



HOUSE OF LORDS

Corrected transcript of evidence taken before

The Select Committee on the European Union

Inquiry on

THE ROLE OF THE CHIEF SCIENTIFIC ADVISER TO THE EUROPEAN COMMISSION

Evidence Session No. 1

Heard in Public

Questions 1 - 13

TUESDAY 15 JULY 2014

3.40 pm

Witness: Professor Anne Glover

Members present

Lord Boswell of Aynho (Chairman)
Lord Cameron of Dillington
Baroness Corston
Lord Foulkes of Cumnock
Lord Harrison
Baroness Hooper
Lord Kerr of Kinlochard
Lord Maclennan of Rogart
Baroness Quin
Earl of Sandwich
Baroness Scott of Needham Market
Earl of Selborne
Lord Tomlinson
Lord Tugendhat
Lord Wilson of Tillyorn

Examination of Witness

Professor Anne Glover, Chief Scientific Adviser, European Commission

QI The Chairman: Good afternoon, Professor Glover. Thank you very much for finding the time to meet this Committee, which is the overarching European Union Select Committee in the House of Lords. It is reinforced by the presence of Lord Selborne, who is chairman of the Science and Technology Committee. One or two of us have a modest degree of form in the area of the interaction of public policy with science. That is what we would like to discuss with you. It will be a formal evidence session. It will be on the record and we will follow our normal practice of giving you the opportunity of correcting any points on the proof, but it will be posted. There was a strong wish from the Committee that we should seize the opportunity of interacting with you on what you have been able to do, your experience and, to some extent, your comparative experience, given that you have worked in government in Scotland. Is there anything that you would like to share with the Committee by way of introduction before we start asking you questions?

Professor Anne Glover: No, except to say that I am very happy to be here and delighted with your interest.

The Chairman: That is very encouraging. Can I kick off the questioning by asking you what your vision is for the future of the role of Chief Scientific Adviser to the European Commission? I am conscious that you do not have a huge staff. You are not going to do the benchwork yourself. You have to think how you concert the effort and the advice. I am also conscious that, say in contrast with UK practice, there is no network of chief scientific advisers, as we have been used to it. Also, beyond the vision issue, there is the sort of interaction you might have with UK Governments as being, on the whole, rather good practitioners, historically. In terms of your own role, there is perhaps also the extent to which you have to prioritise—I am thinking of, for example, whether you have to carry out a

kind of audit function in terms of looking at the capacities and activities of other member states or EU programmes, as well as perhaps the foresight exercise. That is a lot in one question but I would be very grateful for your response.

Professor Anne Glover: You asked first about my vision of the future of the role of Chief Scientific Adviser. That will be up to the President-elect, but he has already indicated that he values independent scientific advice, so I think that he has acknowledged that it is important. He will have to decide how he wants to see that institutionalised within the Commission. There are lots of options available. After the summer, I will be talking to his transition Cabinet and hopefully Mr Juncker himself to offer options on how the role might be—not just continued, because I really do not even want to consider it not being continued—strengthened in a new Commission. I have been there since the beginning of 2012 and have an idea of what would work better than it currently does and I would like to offer the President-elect some options around being able to seize opportunities, particularly around evidence for policy-making. For me, that is the way we should go—strengthening that would have the biggest impact.

The Chairman: Just for the record, because I had not inquired into this, is the formal position at the moment that yours was a one-off appointment?

Professor Anne Glover: Yes.

The Chairman: I gather it ran coterminous with the term of the Commission and, as it were, is personal to President Barroso, although of course there is the possibility that it might be extended either in a similar or a modified form.

Professor Anne Glover: You are right. It was a personal appointment from President Barroso and my understanding always was that my position would finish when President Barroso left the Commission. That will be at the end of October, if everything goes to plan. I have spoken with the Commission and there is the possibility that I could remain at the

Commission for two or three additional months until the end of February 2015 so that there would be some handover. If the role is to be continued or independent scientific advice offered in some other way, then I could contribute to developing some of the options that would allow that to happen. I would not expect to be at the Commission after February next year.

Q2 The Chairman: You would obviously have time to point the way forward. Can I revert back—I want colleagues to come in in a moment—to the issue of what you might call the structure of the advice that you are able to offer or the experience that you have had? It would be obviously—quite apart from the fact that we have a well developed tradition from Haldane and going all the way back—inputting scientific advice into government. Other countries either may not have that tradition or may not have the capacity to offer it on the same scale. You could be a member state with a population of 1 million, shall we say. Do you see it as being possible to extend the kind of discipline that you would exemplify across that rather heterogeneous group of states and provide capacity where perhaps there is a particular, say, environmental problem that they probably cannot handle on their own?

Professor Anne Glover: I would say that that is one of the achievements that I am very pleased with during my time at the Commission. When I took up my role at the beginning of 2012 among the then 27, but now 28, member states, only two had a formal chief scientific adviser—the UK and Ireland. Last month, we had the first meeting of an informal network of chief scientific advisers and I now have 14 different member states, including the UK and Ireland, who have nominated if not someone called a chief scientific adviser, then an equivalent. Sometimes this would be the person who was the head of an advisory council to the Prime Minister or head of state. It could be somebody who is the head of the learned academy of sciences in that particular state. Sometimes it is a member of the Government who is nominated by the Government to attend. We have gone from two to 14.

The Chairman: You have got halfway there.

Professor Anne Glover: It is exactly halfway there and I am pleased about that. That first meeting was better than I could have hoped. There was lot of enthusiasm among colleagues round the table for developing the network because they could identify a way they could learn from best practice and a way they could work together—in emergencies, for example, where there needs to be very quick communication. We could also identify better strategies for offering evidence for policy in our different member states and bringing that to the European Union, which may be helpful at Council meetings, for example.

The Chairman: To take the historic example of Chernobyl—with which I was somewhat involved in a different capacity—it was almost an accident that we discovered what was happening. Can you indicate that at least there are the rudiments of a system and a network that would identify, report and maybe recommend some action on that sort of case?

Professor Anne Glover: It is the famous knowing who to call. I realised this early on. Somebody asked me professionally not personally, “Do you have any friends?” I think that they meant, “Who do you speak to in the different member states?” It was true that when I started that I did not know who to call. Similarly, when people called me I did not know which calls to take because, as you pointed out, I have a very small team so I really need to know who to speak to. It is a very effective way of making the initial contact and then the information can spread through or the network.

Q3 Baroness Quin: You have partly touched on what I was going to ask, but I have been very interested in what you have said about how you have found your post. Obviously you have made contact successfully with a number of different countries, but what have the contacts been like with individual members of the Commission? Have they been straightforward? Are there frustrations that you have experienced and changes that you would like to see in how you contact people?

Professor Anne Glover: It is quite a challenge for any organisation if a new role is parachuted in and nobody quite knows what the function of the role is. I was very lucky because I report directly to President Barroso, which meant that when I knocked on doors in the Commission, whether it was Commissioners or Directors-General of the different services, people were very willing to speak to me. I have identified where there has been real enthusiasm rather than reluctance—perhaps that is the wrong word, but sometimes Commissioners may think, “I don’t see the importance of this for me”. I have tried to forget about that and identify where there are real possibilities of having some good dialogue and then I have worked closely with people. I had to prioritise, because we are a very small team. I had to try to identify where we could best make an impact, thinking that if there are one or two services in the Commission where I can identify that my role offers them real possibilities, other colleagues in the Commission will see that and say, “Okay, we would like to work a bit more closely with you as well”. I have never met with any hostility or unhappiness within the Commission; it is just different levels of enthusiasm, from people being not really interested to people saying, “Oh, I’m very interested in this. Talk to me”.

Baroness Quin: How did you decide your own priorities? Was it partly issues that were in the news that seemed important and that you felt you needed to have some input on, was it to do with legislation that was coming up or being proposed by the Commission, or what?

Professor Anne Glover: I was initially interested in where evidence was coming from for policy in the Commission. That is largely delivered by the Joint Research Centre, which is the in-house science service of the Commission. It is quite substantial. About 2,500 scientists are employed by the Commission, with seven research institutes across the European Union. These are very high-quality scientists, who are under the leadership of the Commissioner for Research, Innovation and Science, currently Commissioner Geoghegan-Quinn. That was an obvious place for me to start. I then looked at other issues. One thing

that is very important for the European Union is the digital economy, so I went to Commissioner Kroes and DG Connect and talked about how we might work together and what sorts of things we might do.

More generally, a very important issue for me is foresight, which the Chair has just mentioned. I could not see any systematic foresight activity that went right across the Commission. I could see that there were areas where there was some activity, but people did not share that, so the different services of the Commission did not share what they were doing—either the methodology or the target of their foresight activity. Again, with the support of President Barroso, we asked the services of the Commission to sign up to this network. Currently we have 21 DG's with the allocation of about 220 staff whom they have nominated from their different services in order more systematically to look at foresight in the Commission. Some things were rather specific, such as the examples of the Joint Research Centre and RTD and DG Connect, and some were rather general, such as looking at whether anything obvious was missing. It seemed to me that foresight was missing.

Q4 Lord Kerr of Kinlochard: Professor Glover, you are a Scot—you are in good company; I think that there are five of us round the table. We are all famously canny about money. Indeed, I think that you are an Aberdonian, so you are even cannier about money.

Professor Anne Glover: My family home is in Aberdeenshire, yes.

Lord Kerr of Kinlochard: Can you tell us whether it is true, as one often reads, that the United Kingdom punches above its weight when it comes to the allocation of research framework programme money from the European Union?

Professor Anne Glover: That is easy to answer: yes. If one looks at the most prestigious grants that you can get through the European Union, the European Research Council grants, the UK secures more of those than any other member state. Behind the UK come Germany and France, then Italy and Spain and then other member states. We do tremendously well.

Lord Kerr of Kinlochard: How much money are we talking about in round terms?

Professor Anne Glover: I cannot tell you exactly how much money, partly because that is not my responsibility within the Commission, although I talk about how good we are at science. In contrast to your description of my Scottish background, the money for me is rather unimportant. What is most important is the impact that we are having.

Lord Kerr of Kinlochard: Is what is true of the United Kingdom—that we head the league table ahead even of Germany, a much more populous country—true of Scotland as well? Does Scotland do as well as the rest of the United Kingdom, better than the rest of the United Kingdom or worse than the rest of the United Kingdom in the allocation of European money?

Professor Anne Glover: That is a study that I commissioned when I was Chief Scientific Adviser in Scotland, because I wanted to know the answer to the question that you have just asked. Relative to GDP, the impact of research done in Scotland is actually number one in the world. If you forget GDP, it is number two in the world; number one is Switzerland. So Scotland is very good at research. Those of you who are familiar with Scotland will know that it is incredibly researcher-intensive. The number of researchers per head of population is very high. The number of research universities—internationally recognised universities—is very high.

Lord Kerr of Kinlochard: So Scotland gets its fair share and maybe even more than its fair share of the EU allocation that comes to the United Kingdom?

Professor Anne Glover: I am not absolutely sure of that, because I have only looked at how well the UK does at European level. I have not disaggregated it to see how well Scotland, Wales or Northern Ireland does.

Lord Kerr of Kinlochard: Do you happen to know, given your past in Edinburgh as Chief Scientific Adviser, whether Scotland punches above its weight in the allocation of UK research council money?

Professor Anne Glover: I know that: yes, it does. When I left at the end of 2011, for general research council funding Scotland got around 12% to 14% of the total budget, although it is about 8% of the population. Particularly looking at medical research, life sciences and charitable research—for example, Wellcome Trust funding—about 20% of the total budget went to Scotland. It might amuse you to know that a senior figure in the research councils—I will not name names, as I do not think that that would be fair—said, “This isn’t any good. We shouldn’t be giving you all this money in Scotland”. He was joking, I think, but I pointed out that he would not say that if he was looking at the proportion of funding in England that goes to Oxford and Cambridge, for example—probably much more than their population would suggest, because funds are allocated on the basis of excellence. That is why Scotland does very well with UK research funding.

Q5 The Chairman: Thank you very much for those exchanges. May I just pick up on one point? You referred to the European Research Council, but I do not think that we thought in preparing this to ask about your relationship as Chief Scientific Adviser with that council. That is the fund-allocating body and I am not clear whether you have an input to that or whether it operates entirely independently of your view.

Professor Anne Glover: It is entirely independent of me. Of course I have had very good relationships with the past and current presidents of the ERC, but I do not make any decisions around the research funding. Indeed, there was a substantial delay at the Commission between President Barroso’s announcement of having a Chief Scientific Adviser, which I think was in 2009, and my appointment. During that period, all the thinking around

Horizon 2020 allocation of funds was done; it was done with the Commissioner for Research.

Q6 Lord Tugendhat: It is a very long time since I was a Commissioner, but my recollection is that when I was, we had 22 Directorates-General. You said 21, so I am glad to hear that something at least has diminished in scale.

Professor Anne Glover: Actually, there are probably more than 22, but only 21 of them have signed up to foresight—I am sorry to disappoint you.

Lord Tugendhat: However many there are, certainly when I was there I was very struck by the fluidity and interaction—the way in which people worked together, both the Directorates-General at one level and the Cabinets at the other. That leads me to the question of how scientific advice can be successfully embedded in the development of proposals from the Commission. In other words, when people are formulating a proposal in the depths of the Berlaymont, do they come to you early enough? Do the DGs come to you? Do the Cabinets come to you? When proposals have moved up the scale and are being considered by the Chefs de Cabinet, let alone by the Commission, to what extent do people ask whether there was an input from you? The whole thing boils down to the extent to which you are embedded in policy preparation.

Professor Anne Glover: I am not a routine part of either procuring or analysing evidence for every policy area. What would normally happen is that a service or a Commissioner would have a proposal for developing a particular policy. The first question that they would be asked is: if we develop this policy, would it have any impact? The answer is always yes, because no one is going to develop something that has no impact. So if the answer is yes, it will have an impact, there is an obligation to secure an evidence base to underpin the policy proposals. That is normally done by the services of that Commissioner. DG Connect, which I mentioned, DG Agri or DG Sanco in health would go and ask perhaps for in-house

expertise. They might ask the Joint Research Centre, which I mentioned. They could ask an agency of the Commission. For example, the European Food Safety Authority could be asked by DG Sanco to put together the evidence base on which the policy options are developed. While that happens, I am not consulted at all. My role as Chief Scientific Adviser is really to President Barroso. I will reactively or proactively advise him on scientific issues that either he might want to know about or that I feel he should know about. It is only in certain circumstances, particularly when there is a lot of uncertainty and unhappiness about the evidence that the Commission might be using, that I can come in at a later date. This happened in the case of endocrine-disrupting chemicals and the proposals by the Commission for new legislation. There was quite a disagreement among the scientific community about how you define endocrine-disrupting chemicals and how you should deal with them in a legislative process. I was not requested to intervene by Commission services, but independently I thought that I should bring the opposing views and opinions together, without any policy-makers—just scientists—so we could come to a consensus about what we agreed and disagreed on. I took that and handed it back to the Commission and said, “Okay, now this is what you have to take into account when developing legislation”.

Q7 Lord Tugendhat: Perhaps I could ask one specific question. The Sub-Committee that I chair recently produced a report on the Transatlantic Trade and Investment Partnership negotiations. In particular in the field of agriculture, where there are deep differences between the European side and the Americans, science is invoked on a number of occasions—and I think mainly misinterpreted for purely political purposes. None the less, science is invoked. The issue of GM foods is an example. When Mr De Gucht is leading the Commission delegation, has anybody consulted you on whether the scientific case put forward by the Commission stands up or whether it is bogus—and likewise, whether the American case stands up or is bogus? Have you had an input on that sort of thing?

Professor Anne Glover: I met with Commissioner De Gucht to talk about this very thing. Also, I have spoken to my counterparts in the US about not just the standards but also the evidence we use to underpin some of the policies that we have here in the EU, where there might be different policies in the US. You said something earlier that was absolutely right. Science is often used to justify a position—and as you know, evidence is never absolute and there is always some uncertainty. Perhaps I may give a very short example. As you are probably aware, in the US, when you take a fresh chicken and prepare it for sale, you give it a chlorine wash. In the US that is regarded as being a very good thing, because it removes surface contamination and so on. In the EU, consumers do not want to have chlorine-washed chickens.

Lord Tugendhat: That is exactly the sort of thing I had in mind.

Professor Anne Glover: So my colleagues in the US will say that all the scientific evidence tells us that this is much better because the chicken has a sterilised surface. The people in the EU say, “But if you cook the chicken properly, there is no problem”. At the same time as we are having this argument—to be honest, I do not think that it is a scientific argument—we have the argument about fresh eggs. In Europe—I must make sure that I get this the right way round—we do not wash our eggs at all when they come from the chicken. We dust them and that is it. In the US they wash the eggs to remove any material from the chicken. We do not do that because, if there is moisture left on the egg, it can cause the ingress of bacteria to the egg, which is a bad thing. In the US they say, “Yes, but we dry the eggs properly so that is not a problem”. I am mentioning this only because I think that it is more a discussion for politicians rather than scientists.

Earl of Sandwich: Can I clarify something with Professor Glover? Was it advice that you were offering or were you consulted on these things?

Professor Anne Glover: In the case of Commissioner De Gucht, because I understood that there were a lot of scientific issues being invoked around the TTIP negotiations, I asked whether he would find it helpful if I came and had a discussion with him. He said that it would be very helpful and that is how we had the initial meeting.

Earl of Sandwich: So you had to take the initiative.

Professor Anne Glover: Yes, I did in that case.

Q8 Lord Harrison: This question may fall flat on its face and I understand that you have only a small group of colleagues to do the work that might be directed your way. I chair the Economic and Financial Affairs Sub-Committee. Are you ever consulted, given the welter of work that President Barroso has been engaged in over recent years and months, on economics—the dismal science—or on financial matters and regulation? I ask the question in part because a Member of this House who was a very distinguished Chief Scientific Officer to Prime Ministers Major and Blair has recently shown an inordinate interest in things economic and financial and some of the matters that created the position that we are in these days. I wonder whether that has ever come across your desk.

The Chairman: I do not want to muddy the waters or diminish Lord Harrison's question, but there are often issues where science policy interacts with ethics, for example, and some wider issues as well. I would be interested to get your perspective on the extent to which you are looking through the network of the traditional sciences and the extent to which you have regard to the way in which some of them are beginning to interact with, for example, economics, psychology and people's behavioural sciences. I do not want you to make a great issue of that, but perhaps you could follow on from your answer to Lord Harrison's question.

Professor Anne Glover: We have talked about economics, but he has not asked me for economic advice—I hope you will be glad to hear—because I would not be well qualified to

provide it. The nature of the conversation has been around how the European Union will be successful economically: how it will have a sustainable economy. In my view, the future success of Europe depends on us being smart—good at science, engineering and technology. That is where we have most of our resources; our natural resources in Europe are our citizens, rather than oil or gas or whatever it might be. So we have talked about economics from the point of view of how you ensure that you feed the economic environment with smart people and good ideas and have an environment in which they can prosper so that we see the benefit.

Following on from the earlier question about how good we in the UK are at science, if you look at how good we are at European Union level, we are absolutely outstanding. We are also very modest; everybody in Europe thinks that it must be North America that is really good and that we are not that good. It is actually we who are very good, but we are not the best at translating that into real impact for citizens—whether in jobs, competitiveness, employment, a good environment or sustainability. We have talked about that, which brings in the question of the other sciences.

I will give the example of climate change. Science has told us very convincingly what is happening to our climate. It has given us the reasons why we are seeing climate change and has explained the human impact. It also allows us to reduce uncertainty around impact. Of course there is uncertainty—not about the fact that it is happening, but about what it will mean in terms of us living on the planet. Actually, it is such a big and powerful message that it is surprising that we do not talk about it all the time, that it is not at the top of everyone's agenda and that we are not all desperately trying to do something. The reason why that is not happening is that we have not figured out the social science—the sociology and the psychology—as well as the economics, to be fair. We need to be much more sophisticated about how we take all those different aspects and offer up some really different options and

solutions. If I asked most citizens about climate change, they would say, “It sounds awful, and my life is going to be miserable because of it, because I will have to give up this, that and the next thing”. In fact, with a little bit of not too sophisticated thinking, you could offer them a future that is very much better than the one we have at the moment, while also addressing climate change. That is where all the sociology and psychology come in. We have been rather poor at integrating that as part of not just our advice but our policy formulation.

Q9 Earl of Selborne: First I should declare an interest as Chair of the Foundation for Science and Technology. I was very interested by your many references this afternoon to the need for a better strategy for offering evidence for policy. I think that what you have told us is that at the moment there is a need to disconnect the evidence gathering from what you described previously as the policy imperative. In so far as you have already suggested that scientists need to get together to agree on what they agree on and on what they do not know about, before then, members of the Directorates-General presumably use the evidence base that they find convenient and ignore the evidence that they do not find helpful. Is that the sort of problem that you are up against? If you are to make new proposals to the incoming President of the European Commission, as I think you said you would, what sort of proposals would you like to see put in place that will make sure that the evidence that you have impartially gathered is appropriately used for policy-making?

Professor Anne Glover: There are two things here. I think that what you have described is true in every member state: we are selective about what evidence we use. That is part of the political process. You might gather evidence and then choose what priority you give to one piece of evidence or another.

The Chairman: You are not exempting the UK.

Professor Anne Glover: I am not exempting the UK. I cannot look at anywhere in the world and say, “There is a perfect environment where evidence is the only thing we use when

developing policy”. I am not even sure that I would promote that idea, to be honest, because there are other things—and this leads on to your question as it developed. There will be times when there is a clear evidence base that would suggest an obvious course of action coming from it, but when, for many reasons, politicians might decide that even though they accept the evidence, for other reasons—they could be ethical, economic, electoral or social; there many different criteria—they will say, “We accept the evidence, but for these other reasons we will go in a different direction”. That is absolutely okay as long as you are transparent about the process.

Where I have the most difficulty is where people use the evidence as some kind of excuse. They might say either, “We do not have sufficient evidence, so we will go in this direction”, or, “We do not believe the evidence because we have been able to find some people to say that they do not agree with this”. I feel that the evidence in that instance is not being used properly. I would like to investigate how we can disconnect the two. It would be good for evidence gathering and also good for the political process to be open and transparent about what you use. It would be even better—I am thinking of the case of the European Union—if in gathering the evidence we could identify where the evidence comes from and who is giving it to us. Are they academic scientists, scientists from large companies, NGOs or other citizens’ groups? Where does the evidence come from? How are we analysing it? What are we prioritising? What are our conclusions? For that to be in the public domain so people can see it in a very transparent way—

The Chairman: And peer-reviewed?

Professor Anne Glover: I would say that the peer review should be done by the experts gathering the evidence—but what is being peer-reviewed, and how it is being peer-reviewed, should be clear. Then the output from that would be transparent, which could only help with building trust. Again, at the moment, there is a very uncomfortable environment where

people are trying to discredit evidence from certain sources and so on. So it is not an easy task, but the Commission is almost the best institution to do this because it delivers something that then has to be deliberated on by the European Parliament and the Council—28 member states that all have their own self-interest. So there will always be lots of reasons why the evidence might not be accepted. That is fine, but we have a really good opportunity to demonstrate best practice and develop that as a systematic process within the Commission. Other member states could then look at it and decide whether it was something that they wanted to emulate. So I think that it could be done.

Earl of Selborne: Of course it is of absolutely critical importance to be able to put together a body of science and scientists who have maximum credibility and reputation. Presumably that would not include just the physical scientists, because you would include the social scientists as well. Some of the issues that you have described as to why policy-makers sometimes quite rightly take a different view from what the scientists might suggest arise from the input of perfectly good social scientists. For example, risk perception is different from risk assessment.

Professor Anne Glover: It is important, as a first step when gathering evidence, to acknowledge that the framing of the question is almost the most important part of the process. If I ask for a certain thing, that is generally what I will get, so how I ask the question is important. If the Committee will allow me, I will give one example. We have a potential obesity epidemic in the European Union, so what policy should we develop to deal with it? If I ask a sociologist, I will be told that people with limited educational achievement tend to be those who are obese, so we should develop better educational structures across the EU. If I ask a geneticist, she or he might say that we need to do more screening because people are predisposed to obesity. If I ask an architect or a town planner, they will say, “Oh, we are designing in obesity in our cities. We should think about urban planning in a much more

coherent way". I am a microbiologist. If you ask my colleagues, they will tell you that the bacteria that we have in our gut determine whether we are obese. All these people are experts and they can all produce credible evidence, but the issue is complex, so the question that I ask and whom I ask it of are therefore very important. We need to pay much more attention to that in the evidence gathering that is done right at the beginning rather than being selective in what we ask for and then developing policy that inevitably stands on rather shaky ground, because it is easy for others to criticise.

Earl of Selborne: Finally, having established that what is needed is a good body of evidence coming from all these disparate groups, who will do the job of bringing it all together in Europe?

Professor Anne Glover: I hope that it is something that the President-elect will look at and will want to consider the options. I mentioned earlier the Joint Research Centre in the European Commission. It is comprised of 2,500 very good scientists who are connected globally and who have wonderful facilities. They could act as an impartial body within the Commission and not necessarily be linked to any specific Commissioner. They could help to frame the question by systematically going about getting the evidence and providing a transparent portal through which people could look at that evidence. In turn, they could then deliver it back to the particular service that asked for it. That might be one option, but I should like to stress that it is not for me to say. It really is for the President-elect to decide what he wants to do and what this should look like. However, we should offer him lots of options.

The Chairman: Thank you. Let us continue this train of thought about, as it were, interpretation of the evidence that scientists prepare for us.

Q10 Lord Wilson of Tillyorn: First, it is very nice to see you here. As the Chairman said, my question follows on from the two previous questions, but—this may be the wrong

word—I am looking at the more bureaucratic way. As I understand it, the Lisbon treaty contains a thing called the precautionary principle. I am not clear how it operates in practice. If something is thought to be dangerous—to the environment, or this, that or the other—someone can trigger a yellow or a red card. How does the precautionary principle work in practice? Does it work in practice? Who does it? How often does it happen and is it effective?

Professor Anne Glover: The Commission first articulated the precautionary principle in 2000. We can read it in what I think is a very good document. It addresses the issue that the knowledge being developed from science, engineering and technology is increasing exponentially. In the face of that, there are always new possibilities. We need to ensure that we get the best from them and avoid any unintended consequences. The precautionary principle is meant to be a tool that you use in order to take advantage of opportunities and be innovative while at the same time protecting the environment and citizens. I am very much in favour of it as expressed in the document. However, it is a little like the issue around how evidence or science is sometimes misused. The precautionary principle has been invoked more and more as a way to stop something happening by saying, for example, “Well, we should pay attention to the precautionary principle and we should not allow nanotechnology”. That would be a really bad response to a new science that offers great potential but may well require us to be thoughtful in terms of what regulation is required—or not—to allow us to use the technology safely.

You have asked me who is responsible for this. The nature of your question suggests that you are thinking in a systematic way about what needs to happen before something is triggered. There is no systematic process. For example, a colleague in the European Parliament could say that the precautionary principle should be invoked because they had been told that the evidence was uncertain. They would say, “In the face of that uncertainty,

let us prevent any more use of this technology”. In my view, it is not used effectively. Along with colleagues in the Commission, I am trying to investigate whether it would be possible for us not to change the precautionary principle but almost to relaunch it so that we can use it in a way that has real force in allowing us to take advantage of what we are good at—producing new knowledge—while at the same time ensuring that the work is done in a way that meets all the other cultural and safety imperatives that need to be in place before any new technology can be used properly. It is not quite working as it should at the moment.

Lord Wilson of Tillyorn: Let us say that it was genetically modified crops and someone in the European Parliament says, “No, we do not want any of those”. Does that stop a process or would it start an argument about whether the process should be stopped?

Professor Anne Glover: It does not stop a process, but that is a good example of where you cannot really invoke the precautionary principle, because we have the evidence. People might say, “Yes, but there might be some other evidence that we do not have now but we could have in the future”. It is not a sustainable way of looking at evidence. People use it because it is a very emotive principle. It tends to flag up in other people’s minds the following: “If one of my colleagues is invoking the precautionary principle, I should be worried about it”. It is not being used properly. I think it would be helpful to everyone concerned if we could do almost what your question suggests, which would be to set up a simple tick-box process: if “yes” go here, if “no” go there. If you carry on, you can then invoke it. But if you go down some other channel, you do not necessarily invoke the precautionary principle. You do something else.

Q11 Baroness Scott of Needham Market: I want to be clear that the problem that you are identifying is the same one that I am, which is that “risk” and “hazard” are increasingly used to say the same thing. You can almost always point to hazards whatever you are doing, even when crossing the road, but actually what you really need to do is

identify risk. What are the chances of something happening and how do you mitigate it? How do we move the dialogue back towards understanding risk, rather than hazard? I wonder if you could also say something about how we are not very good at understanding the risks of not doing things. This is something that really troubles me and I wonder whether you agree. Sometimes people say that you cannot do something because it is dangerous, so there is not really a debate about what the consequences might be if you do not do anything at all.

Professor Anne Glover: I agree with you. I am concerned that people mix up risk and hazard. There are a lot of things that are hazardous, but unless you are exposed to them in some way they are not a risk to you and never will be. Partly this is about communication. Endocrine-disrupting chemicals are a good example of this. They could potentially pose a risk if you were exposed to certain chemicals at different times of your life, but if you are not exposed there is not a risk. It is actually very clear, but we do not make it clear when we discuss the issues concerned. Again, people misappropriate the terms to try to meet an agenda, for whatever reason. They might want to see endocrine-disrupting chemicals banned, full stop, for example.

For me, the way we have to approach this comes back once again to transparency. If people do not trust what is happening and they do not feel in control or involved, they are very reluctant to take any risk. You are quite right in saying this. I saw a cartoon the other day in which someone said, "Well, that's all the risks taken care of, and the only one we have to bother about now is the risk of taking no risk". That is a really big risk. It would help if we had a more transparent system of how we gather evidence and people could look at that, and if we entered into a better dialogue. We need to make it clear that we are all exposed to risk every minute of our working lives. You took a risk in coming here today, but you did a risk and reward analysis and you made the decision that it was better to come here than stay in bed. Most people die in their beds, so staying in bed is not risk-free either. People get

very concerned, which is understandable, when they think that someone else is taking the risk on their behalf. If you do not trust them, you do not feel so easy.

Take, for example, someone who is very nervous about flying and who feels that it is very high risk. You can show them as much evidence as there is available—which is substantial—showing that actually it is one of the safest forms of travel that they can use, but they will still perceive it as high risk unless you offer them the opportunity to sit next to the captain. If they are sitting in the cockpit, their perception of risk is vastly reduced, because they think that somehow they will be able to say, “Have you spotted that other plane there?” or “This thing has gone red on the dial, is that normal?” They feel in control. This goes back to social science and psychology.

There is an enormous danger as we become more and more technical. This is particularly the case in European Union legislation, because that tends to be more technical in nature than that in member states. It is therefore necessary to be able to assess risk and to balance it. We need to do a risk-benefit analysis or risk and reward analysis and then tell people what the reward is. GM was mentioned. Most citizens think, “What is in it for me with GM?” So there is a perceived risk and people do not want to take the risk because they do not think that there is any reward in it for them. We need to tell them what the reward is and then they can make the decision about whether it is worthwhile taking the risk. Your first point was that people such as me have to work much harder within an organisation, the European Commission in particular, to ensure that people are not mixing up risk with hazard. By doing that, they cause us real problems when it comes to using new technologies.

The Chairman: Thank you. We are running towards the end of our hour so I would like to double up the questions now, if we can. We will have Lord Foulkes and Lord Maclennan next. It may well be that we will have to take notes and people might like to correspond. After that we will have more than just doubling up, with questions from Baroness Hooper,

Baroness Corston and Lord Cameron. That will round it up. Perhaps speakers would like to make their points quickly, as we have got them into the area of interest. Lord Foulkes first, please.

Q12 Lord Foulkes of Cumnock: I am glad that I took the risk of coming here. It has been very illuminating. Perhaps I can ask you to turn to Horizon 2020, which is meant to improve the funding and framework for R&D. Could you tell us how well that is done? In particular, there is now a high-level group, a Science and Technology Advisory Council. Are the structures beginning to get a bit too bureaucratic? Might that inhibit the implementation and improvement of R&D under Horizon 2020?

Lord MacLennan of Rogart: My question is cognate with that. The European Union has limited financial resources and there seem to me to be at least three interrelated issues that would lead to decisions about how to spend money. One is the problem that the scientific researchers are confronting. The second is the quality of the output or the work that is being done. The third is value for money. Who decides each of these things? Can you give us some help about the structure and about the structure that you would propose?

The Chairman: Those are fairly big questions. Would you rather reflect on them and drop us a line afterwards? Do you think that would be possible?

Professor Anne Glover: Actually I might be able to deal with those very quickly, because my responsibility within the Commission is looking at science for policy, rather than policy for science. Horizon 2020 is definitely policy for science. Regarding whether it is a success, I would like to say very briefly that it has received a warm welcome from the scientific community. That is a good start, because they tend to be quite vocal if they do not like something. It has reduced red tape so that it is much simpler to apply, and it is much easier for small and medium enterprises to form partnerships. There is an explicit recognition that when applying for Horizon 2020 funding scientists should seek to establish partnerships. For

example, I am a natural scientist and if I were applying for Horizon 2020 funding I should seek to work with social scientists or others, in order to increase the impact of the output.

This is coming on to the question of output. Horizon 2020 is also different from the framework programmes, where sometimes projects were funded because they addressed developing capacity in some member states, for example. It was felt that Horizon 2020 should focus on excellence and that that was the most important thing, while other instruments from the European Commission budget—namely, structural funds—should be used to build capacity. There is now a redevelopment of structural funds so that a much higher proportion of those must be used in order to build science, engineering and technology infrastructure in the member states concerned, with Horizon 2020 just funding excellence. You referred to the Science and Technology Advisory Council. Again, that is a council that President Barroso set up at my suggestion. It offers advice to him but it also gives me a small group of people—actually only 16 people, so not one from every member state—who are experts in their respective areas of science, engineering and technology, including social science, and including a business perspective as well as an academic perspective. We have produced one report on science and society. The second report, which will be produced in October, is on foresight or how to invent the future. That is a trickier thing to do.

The Chairman: I am conscious of your tight timetable, so the final round is Baroness Hooper, Baroness Corston and Lord Cameron, just so that we can get the points out. The Chief Scientific Adviser can then respond at leisure.

Q13 Baroness Hooper: In the Maastricht treaty, health was carefully defined and restricted to public health issues. Does this carry through to health R&D? I was wondering whether the precautionary principle applied here—obviously, it would in certain health issues.

Baroness Corston: How does your team engage with the Impact Assessment Board? To what degree is scientific advice included when it considers a proposal? If the advice is included, to what degree is it heeded?

Lord Cameron of Dillington: I am a farmer and I have to declare an interest as such. I am mostly interested in smallholder agriculture in Africa. DG Development under Commissioner Piebalgs has been promoting improved smallholder agriculture as one of the best tools of development. I was wondering to what extent you have been involved in that agenda, as agricultural R&D is a pretty important part of it.

Professor Anne Glover: First, on health, in terms of Horizon 2020 a lot of health research is funded and it is not just public health research—it would be in the broadest possible area of health research. You are right that the Commission tries to look at public health more generally. That is partly because a number of studies have suggested that, whichever member state you are in, if you spend £1 on public health it is worth an awful lot more than if you spend it on either diagnosis or treatment. There is a big emphasis on public health as a way of preventing people from even entering the bad health pipeline, if you like. But a lot of R&D is done under Horizon 2020.

Next, the only formal interaction that I have with the Impact Assessment Board is that currently a review of impact assessment is going on and I have asked to be involved in that. I think that there is an opportunity—again, it is for the President-elect to look at this—for my office or something like my office to be routinely involved in impact assessment and almost to do a bit of the checks and balances. That relates to the second part of your question, which was: where does the evidence come in? The evidence should come in right at the beginning. As I mentioned, impact assessment is invoked if your policy proposals are going to have impact; if they are going to have impact, you are obliged to provide an evidence base. But is it heeded? That is when the evidence and other considerations are taken into account.

It is fair to say that it would not always be heeded in the Commission and similarly with member states. But if it was more open and transparent, it would be much easier for everyone involved. I think that there is a real opportunity for my team or something like it to be in there ensuring that we have the best and most credible evidence—evidence that will stand up to scrutiny. As a scientist, I firmly believe that if you have policy based on evidence, it will be much easier to defend and more robust, because it is based on something that has more substance to it than an ideology, which can change overnight—the evidence does not normally change overnight.

As for smallholding in Africa, I did not see that coming. I do not interact a lot on specific issues like that, but I have been involved in looking at how we develop agriculture for the 21st century, although mainly in the EU. How do we develop that? That has been extremely interesting for me. I spoke to a big conference that my colleagues in DG Agri had on this, when they were thinking of how they develop new research programmes for agriculture, both large-scale and small-scale agriculture. There were some 400 people at the conference and I asked for a show of hands from those who were farmers in the audience—there were eight out of 400. I just thought that we might be looking at it the wrong way. I suspect that you know what knowledge you need to do things, whereas, as a researcher, I can think of interesting things to research on what you do, but it might not help you—it might just be interesting for me, although it might help you in the long run, I do not know.

The Chairman: Perhaps I may say, Professor Glover, as we wrap this up, that if I am brief in responding, that is directly related to the fact that you have been so full and generous with your time and your answers. I ought perhaps also to declare an interest as a farmer. I understand where you are coming from, so you have two potential volunteers—indeed, there is Lord Selborne as well. More seriously, we are immensely grateful to you for your time. What you have said has opened up some insights that we had not previously perceived

and given us a lot to think about. It has been very much helped by your frankness, clarity and clear enthusiasm for the subject. One has the sense that this is an area where Britain is rather taking the argument forward, which is very welcome to us. We are particularly grateful to you for that and we thank you. People are genuinely very warm to this, so please keep in touch with us if it is useful either way. We wish you well in future developments after what has clearly been a fascinating period.