News story: Speech – Climate change: too true to be good

Introduction

This speech takes twenty minutes, provided I don't get heckled. But for those of you who are in a rush, here's the short version of what I'm going to say:

- Climate change is the biggest threat we face.
- If we don't tackle it the consequences are grim.
- We can tackle it and we are. The three most important things we can do are to stop the activities that cause it; enhance our resilience to its effects; and talk about it.

Climate change is real

Say "climate change" and see how most people react. I find it's a bit like "sustainable development": a phrase at which many people quietly glaze over and switch off.
So here's the first point: Don't switch off. Climate change isn't just words. It is a real Thing. And man-made climate change is a very scary real thing.

The rise in global temperature over the last several decades is a matter of public record. There is an overwhelming scientific consensus that it can only be explained by one thing: the rise in greenhouse gas emissions caused by human activities.

Some people say that climate change is natural and we shouldn't worry. The answer to that is that we have indeed had naturally-occurring climate change since the Earth was formed. But none of the natural causes of climate variation, from the Sun's output, the tilt of the Earth, volcanic activity or emissions from rotting vegetation, can account for the warming we observe today. There is only one thing that can: the emissions from fossil fuels caused by human activities over the last two hundred years. The concentrations of carbon dioxide in our atmosphere have increased by nearly 30% since the beginning of the industrial revolution.

It's not as bad as you think – it's worse

Here's another inconvenient truth. Not only is global warming happening, it may be speeding up. The 20 warmest years on record have all come since 1995. The five warmest years have all been in this decade, the 2010s. 2016 was the hottest year since records began.

And this year the UK had the joint hottest summer on record. It was extremely dry too – the driest across England since 1921. The Environment Agency's hydrologists recorded exceptionally low river flows for five weeks in a row, reservoir stocks were at historic lows and soils in the North West were the driest on record.

The environment suffered badly: numerous species, habitats, birds, trees and aquatic life were affected by the hot conditions and high demand for water. The Environment Agency responded to a 330% increase in drought-related incidents as our teams acted to protect wildlife and rescue fish struggling due to low river flows and low oxygen.
This kind of thing won't happen every year. But it will happen more frequently, and it will happen worse. Most of us enjoyed this summer's exceptional weather. But by 2040 it is likely there won't be anything exceptional about summers like the one we have just had. The records will keep tumbling. Exceptional may be the new normal.

And just as the rate of temperature rise looks to be accelerating, so too does one of its main consequences: the rise in sea level. Over the last 20 years sea levels have risen at roughly twice the speed of the preceding 80 years.

It gets worse. While the international community has pledged to avoid a rise of more than 2°C in the average global temperature by 2100 compared with pre-industrial levels, many scientists think that the figure will be higher. The central scientific estimate now is that by 2100 global temperature will have risen by nearly twice the 2 degree figure – by around 3.5 °C.

Climate change has bad consequences

Second big point, and one that bears constant repetition: if we don't tackle climate change, very bad things will happen.

"Global warming" is another of those deceptive phrases. It doesn't sound that threatening. Indeed to cold Brits shivering on our chilly northern island it sounds rather appealing. Who wouldn't want a bit more sun and the weather a few degrees warmer? But the phrase is misleading because it doesn't identify what will actually happen as the globe warms. The answer is that:

- The tropics will be hotter and drier.
- The higher latitudes, where the UK sits, will be hotter and wetter.
- In Britain we will have hotter summers. By 2040, we expect more than half of our summers to exceed 2003 temperatures.
- We will have wetter winters, and extreme rainfall events will become even more extreme. This is already happening. In 2015's Storm Desmond, a gauge at Honister Pass in Cumbria recorded 341mm of rain in 24 hours, a new record: that rain caused some of the worst flooding in living memory. Last year's flash floods at the Cornish coastal village of Coverack were caused by an extreme rainfall event which set a new UK record for 3-hour rainfall intensity. Half a mile offshore the rainfall intensity was 25% higher. It was only a fortuitous accident of nature that it didn't make landfall.

- Sea levels will rise significantly, perhaps by up to a metre in places by 2100, as waters warm and take up more space and our glaciers and land-based ice sheets melt. Sea level rise is particularly scary, because while other climate change-driven effects like extreme flooding or drought can do terrible harm, recovery from them is possible. But there is no recovery from a rising sea: it takes land, communities, infrastructure and everything else away forever.

- All of these changes in climate will have consequences. They will mean:

More frequent and more extreme flooding and coastal erosion, caused by those wetter winters, heavier rain, stronger storms and rising sea levels. That threatens all of us, because floods destroy: lives, livelihoods, communities.

- More water shortages and higher drought risk, caused by the hotter drier summers and less predictable rainfall. That could do deep damage to our economy and our environment.

- More frequent and more extreme fires and wildfires, such as we saw in the UK and around the world this summer, often with terrible human cost.

- More air and water pollution, due to those longer, hotter summers. That will threaten the living world of plants and animals, our wider environment and our own health.

- More damage to wildlife and the habitat on which it depends. In many cases that damage may be existential. If we continue to emit greenhouse gases at the same rate as today, then by 2050 one million species across the globe are likely to vanish.

We in this country are particularly exposed to these effects. The UK sits at a weather crossroads, with a big water mass to the west, a large land mass to the south and the jet stream running over the top. Our location means we will experience more of this extreme weather than some others.

So don’t get comfortable. If we allow climate change to continue unchecked, England’s green and pleasant land will be neither green nor pleasant. And if sea levels rise significantly, there won’t be much of our land left either .

Example: Lincolnshire. Much of that beautiful county is flat and low-lying. Quite a lot of it is a tidal floodplain. It is already at significant flood risk. 43 people lost their lives there in the great 1953 flood when a huge storm surge brought the sea crashing through the coastal defences. That’s why the Environment Agency has spent hundreds of millions of pounds improving and maintaining Lincolnshire’s sea walls and other coastal defences. And it’s worked: in 2013 there was a bigger East Coast storm surge than the one sixty

years previously – and nobody died.

But as sea levels rise and the storms get fiercer, how much higher can we build the walls around our coasts? There's a limit to what's practical and affordable. And even if we build ever higher and stronger defences along the coastline, there's another problem: our rivers.

Climate change means more rain is likely to fall more quickly into our rivers. So they will fill up quicker, and will flood the surrounding land unless they can rapidly discharge all that rainwater into the sea. But the higher tides and sea levels which climate change will also bring mean that precisely when we need our rivers to be better at discharging water to the sea, they will be less and less able to do so, because they will be increasingly tide-locked.

So we could have three nightmare future scenarios: one where high seas overwhelm our sea defences, a second where the rivers flood the land behind the defences, and a third – the worst of all – where both of these things happen together.

The result, if we fail to address these future risks, will be that many low lying parts of the country will be either permanently waterlogged, or flooded with such frequency
as to be no longer habitable. In my Lincolnshire example, Skegness would be lost, Lincoln would be at the edge of a new wet fenland landscape, and much of the rest of the county would revert to marsh.

Am I exaggerating? No. I might even be underplaying the risk. A report from an international team of climate researchers which hit the headlines this summer warned of a "hothouse Earth" – the risk that without intervention we could cross a threshold leading to runaway climate change, with sea level rise up to 60m. That wouldn't just make Lincolnshire and Britain history: it would make most of the Earth uninhabitable.
That is why climate change is simply the biggest issue there is. It is the biggest threat out there to our economy, environment, health, way of life, our country, our world, and our future.

But disaster is not inevitable: we can tackle this problem

That's enough bad news. The good news is that it doesn't have to be like this. We can tackle this problem, if we act now. Because while some of the effects of climate change – temperatures increasing, sea levels rising, wetter winters, more violent weather – will continue for the next 30-40 years no matter what we do now, we can affect what happens after that.

We know what we need to do. It's summed up by another two words that tend to make people switch off but which also really matter: mitigation and adaptation.
Mitigation means addressing the causes of climate change, by reducing or stopping the human activities which are affecting the climate system, for example by cutting our emissions of greenhouse gases. Most of the UK's emissions come from the way we produce and consume energy – from heating our

buildings, driving our cars, manufacturing goods, watching our TVs or boiling our kettles. We can lower our emissions by becoming more energy efficient and switching to renewable or low-carbon fuels.

As a country we've made a good start on that. UK emissions are down 43% compared to 1990, while over the same period the economy has grown significantly. That's really important: it shows that we can both tackle climate change and grow our economy. But most of these emission reductions have come from closing coal power stations and cleaning up heavy industry. That was the easy bit. It's a lot harder to reduce emissions from transport, agriculture and buildings. That will require much greater use of renewable energy, and infrastructure to capture and store remaining carbon emissions. The quicker we can move ahead on all that the better.

Adaptation means making changes to prepare for, reduce and negate the effects of climate change, for example by building stronger sea defences to reduce the vulnerability of coastal communities. Other things we can and should be doing now include reducing water usage by cutting leakage and extending domestic metering; avoiding any unnecessary development in flood plains or on fast-eroding coastlines; and designing infrastructure that will be resilient to the more extreme weather we know is coming.
There's more good news. There is now a pretty broad consensus – at least in this country – on the need to do these things.
The government gets it.

You can see that in the 25 Year Environment Plan launched this year by the Prime Minister and Michael Gove, which commits the government to take all possible action to mitigate climate change, including by continuing to cut greenhouse gas emissions; to adapt to reduce the impact of climate change; and to ensure that all government policies and investment decisions take it into account.

You can see that in the National Adaptation Programme issued by Defra in July, which sets out the actions the government will take over the next five years to help the country adapt to climate change; and which recognises that while we should continue to aim to keep global temperature rise well below 2° C, our resilience will only be robust if we prepare for worse scenarios.

And you can see it in the government's new National Planning Policy Framework, which is explicit that all new development plans should "take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures".

The independent experts get it. The National Infrastructure Commission has recommended a national standard of flood protection for all communities to be achieved by 2050, a concept which the Environment Agency supports; and major investment to enhance water supply and reduce demand in order to tackle the long term drought risk which climate change threatens. We support that too.

The Green Finance Taskforce, composed of leading experts in academia, finance

and civil society, has identified ways to encourage capital to move towards greener and cleaner sectors in the UK; and rightly framed this not as a cost but as a huge opportunity for investment, in particular in those sectors which are the backbone of the economy such as housing, transport, retail, utilities and industry.

Business increasingly gets it. The insurance companies are pricing climate change into their policies and looking to help their customers become more resilient to its effects, not least because that can cut insurance payouts when things like flooding happen. The water companies, energy companies, retail sector and others see the hard-nosed business sense in investing now for resilience later. All businesses need to be able to sustain their operations in a climate changed world, and to have confidence that when extreme weather hits, they will be the first back up and running.

The NGOs get it. Many of them, not just the environmental NGOs, are recognising that climate change poses the biggest threat to the things they and their members want to achieve, and are rightly challenging the rest of us to go further and faster in tackling it.

And – I hope you will agree – the Environment Agency itself gets it.

As regulators, we work every day with industry and the energy sector to reduce their greenhouse gas emissions. We are working with local authorities, planners and developers to create better places, designed for the climate we now anticipate. We are working with the water companies to manage the short term consequences of drought, as we have been doing this summer, and to ensure that the country will have better water security in the long term: last week I launched a new collaborative initiative with the leaders of the water industry to do precisely that.

We are building new flood defences up and down the country, explicitly designed for climate resilience. We are thinking long term about those defences. We design them with the latest climate change predictions in mind. And we build extra strong foundations beneath many of them so we can raise them as sea level and river flows rise. And despite their long design lives, we are already working on a replacement for many of them.

The Thames Barrier, which protects 125 square kilometres of central London, millions of people, and £200 billion worth of assets, is designed to sustain that protection against a changing climate till around 2070. But we are already planning its successor. I like to think of projects like the next Thames Barrier as the modern version of the great age of cathedral building. We will develop the plans and lay the foundations, and future generations will lift the spire.

The Environment Agency’s philosophy is that we should aim to do better than just surviving a changing climate: our aspiration is to help the country thrive in it. We can do that by working with the grain of the natural environment.

Example: the Medmerry flood defence scheme on the Sussex Coast. Instead of

building an unsightly wall to protect the local community from rising seas we knocked a large hole in the shoreline to let the sea in so as to create a large new area of coastal wetland. That wetland is the flood defence: it absorbs the high tides safely. But it is also a new and beautiful wildlife habitat, now run by the RSBP as a bird sanctuary. It's a great example of how you can turn the threat of climate change into an opportunity to create a better place.

We in the Environment Agency are also trying to walk the walk ourselves. We are reducing the carbon footprint from our own day to day operations year on year. Our £3bn Pension Fund is a leader in green finance. We have embedded climate risk into our pension investment strategy for well over a decade and have delivered outperformance.

Together with the Church of England's investing bodies we founded the Transition Pathway Initiative, with the Paris climate goals at its heart. The TPI assesses how companies are preparing for the transition to a low-carbon economy and is supported by asset managers and owners with over £7 trillion of assets under management. And at Governor Brown's Global Climate Action Summit earlier this month, it was announced that TPI's insight will inform Climate Action 100+, a global investor initiative to engage with companies to drive climate action, supported by $31 trillion assets under management.

Perhaps more important still, the British public increasingly get it. More and more of the people I meet up and down the country tell me that they are seeing evidence of climate change happening in front of their eyes. Many of them then go on to say that all of us as individuals have a duty to what we can to tackle it.

Don't underestimate the power of the people. We've seen an almost overnight change in behaviour in relation to plastics. We're seeing something similar, if slower, in people's attitude to water, with more and more of us taking care to use it wisely. It has become socially unacceptable to litter or to use throwaway plastic bags. It is increasingly socially unacceptable to waste water. The same thing can happen – and maybe is happening – with regard to behaviour which stokes climate change.

One last bit of good news: while it will cost a lot of money to respond successfully to climate change, we can afford it. Indeed, it's the best investment we could possibly make. It would be much more expensive not to respond. And the economic benefits of mitigating and adapting to climate change – in terms of damage foregone, extra growth achieved through new investment and infrastructure, prosperity boosted through innovative technology – far outweigh the costs.

Conclusion

The scandal is not that climate change is made up. The scandal is that it's not, and that while a lot is already being done to tackle it, we are still not doing all we could.
Why is tackling changing climate not at the top of everyone's agenda? Partly, no doubt, because most people have busy lives and other things to worry

about. Partly because the effects of a changing climate tend to be invisible and incremental until they are suddenly catastrophic. And maybe too because of the words we use. Language matters.
So here's a final thought: if words like "climate change" and "global warming" have become a turn-off for most ordinary people, maybe we should change the words. Perhaps we should talk instead about what those things actually mean: killer weather, a world under water, and a mortgaged future.

Many people might not get out of bed to fight something that sounds vaguely technical and non-threatening called climate change. But pretty much all of us would do so to protect our loved ones, our homes and our livelihoods, and to build a better world.
Conclusion: climate change is too true to be good. So let's tell it like it is, let's tackle it together, and let's redouble our efforts. Over the last two hundred years humans have comprehensively demonstrated that they can change the climate – and we have changed it for the worse by doing the wrong things. Now let's show we can change it for the better by doing the right things.

Press release: Working with nature to reduce flood risk in Norfolk

Working with natural flood management to help manage flood risk to local properties and to improve habitats.

News story: Speech – Climate change: too true to be good

Speech by Sir James Bevan, Chief Executive of the Environment Agency
Royal Society of Arts, 24 September 2018

News story: National Drought Group –

Chairman's Statement – September 2018

The National Drought Group (NDG), chaired by Environment Agency Chief Executive Sir James Bevan, brings together government departments, water companies, environmental groups and others to coordinate action to maintain water supplies and manage the other risks associated with drought.

The NDG convened on Thursday 20 September to assess the present situation and review the action being taken to reduce the risk of drought in 2019.

CURRENT SITUATION AND PROSPECTS:

The National Drought Group noted that despite recent rainfall and cooler weather, a significant number of reservoirs in the area around Manchester, Sheffield and Stoke-on-Trent are very low. United Utilities, Yorkshire Water and Severn Trent Water are all taking action to reduce water taken from these sources. It is unlikely that restrictions on customers will be used this autumn.

Recent heavy rainfall across Cumbria has improved the water resources situation for some reservoirs operated by United Utilities. However, there is continuing localised drought risk in some areas of the Pennines, Yorkshire, Manchester, Sheffield, Stoke and parts of central England.

Water companies need higher-than-average rainfall over the next few months to ensure good water supplies next spring and summer, and avoid the risk of water restrictions then.

ACTION TO BE TAKEN:

The water companies set out the action they will be taking to meet this challenge. This includes putting more resources into efforts to reduce leakage, seeking to capture and store as much water as possible going into the autumn, exploring the opportunities for water transfers between companies, improving and implementing their drought plans and other operational contingency measures. The action also covers preparing applications for drought permits should these prove necessary in the coming months, and continuing to communicate with customers the latest water resources position and encouraging their customers to use water wisely, including by encouraging moves to more metering.

The Environment Agency confirmed that it will sustain its enhanced activity to seek to ensure water users and the environment get the water they need and:

- Ensure they are responding quickly to emergencies
- Work with the water companies to ensure they are following their drought plans and implementing all agreed actions in a timely way
- Work proactively with farmers and other water users who abstract water under licence from the Environment Agency to seek to ensure they get the water they need whilst sustaining environmental needs

- Continue to actively monitor the weather, water situation and the environment. Manage down demand and protect the environment, using regulatory powers as necessary
- Assist the Canal and Rivers Trust with water supplies for canal networks to avoid impacts to those who use canals for homes
- continue to operate its own water transfer schemes where necessary to maintain river flows for water supply and the environment
- Communicate with those who use the environment to help identify potential impacts as quickly as possible
- Continue to respond to drought-related and other environmental incidents

The Environment Agency is working actively with the water companies and others to balance the needs of the public, industry and farmers, and the environment; and to ensure long-term water resilience. Following the National Drought Group, Sir James Bevan will chair the first steering group meeting of the water national water resources framework meeting, which will look at long-term pressures facing all sectors, and how to express these to ensure greater water resilience in the future.

Other NDG members set out the action they will be taking to preserve water supplies, sustain economic and leisure activity and protect as far as possible the environment, rivers, lakes and wildlife.

CONCLUSIONS AND NEXT STEPS

The NDG confirmed that there is no threat to essential water supplies. But a drier than average winter would bring the risk of restrictions on water company customers. It would also prove another challenging summer for farmers next year and cause further environmental impacts across the country. NDG members agreed to continue to work together to manage down these risks in the short to medium term and to balance the needs of people, the economy and the environment; and to work collaboratively to enhance the country's long-term resilience to drought and water shortages.

The NDG will meet again on 19 November to take stock and agree any further necessary measures going into winter.

Press release: Grass greener, but rain needed to reduce drought-risk for 2019

• National Drought Group agrees action to reduce risk of drought in 2019
• More than 300 dry-weather environmental incidents this summer
• Water restrictions likely in spring 2019 if winter rainfall is below average.

The National Drought Group (NDG) met today (20 September) to assess the

latest situation and agree actions needed to reduce the risk of water restrictions and protect the environment next year.

Members of the NDG, organisations affected by and responding to the risk of drought, heard that a number of water companies still have very low reservoir levels. The current environmental situation is fragile and dependent on good rainfall over the autumn and winter period.

The dry summer had a significant impact on water supplies, agriculture, the environment and wildlife, with the Environment Agency responding to 314 dry weather related incidents over summer – more than 3 times the usual amount.

Despite the recent rainfall, which has provided respite to rivers, wildlife and people's lawns around the country, the water resources situation has not yet returned to normal. At the end of August, overall reservoir stocks were at 65 per cent. The NDG heard today that if winter rainfall is below average, water restrictions on water company customers are likely in spring 2019.

Following the dry summer, Sir James Bevan, Environment Agency Chief Executive, invited water company representatives back to the NDG to explain their plans to protect water supplies and the environment. Today, they outlined a range of steps to reduce the risk of restrictions and ensure good water supplies into next year. Water companies are working to reduce leakage, capture and store as much water as possible over winter, identifying new water sources, setting up water transfers between companies and other operational contingency measures.

The summer has been tough on farmers. The Environment Agency responded quickly providing help and assistance with speedy decisions on allowing more water to farmers through August by approving 88 changes to licences to help farmers get more water.

Efforts to conserve water and recent rain has helped to stabilise water levels, easing pressure on the environment and agricultural sector. But the full impact of the summer heatwave is yet to be felt, with a delay on damage to some species and crops. With very dry soils, especially in the south east of England, there may be a delay refilling groundwater aquifers and reservoirs over the coming months. A delay in recharge may mean we start spring 2019 with below average groundwater levels, increasing the risk of drought in the east and south east of England next summer.

Sir James Bevan, Environment Agency Chief Executive, who chaired the NDG meeting, reminding members that early action and proper planning will reduce the likelihood, or extent, of drought measures next year. He said:

Ensuring sufficient water for the public, the economy and the environment is one of biggest challenges we face as a country. The Environment Agency will continue to work actively with the water companies and other water users to seek to ensure that.

But this is not just a matter for the organisations at National Drought Group. We all use water, and everyone has a role to play in ensuring we

continue to have reliable access to it, so we encourage everyone to please use water wisely.

Notes to Editors

1. The full statement from NDG Chair and Environment Agency Chief Executive Sir James Bevan is available on request and will be on GOV.UK today.

2. List of attendees at this meeting:

Affinity Water; Anglian Water; Bristol Water; Cabinet Office; Canal and River Trust; Consumer Council for Water; Defra; Department for Business, Energy and Industrial Strategy; Drinking Water Inspectorate; Energy UK; Environment Agency; Met Office; National Farmers Union; Natural England; Northumbrian Water; Essex and Suffolk Water; Ofwat; Portsmouth Water; Public Health England; RSPB; SES Water; Severn Trent Water; South East Water; South Staffs Water; South West Water; Southern Water; Thames Water; United Utilities; Water Scan; Water UK; Wessex Water; and Yorkshire Water.

Ends.

For media enquiries, please call:
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