

News story: Plans launched to boost quality of post -16 qualifications

Plans to stop funding qualifications that do not provide the same high-quality education as new T Levels and world-class A Levels have been published today (19 March) by Education Secretary Damian Hinds.

The move is the latest step in the Government's drive to boost the quality of education and training available to young people post-16, which includes the introduction of new T Levels from 2020 – the technical equivalent to A Levels – and more high-quality apprenticeship opportunities.

A Levels, T Levels and apprenticeships will be the gold standard option for young people after they take their GCSEs, but if a student chooses another qualification the Government wants to make sure they are as high-quality and will set them on a clear path to a job, further education or training.

If a 16-year-old wants to study history, they know they can take an History A Level which is understood and trusted by parents, universities and employers. But if a student wants to study an engineering qualification after GCSEs there are over 200 different options to choose from – leaving them at a loss as to which ones will give them the best chance of getting the skills they need and leaving employers with no clue as to which qualifications they should be looking for.

To help streamline and boost the quality of education on offer, Mr Hinds has launched a consultation reviewing qualifications at level 3 and below – excluding A Levels and GCSEs – such as Applied General Qualifications, Tech Levels and Technical Certificates.

Education Secretary Damian Hinds said:

We have made huge progress to boost the quality of education and training on offer for young people. From 2020 we will start to roll out new T Levels which will offer young people high-quality technical courses alongside our world class A Levels. These will be the gold standard choice for young people after they take their GCSEs.

But we also want to make sure that all options available to students are high-quality and give them the skills they need to get a great job, go on to further education or training, and employers can be confident they can access the workforce they need for the future.

We can't legislate for parity of esteem between academic and technical routes post 16. But we can improve the quality of the options out there and by raising quality, more students and parents will trust these routes.

In the first part of a [two-stage consultation](#), the government is consulting on:

- only providing public funding for qualifications that meet key criteria on quality, purpose, necessity and progression
- not providing public funding for qualifications for 16 to 19 year olds that overlap with T Levels or A Levels

[Analysis](#) published by the Department for Education today has highlighted a confusing landscape of over 12,000 courses on offer to young people at level 3 and below, with multiple qualifications in the same subject areas available – many of which are poor quality and offering little value to students or employers.

Matthew Fell, CBI Chief UK Policy Director, said:

Young people need clear, high-quality and easy to understand options at 16 – whether that's A-levels, new T-levels, or doing an apprenticeship. Each route is valued by employers, but it can sometimes be difficult to understand the difference between the thousands of qualifications and different grading systems out there.

The Government is absolutely right to address this by giving employers a part in shaping the reforms, ensuring qualifications relate to the modern world and give young people the skills they need to succeed.

In 2011, the Government asked [Professor Alison Wolf to carry out a review of vocational education for 14- to 19-year-olds](#) in this country to support more young people into jobs or into higher level education and training. Following this, in 2015 the Government also commissioned [Lord Sainsbury to carry out an independent review] and make recommendations on how to improve the quality of technical education. Both reviews led to improvements in the system, including the development of new, tougher criteria for qualifications included in performance tables and the introduction of new gold standard T Levels from 2020.

The Government announced that it would carry out a review of post-16 qualifications at level 3 and below in May 2017 as part of its [response](#) to the T Level consultation.

The review launched today will build on the progress made so far to deliver the vision set out by Professor Wolf and Lord Sainsbury.

Lord Sainsbury said:

I am very pleased that this review will shine a spotlight on any current qualifications that exist that do not best serve our young people or their future employers.

The key priority for the Independent Panel on Technical Education, which I chaired, was to raise the quality of technical education to that of academic education in this country, and we strongly recommended that public subsidy should be withdrawn from college-based technical education that didn't set young people on the best possible path to employment or further learning.

If we are going to ask our young people to work hard to get qualifications, we must make sure that those qualifications deliver real benefits to them.

The Government reformed GCSEs and A Levels to make them more rigorous and put them on a par with high performing countries, so they better prepare pupils for further study and employment.

The response to the first consultation will be published alongside the launch the second consultation later in the year. It will set out more detailed proposals for change, including the criteria that will be used to determine whether a qualification will be approved for public funding.

[News story: CNC Police Officer receives MBE](#)

CNC Temporary Assistant Chief Constable (T/ACC) Duncan Worsell has received an MBE from His Royal Highness the Prince of Wales during an investiture at Buckingham Palace.

The award was in recognition for T/ACC Worsell's services to policing.

Duncan has worked for the Civil Nuclear Constabulary (CNC) for over 25 years. For the last five years he has been responsible for a complex operational division containing over 800 police officers and staff, based at high profile sites such as Sellafield and Dounraey, as well as four EDF nuclear power station sites.

Speaking after the investiture Duncan said: "I am delighted and very proud to have received this award. It is an enormous privilege to be one of the leaders of the CNC. I have the pleasure of working with some fantastic people, and this award is also recognition for the hard work they display on a daily basis."

Duncan's entire career has been spent in public service. He began his working life at 17 and prior to joining the CNC served with the Royal Navy.

Speech: Sir Alan Duncan speech on Kazakhstan success with UNSC

Good evening ladies and gentlemen, and thank you Ambassador for giving me this opportunity.

This fine building has a habit of witnessing historic occasions.

Both Houses of Parliament moved into Church House at some stage during the Second World War, and [as the Ambassador rightly said] the very first United Nations Security Council meeting took place here in 1946.

So this is absolutely the right place in which to be celebrating Kazakhstan's successful first spell on the Council.

Given Central Asia's pivotal place at the centre of the world, it was about time that we saw it represented at the heart of the international system.

I hope that Kazakhstan's obvious success in the UN over the last two years will encourage other states in the region to follow in your footsteps and become key players on the international stage in the way you have been. Your significant contribution to the workings of the UN is a good illustration of the way in which Kazakhstan, and the region, are attracting more and more attention and interest.

Kazakhstan's more active role on the international stage is undoubtedly one of the reasons for that – their successful Caspian Summit was a good example, and that forged an agreement to settle the previously unresolved status of the Caspian after 20 years of negotiation. This represents a key step in unlocking future international investment in the Caspian Basin.

Two particular highlights I would like to commend are its work on promoting regional partnership between Afghanistan and Central Asia, and its success in organising the first visit since 2010 of a Security Council Delegation to Kabul.

Beyond its membership of the UN Security Council, Kazakhstan has also demonstrated its commitment to international peace and security by deploying peacekeeping troops in Lebanon. This is a significant contribution to the pursuit of peace in the Middle East.

In connection with that deployment, I am proud that the UK's close partnership with Kazakhstan played a role in readying their troops for peacekeeping, by providing them with English Language Training and supporting what was called Exercise Steppe Eagle, which is an annual peacekeeping training exercise.

But our collaboration goes much further than the mere military. 2018 was a spectacular year for bilateral trade and investment. We saw the launch of the Astana International Financial Centre, with its associated Court, based on English Law. We also saw the successful dual listing of the Kazakh uranium company, KazAtomProm, for its IPO, in both London and Astana.

I really welcome these closer trade and investment links and look forward to collaborating on trade policy as Kazakhstan prepares to host the World Trade Organisation 12th Ministerial Conference in Astana in June 2020. Of course, every successful partnership ultimately depends on the bonds between its people, and especially its young people. And here, too there is a good story to tell. Many Kazakhs have deep connections with Britain, in part thanks to the 'Bolashak' higher education programme, which has brought thousands of students to the UK over the last 25 years. And overall, we issue 3,000 visas to Kazakh students every year; and I have to say, it's nice to know that at least some visas can be issued without difficulty.

We plan to strengthen these personal links even further in 2019, which President Nazarbayev has helpfully declared the year of youth. And I have decreed that includes me. We will build on the successful model pioneered by the British Council's 'Creative Central Asia' programme, to link up young leaders across a range of fields, from politics and business to culture and social engagement.

Our vision for Central Asia is of a peaceful, prosperous and well-governed region, whose countries are free to exercise their independence and sovereignty, and which are able to continue cooperating peacefully with each other and with the wider neighbourhood.

This is a vision shared by our partners in the region, including Kazakhstan, and by the EU. We want the EU to continue to take an ambitious role in the region and that is why we have remained an active participant in discussions on the new EU-Central Asia Strategy.

It is also why, regardless of the nature of our future relationship with the EU after we leave, we remain committed to cooperating with them and other partners in Central Asia, and to further developing our strong relationship with Kazakhstan and its neighbours.

I very much look forward to working with Kazakhstan's new Foreign Minister to further develop our bilateral relationship, including by continuing to collaborate in the UN and other multilateral fora.

Your excellencies, Erlan, I offer my congratulations once more to Kazakhstan on your successful two year stint in New York, and I commend you all on your wider efforts to embrace international cooperation and the support you've given to the rules-based international system. In doing so, Kazakhstan has not only shown a determination to step up and play its part on the world stage; it has also set an example for the region to follow.

I believe that we share with the government of Kazakhstan a vision of a region working together for the common good, one that plays a positive role

on the international stage, and most importantly one that realises its considerable potential, to the benefit of all its citizens and the wider world.

So we remain committed to supporting Kazakhstan to realise that vision, in 2019 and beyond. And once again I congratulate you for your service to the world over the last two years.

Speech: Keith Williams at Accelerate Rail 2019

Introduction

We are now at half time in the Rail Review and making good progress, but as those who follow rugby will know, half time isn't always a good determinant of where you will end up, so we have no opportunity to sit back.

There is nowhere better to speak about the next steps for the review than here at Accelerate Rail 2019 – the future of rail.

I hope we share a view that to build a successful rail sector we need not only to look to changes for today but also look to create the conditions that build a successful sector into the future. That is precisely what I hope to achieve when I hand the review over for an autumn white paper. Establish a blueprint for the future of rail.

In the course of the last 6 months we have met with more than 130 groups and had around 200 submissions; and it is apparent that we have to get on with things and start to make change happen.

My sense is that we need to bring forward real change for passengers early. I'm determined that when the review makes its recommendations we identify those changes that can be made quickly, making an important step towards winning back the hearts and minds of rail passengers. As many of the people I've spoken with have said, we need to get back to basics before we build for the future.

But it is equally apparent from the wide spectrum of opinions we have heard that the review is going to have to make some robust recommendations and accept that there will be difficult trade-offs in order to make the sector fit for the future. And we need to define how success should be judged – not only on short term measures but equally against how well we create the conditions for the long term change.

But on this I am realistic. Experience has taught me that business needs

certainty to perform, and that change is best when well managed and planned. So, we will be considering recommendations that re-shape the sector more profoundly in the medium and long-term. We must be understanding that we will not achieve revolution in this industry quickly, but we must make early gains and set out a pathway to the future.

But I am jumping ahead. As I said, we are half way so I hope you are not expecting us to bring forward those recommendations today (19 March 2019).

There is still an awful lot to be played for.

Today I can talk to what we have found and heard so far and how we are using this to develop what we believe are the criteria on which we will base our future vision for Britain's railways.

I can also share views on some of the changes that I am considering to achieve this future vision.

What we have heard

Firstly, a recap on what we have heard.

There needs to be a much stronger focus on passengers. This has been common ground from everyone we have spoken with. Passengers must be at the heart of the future of the railway. And not just the passenger of today, but also the passengers of tomorrow, who will look at rail differently than we do today and hopefully, if we do our job right, as part of a more integrated transport network. One of the trade-offs we will need to consider is the balance between running the railway for the passenger of today and developing it for those of tomorrow.

Secondly, we need a railway that can work as a total operating system. All the evidence we have seen and heard over the past six months tells me that we have a railway that struggles to plan, invest and work as a system. We need a railway that can operate as a system, and also take account of local needs.

Thirdly, as Stephen Glaister highlighted, there is a gap in responsibility and accountability for managing systemic risks for major change programmes which deliver for passengers and freight customers. Despite growth for many years, that has been the envy of other countries, the sector lacks strategic direction and leadership. As a result, it struggles to deliver major projects and is unable to bring through system-wide responses to either strategic issues, like CO2 reduction, or technological change, like smart ticketing and digital connectivity.

These problems are well recognised; I've been impressed at the level of consensus I've found from all parts of the sector in drawing out these issues. But action to tackle them has been slow and hampered by the fact that leaders in the sector can't make the changes they need to because of the inability to control the levers necessary to make that change happen.

The levers to effect change do not come together coherently, and in too many

instances only do so in the Department for Transport. A lesson we can learn from other countries is that some decisions are best taken by those closer to the detailed operations. More on this later.

It is right that government and ministers set the strategic direction for the railway and decide the overall level of public funding. And they are rightly accountable to Parliament for that. As we know, more of government's transport spending is on rail than on all other modes added together, and as an industry heavily subsidised by the taxpayer it is only right that these roles sit with government.

But the DfT has had to take on roles it never intended to perform, largely because of an absence of clear alternatives, filling a vacuum in the current structure that has not been fundamentally updated since privatisation, whilst the world has changed considerably around it. Did it ever really set out to specify which trains stop at which stations?

The Department for Transport's role and the role of other industry players, will have to change as we begin to realign the sector to focus on its customers. The Transport Secretary, Bernadette Kelly, the department's Permanent Secretary, and the directors general for rail are all in agreement with this this.

Customer focus

The industry has achieved enormous success over the past decades:

- doubling passenger numbers
- running more trains than at any time in the railway's history
- whilst delivering improvements in safety
- and seeing more money spent than ever on improving the railways

But it's fair to say that passengers have had a rough ride in recent years.

Let's start with some of the well-rehearsed key stats on passenger satisfaction Some key stats on satisfaction:

It's well known that satisfaction is the lowest in a decade. Nevertheless 8 out of 10 people are satisfied with their last journey. Satisfaction rates are lowest among commuters – only 70% of whom are satisfied with their journey – largely because they are using the network at the busiest time, and also because disruption has a greater impact on their home and professional life. Their priorities are reliability and punctuality.

Non-commuters are far more positive about rail because they have greater flexibility in when they can travel. Their priorities are cost and the ticketing system, which many find confusing.

Perhaps more worrying than satisfaction are levels are levels of trust. Distrust now stands at 37%, 13 percentage points higher than 3 years ago Which?'s consumer insights tracker found only second-hand car dealers are more distrusted by consumers.

We have been doing our own passenger perceptions research into the factors that build up or undermine trust in the railway. The headline finding is that passengers do not feel that the current system is customer-centric in any way, shape or form. This is critically undermining trust.

Our research found that 2 key criteria explain trust in railways: perceptions about competence and about motivation.

The passengers we spoke to felt that not only is the industry not competent to run a quality service, but that it is not motivated to. Put plainly, they feel that those leading the railway do not want to run a quality service, preferring to prioritise making money over the experience and service they give to passengers.

Poor communication is another grievance. When things go wrong they feel they are not given information that allows them to make informed choices about their onward travel or the cause of the problem. We live in an information age where people rightly expect communication to be quick and accurate.

Let's be clear – such negative perceptions about the sector and those working in it are sometimes unfair. I know this from my own experience of airlines. When things went wrong and things do go wrong in all modes of transport, dealing with large volumes of customers can quickly lead to meltdown with backlogs of thousands of passengers and journeys delayed, resulting in poor passenger outcomes and negative headlines. I have seen this close at hand in my airline days experiencing anything from repeated systems failures, to weather delays and of course the opening of Terminal 5 at Heathrow.

Negative events and perceptions do not reflect the actual experience of many passengers – nor the service provided by many who work on the railway day in day out. It is not borne out in the data. It is certainly not reflected in the meetings I've had with many passionate people who are working on the railway. But it is sometimes how passengers feel and must be turned around for the railway to have a bright and successful future.

So how do we do that? We asked passengers if changes to industry structure would allay their concerns. Many of those we spoke to, unsurprisingly, said they have little interest in how the industry is structured, other than they would like to see more leadership. We asked passengers if changes to ownership would help. There was no clear consensus that public ownership would solve their concerns, primarily because there is little or no confidence that the system would be any better and, some concern that it would be worse.

Fundamentally, what the research tells me is that the only way we can rebuild public trust in the railway is by putting the customer at the centre of reform – that is my mission for this Review.

Future

A customer first mind-set means the railway must also be cognisant not just of the customer of today but also the customer of tomorrow. This is a

particularly salient subject given we are here at Accelerate. And it is perhaps surprisingly a topic that hasn't come up as much as I would have thought in conversations I have had so far.

I am firmly of the view that short-term performance or commercial issues should not distract us from the opportunities and challenges we have coming towards us. We need a sector which is incentivised and has the right structures and models to think about and prepare for the future.

Significant changes in socio-demographics, the economy, clean growth and technology are changing the ways in which we live, work and travel. Although it's impossible to predict the future with any great certainty, these trends will influence the market for rail both directly and indirectly. While it's clear that rail is likely to remain a competitive mode for intercity travel and the most efficient mode for Monday-Friday commuter travel into large cities – there is going to be significant changes to demand patterns and passenger expectations.

Innovations such as enhanced automation, open data and new transport models could also be serious disrupters in the travel market, further impacting future demand for rail.

The sector has so far shown limited ability to adapt to these trends and harness the opportunities they create.

While I have no crystal ball, one thing the sector certainly needs to be ready for is the move towards more integrated transport networks, with modes working together to provide a seamless journey.

We are already seeing a shift to this – Transport for West Midlands are working in partnership with DfT and local authorities to run the rail services in the area and integrate them with bus, tram, and cycling and walking options. Again, in the Midlands, tech firm Whim is working with local transport providers to offer a service where customers can plan and pay for journeys by a range of transport modes, all through a single subscription service. In London, CityMapper Pass offers users unlimited Underground, Overground, bus, bike and shared cab services through one integrated card and app.

The integration of modes could deliver massive benefits to passengers and taxpayers. Doing it successfully will rely on the sector's ability to innovate and collaborate. Increasing the digitisation of ticketing is an obvious place to start – this would support integration, could deliver major benefits for passengers and costs savings for the industry. But rail is a long way behind.

Just look at e-ticketing. My old industry – the airline industry- looked at e-ticketing in 1994 (yes 1994). By 2008 it was mandatory for all two hundred and fifty or so of its member airlines to move to e-ticketing. This covered airlines from Aeroflot to Yemenia airlines. It was part of a programme of simplification which reduced costs to the industry by over 2 billion pounds.

But it was not only a cost saver, it also brought in several other customer benefits such as self service check in, self service printing of boarding passes, delivery of boarding passes by SMS or email.

At my old airline British Airways we replaced banks and banks of customer service agents firstly with self-service kiosks and then brought in mobile phone check in. I don't have recent data but when I left the airline a few years ago more than 40% of customers were using mobile check in. It was a win win – easier for them and the cheapest of channels for the airline.

I recognise that progress is being made on smart ticketing and acknowledge that it is easier in the airline industry to do this because of better data collection. Equally I know that the byzantine nature of rail fares, already acknowledged by the industry and made clear by the RDG, and the lack of incentive for TOCs to invest heavily in technological change, especially at a system-wide level, make this difficult.

But this, to my mind, ignores the reality that at some stage in the future the industry will have to serve its customers almost wholly if not totally in a digital way.

The bottom line is that all the evidence is telling us that sector needs to be more adaptable to change, and part of the solution is creating the conditions that enhance its ability to innovate.

There are plenty of examples showing excellent and innovative work – for instance HS2 plans to fit trains with real time monitoring equipment that will assess the condition of the rails, signals and overhead power cables as they travel, collecting data that will enable engineers to plan and carry out maintenance before a fault affects service reliability or ride quality.

We need much more of this and the review will seek to create conditions that enable the sector to innovate, respond to changing conditions and become pioneers once again.

International

Something I have been asked repeatedly over the past 6 months is whether I'm looking at what the UK can learn from other countries and the answer is yes. And you learn some surprising things. Things I'm not sure I'd always recognise them from media coverage.

What you can see when you compare the UK to other countries is that since 1997 the UK network has undergone a period of staggering growth, in terms of the number of trains being run and number of passengers using the network.

Needless to say, this has resulted in increasing pressure on the UK's rail system and its performance. The UK has responded by investing even more – we currently invest more than any other EU country in our rail network, with flag ship schemes such as Thameslink, Crossrail and HS2 all requiring vast amounts of investment.

Ultimately many of the performance challenges the network is now facing are the results of success – more investment, more trains, more passengers, and expanded and enhanced network.

Performance challenges are not unique to the UK, though. In Germany, relatively low levels of historic maintenance and renewals spend over recent years, has resulted in dipping performance levels and led this year to a new 'Five-point plan for 2019' to increase capacity and punctuality.

The UK's satisfaction rates are among the highest of the larger European nations. The EU's Eurobarometer on Europeans' satisfaction with passenger rail services 2018 (so, with data that predates last year's timetabling issues) placed the UK in the top quartile along with Austria, Ireland, Luxembourg, Portugal and Slovakia. We also have a world leading safety record.

Nevertheless, while we compare relatively well with other railways, there are clear lessons to be learned.

Close working between the infrastructure and operations is essential in increasingly busy networks, Japan being the best example of this. Japan's track and train operations are combined into single railway companies, with an overall profit and loss account for those companies and single responsibility. This means that the company incentives are aligned across the business as a whole and, with single responsibility, decisions can be made more quickly.

In many of the cases regional devolution appears to have had a positive effect on the provision of rail services. However, strong coordination between regions is required to ensure the system works as a whole. A strong national body is required to champion this – the role of DB Netze in Germany is a good example where it responsible for the construction of timetables, and the regulation of traffic.

All the systems we've looked at across the world contain a mixture of public and private involvement.

Private sector involvement, bringing a level of competition and expert skills, is widely considered to deliver greater efficiency. There's not an obvious optimal blend of public / private sector involvement. What is important is that value from private sector input should be maximised for the benefit of passengers and freight to minimise burden on the taxpayer.

One thing that is clear – all the systems that we have looked at have had to take tough strategic decisions that set priorities for the type of rail service they will deliver. We will also have to do this as we move forward.

Assessment criteria

Now, as I said earlier, we are roughly at half time and there's still lots to play for, and we're now at the point where the goal we're aiming for can be better defined.

Any future operating model for the railway will need balance competing objectives.

To assist our thinking, today we have published some draft assessment criteria. The review will use these to develop its recommended model for the railway – if you like, they are the first step towards our blueprint for the railway of the future.

They describe the outcomes we want to achieve for passengers on performance, value for money, accessibility and trust. For taxpayers on affordability and financial sustainability. For Freight, for the environment, the workforce, and, of course, safety and security.

What they absolutely must help us deliver is the following.

Improved focus on customers – the railway must adopt a fully customer-centric view as the basis for decision-making at every level.

Clearer accountability and leadership – A reformed system must make it clear who is taking the decisions that affect passengers and freight customers, so people understand who is in charge.

I want the review to enable more opportunities for collaboration, bringing together skills and resources from across the industry to plan, deliver and improve rail services more effectively, with everyone focused on delivering for the customer.

Greater innovation and long-term thinking will be crucial, particularly in the context of a rapidly transforming public expectations about how journeys are planned and made.

Finally the, industry must have access to the full range of project management, engineering, train planning and operational skills needed to ensure delivery of major new initiatives on time and to budget

Moving to a customer focused railway won't be easy and I want to make it absolutely clear that trade-offs will be unavoidable when I come to make my recommendations – for example, between a systems that delivers a national network and is responsive to local interests.

For me success is defined by our ability to design a system that can make choices and trade-offs. Moving to this system must involve everybody in this room here today.

Thank you.

Speech: Escaping the jaws of death: ensuring enough water in 2050

Introduction: the jaws of death

If you look at the business plans the water companies produce (and rather tragically I not only read them but like reading them) you will notice two things that they all have in common.

First, they all identify the same thing as their biggest operating risk: climate change – which is another good reason to believe in it. It's not just almost every scientist in the world who believes it's happening, but hardnosed companies who are making investment decisions based on their belief that it's a Thing. They would not be spending hundreds of millions of pounds a year on greater resilience in the face of something for which there was not compelling evidence.

The second thing that you find in all the water companies' business plans is a chart in the form of a graph, also known by some as the jaws of death (though that's not what they call it in the glossy business plans). This chart draws two lines across the X/Y axis.

The first line shows predicted water demand over the next several decades in the region the water company serves: and in all the water company plans this line goes up, as more people, homes, and businesses appear over time.

The second line shows the water that will be available to supply those needs: and in all the water company plans this line goes down, as the effects of climate change kick in.

And somewhere out along the timeline, usually around the 20/25 years from now mark, those lines cross. And that, ladies and gentlemen, is the jaws of death – the point at which, unless we take action to change things, we will not have enough water to supply our needs.

Self-evidently, avoiding something called the jaws of death is by and large the sensible thing to do. So how do we do that?

Step one: understand what's going on

First, we need to understand what's happening.

Climate change is what's happening. It means that in the UK we will have hotter and drier summers. By 2040, we expect more than half of our summers to exceed 2003 temperatures.

That will mean more water shortages: by 2050, the amount of water available could be reduced by 10-15%, with some rivers seeing 50%-80% less water during the summer months. It will mean higher drought risk, caused by the hotter drier summers and less predictable rainfall.

Result: on the present projections, many parts of our country will face significant water deficits by 2050, particularly in the south east where much of the UK population lives.

Something else is happening alongside climate change: growth. The population of the UK is expected to rise from 67m now to 75 million in 2050. All those extra people need houses and roads and energy and food and places to work, all of which will require more water.

The environment needs more water too. Example: chalk streams. They are extremely rare – most of the world's are here in England. They are ecologically vital, supporting a rich biodiversity: trout, voles, otters, kingfishers. And they are under threat, because their aquifers currently provide drinking water for millions in South East England, and that is unsustainable in the long term. That's why we are working with the water companies to reduce or in some cases end abstraction from chalk streams.

So: climate change plus growth = an existential threat. To our economy, environment, security, happiness, way of life. We can choose to ignore this problem. Or we can choose to tackle it. I'm betting that you are all in this room because you think the second approach is preferable to the first.

Step two: do something about it – push all the buttons

So what action do we need to take? In the face of water scarcity, we must tackle both sides of the equation: reduce demand and increase supply. The good news is that we can do both of those.

We can reduce demand by reducing leakage, by more water metering, sustainable drainage systems, insisting on new building regulations to drive greater water efficiency, and finding ways to cut down the amount of water we each use as individuals.

And we can increase supply by a mix of methods, all of which we'll need to pursue. We will need to see more water transfers between regions from areas of water surplus to areas of deficit. There's scope to do much more here: currently only 4% of water supplies are transferred between individual water companies.

We will need to build more desalination plants. Thames Water have an impressive one in Beckton, the first of its kind in the UK, which can provide up to 150 million litres of drinking water each day – enough for nearly one million people.

And most controversially of all, we will need to build new reservoirs. Creating some of that new infrastructure will be challenging: we have not built a new reservoir in the UK for decades, largely because clearing all the planning and legal hurdles necessary is so difficult and local opposition so fierce.

But while there will be political challenges, there should be less difficulty over the economics. That's because the investment needed to build the

infrastructure we need to increase our resilience is modest compared with the cost of not doing it.

There is strong support from the National Infrastructure Commission for this approach. Their 2018 report on our national infrastructure needs highlighted the risk of extreme drought, supported the twin track approach of investing to enhance supply and reduce demand, and noted that the investment cost of resilience (£21bn) is roughly half the cost of an extreme drought (£40bn).

A 2016 report produced by the water companies, the Environment Agency and others came to the same conclusion: that investing in water resilience was both affordable and cost-beneficial. That report calculated that while a severe drought would cost each household more than £100, the cost per household of the investment that would greatly reduce the risk was only £4 a year.

What is the Environment Agency doing about all this?

We too are strong supporters of this twin track approach, and are working with the water companies and Ofwat to ensure that the water companies' business plans for the next five year price period (2019-2024) reflect it. And to a fair degree, they do: a significant number of companies have said they will meet Ofwat's leakage reduction target of 15% by 2020, there are over 20 new water transfers proposed, plans for more regional cooperation between the water companies, and a range of large infrastructure plans, including two major reservoirs.

We are also working with the government to set the right level of ambition for water efficiency. We are particularly interested in specific ideas on how we could get this country to Waterwise's ambitious target of 100 litres per person per day. And we are delighted to have recently become a Waterwise Supporter, helping Waterwise to challenge and support all of us in the sector to aim even higher on water efficiency.

That too will require a range of measures. Water labelling is one example – ensuring all products that use water, like a toilet or a dishwasher, bear a label clearly identifying how water-efficient or not they are, so people can choose products which will reduce water use.

Better building standards is another – done right, these can reduce the amount of water used in new and existing properties without adding cost or reducing people's quality of life.

Recent research showed that a mandatory water label for water-using products combined with product standards and building regulations could reduce per capita consumption by 30 litres a day in 25 years.

And a third example is something the Environment Agency is heavily engaged in: sustainable placemaking – working with planning authorities, businesses and local communities to design towns, cities and other places which put the sustainable use of water at the heart of their design and functioning.

The Oxford Milton Keynes Cambridge Arc is a great opportunity to showcase how this could be done, and we are working closely with all those involved to ensure that the blue and green infrastructure (the water and the nature) gets as much attention as the grey infrastructure (the houses, the roads and the industries).

The cost-benefit of blue/green infrastructure is striking: there is compelling evidence that people who live near water or green space, or have regular access to it, are happier, healthier and more productive. Investment in a new wetland, a cleaned up river or a tree plantation is not just a good thing because it creates beauty and habitat. It is also a removal of cost from the NHS.

The Environment Agency is also taking action to protect our water sources and ensure they are used wisely, by reforming the current system of water abstraction.

If you want to take more than 20 cubic metres of water a day from a river or the ground you need an Environment Agency abstraction license. The abstraction licensing system we currently have was designed more than 50 years ago for a world with less environmental protection, less demand for water and no awareness of climate change. Many of the older licenses have no limits on the amount of water that an abstractor can take. Others are out of date or unsustainable. Some are actively damaging the aquifers from which the water comes, draining the water table or hurting the local ecology.

So we are working with the government and the water users to implement reforms designed to give abstractors the water they need while better protecting the environment and our long term water supply. We are currently midway through a programme of reforming those licences, sometimes adding new terms and conditions that will reduce overall water usage or only allow it at times when it will not cause harm. In rare cases we are withdrawing the license altogether.

In parallel we are developing a stronger catchment focus that brings together the Environment Agency, abstractors and our other partners to seek to agree a catchment-wide strategy for water that will balance everyone's needs and address unsustainable abstraction.

With Ofwat, Defra and the water companies we are also developing a longer term national framework for water resources which will produce an inclusive picture of the need for water from all sectors, and which we can use to identify how best to deliver this over the coming decades.

Finally, as well as working for a better future for water in the long term, we are also working for a decent one now: yesterday (18 March) the Environment Agency chaired the latest meeting of the National Drought Group, which brings together the water companies, government and water users to manage down the risks of water shortages over the next few months.

Step three: think (and act) different

Avoiding the jaws of death is a joint effort. We will only succeed if we all work together. The coalition we need is largely in this room: we have representatives here today from the government, the Environment Agency, the other regulators, the water companies, the National Infrastructure Commission, the key NGOs.

All of you – all of us – have done important things over the last few years to help improve the country's long term resilience. Today I want to recognise and thank all of you for your own contribution. But we cannot afford complacency. So let's also agree that we all need to up our game.

The government

The government deserves credit. (How often do people say that?). It's shown leadership with the publication last year of a 25 Year Environment Plan, with ambitious targets and an audacious goal: that we will be the first generation to leave the environment in a better state than we found it. Whatever our personal politics, we can all rally to that cause.

One of the core goals of the 25 Year Environment Plan is clean and plentiful water. And in the plan the government made some important commitments: to increase water supply, incentivise greater efficiency and less personal use.

To these ends the government has committed to press on with abstraction reform. It has promised a new National Policy Statement for water resources that will streamline the planning process for new large infrastructure schemes such as transfers and reservoirs: that will, as I suggested, be controversial. But it's the right thing to do.

The government has also been clear that it wants to see personal water use fall, and that it will work with the industry to set an ambitious personal consumption target and agree cost-effective measures to meet it. Now the government will need to deliver on those commitments. It may also need to legislate to deliver on some of them. We will support it in doing so.

I also want to commend the government for three other announcements that came out last Wednesday which I suspect – given what else was going on in Parliament that day – many people didn't notice. In his Spring Statement, the Chancellor announced that the government would do three things that, done right, could make a huge difference in getting us out of the jaws of death:

- introduce a Future Homes Standard by 2025, so that new build homes are future-proofed with low carbon heating and world-leading levels of energy efficiency. That will help mitigate the main driver of climate change. It would be great if that standard could require that new build homes are also future-proofed with world-leading levels of water efficiency and resilience to drought and flood.

- mandate net gains for biodiversity on new developments, to deliver an overall increase in biodiversity. That will help ensure developers consider the water needs of the animals, plants and environment as well as the needs of the humans.
- undertake a global review into the economics of biodiversity to explore ways to enhance the natural environment and deliver prosperity. I think that is likely to find, as the Stern Review did so powerfully for climate change, that we risk a strategic market failure if we stay on our present course, and that the economic costs of investing in biodiversity are hugely outweighed by the economic benefits.

The politicians

Politicians across the spectrum have recognised that water is a big issue that needs debating, and there is (to coin a phrase) clear blue water between the two major parties on how to deliver water to the public in the future. The issue for me though is not whether water companies remain privatised or are taken back into public ownership: it's what will deliver best for the public and the environment. That is where the debate should start and finish.

The politicians will need to accept that if you will the ends, you also have to will the means. As I've said, greater water resilience will require some controversial decisions on new infrastructure, which the politicians will need to support. And it's not impossible that the price of greater water resilience is that people may actually need to pay more for water itself. That would be particularly controversial, and there are good arguments for and against. But we should not shy away from that debate.

The water companies

The water companies deserve more credit than they sometimes get. They deliver safe, clean water, day in day out. They do it reliably and at a price almost everyone can afford. They invest billions of pounds in improving the environment. They are causing fewer serious pollution incidents than ever before. They work well with the Environment Agency as their environmental regulator. They all have water efficiency retrofit and engagement programmes far more ambitious than ever before.

And they work actively with the EA as an operator: we are often partners in fighting flooding, building infrastructure or enhancing habitats. The fact that water quality in our rivers, streams and lakes is better than at any time since the start of the Industrial Revolution is in large part due to the hard work and investment of the water companies – as well as the work of the regulators like the EA and the NGOs.

All that said, the water companies will be the first to agree that they need to do more to boost public trust. In particular they need to continue to bear down on pollution incidents, redouble their efforts to fix leakage, and focus in particular on the issue we are discussing today: building long term water

resilience through active planning, collaboration with others and significant infrastructural investments. Some of the companies are doing this. But not all are, or not to sufficient degree or with sufficient pace.

The companies need to lead this process. They shouldn't wait to be required to manage down demand and enhance supply. Success will require them to engage with customers even more actively; and so to earn a new level of public trust.

The regulators

There are three regulators of the water sector – Ofwat, the economic regulator; the Environment Agency, the environmental regulator, and the Drinking Water Inspectorate, who regulate to ensure public health. The three regulators work well together on a day to day basis. But we need to think harder together, and with the water companies, about how we craft a joined up regulatory framework in the future which will actively incentivise the strategic thinking and substantial investment in long term water resilience by the water companies that we all want.

The NGOs

The environmental NGOs have played a hugely positive role as our partners in improving habitats and water quality. They are just as important in lobbying all the rest of us – government, the Environment Agency, the water companies – to enhance and not just protect the environment. Please keep doing it: no organisation is perfect, and it helps us do better to know that you will watch and challenge us. But I would also say two things to the NGOs.

First, please recognise that we on this side of the fence – in government, the public sector, and businesses – largely share your goals. We may be human and we certainly make mistakes, but we are not actually evil. Like you, we love our children and we want to make the world a better place.

Second, please recognise that while all of us want to protect our environment, we must also deliver sustainable growth. If we ask people to choose between the environment on the one hand or housing, jobs, and prosperity on the other, they will choose the latter. So we have to deliver both together. And with the right policies, we can. Investing in long term water resilience is a great example: it will create jobs and growth while at the same time delivering a better environment.

The Environment Agency

The Environment Agency itself will need to think differently too. Example: water transfers from one part of the country to another. They are, we all agree, part of the solution to the resilience challenge. But if you transfer water from one river catchment to another, you also transfer the things that live in that water. That means that water transfers, which the EA in principle supports, also carry the risk of spreading Invasive Non-Native Species like Floating Pennywort or the Signal Crayfish, which do serious ecological harm and which the EA definitely opposes. We are going to need to

think creatively ourselves about how to unlock the transfers without unleashing the invaders.

The public

I said that the coalition we need to avoid the jaws of death was largely in this room. There is one missing element of that coalition, possibly the most important of all: the public.

The fact is that we won't have long term water security unless all of us change our behaviour. We all need to use less water and use it more efficiently. Part of this is about technological innovation, to develop machines and processes that use less water better.

But most of it is about human behaviour: changing it. And what we know about this is that we can do it. In the last few decades we've radically changed behaviour on smoking (everybody did it) and seatbelts (nobody wore them). In the last two years we've changed behaviour on plastic. We need water wastage to be as socially unacceptable as blowing smoke in the face of a baby or throwing your plastic bags into the sea. We need everyone to take responsibility for their own water usage.

What might that mean? Here I want to give special praise to our hosts, Waterwise, for their campaigning work, and their readiness to challenge all of us to think different and to use water wisely. At present the average person in the UK uses 140 litres a day. Waterwise estimate that it's possible to get that down to 100 litres a day or less in the next couple of decades.

We in the Environment Agency like that target, which we think is achievable. In parts of Denmark they use just 80 litres a day. After the recent drought in South Africa, they looked at how they could get use down to 50 litres. There are simple steps we can all take to reach the Waterwise target. Get a low flush toilet. Take short showers not deep baths. Get a water efficient washing machine. Only use your dishwasher when it's full. Turn the tap off when brushing your teeth. Don't water your lawn: it will survive without you. It's not rocket science.

We can do this. If by 2050 we reduced per capita consumption to 100 litres a day, leakage by 50%, and did nothing else, it would provide enough water for an additional 20 million people without taking any more from the environment. And who's to say that by 2050 we couldn't get to 80 or 70 litres a day? The world will be very different then. So my final point to you is that while our goal – long term water resilience for this country – may be ambitious, it is also achievable.

Conclusion: snatching life from the jaws of death

I confess I stuck "the jaws of death" in the title of this speech to get your attention. I hope it worked. On one level it's just a dumb name for a graph where two lines cross. But on another, it's real. There's a quote from Sylvia Earle, the distinguished marine biologist, which sums up in twelve words everything that's at stake here. It goes like this: "No water, no life. No

blue, no green. No ocean, no us." Let us resolve not to go there.