Policy implications of uncertainty

I want to begin by discussing three uncertainties: the first uncertainty is about what science says and means, and how conclusive we can all be about it. This is, of course, especially the case in relation to climate change, and the frustrating thing, I suspect, for most people engaged directly in this science is that we know where the science is taking us; we know what the science in all probability is telling us, but it is difficult to stand up and say with 100 per cent certainty what is actually going to happen.

The fact, for example, that the highest concentration of rain ever recorded in a 24 h period in one location in England hills on the Cumbrian hills in November 2009, causing, as we know all too well, the floods in Keswick and Cockermouth and Workington, I believe, is significant.

Can I stand up in public and say that this is a result of climate change? No. Can I say that the science appears to indicate that we will most likely see more such events of intense rainfall in specific locations, and that the patterns of rain with which we have become very familiar over the last few decades, marching across the country in a curtain from the west, will still be with us. In addition, can I say that we will almost certainly be seeing more deluges that are very location-specific. Can I say that? Yes, I can.

How much of this can we attribute to climate change? We can say that the weather patterns are changing; that it is probable that human-induced climate change is one, at least, of the causes of all of this, but it is difficult to be more precise than that.

The fact is that when the Thames Barrier was first built—it was opened 25 years ago and it was designed about 40 or 50 years ago initially—it had to be raised, on average, once or at the most twice a year. Now, on average, it has to be raised five or six times a year. About four or five weekends ago, it was raised four times in succession over the course of one weekend. Can I say that that is a result of climate change? No, I cannot make that direct claim. But, these are indicators of change. And talking about them as indicators of change seems to me to be something that we can legitimately do.

The Environment Agency has been measuring the temperature of water in our rivers in England over the course of the last 20 years or so. Over that 20 year period, evidence seems to be telling us that the average temperature of the water in the rivers has risen by 0.6°C. Can I say that this is a permanent indicator of warming? No. Can I say that it is an indicator of things changing? Yes, I can.
We are now seeing mayflies and damselflies some 40 or 50 km further north than we have ever found them before. The rather beautiful, rare vendace fish, which has lived for centuries in Bassenthwaite Lake in Cumbria, cannot live there now. That is partly because of pollution in the water and partly because of the temperature of the water. And we are having to move the vendace fish further north to Scottish lochs in order to ensure that it can survive.

All of these things seem to me to be certainly indicators of change happening, and what we are seeing are increasing patterns of more erratic activity in the weather. We can sense the direction in which things are going. What we cannot say for certain is either what the pace is going to be over the course of the next 30, 40, 50 years or what the end result is going to be. But, actually, the direction in which things are moving ought to be enough for governments and public policy-makers to make sensible decisions about.

The first uncertainty is about the degree of conclusiveness of climate change science and how conclusive we can be in talking about it; the second uncertainty is about how much of this change that we see happening can be directly attributed to human activity.

I believe, and most scientists around the world believe, that this is something very different from the normal cycles of temperature change that we have witnessed over centuries, even millennia. And we do know from what has been directly observed and tested that global atmospheric concentrations of carbon dioxide and methane have increased markedly as a direct result of human activity since 1750. So, we know that the concentrations of gas are increasing, and we can see changes happening to weather and climate and temperature. And, it does not take a huge leap of judgement to make a direct link between the two. But, can we say that with 100 per cent conviction? No. Can we say it with 90 per cent conviction? Probably, yes. But, that immediately takes us into an area where the making of a case to the public becomes more difficult and has to be done with greater circumspection.

Which brings me to the third uncertainty: how convinced or unconvinced are the public of all of this? I cannot emphasize too much the damage to the case about climate change that has been caused over the course of the six months following what happened at the University of East Anglia and the mistakes that found their way into the Intergovernmental Panel on Climate Change report, because they have lit a fuse under a sceptical rocket that has just taken off in terms of the media, and also in terms of basic public perception.

I think, on the whole, certainly in terms of the British public, people still recognize that the climate is changing. But, I am not sure that they are any longer as convinced as they were about the direct human causes of that.

And remember that, in responding to this challenge that climate change poses us, we are going to have to ask for some quite difficult decisions with regard to public policy over the course of the next 20 or 30 years.

Energy prices, for example, are going to rise if we are going to clean up our energy production. That is a ‘big ask’. And if people are not totally convinced of the reason for the ‘ask’, it becomes much more difficult for politicians and governments to make.

This is all exacerbated by the natural difficulty that we have in these circumstances with the media. The media firstly always tend to oversimplify—they are catering for a non-academic audience. They might want to put things in...
stark and simple terms. Nuances of evidence are not necessarily the stuff of good newspaper articles or even of good television programmes. Secondly, they tend to highlight extremes—when something is the worst or the biggest or the fastest or the nastiest, it makes much better copy than if it is just one of a series of similar things. Thirdly, I think they have a genuine difficulty in valuing the credibility of different pieces of research, because the valuation of research depends on nuance and delicacy. Fourthly, they have little time to become experts and yet they write as if they are experts. And fifthly, they demand certainty from policy-makers, that is, from government ministers.

One of the great tragedies of political discourse, I think, in our time is that it has become almost impossible for politicians to think out loud. It is very difficult for a government minister to stand in front of a television camera and say, ‘Actually, I do not know the answer to this. I think it might lie in this particular direction, but we have to weigh up these considerations in coming to a conclusion about this, and I am still debating about this’. It is almost impossible for government ministers to do that, and yet that is the proper process that they should be going through privately in assessing a response to particular events or problems.

So, with these three uncertainties facing us: the uncertainty of the climate change science; the uncertainty of the human activity cause; and the uncertainty of the public response, how do we, in looking at the making of plans, the making of government decisions, cope with these uncertainties? Well, I think we have to do that in four ways.

The first is that our making of plans must be precautionary. The Thames Barrier is actually a really good example of this. The engineers who designed the Thames Barrier did not know about climate change. It was not at that time—30, 40 years ago—a live scientific debate and piece of thinking. They knew, however, that something was happening to sea levels. They were aware that there were changes, and that there might well be an increase in surge activity too. So, what they did, when they designed the Thames Barrier, was that they over-designed it. And, what they have bequeathed to us is a barrier that will stand the test of climate change even though they did not know that it would have to. And, we know that the Thames Barrier, with some very minor adjustments which will easily be made, will withstand a sea-level rise of probably up to about 3 m. If sea-level rise goes beyond that, then we have to start thinking about new barriers. But, as it stands, it is almost certainly good for at least another 50 or 60 years to protect London. If they had done what we tend to do nowadays with public engineering projects, which is to find the most cost-efficient way of doing it, then they would not necessarily have built in that extra bit of protection that they did not know was needed, but they thought might just conceivably be needed.

And so, in thinking about how we respond to climate change and the uncertainties of where we are actually going to end up, but knowing the direction that things are going in, in responding to that, I think being precautionary, in the way that the Thames Barrier engineers were, is actually a sensible thing to do.

The second way in which we must respond to this world of uncertainty is to be preparatory. In a way, this is linked to the precautionary approach but slightly different. About eight or nine months ago, The Environment Agency published the Water Resources Strategy for England for the next 30 years. And, what we said in that strategy was that, with climate change; with drier summers and
wetter winters; with what we already know of the stress on water resources in the south and east of England; with the likely expansion of population numbers, especially in the south and east of England; the likelihood is that we are going to be facing river flows that are 50 per cent lower in 30 years’ time in summer months than they are now. That has huge consequences for levels of water abstraction from rivers, and for sewage and treated water discharge into rivers. And, as a result, we need to think seriously about the amount of water that we consume as a society. We need to cease thinking about water as a completely infinitely available resource, and to think of it much more as a rather precious commodity. We set all of this out in our paper. We looked at all the river catchments around England. We made best estimate predictions of what, in the likely event of that sort of reduction of levels of flow in different parts of the country, is the probable availability of the level of water resource.

Now that, to me, is sensible preparatory planning, because it means that, in thinking about metering policy, abstraction licensing, reservoir capacity, winter storage of water and so on, we can plan ahead in the relatively good knowledge of what may well happen, in the light of the scientific knowledge that we have.

The third way in which policy-making must change is, I believe, to build adaptability into policy-making. A very good example of this is the report the Environment Agency published quite recently called ‘The Thames Estuary 2100’ (http://www.environment-agency.gov.uk/research/library/consultations/106100.aspx), which looked not just at the future of the Thames Barrier but also at the future of all the flood defences that we have in the outer Thames Estuary beyond the barrier; the coastline of Essex and Kent; and round the corners. What we did, really for the first time that I am aware of in any public policy document, was to say: here is a range of possible outcomes from the direction of climate change. Depending on how fast all of this happens; depending on where we are at, at particular points during the coming hundred years, here is the range of options that we have for the improvement or change of flood defence in the outer estuary. And, we do not have to make all the decisions now, but what we can do is to know that we are ready with the knowledge about what decisions need to be taken as we see directly what is happening on the ground. So, as we see what is happening with sea-level rise; what is happening with the frequency of surges coming down the North Sea; what is happening with the impact of climate change on weather patterns, we can then take the necessary decisions because we are ready and we have the range of options there ready to be spelt out for us.

Building in that ability to adapt to forward planning and policy-making seems to me to be something we are going to have to get more used to. Not just in the obvious areas of directly coping with climate change, which we are in—flood defence, water resources and so on—but also in many other areas of public life and decision-making.

The fourth thing that we need to do in terms of public policy—I have talked about being precautionary, being preparatory and building in adaptability—is directly facing the democratic challenge of how to make a difficult case effective. When you have uncertainty about outcome; when you are talking about things that are not necessarily immediate but are long term (and remember politics does not deal in the long term on the whole); when you are talking about things that are difficult for the media to handle because of the very nature of media coverage;
and when you are talking about things that are not necessarily immediately directly observable by people in their own everyday lives, it becomes very difficult to make a case in a democracy for difficult and expensive decisions. But we have to make that case. Simply ignoring the fact that we have to make it is not going to make the problem go away.

I think it is actually rather remarkable that, in the face of all these difficulties and uncertainties, we have a pretty clear political consensus in the UK across all the major political parties about the reality of climate change, and about the need to take particular measures to cope with it. That is not, sadly, the case about the politics across the other side of the Atlantic. But here we do have a very welcome consensus. And, if there is going to be a change of government in a month or two’s time, I do not expect that climate change policy from the government will change dramatically. That, I think, is a huge positive within our political system.

But, we cannot rely on that political, governmental consensus alone. We have to try and achieve public consensus as well. And that is why we do have to make this difficult case to the public.

And, in doing that, I think we have firstly to base the case as much as we possibly can on what people directly see and experience. It is much easier to get people to think about climate change when you are talking about the dangers of flooding that they have seen and know about than when you are talking about the things that they do not know about. You have to be careful what you say; you have to be careful not to over-claim—but pointing to the frequency and severity of floods is a very good way of getting people to at least think about whether these changes in weather and climate behaviour are something they need to worry about. So, base things as much as you possibly can on observable things. Talking about carbon dioxide concentrations in the atmosphere will not do it for most people; talking about rainfall and floods and water and rivers just might.

Secondly, we cannot be too complacent. I think we fell into this trap a bit before the case of the University of East Anglia. We sort of assumed that everyone accepted that this stuff was real. And then suddenly, bang! We realized that they did not all accept it automatically. So, we cannot dismiss or ignore the sceptics. They are wrong—I passionately believe they are wrong—but we must not simply ignore them. We have to take the case out to the public and explain patiently, and with some difficulty, why we think the sceptics are wrong.

We must bring other congruent arguments to bear. I suspect, for example, in the United States you will not hear very much from Barack Obama about climate change. You will hear a lot from Barack Obama about energy security and about the need to invest in renewables and energy efficiency because of energy security. Now, privately, he may want to do it as well because of climate change, but he knows that he may need to choose the arguments, pick the arguments that he uses in order to get the best possible result.

Fourthly, we have to explain the science. And the more that we can find relatively simple and easy ways to explain very difficult, and sometimes uncertain, scientific conclusions the better.

Finally, I think we have to show how adaptability in policy does work, saying to people that we do not have to make a decision instantly, now, but we have to be ready to make a decision in 5 years’ time if the evidence shows us that we need to. That is a case that most people understand, even if they cannot see the immediate case for doing it right now.
So, in all of this, I think our response to this field of uncertainty that we are confronted with has to be on two fronts. One, in relation to the making of policy decisions by the government, we have to plan—and plan flexibly—for what lies ahead. And, secondly, in relation to bringing people with us, we have to mount the argument persuasively.

Neither of those two things is easy. Doing the forward-thinking and planning, and doing the public persuasion are both difficult. It is, I fear, going to be a hard grind, but actually it is the only way in which we will succeed.

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