegraph](#)]. According to estimates, in England and Wales, we are using between 1.1 billion, and 3.3 billion litres per day of water more than our infrastructure can deliver without being damaged. And even measures such as installing meters, and using less water – thus reducing consumption by an estimated 373m litres per day, would still leave a 727m litre shortfall at best [Ref: [Guardian](#)]. Due to this fact, as an Economist editorial argues, we need radical technological innovation to solve our environmental problems: “The climate is changing because of extraordinary inventions



THE WATER SCARCITY DEBATE IN CONTEXT CONTINUED...

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like the steam turbine and internal combustion engine. The best way to cope is to keep inventing.” [Ref: [Economist](#)] Small scale technology such as leak detection devices [Ref: [Guardian](#)], and almost waterless washing machines [Ref: [Financial Times](#)], allied with largescale ideas such as geoengineering [Ref: [BBC News](#)], and the building of ‘fake mountains’ to increase rainfall to combat drought [Ref: [Independent](#)] through cloud seeding [Ref: [Wikipedia](#)], are all cited by supporters as technological innovations which could make a real impact in the UK and beyond. Others argue that more broadly, the world’s water crisis, “is also a problem that can be decisively solved without anything remotely resembling the economic restructuring and political acrobatics required to address climate change. Fully effective solutions to the water crisis have already been found. They only need to be implemented.” [Ref: [Tower](#)]

Less is more? The environmental case

Opponents such as Professor Clive Hamilton, are sceptical of technological solutions, observing that: “Technofixes – technical solutions to social problems – are appealing when we are unwilling to change ourselves and our social institutions” [Ref: [Scientific American](#)], and argues that it is profound behavioural change that is needed. For instance, in the UK: “London is drier than Istanbul, and the South East of England has less available water per person than the Sudan and Syria” [Ref: [Waterwise](#)], and as such, some suggest that using less water should be seen as a key component of tackling scarcity [Ref: [Daily Mail](#)]. Moreover, they dismiss the technology put forward by advocates, and outline the damage that excessive water use, and our need to acquire water from alternative sources has

on the environment. They note that rivers, wetlands and bays become degraded as we extract more from them to deal with the shortage of water, and argue that building reservoirs alters streamflows, destroys the wilderness, and is incredibly expensive [Ref: [Waterwise](#)]. Instead, as Thames Water advise: “People can save water with simple measures, such as turning off the tap while cleaning their teeth or taking shorter showers, fixing leaks and only washing full loads of laundry.” [Ref: [Daily Mail](#)] Environmentalist George Monbiot also notes that in this debate, technology is often used as a smokescreen for politicians to hide behind, when difficult decisions have to be made governments urge us to: “Consume more, conserve more” but that in reality “we just can’t do both” [Ref: [Guardian](#)]. With these arguments in mind, where does the balance lie? Are critics right that the key to combatting water scarcity is behaviour change, and a commitment to using less? Or should we put our faith in new technologies, and innovation to provide solutions, because: “The end is not nigh, and we do not need to rein in industrial society. If anything, we must accelerate our modernity.” [Ref: [Guardian](#)]



ESSENTIAL READING

[Why fresh water shortages will cause the next great global crisis](#)

Robin McKie *Guardian* 8 March 2015

[Are we running out of water?](#)

Brian Richter *National Geographic* 14 March 2012

FOR

[Clear thinking needed](#)

Economist 28 November 2015

[Why eco-austerity won't save us from climate change](#)

Leigh Phillips *Guardian* 4 November 2015

[World without water: six solutions to a shortage](#)

Pilita Clark *Financial Times* 8 December 2014

[Why we can't solve big problems](#)

Jason Pontin *MIT Technology Review* 24 October 2012

AGAINST

[Magical thinking about progress won't save planet earth](#)

Giles Fraser *Guardian* 17 December 2015

[Consume more, conserve more: sorry, but we can't do both](#)

George Monbiot *Guardian* 24 November 2015

[Geoengineering is not a solution to climate change](#)

Clive Hamilton *Scientific American* 10 March 2015

[We must learn to limit our excessive consumption](#)

Observer 30 November 2014

IN DEPTH

[Britain's water crisis](#)

Nick Davies *Guardian* 8 October 2015

[How Israel is solving the global water crisis](#)

David Hazony *The Tower* October 2015

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BACKGROUNDERS

[Liquidity crisis](#)

Economist 5 November 2016

[Research shows more action needed to protect against growing drought risk](#)

Water UK 13 September 2016

[Thames Water drought plan](#)

Thames Water July 2016

[The politics of drinking water](#)

Anya Groner *Atlantic* 30 December 2014

[Eight unbelievable solutions to future water shortages](#)

Peter Moore *Guardian* 15 December 2014

[What percent of Earth is water?](#)

Matt Williams *Phys.org* 2 December 2014

[The coming global water crisis](#)

Stewart M. Patrick *Atlantic* 9 May 2012

[Water companies tell us not to spend more than four minutes in the shower](#)

Daily Mail 21 February 2012

[13 innovative water saving concept and product designs](#)

Design Swan 4 October 2010

[Does cloud seeding work?](#)

Andrew Moseman *Scientific American* 19 February 2009

[The water shortage myth](#)

David Zetland *Forbes* 15 July 2008

[Why save water?](#)

Waterwise

[Thames Water desalination plant](#)

Wikipedia

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AUDIO/VISUAL

[Humanity's big challenge: water wars](#)

Battle of Ideas 23 October 2016



IN THE NEWS

[Increased drought could see Londoners queueing for water](#)

Guardian 14 September 2016

[Is California sitting on the solution to its drought?](#)

CNN 28 June 2016

[UAE to build 'fake' mountain to increase rainfall](#)

Independent 4 May 2016

[Record UK rainfall will not prevent water restrictions, experts warn](#)

Guardian 6 January 2016

[European 'extreme weather belt' linked to worst drought since 2003](#)

Guardian 27 August 2015

[New fears over Abingdon reservoir plans](#)

BBC News 21 August 2015

[Canals plan revived as answer to South-east's water shortage](#)

Independent 23 November 2014

[Britain faces worst drought since 1976](#)

Telegraph 15 April 2012

[Rivers to be linked to ease drought under water company plans](#)

Telegraph 1 April 2012

[Water use rising faster than world population](#)

Reuters 25 October 2011

[Abingdon £1bn reservoir plan rejected by government](#)

BBC News 4 March 2011

[Salt water plant opened in London](#)

BBC News 2 June 2010

[Thames Water proposes new reservoir to meet demand](#)

Guardian 14 September 2006

[Tackling climate change with technology](#)

BBC News

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ORGANISATIONS

[Centre for Ecology & Hydrology](#)

[Thames Water](#)

[Water UK](#)

[Waterwise](#)



ADVICE FOR DEBATING MATTERS



FOR STUDENTS

READ EVERYTHING

In the Topic Guide and in the news - not just your side of the argument either.

STATISTICS ARE GOOD BUT.....

Your opponents will have their own too. They'll support your points but they aren't a substitute for them.

BE BOLD

Get straight to the point but don't rush into things: make sure you aren't falling back on earlier assertions because interpreting a debate too narrowly might show a lack of understanding or confidence.

DON'T BACK DOWN

Try to take your case to its logical conclusion before trying to seem 'balanced' - your ability to challenge fundamental principles will be rewarded - even if you personally disagree with your arguments.

DON'T PANIC

Never assume you've lost because every question is an opportunity to explain what you know. Don't try to answer every question but don't avoid the tough ones either.

FOR TEACHERS

Hoping to start a debating club? Looking for ways to give your debaters more experience? Debating Matters have a wide range of resources to help develop a culture of debate in your school and many more Topic Guides like this one to bring out the best in your students. For these and details of how to enter a team for the Debating Matters Competition visit our website, www.debatingmatters.com

FOR JUDGES

Judges are asked to consider whether students have been brave enough to address the difficult questions asked of them. Clever semantics might demonstrate an acrobatic mind but are also likely to hinder a serious discussion by changing the terms and parameters of the debate itself.

Whilst a team might demonstrate considerable knowledge and familiarity with the topic, evading difficult issues and failing to address the main substance of the debate misses the point of the competition. Judges are therefore encouraged to consider how far students have gone in defending their side of the motion, to what extent students have taken up the more challenging parts of the debate and how far the teams were able to respond to and challenge their opponents.

As one judge remarked *'These are not debates won simply by the rather technical rules of schools competitive debating. The challenge is to dig in to the real issues.'* This assessment seems to grasp the point and is worth bearing in mind when sitting on a judging panel.



**“A COMPLEX
WORLD REQUIRES
THE CAPACITY
TO MARSHALL
CHALLENGING IDEAS
AND ARGUMENTS”**

**LORD BOATENG, FORMER BRITISH HIGH
COMMISSIONER TO SOUTH AFRICA**