



HOUSE OF LORDS

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The Select Committee on Science and Technology

Inquiry on

**THE RELATIONSHIP BETWEEN EU MEMBERSHIP AND THE EFFECTIVENESS OF
SCIENCE, RESEARCH AND INNOVATION IN THE UK**

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Questions 107 - 116

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Witnesses: Professor Dame Julia Slingo,

Professor John Womersley and Stuart Pritchard

USE OF THE TRANSCRIPT

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Members present

Earl of Selborne (Chairman)
 Lord Cameron of Dillington
 Lord Fox
 Lord Hennessy of Nympsfield
 Lord Hunt of Chesterton
 Baroness Manningham-Buller
 Lord Maxton
 Duke of Montrose
 Baroness Morgan of Huyton
 Baroness Neville-Jones
 Lord Peston
 Viscount Ridley
 Lord Vallance of Tummel

Examination of Witnesses

Professor Dame Julia Slingo, Chief Scientist, Met Office and member of the European Commission's Scientific Advice Mechanism (SAM) High Level Group; **Professor John Womersley**, Chief Scientific Officer, Science and Technology Facilities Council (STFC) and Chair, European Strategy Forum on Research Infrastructures (ESFR); and **Stuart Pritchard**, EU Affairs Manager, Wellcome Trust

Q107 The Chairman: Could I thank Dame Julia, Professor Womersley and Mr Pritchard for joining us for the second session today? We are most grateful. We are being broadcast, so would you like formally to introduce yourselves for the record? If any of you would like to make an introductory statement, please feel free to do so. We shall start on the right with Professor Womersley.

Professor John Womersley: Good morning and thank you, everybody. I am Professor John Womersley. I am the Chief Executive of the Science and Technology Facilities Council, which is one of the seven UK research councils within the Department for Business, Innovation and Skills. We support big science—a lot of international science projects. I am also the Chairman of the European Strategy Forum for Research Infrastructures, which I think you will be asking about later. That promotes a coherent strategy-led approach to the planning of big international research facilities across Europe.

Professor Dame Julia Slingo: I am Julia Slingo. I am the Chief Scientist at the Met Office and also a member of the High Level Group for the new European Commission Scientific Advice Mechanism. The Met Office, as I am sure you know, is one of the world's leading weather and climate services, but also embodies a very significant research activity in weather and climate science, numbering some 550 scientists under my direction. We benefit enormously from our international collaborations, both in services and science, and particularly important European networks which sustain our services and contribute quite significantly to our research base. We have a long history of international co-operation and I would say that EU funding, particularly over the last decade, has been incredibly beneficial to the

advancement of our science so we can provide improved services not just in the UK but across the world.

Stuart Pritchard: Good morning. My name is Stuart Pritchard. I am the EU Affairs Manager at the Wellcome Trust, having joined six months ago. Prior to the Trust, I have a background in European policy, having worked for a pharmaceutical company in Brussels and—I mention with some trepidation—in the European Parliament as a researcher for a UK MEP on health and environmental legislation. As you may know, the Wellcome Trust is an independent charitable foundation which funds science and research. We want to improve health for everyone by helping great ideas thrive. Like many EU-based foundations, the majority of our expenditure is in the country in which we are based, the UK, but the Trust is particularly interested in EU science and health policy as it has a major impact on the organisations that we support.

Q108 The Chairman: Thank you. The first question is directed to Dame Julia and particularly her role on the High Level Group of the Scientific Advice Mechanism. I believe you held a meeting, did you not, on 29 January?

Professor Dame Julia Slingo: That is correct.

The Chairman: Is there anything you can tell us about the outcomes of that meeting?

Professor Dame Julia Slingo: Yes. The group met for the first time just over two weeks ago and we looked particularly at our terms of reference and our roles and responsibilities. We were led in that discussion by Commissioner Moedas, and it is fair to say that I found the discussions very positive. We are a body which is about providing scientific advice through the interpretation of the relevant evidence in the context of the policy that the EU is interested in. We are not about facts and figures; they have many bodies that help them with facts and figures, such as the Joint Research Centre. We also agreed that everything we do should be open and transparent; we were very keen on that. We stressed very much our need for independence. Indeed, the Chair of the HLG will represent our views to the Commission; they will be the views of the HLG, they will be published and then it is up to the Commission to use them in the best way they can.

We looked at the sorts of work we could do, and basically it fell into three tranches. I would say the first was what one would call urgent topical advice on key issues that have suddenly come up—things like Ebola or Zika, those sorts of problems. Most of our work will be based on the EC Work Programme and, therefore, will be tasked by them for areas where they would like scientific advice. We also have a role in promoting new pieces of work that are longer-term, horizon-scanning topics where we feel the EU would benefit from more in-depth science and more structured advice.

What is clearly important to the Commission is the way in which we draw on the wider scientific community, so the relationship between the HLG and the learned societies is obviously critical, and you will be aware that they have set a budget to engage the learned societies. Also, they are very keen that we look beyond public sector research to private sector research whenever it is appropriate, and that is for us to decide. We were given two pieces of work in the first instance, one led by one of the vice-presidents to look at particular aspects of cyber security, and the second led by DG-CLIMA to look at how we can monitor CO₂ emissions from light vehicles.

The Chairman: That is very helpful. You were given two separate projects. Does this mean that the initiative for these projects comes from the vice-presidents, or does it come from you within the membership of the group?

Professor Dame Julia Slingo: For the bulk of our work we will be tasked by the Commission to provide scientific advice based on the work programme of the Commission. We also have the opportunity to put forward topics ourselves, and we will do so where we believe there is a need for some horizon-scanning or maybe a Foresight-type of report on what we believe to be the emerging big issues around science for the European Union.

The Chairman: Given that your proceedings will be transparent and open, will the scientific community have the opportunity to offer suggestions to you? Is that how you expect it to work?

Professor Dame Julia Slingo: Yes.

The Chairman: Therefore, are you encouraging the scientific community to feed ideas into the group?

Professor Dame Julia Slingo: Absolutely, yes.

The Chairman: You also referred to immediate issues, and I think you mentioned Ebola and the Zika virus. How easy is it going to be to react quickly to such issues?

Professor Dame Julia Slingo: I am not sure, and, actually, I was not entirely sure they knew that either. When they talk about urgent topical advice, I do not think they are thinking in terms of hours or days; they are thinking of a slightly longer period like three months. To be honest, there was no further detail on that.

I should say that on the pieces of work we have been tasked with, we reviewed draft-scoping papers which have been now finalised, and they will go public, so, again, everyone will be able to see the scope of the work that we have been tasked with and the sorts of things we will do. My role for the UK is to make sure that I bring to the table the best expertise we have in this country through my connections with the learned societies and engaging with them. I have done that already. I have met with a large number of our learned societies. The British Academy in particular has been very helpful in setting that up. To some extent we need to engage with GO-Science, although I think our independence is really important. We are there as individual scientists to give independent advice, so although I see it as important for me to work with the CSA network in this country, because there will be topics—and these are two—where I do not personally have deep expertise, I will need to have that help to find the best people to engage in providing evidence, workshops, those sorts of things.

Lord Hennessy of Nympsfield: Dame Julia, I think the EEC came into being on 1 January 1958. Are you not amazed, as I am, that it has taken them this long to set up an apparatus of this sort? I have a supplementary question. It is very hard, wherever you stand on the European debate, to sing a positive song. The Eurovision Song Contest has rather put us off that sort of thing. Do you not think that as a country we punch heavier than our weight—all the metrics suggest we do—and through you in this new apparatus we can bring something positive to the European Union; a good story to tell rather than a perpetual drizzle of complaint and pessimism?

Professor Dame Julia Slingo: Yes, I do, actually. I can see why the EU has struggled with this question of scientific advice. Anne Glover has already given you quite a lot of background on

that. I should say that this new mechanism is supported by some really, really good staff in Brussels. I was very impressed with the quality of the staff who sat around the table with us and were assisting us. I think there is an opportunity to make a real difference.

You have to be aware that although I am on this group, I do not represent the UK and I do not represent my area of science, although of course I know my area of science and I can work that. I am there as an independent scientist who, presumably, can exercise the right sort of judgment on the way in which we gather the evidence and how we communicate it. There is no doubt in the discussions that we had around the table that the way the UK gathers its scientific evidence to underpin policy is greatly admired. While there is no way they can ever replicate that, they can recognise the strength of the way we gather evidence and have inquiries and ask for written submissions, and really involve as many people as possible in gathering the scientific evidence for policy.

I hope that I can bring a positive contribution to the HLG by knowing a bit about how we do it in this country, which I think is as good as you will find anywhere.

Lord Hunt of Chesterton: I do not know which world Lord Hennessy lives in, but in the world I know about Europe is seen, scientifically and technically, as an astonishingly successful operation with CERN, et cetera. In the United States, they now say, “Tomorrow’s weather: here is the American forecast and here is the European forecast”, and invariably one is better than the other. There are extraordinary things about Europe. My question is whether your committee—and I put this question to Professor Womersley also—is going to help define or suggest, longer term, these enormous, mega-successful projects. Where do we go from here?

Professor Dame Julia Slingo: I think that is a really good point. At the moment it is not explicitly in the terms of what we do, but when I was interviewed and subsequently when I talked to the Commissioner and other people there, it was quite clear to me that if we work on a topic, or even if we commission some serious pieces of work—and I am proposing to commission something around the changing landscape of climate risk for Europe, because there are some really difficult problems there—surely out of that must come a recommendation for further research. If it does not, I do not think we are doing our jobs as scientists. One of the key things we discussed a couple of weeks ago is yes, we are a high-level group to advise the EU on science for policy but we also have to be advocates for science and honest brokers. For me, that was a really nice description of what our role should be. You are absolutely right that if we do a really good job, out of that will come, I think, some major initiatives where the EU—Europe—stands up and says, “We do not have the evidence base or the science in place yet for this, and this is what we need to have done by the research community”. I am hoping that is where I will get to with this.

The Chairman: Would Professor Womersley or Mr Pritchard like to offer their thoughts about the Scientific Advice Mechanism in the light of what they have heard?

Professor John Womersley: Maybe I should follow up on the question of big science projects, which I do not think are currently within the domain of SAM, but there is clearly a lot of overlap. As you were saying, the way to address these big science questions requires international collaboration and the pooling of resources. The mechanisms to do that are facilitated by the European Commission, but not funded by it, so when you talk about things such as CERN as a European success, indeed it is, but it is a voluntary collaboration of European governments and, in fact, it predates the establishment of the European Union.

When we think about scientific and technological innovation to address big challenges or to ensure our future prosperity, it absolutely requires international collaboration and the pooling of resources across Europe. These facilities, networks, data-gathering exercises and high-performance computing resources all require investments that are greater than any single country can make if they are to address these very high-level questions. I chair ESFRI which is a mechanism for that. ESFRI is hosted by the European Commission: that means it provides meeting rooms and a secretariat, but it has no budget from the EC; in fact, it has no budget from anywhere. It is a set of delegates from national governments who come together to construct a mutually agreed roadmap of next-generation scientific facilities that they will then voluntarily decide to join or not, on the basis of individual national contributions.

Funding from the EU is something like 1% of the total budget for these kinds of things, and where big projects have emerged, such as the European Spallation Source or the Square Kilometre Array, those are intergovernmental agreements between national governments. Where the UK has engaged with those, such as the Square Kilometre Array—the headquarters is now in the UK—it has done very well. Where we have not engaged particularly strongly, such as with high-performance computing in Europe, we have not had much influence. It is our choice. We are never mandated by the Commission to be part of something we do not wish to be part of. In most of these areas there are parallel structures that are established through intergovernmental agreements or treaties, often also involving countries such as Switzerland and Norway, which are associated states rather than members.

The Chairman: Mr Pritchard, do you want to add something on this subject?

Stuart Pritchard: The Trust was concerned when the CSA post disappeared from the Commission, but the indications with the new SAM mechanism are very positive, and I think we would welcome the structures and resources that appear to be being put in place to support the evidence that is being provided to the Commission. It would be interesting to see how that information is provided to the Parliament, where there tends to be a bit of an argument of, “My science is better than yours”. Having a sensible middle ground where parliamentarians could receive advice they could rely upon as being neutral would be very helpful in some of the regulatory discussions in which the Parliament engages.

Viscount Ridley: I want to follow up on exactly that point, if I may, and, to echo Lord Hunt’s words back to him, I do not know what world he is living in. If we look at recent history, the European Union has become synonymous with the rejection of the rational scientific case for genetically modified crops, for example; the ban on neonicotinoid pesticides was essentially taken on unscientific grounds; some of the attitudes to electronic cigarettes have been deeply unscientific; and as you said, Dame Anne Glover lost her job partly because of pressure because she was being too scientific about this. What confidence do we have that this new mechanism will not repeat those sorts of anti-scientific approaches to rational questions?

Stuart Pritchard: I am not sure the Trust has a position on that.

Viscount Ridley: Maybe it is for Dame Julia to tackle that one.

Professor Dame Julia Slingo: Let us be clear: I have been at one meeting. I think the issues that Dame Anne had are very well understood. The fact is she was a lone voice, and there

are seven of us, and she had an office consisting of about three people, whereas we now have 20. The other thing that gives me some confidence is that we are independent of the Commission and therefore what we publish is what we publish, and it will be open and transparent. It will be there for national governments to see that this is our position on something. The chair is completely independent of the Commission, so when something is published by the Commission it is what we have produced; it is not what they would like to publish based on what we have put together. We made that absolutely clear right from the word go when we met. That has to be a position of strength.

Of course, there is a long road between what we might publish and what policy might be taken up. I think there is more work that the HLG needs to do with members of the European Parliament, and I am meeting with some of ours to talk to them about our role and how I can interface with them.

We do not have a formal route into the Council as yet. I asked specifically about that this last week. We are there for the Commission and not yet for the individual nations and the MEPs, but maybe that is something we should be there for. That is after one day together. I should also say that there are seven of us and of course we do not cover all the sciences, but they are an incredibly impressive bunch and they will not be a pushover.

Lord Peston: When SAM was set up, I asked myself whether its purpose was to strengthen the role of science and engineering in EU decision-making or weaken it. I came to the conclusion that it was intended to weaken it, without a shadow of a doubt. Listening to what you have just told us, Dame Julia, confirms that. You did not choose the two questions that it is asking. You may decide the answers but who chooses the questions and commissions the research? That is what matters. Who goes and looks at what the European decision-makers are doing and says, "That is scientific nonsense", which is what Lord Ridley implied. There is no one now who does that any more. That has gone. That seems to me to be a very serious backwards step in the role of science and engineering in the whole EU set-up. I put it bluntly like that to give you a chance to answer bluntly.

Professor Dame Julia Slingo: Let us be clear: yes, we were given two topics, and I think it is good that we have something to cut our teeth on. However, let us be careful here. We were not given them; they were proposed to us.

Lord Peston: If I could just interrupt, could you have said no?

Professor Dame Julia Slingo: And we could have said no. We did not have to accept the commission.

Lord Peston: What would have happened if you had said no?

Baroness Morgan of Huyton: There would be no scientific advice.

Professor Dame Julia Slingo: Hang on. Can I just answer that? On these two particular topics, and I am not going to go into the detail—the scoping papers will be out before very long—we challenged quite significantly exactly what it was that it wanted to introduce, what the policy was and where the science question was. For something such as cyber-security, how long is a piece of string? It is a massive topic. We challenged—and the same with the other topic: we challenged very, very strongly—and the Commission had to go away and rewrite the scoping papers on the basis of that. We have seen them again and said, "Yes, we are comfortable with them and we will accept the commission that this group will work on those topics".

To be fair, the people who were trying to persuade us to work on these topics were DGs, commissioners and vice-presidents, not people lower down. These were top people and we challenged them quite robustly. You are right that we do not yet know whether the sorts of things that will come before us are, in a sense, those where the scientific evidence advice is not going to be very challenging. These are very early days, so let us wait and see. I was very pleased with the way the meeting was conducted, which was very informal but very challenging; you felt you could push back and ask quite tricky questions.

Q109 Lord Cameron of Dillington: My question has already been touched on by several people. Bearing in mind the European Union is run by a triumvirate of the Commission, the Council of Ministers and the Parliament, and SAM is only advising the Commission at the moment, should the other two have their own scientific advisory mechanism or should SAM be expanded to cover and give advice to these other two? It is important that science advice is in all three really, is it not?

Professor Dame Julia Slingo: I do not think I can answer that question because I do not yet know enough about all the workings in Brussels. We touched on it at our first meeting, and I have had some further correspondence about exactly that issue. Let us see where we get to. I do not know that it is my push on this, but, actually, if the member states would like that to happen, I think it probably is the right thing in many respects.

Lord Cameron of Dillington: Do the other two witnesses have any views on that?

Professor John Womersley: I would assume and hope that when our Ministers attend the Council they have received science advice through their national mechanisms.

Lord Cameron of Dillington: Which might be contradictory in the 28 member states.

Professor John Womersley: I shall say no more. That is the nature of the Council.

Stuart Pritchard: Certainly in my experience, the UK Government have a very good permanent representation in Brussels, which is a valuable conduit for gathering evidence and advice for the Government in their negotiations. The Parliament has a number of structures already in place to provide advice to members. Whether that advice always cuts through, I am not sure, because it is a very noisy environment in the Parliament, with a lot of lobbying activity going on and a lot of conflicting advice. For me, one of the challenges for parliamentarians is how they find evidence that is sufficiently robust to inform discussions when they are being bombarded by huge amounts of information. Having some further strengthening and rigour in the advice provided to members to counteract that would be a helpful addition to the discussions, if it is organised in the right way.

Q110 Baroness Manningham-Buller: Good morning and thank you for being here. We have covered in evidence in a number of ways the extent of the influence of British scientists such as yourselves, Professor Womersley, and Dame Julia, in the fora in the EU in which you engage. Obviously, it is early days for SAM, Dame Julia, and for you to be able to claim vast influence, but we hope you will have it. Could you both give us a perspective more broadly on the influence and effect that British science has on European decision-making? It is a pretty broad question and we have had a couple of answers on that already.

Professor John Womersley: I think we have successfully defended a view that each country needs to make its own decisions on its science investment, especially on the kinds of big projects that I am responsible for. We should not have a single European fund and we should

not have a very large research budget in the Commission to which we all contribute and which then gets disbursed, because we would lack confidence that was being used to promote excellence, and it might well be used to meet other objectives. We have defended the principle of variable geometry—we decide what makes sense for us to be part of and where our particular science strengths and interests lie in our community.

Baroness Manningham-Buller: Can I interrupt you? In the event of a Brexit, would any of that be affected or could we still decide whether to invest in a big infrastructure project?

Professor John Womersley: At the risk of treading on unclear ground, that kind of collaboration requires mutual trust between Governments. Our government is spending hundreds of millions of pounds of our money, and expecting others to contribute similarly. Could you assure me that such mutual trust would not be threatened? It also requires the ability to hire the best scientists from all over the world. That is not a trivial issue right now because of the immigration rules. For example, at the Square Kilometre Array, half the staff at the headquarters at Jodrell Bank near Manchester are from outside the UK. That makes sense in an international project. The other participants wish their scientists to be employed there. The things I would worry about in such a world would be the ability to recruit scientists from elsewhere in the world and whether there was a negative impact on mutual trust between Governments.

As you say, most of these projects are outside the EU frameworks because that is the way they wish to work. Within the EU, the way that Horizon 2020 has been operated, the way FP7 was set up before that and the way the European Research Council operates are attempts to follow the best practice of the UK research system, with the Haldane principle—although not called that—with proposals peer-reviewed purely on the basis of excellence, without using criteria to skew the outcomes to favour certain geographic regions and so forth. Without perhaps realising it, we have had great influence as exemplars of best practice, and the clear separation between the role of the European Research Council and those of the more innovation-oriented agencies is a good thing to hold on to. I think we have had good influence there and we are seen across the whole EU as having best practice in the way science operates.

Lord Hunt of Chesterton: You have already answered the second question. To put it another way, when we joined the EU, I asked some scientific civil servants what the benefit of this was, and they said, “At last we have a peer group which can ask us questions”, because they regarded Parliament as a non-serious peer group in the UK. That is sort of what you are saying, is it not: that these meetings of people who are government officials, discussing scientific policy—the EU club, as it were—have been quite effective and, if we were not part of the EU, we would not have that?

Professor John Womersley: We have peers in these kinds of forums who are the holders of research budgets in other major European countries and, as I said, that includes countries such as Switzerland, which are not actually members of the EU but with which we collaborate. We have successfully built collaborations such as the Square Kilometre Array with other countries such as China and India, but I think the mutual trust we have with other European partners has certainly helped that process, even if it is not a legal underpinning of it.

The Chairman: Lord Hunt, would you like to continue?

Q111 Lord Hunt of Chesterton: One of the issues is how our science measures up and how it would be changed by the possibility of a Brexit. The statistics suggest that UK basic research is arguably the strongest in the EU, but perhaps not in applied science. There is a question about that. Does the number and scale of EU research facilities in the UK reflect our strength? If not, why not? That is obviously for you all to answer.

Professor John Womersley: If I may start, I am going to quibble with your question because when you say EU research facilities, I am not sure you mean that.

Lord Hunt of Chesterton: European research facilities.

Professor John Womersley: Back when the European Community was established, Euratom was set up as a pooled research programme. ITER/JET at Culham is one of the few areas where there really is an EU flag on the outside of a big research project. Of course, we benefit from having JET at Culham, and if Steve Cowley were here he would make that case very, very strongly.

We host a number of European intergovernmental research facilities such as the European Centre for Medium-Range Weather Forecasts, which Julia can talk about, but we have not been successful in securing any of the more recent round of big facilities such as those for the European Spallation Source or the X-Ray Free-Electron Laser, which is in Hamburg. Historically, the UK has often seen big science facilities as places to go and do science, which seems a little obvious. However, if you see science output as the key thing, having somebody else build and operate it looks like a cost-effective way of getting access to the facilities for your scientists. You do not have to build the headquarters, you do not have the liability of decommissioning and you do not have to hire a large number of staff.

Historically, we have been quite content to use the Synchrotron Radiation Facility at Grenoble and the facilities in Hamburg and so forth. I think that has shifted because we have rediscovered the knowledge that there are long-term benefits to having such things on our soil. Those come from the economic impacts, the spin-outs; from the fact that these facilities serve as an ecosystem for small businesses, or even for large companies to locate around them, and that they have a pool of staff who can go on to stimulate economic activity. That is what STFC is trying to do at the Harwell site. That is what we have been working on at Daresbury as well. We have attracted organisations such as the European Space Agency to put their science and technology centre at Harwell very much with that in mind. That is why we have bid very strongly to host the Square Kilometre Array at Jodrell Bank—because of the impact on big data and computing that will come from that next-generation astronomy project.

The realisation of these other benefits alongside the pure science outputs has shifted the balance a bit. We are doing better. We have been working quite hard in STFC, and I know the other research bodies in the UK have similarly, but there is still some way to go. The benefits are around the innovation ecosystem and the science and technology campuses that these things can anchor and stimulate.

The Chairman: The Joint Research Centre, which is, effectively, an in-house research facility for the Commission, has a number of sites in member states but none in this country. Have we missed out?

Professor John Womersley: I am not intimately familiar with the JRC, but what I hear about it does not inspire huge confidence. These are former nuclear research facilities that have

been repurposed. I am not aware of a new one having been established recently. You may know more through SAM.

Professor Dame Julia Slingo: No, I do not.

Lord Hunt of Chesterton: There are various views on that. One of the roles of the JRC, which was extremely important, was as a tool to enable, for example, the European Commission to see what was and was not being grown all across Europe. The environmental monitoring is quite considerable. The Met Office had some interactions with them on that.

Professor Dame Julia Slingo: I think it comes back to the comment I made around the HLG that something such as the JRC is great for what the Commission calls facts and figures and technical advice, and that sort of thing, but if you want deep science, that is not where you go.

Lord Hunt of Chesterton: It is an applied European lab.

Professor Dame Julia Slingo: That is not where you go. That is not what it does. It is not what it is recognised for. I think that is a very clear distinction.

The Chairman: Certainly, it is a facility that is available to the Commission. Let us move on. Lord Peston.

Q112 Lord Peston: My question is initially to Dame Julia. Incidentally, Dame Julia, may I say to you that many years ago I chaired a conference on forecasting, devoted entirely to why meteorologists were very much better at forecasting than economists. Since then it seems to me the meteorologists have become a lot better and economists, if anything, a lot worse. I give you that as background. My specific question is whether what is happening with all these expert groups is risking a dilution of the influence of individual states in the EU, and, I might add, does it matter? Can you throw any light on that?

Professor Dame Julia Slingo: I am not sure I can, to be honest. You are right that there are lots and lots of advisory groups, and the HLG is trying to understand the landscape of those different groups and what their remits are. I do not think I can answer your question. Thank you for the comment on weather forecasting. We do start from some fundamental laws of physics that are a great help.

The Chairman: In the written evidence from the Met Office you refer to the JPI that you are particularly concerned with, and you expressed some reservations about whether it was adequately fulfilling its role. Would you like to comment on that?

Professor Dame Julia Slingo: We have a JPI on climate. Perhaps it has not had the—what is the right word?—impact that some of the other JPIs have had. From our specific perspective in the Met Office, it has been quite difficult for us to engage, and that is because the JPIs typically involve research funders. We are not a research funder. We are a public sector research establishment. We do not have access to research council funding in this country. There are parts of the JPI and the ERA-NET instruments that require you to put in in-kind resource, which is fine if you are a research funder such as a research council, but of course the Met Office does not have any capability for engaging, so we have had to work quite hard to get round the JPI table. We are there now, I am pleased to say, but I think some of the difficulty from the UK side, and particularly from the Met Office side, is what Sir Paul Nurse highlighted in his review of the research councils, which is the relationship between public sector research establishments such as ourselves and the National Physical Laboratory and

the research councils. That is one of the key issues from my perspective as Chief Scientist at the Met Office.

Q113 The Chairman: In the earlier session this morning, we were being advised by Siemens that there was perhaps a need to synchronise national programmes with the programmes coming out of Europe, and in that way it was thought perhaps we might do better, certainly within industry, in attracting the funding. Do you think the problems you are having with the JPI Climate is another manifestation of our failure to synchronise?

Professor Dame Julia Slingo: I think we have to be cautious here. The UK science base is very strong nationally, and of course we have very, very good international collaborations and partnerships. I think we have to be very cautious that our own science agenda and our own strategy for science is not taken over too much by what Brussels would like to see done. That was one concern that some of us had around some of the new instruments where a lot of national funding is required. Because our science base is so strong nationally and we are excellent in a number of science areas, we want to be careful not to risk weakening our core areas of excellence because we are trying to fit to somebody else's agenda. For me, it is always about getting the right balance between national interests and the quality of our science base versus what we gain by working more collaboratively in Europe. There is always that tension, and I think John can comment on that too.

The Chairman: Did you want to comment, Professor Womersley?

Professor John Womersley: We want these scientific collaborations to promote excellence and to promote science that is of itself worth doing and is not of value simply because it brings Europe together.

Professor Dame Julia Slingo: That is right.

Q114 Lord Fox: Turning to you, Mr Pritchard, charities, particularly those in the medical sector, are key funders of research in this country. Would the potential change in EU membership make any difference to charity research funding in the future?

Stuart Pritchard: Potentially. The Trust does not apply for EU funding itself, but we work with a lot of charities for which EU funding is an important part of the diversity of funding they receive. Having worked for a smaller charity myself in the past, I would say that having a broad range of funders is very important for stability and sustainability. From some of the evidence that you have seen from the AMRC, for example, EU funding is not a huge number in the grand scheme of things, certainly for some of the larger charities, but it is important as part of the mix of funding that charities receive. A lot of the medical research charities work with other research organisation partners in the UK which are themselves recipients of EU funding, particularly in the university sector, so you could argue that, should EU funding to the UK research community decrease, it would have a potentially negative impact on the work of medical research charities.

Lord Fox: Are UK charities essentially operating only as UK charities? How much co-operation is there with charitable organisations within the rest of the European Union?

Stuart Pritchard: Quite a lot, I think. It depends on the area in which the particular medical charity is working. For example, in rare diseases there is a great deal of collaboration because the scale required to deal with rare diseases requires that collaboration. There are a few organisations working closely together. In fact, there is a much greater chance of

success if charities that fund medical research themselves collaborate with other EU member states, and the charities that work within them. Thinking back to the evidence that the AMRC submitted, the AKU Society, for example, has received significant funding which, in the grand scheme of things, probably does not look a huge amount, but is enormously helpful in facilitating them to work closely with other partners and deliver progress against their charitable objectives.

Q115 Baroness Morgan of Huyton: Can we move on to regulation and particularly the harmonisation of regulation within the EU? We have had a fair amount of evidence around this. Broadly speaking, I would say the summary has been, “Harmonisation is a good thing but ...” There are a few exceptions who have not agreed, but, broadly speaking, that is the shape of what we have had. Do you all agree with the, “Broadly it is helpful but ...” position? If you do, can you explain for us in a bit more detail what the “buts” are? If you could reform it, what would you do? What are the key areas of concern?

Stuart Pritchard: As you know, the Trust takes a great deal of interest in policy and regulation that is appropriate to our charitable objectives. The life sciences are a very important part of our work. I think the Committee has received quite a lot of evidence already on some of the areas which the Trust has traditionally followed, so those will be familiar to you. They include the protection of animals in scientific experiments, the data protection regulation and clinical trials. The physical agents directive is an interesting example as well. They all have their own little peccadillos in the challenges they have presented. Ultimately, all of them have resolved themselves fairly reasonably. The challenge is the process. The outcomes can be unpredictable. The timescales can be unpredictable. For example, the data protection regulation has only recently been adopted—at the end of last year—and that was after four years’ hard slog, with right-down-to-the-wire unpredictability about how the Parliament particularly would respond to that.

Each piece of legislation has its own challenges. I would say that it is not always negative. For example, some of the positions taken within the EU discussions on the use of animals in scientific procedures were occasionally quite hair-raising, but, ultimately, this was legislation that replaced a 21 year-old directive that was no longer fit for purpose given advances in medical technology.

For me, part of the challenge in this is the actual process that the legislation goes through and the uncertainty that comes with that. We are quite fortunate in the Trust that we have the resources to follow legislation over an extended period. Not every organisation has that, and I think one of the challenges is how you enable appropriate input into that legislative procedure so that, for example, smaller charities which may not have the resource have their voice heard properly in some of the discussion. That is very difficult for some, and the Trust tries to work in coalition with other charities to enable the appropriate input to be made to those legislative discussions.

Baroness Morgan of Huyton: There seems to be something of a move towards regulation and away from directives. Is that more problematic?

Stuart Pritchard: There are pros and cons for both. Directives provide member states with flexibility to respond to their different national requirements, which is important for some of the research ethics considerations. The in vitro diagnostic directive is currently going through the EU institutions, and one of the sticking points is the Parliament’s position on

mandating genetic counselling for people using genetic tests. Genetic counselling is not a responsibility of the EU. It is very specific to the capacity of each member state how they deliver it, and it is a challenge whether the Parliament will stick to its guns or the member states and the Commission will convince it to take a different position. For example, if it was a regulation rather than a directive, and that were to emerge negatively in the position on genetic counselling, that would be much more difficult for a member state to adapt to; but regulations have their place in giving that opportunity for a single piece of legislation across all member states. For example, for clinical trials it makes sense to have that simplification across 28 different regimes.

Viscount Ridley: Following on from that, what is the opportunity cost of what you call down-to-the-wire uncertainty? In other words, in the case of clinical trials or animal testing, or whatever, how much good research has not happened because it has taken a long time to work out the uncertainty in this area? I know you cannot put a number on it. I can give you a very specific example here of a directive that is heading our way in May: the tobacco products directive, the aim of which, presumably, is to dissuade people from smoking. However, it contains within it an article that many people think is going to hugely discourage the take-up of vaping, which we now know—which we did not when they were first talking about this—is a very, very good exit route from smoking and much safer. The juggernaut is coming and there is nothing we can do. We are not allowed to amend directives.

Stuart Pritchard: I think it is difficult to think about opportunity costs, but if you were to think about the clinical trials directive, which initially came through in 2004, the Academy of Medical Sciences conducted a review into that in 2011, and that had some fairly worrying figures about the reduction in the number of clinical trials that were being applied for and conducted within the EU. According to the European Commission, the number of applications to carry out clinical trials in the EU fell by 25 per cent between 2007 and 2011.. That has now been replaced by a regulation that will come into force in about 2018, so that is a considerable period during which clinical trial legislation has been less fit for purpose than it could have been. You cannot necessarily put a figure on the cost, but I think the impact on the ability of the EU to conduct those clinical trials is clear.

From a commercial point of view, I know that when the Innovative Medicines Initiative was established, the amount of time that it took from the announcement of the intention that the legislation pass through the institutions to its actual adoption was a concern, because the Innovative Medicines Initiative was intended as a measure to improve the competitiveness of the pharmaceutical industry in the EU. It was a very interesting and quite forward-looking piece of public/private partnership activity by the Commission and the pharmaceutical industry, but the delay and potential delay that was built into the legislative discussion was quite disconcerting for the pharmaceutical sector. You can imagine that uncertainty imbues people with a little bit of sensitivity about what the EU is of capable of delivering in the legislation.

Viscount Ridley: Chairman, I should declare an interest. The Academy of Medical Sciences was mentioned and I am a fellow of it.

Q116 Lord Hunt of Chesterton: The next question concerns structural funds and how they are used for research and innovation. Professor Womersley and Dame Julia, what is your experience of structural funds and how they are awarded for research and innovation? How do you think this relates to Horizon 2020 funding?

Professor John Womersley: Within the UK we have not received very large amounts of structural funds because of our relative economic development, but it is not as if we have not benefited from them. Sci-Tech Daresbury, which is in the Merseyside area, has received European regional development funding for an innovation building, for example, and there have been useful and significant contributions that way. Ironically, we have benefited quite a bit from spending in eastern European countries. The Czech Republic, Romania and Hungary are using structural funds to develop new high-power laser facilities, and some of the contracts they have placed have come to STFC in this country to build the lasers that they are not able to deliver themselves. Thus, in an indirect way we are building European collaboration with those countries and benefiting from structural funds.

Their experience of using structural funds for science facilities has not been smooth, not only because of Brussels but because of their own governments. It is much easier to make the business case for that kind of funding for a road, bridge or airport than it is for a science facility. I applaud them for choosing to invest in that way, because if you see skills and STEM capabilities as essential to their future prosperity, having those big science capabilities in-country is a way to stop a brain drain and to promote the kind of economic development that I am talking about.

Lord Hunt of Chesterton: In the Czech Republic they are working on small fusion devices in collaboration with the UK, which makes your point very well.

Professor Dame Julia Slingo: I do not think I have any more to add from the perspective of the Met Office.

The Chairman: Of course, we recognise that structural funds have a particular role for the developing economies within the member states, so to that extent we are less likely to participate. Do you think, nevertheless, that our research infrastructure could have benefited from these structural funds had we been a bit more alert to the opportunities?

Professor John Womersley: I am not sure how straightforward it would have been to make the case because, as I said, even in countries that clearly have a will to do this, the bureaucracy—their own and the bureaucracy in Brussels—was not set up to imagine that investments in big science facilities were the kinds of things those funds were created to support. I think they have benefited from it. A couple of years ago the Chancellor announced a major capital investment fund for science, and that reflects the realisation that we had underinvested in our scientific infrastructure in the UK and we are taking steps to redress that through national budgets. I suppose one could put those two points together and say that, had we been able to take advantage of European funding, it might have been a smart thing to do.

The Chairman: We have wrestled with this issue at earlier stages of the inquiry and I have the impression still that some of our comparator countries such as Germany have done rather well out of structural funds. It is an issue we may need to look at a bit more carefully to decide to what extent there might be opportunities, and to try and come to a view about whether this could be of greater help to research in this country.

Lord Hunt of Chesterton: Is it because we are too centralised for the criteria these funds are judged on, rather than our funding being more regionalised?

Professor John Womersley: The UK itself is not a huge recipient of it and the areas that have benefited from it have not always been the most obvious places where one would put big

science facilities. For example, Thames Valley, where Harwell is located, has one of the lowest returns on structural funds anywhere in Europe because it scores high on the development indicators. As I said, there are places such as Merseyside and the north-east where we would be able to make use of such funds, and have done for roads and bridges and so forth. Perhaps science facilities could and should be added to that list, perhaps through the perspective of the northern powerhouse.

The Chairman: I am sure Newcastle University could benefit from it. Looking around at the Committee, I think we have probably drawn to a conclusion. We are most grateful to the three of you for some very helpful evidence today. Thank you very much, therefore, to Dame Julia, Professor Womersley and Mr Pritchard. Dame Julia, we will be offering you every encouragement at the High Level Group. It is clearly early days and we recognise that it is not possible at the moment to determine how things are going to shape up, but we wish you well and are delighted that you are there. Thank you very much.