House of Commons
Science and Technology Committee

International Policies and Activities of the Research Councils

Ninth Report of Session 2006–07

Volume II

Oral and written evidence

Ordered by The House of Commons to be printed 25 July 2007
The Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Office of Science and Innovation and its associated public bodies.

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A list of Reports from the Committee in this Parliament is included at the back of this volume.

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The current staff of the Committee are: Dr Lynn Gardner (Clerk); Dr Celia Blacklock (Second Clerk); Dr Chris Tyler (Committee Specialist); Ana Ferreira (Committee Assistant); Christine McGrane (Committee Secretary); and Jonathan Olivier Wright (Senior Office Clerk).

Previous Committee staff during the inquiry

Dr Anne Simpson (Committee Specialist); Dr Sarah Bunn (Committee Specialist); and Robert Long (Senior Office Clerk).

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Witnesses

Wednesday 9 May 2007

Professor Colin Blakemore, Chief Executive, Medical Research Council (MRC), Professor Ian Diamond, Chief Executive, Economic and Social Research Council (ESRC) and Chair, Research Councils UK (RCUK) Executive Group, Professor Keith Mason, Chief Executive, Science and Technology Facilities Council (STFC), and Dr Randal Richards, Interim Chief Executive, Engineering and Physical Sciences Research Council (EPSRC)

Wednesday 6 June 2007

Professor Stuart Palmer, Deputy Vice-Chancellor, University of Warwick, and Professor Alan Jenkins, Director, Water Science Programme, Centre for Ecology and Hydrology

Dr Lloyd Anderson, Director, Science, the British Council, Professor Lorna Casselton, Foreign Secretary and Vice-President, and Dr Bernie Jones, Head of International Policy, Royal Society

Wednesday 20 June 2007

Professor Sir Keith O’Nions, Director General of Science and Innovation, Department of Trade and Industry
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Oral evidence

Taken before the Science and Technology Committee

on Wednesday 9 May 2007

Members present
Mr Phil Willis, in the Chair
Linda Gilroy Mr Brooks Newmark
Dr Evan Harris Graham Stringer
Chris Mole Dr Desmond Turner

Witnesses: Professor Colin Blakemore, Chief Executive, Medical Research Council (MRC), Professor Ian Diamond, Chief Executive, Economic and Social Research Council (ESRC) and Chair, Research Councils UK (RCUK) Executive Group, Professor Keith Mason, Chief Executive, Science and Technology Facilities Council (STFC) and Dr Randal Richards, Interim Chief Executive, Engineering and Physical Sciences Research Council (EPSRC), gave evidence.

Q1 Chairman: Good morning and welcome to this, the first evidence session of a new inquiry into an examination of the research councils and the international policies and activities of the research councils. I welcome our witnesses this morning. May I start with a question to you, Professor Mason? How good is the UK at international collaboration?

Professor Mason: I think we are very good at it. My research council in particular lives and breathes international co-operation. Most of what we do has an international dimension to it. We have been doing it for a long time. As in all aspects of the work we do, we need to move forward and to improve and keep up with the rest of the world. I think we are working from a very good base.

Dr Richards: I would agree with Keith; we are pretty good at international collaboration, particularly with the US and Australia but there are some areas where we do need to make additional concerted effort.

Q2 Chairman: Where would that be?

Dr Richards: China, India and particularly from our perspective, the EPSRC’s perspective.

Professor Diamond: I think we are very good at it. My research council in particular lives and breathes international co-operation. Most of what we do has an international dimension to it. We have been doing it for a long time. As in all aspects of the work we do, we need to move forward and to improve and keep up with the rest of the world. I think we are working from a very good base.

Q3 Chairman: What does that mean? Do you mean where money is taken away? Do you get an international grant?

Professor Diamond: No. I mean quite simply is this. If you imagine a researcher at the University of Oxford wanting to work with a researcher at the University of Cambridge on a new piece of economics, then they simply get together, apply jointly to the ESRC for peer review. If that same researcher at the University of Oxford wanted to work with someone at the University of Manheim, until two years ago, they would have had to apply to ESRC from Oxford, to the DFG from Manheim, and waited for two separate peer review processes to work. Had they had a colleague also, say from Belgium, they would have three separate review processes and suddenly you are waiting for the metaphorical equivalent of three crowns on a one-armed bandit in order to get the research project to go. That is not a way to move. That is why across the research councils, and certainly in my research council, we will be moving to remove that so that if colleagues wanted to work together, they can apply on one application form. We jointly peer review and we jointly take the decision to fund the application.

Q4 Chairman: Does that apply across all the research councils?

Professor Diamond: In differing degrees, it does.

Q5 Chairman: Colin, is that the same in the medical research area?

Professor Blakemore: Yes, it is the same. We can accept co-applicants for any form of MRC grant from overseas.

Q6 Chairman: Does that apply to countries like India, China and the United States or is it just in Europe?
**Professor Blakemore:** No. We have particularly encouraged it for China and the developing world in general.

**Q7 Chairman:** Would you agree with the general comment that international collaboration is strong?

**Professor Blakemore:** Yes. A surrogate of that is the fact that about one-third of MRC supported research in universities and one-third of publications from our institutes and units involves international collaboration, much of it with the United States, France and Germany but a substantial fraction with the developing world, 13% of publications from MRC institutes and units have a co-author in the developing world.

**Q8 Chairman:** Keith, when we received written evidence from Evidence Ltd. (IPA 01), our first piece of evidence that came in, the comment that they made was that the UK “has a good share of international collaboration, but it is not as strong as might be anticipated. It is not expanding as rapidly as some countries and it is less consistent in the biomedical areas where the UK has a position of world leadership of research quality.” That seems to fly in the face of what you and Colin have just said.

**Professor Blakemore:** I think RCUK has recognised its need to move with more agility, particularly in developing collaborative links in China and in India and in strengthening further our links with the United States. I find that symbolised by the establishment of offices to facilitate collaboration in those three countries.

**Q9 Chairman:** Is that a fair comment, though, from Evidence Ltd.?

**Professor Blakemore:** I would want to know the metric of the evidence used to support that statement.

**Professor Diamond:** Could I ask one question? If you look at other evidence from Evidence Ltd., then you will see that where US scholars collaborate with UK scholars, the citation rates are much higher than US scholars not collaborating with anyone and higher than collaborating with people from other places. I would say, the UK is very much a partner of choice for the US in those areas. I think one has to look very carefully at the data. I have not been privileged to read that piece but we would be very happy to comment on it if we do.

**Q10 Chairman:** Does not Germany out-pace us in terms of collaboration, according to the European metric?

**Dr Richards:** I think they do with the US but I have just received a letter from the Director of NSF wanting to initiate talks with the SRC on nanoscience digital economy and renewable energy to try to get collaborative research going there.

**Professor Diamond:** Sir Keith O’Nions when he visited the United States some two weeks ago had conversations with the NSF and we provided information for him asking for a complete, free, joint peer review across the entire base, which is rather difficult, I understand—and I stress that is my understanding—for the NSF to do. Whereas we are very keen to partner, they have bureaucratic reasons for not being able to do it as freely as we can.

**Professor Blakemore:** Of the nearly 1,000 active MRC research grants in universities, fully one-third report either co-applicants or collaborators in the United States.

**Q11 Dr Harris:** Could I say what the metric is, since you ask. The metric from Evidence Ltd. was that the recent increase in collaboration, that is the ratio 96:1000 for 2001-2005 measured by co-authorship of research publications, is: for Germany and China, 1.96 and in India 1.81; and for the UK with China, 1.94 and with India, 1.65. Their conclusion is that Germany is increasing its general rate of collaboration with both India and China more rapidly than the UK on that metric.

**Professor Blakemore:** Of course ratios can be deceptive. It depends what the starting point is. Are those figures really statistically significantly different?

**Q12 Chairman:** This is evidence presented by the Global Science and Innovation Forum, which I think you would all accept is the—

**Professor Diamond:** Yes, but could I just ask the question, Dr Harris: was the number you said that Germany had gone to 1.96 and the UK to 1.94?

**Dr Harris:** Yes, and for China 1.65 to 1.81.

**Q13 Chairman:** What are we trying to get, Ian, is really what all that means.

**Professor Mason:** I think, irrespective of statistics, which we can argue about till the cows come home, the lesson here is that we do need to keep on top of the game. The world is changing and we need to keep on top of that. That is what we are attempting to do by forging new ways of dealing with international collaborations, having offices in various key countries, et cetera.

**Q14 Graham Stringer:** What is a good measure of success and impact in collaboration? We have just heard a lot of statistics from Evan Harris. I am not convinced that they are the best measure of what is happening.

**Dr Richards:** Over what time period is that? I would say a good measure of success in impacts would be better collaboration with a Chinese research group and then in future years when they say, “I need some more research done in that area. I know that people go to the UK”, and so they are saying they will continue the collaboration for their benefit. That is the worth of having that sort of collaboration but it takes time to build that up.

**Q15 Chairman:** Ian, where are the main challenges for us in this whole area of international collaboration? What are the challenges and what are we doing about it?

**Professor Diamond:** I think there are a number of challenges and they go right through the research life course. Firstly, we have to be extremely attractive for the very best junior scholars to come to this
country, either for a PhD or for post-doctorate study. The reason is that many of the publications you have heard about are joint between PhD students and their supervisors. Subsequently, those PhD students go back to China, India, Germany or the United States, or wherever, but they maintain a long-term link with the UK and that is something that Randal I think has meant. Right at the beginning we have to be the place of choice to come and we have to make it easy for students and post-doctoral fellows, for the very best, to come. Secondly, we have to reduce all barriers to international collaboration and that is not just simply a matter of the processes I have described, reducing double jeopardy, but also making it easy for the movement of scholars because research projects and joint programmes do not simply happen overnight. People have to be able to engage in a conversation to enable those collaborations to happen. We have to make it easy for those collaborations to happen. That requires research councils, I believe, working together across boundaries. That is a challenge that is being taken up now. My own council as part of a major collaborative of European research councils, which we largely lead on, funded as a European research area. Other research councils are similarly involved with other networks. We need to make those kinds of opportunities happen. Thirdly, we need always to be on the lookout for new expansions and new opportunities to collaborate and to make international activities happen. One thing I have not mentioned is international development. I did not know if we are going to address that later.

Q16 Chairman: We are.
Professor Mason: May I add to that and stress the fact that most successful, long-term collaborations are built on a person-to-person relationship and not an institute-to-institute relationship. So it is important to get that initial comfort, to get to know people in different countries, supervisor/student relationships or two students who go on to collaborate. It is important to get that right for the long term health of international collaboration.

Q17 Graham Stringer: Are there particular subject areas where international collaboration is most difficult? For instance, what are the particular problems faced by social sciences in international collaboration?
Professor Diamond: Actually, you might think there are problems because clearly one has to take into account culture and society, but in many case it is only by a truly careful cross-national application of study that one is able properly to understand, if you like, major social policy because you cannot potentially have a natural experiment of, say, different pensions policies or different child-bearing policies in a particular country. What you can do is see what has happened across different countries, but then you also have to be very careful and very cautious in understanding different cultures. That is why you absolutely do need, and I would stress, not only social science but a humanities perspective to really bring in that cultural perspective. Those are real challenges but they are not challenges which are insurmountable. They absolutely have to be taken into account.

Q18 Dr Turner: I would like to ask all of you to comment on the role of government and policy makers in promoting international collaboration and research. Politicians talk the talk but do they always deliver for you?
Professor Blakemore: I am sure my colleagues would all have their own examples of very fruitful interaction with government departments, particularly with the Foreign and Commonwealth Office, with the Science and Technology Network, and with DFID. I could cite a number of very productive collaborations with DFID for the MRC including co-funding of major research projects. The OSI has been very helpful and successful in facilitating our interactions with overseas governments, helping for instance in the establishment of the three offices that I mentioned earlier. In my experience, the interaction with other government departments has been extremely positive.
Professor Mason: I would not disagree with that. There are many instances where the intervention of government has opened doors which would otherwise be very difficult or stymied. If there is one area in which we need to work in the future it is to get some clarity as to why we are engaged in international collaborations. There is clearly a scientific reason and for that the research councils can make judgments and take care of that, but there also increasingly might be strategic or economic reasons for engaging with other countries. I think there needs to be some thought across government, and this is a joined-up government issue, about how that is resourced and driven. It is not purely a research council issue obviously but quite often we seem to have the expectation that we can work in all these areas and clearly we do not have the remit to do that.

Q19 Chairman: Should they determine that role?
Professor Mason: No, they should not determine that role.

Q20 Chairman: Who determines the role?
Professor Mason: I think government needs to get some clarity across the whole piece about the importance of international collaboration and what the drivers are and take ownership certainly of the strategic and economic reasons for promoting collaboration.
Dr Richards: I do not dissent from anything that has been said so far. The FCO has been particularly helpful in making the contacts to set up the offices in Beijing and Washington. There does need to be some joined-up work. From EPSRC’s point of view, what we are trying to do is to advertise or make known that the UK is an attractive place to do research and development. That means across government trying to connect up with UKTI so that you get international collaboration, which will continue in
the future and lead to wider collaboration and investment in the UK. I think the FCO has been particularly helpful in that respect.

**Q21 Dr Turner:** Keith, within your research council, you have some particular issues. The kind of gear that you are dealing with tends to be intrinsically international and there tends to be an advantage to be the country which is hosting that facility. Culham is a good example, for instance. The next generation spallation neutron source is another example of something which might be highly desirable for this country to host but is the Government dragging its feet in promoting that bid?

**Professor Mason:** I do not think they are dragging their feet. One of the issues which internationally people are trying to deal with, and it is not simply a UK problem, is quantifying the magnitude of that benefit. The empirical evidence is that hosting large facilities on national soil is a benefit and is quite large, but quantifying that is something much more difficult, which nobody really has got to grips with. One of the things we are starting off with the new research council is to try to improve our quantification of those benefits. Not all facilities will have equal benefits. Clearly we need to go for those that have the maximum benefit for a hosting premium.

**Q22 Dr Turner:** Are you not worried that by the time we have quantified the benefits, we will have missed the boat?

**Professor Mason:** Indeed, and I think that is one of the messages that I am trying to get across to government, that we will work on quantifying the benefits but you have to go with your gut feeling as well. The empirical evidence is that it is of benefit and we should be putting resources into trying to host such facilities. The benefits are coming from (Diamond) already, for example; you can see the evidence of what has generated and interest that is generated in that site in the people wanting to use it and the interest from abroad, and the same with ISIS, even more so with ISIS because of the international collaboration. We will work on quantifying the benefits but you are absolutely right that we cannot miss the boat while we work on that because nobody has really tackled that problem. It is a very difficult issue.

**Q23 Dr Turner:** How useful do you think the Global Science and Innovation Forum is going to be? Is that going to improve the scene?

**Professor Mason:** Yes, it is useful. It is finding its feet. This is a very complex area to work in. You cannot expect it to be perfect first off. I think it is making real progress, particularly in the area of bilateral collaboration and interactions. If there is an area where GSIF needs to focus in the future it is how to deal with multinational collaborations, how to influence multilateral collaborations to do what the UK wants them to do, and how to interact in that way. Full marks for a good start but we need to keep up the momentum.

**Q24 Chairman:** Would any of the others like to comment on that?

**Professor Diamond:** I think GSIF is a really important group which I believe as it matures will have a role to play. I would echo what my colleague has said. There really is a need for government across the piece to have one view in particular areas. It is not terribly helpful where there are four or five different views and one has to go to four or five different people in order to work things out. When one goes on the ground sometimes, the people in the embassies are fantastically helpful and really useful to us in taking forward a whole series of initiatives.

**Dr Richards:** GSIF is a good start at trying to get interaction with what is a complex area. It is a bit like being a child on Christmas Day and you do not know which box to open first. It needs to focus on a few areas rather than try to open everything.

**Q25 Dr Turner:** That leads me neatly on to asking all of you if you would make a comment on where you think we should be going in the immediate future on international collaboration. I am sure you all have your pet hobbyhorses. Would you like to ride them?

**Dr Richards:** Speaking for EPSRC, we have an international collaboration line. This year, because the Beijing office will be opening, we will be focusing on trying to get research collaborations going in the area of energy sources and renewable energy. To add to that, this weekend I was at a meeting of what is known as the G8-HORCS—heads of the research councils in the G8 countries. There is a common feature coming across all those countries that were there—Japan, Canada, the US, Italy, Russia and the UK—with the focus on young researchers starting research careers. It is internationally common now. I think all the research councils are paying attention to that now. How do you start off young people, young research careers, in the best possible way and give them the push they need?

**Professor Mason:** I think GSIF is a really important group which I believe as it matures will have a role to play. I would echo what my colleague has said. There really is a need for government across the piece to have one view in particular areas. It is not terribly helpful where there are four or five different views and one has to go to four or five different people in order to work things out. When one goes on the ground sometimes, the people in the embassies are fantastically helpful and really useful to us in taking forward a whole series of initiatives.

**Professor Diamond:** I think GSIF is a really important group which I believe as it matures will have a role to play. I would echo what my colleague has said. There really is a need for government across the piece to have one view in particular areas. It is not terribly helpful where there are four or five different views and one has to go to four or five different people in order to work things out. When one goes on the ground sometimes, the people in the embassies are fantastically helpful and really useful to us in taking forward a whole series of initiatives.
and, particularly with development of the science and innovation campuses, we need to be attracting people to invest in the UK rather than the UK investing abroad. That is something we shall certainly be working on in the next years coming up.

Professor Blakemore: As far as MRC is concerned, certainly we will continue to encourage MRC researchers to collaborate with their more traditional contacts in the United States, in France and in Germany, but I would highlight a number of areas where we would like to see more progress. One is in the area of emerging infectious disease. We already have two research units, one very large in Africa, which are devoted to the issues of tropical medicine, including infectious disease. But we have been moving towards more active collaboration in the field with China. We have done it in one way already through the call for proposals for research on influenza of pandemic potential. Some research grants that were given under that call have Chinese collaborators. We are in active discussion and have been for some time with the Chinese Academy of Sciences about the possibility of making a direct investment of some form in China in the area of infectious disease. In Africa where we have longstanding investment, (the larger of our units just celebrated its 60th anniversary last week), we are now considering our future strategy. We have just completed a workshop which is leading to a report on an African strategy for the coming 20 years. We want to look for opportunities for more direct involvement with investment in African institutions—research institutions or universities—to accelerate the efforts to build capacity in Africa. I will also mention as Keith did the importance of not forgetting the innovation agenda and the translation agenda. For the biomedical sciences, there are considerable opportunities for international collaboration in population studies, particularly genetic studies, and clinical trials which have ultimately a translation objective, I can give another example. We have recently completed our first collaboration with the national drug screening facility in Shanghai using their resources and their compound collection, which is significantly different in its make-up compared to Western compound collections, to screen a potential target for malaria.

Q26 Dr Turner: Finally, did the Year of Science scheme add any value to your work and what was the research councils’ involvement?

Professor Blakemore: The Year of Science in China: Yes, all the councils contributed very energetically to that. Obviously I can report with most knowledge about the MRC’s contribution, with several delegations. We held a workshop on cancer in Beijing. We also had meetings and interactions in the areas of neuroscience, collaboration in innovation and technology, and infectious disease, with groups of experts visiting China looking at opportunities for collaboration. That has certainly had a string of consequences. During and since the Year of Science in China we have signed four new memoranda of understanding with Chinese agencies. Our interaction is extremely close and to a large extent that is attributable I think to the links that we have built up during the year.

Q27 Dr Turner: That is something you would need to continue and build on?

Professor Blakemore: And we are.

Professor Diamond: I might also add there was a Year of Science in Brazil. David King led a delegation which Philip Esler as chief executive of the AHRC went on and the result of that is that there is now a proposal from all of the research councils to our colleagues in Brazil for an entirely joint peer review process across all areas of research for collaborations between UK scientists and Brazil, which we are very excited about.

Dr Richards: What EPSRC gained from that year in China was a workshop on spintronics which is the next generation of electronics. Following on from that, we are collaborating very closely with Arup on the eco-friendly city which is being built in China with Arup as the design consultants. UK academics are networking with Chinese academics in that same area on that whole design. That will bring knowledge back into this country that will affect design.

Professor Diamond: One of the things in the social sciences is that Chinese social science I would have to say is slightly less developed than some other areas of Chinese science, but one which is expanding very quickly, and we are working very closely both with the British Academy and our colleagues in the Chinese Academy of Social Science to develop our links and to collaborate very well, not only in research but also in the provision of infrastructure. We are organising a workshop on international social science databases which the Chinese are hosting in Beijing next month.

Professor Blakemore: Could I add to that and point out that one of the barriers to international collaboration is differences in culture, attitudes to administration and ethics and so on. Perhaps that is particularly pronounced in parts of the developing world with which we are not as familiar as with Europe and the United States. There is—I think right now certainly very recently—an MRC delegation in China working out the details of a conference that the Chinese have agreed to on research governance and ethics—a China-UK Research Ethics collaboration, (CURE). This I think will be very useful not only in informing ourselves on the UK side about the attitude to research ethics in China but laying the framework for facilitating collaboration in future through the adoption of common principles of governance and ethical principles of medical research.

Q28 Chairman: The point of this little bout of questioning was really to ask if the Government is giving a strong lead in supporting these international collaborations or is it actually following the lead of the research councils? You mentioned earlier how difficult it was putting all the bits together. If we are for instance a ministry or a department of science
and innovation as a government department, would it be easy to get these decisions made and would it be easy to get policy direction? **Professor Diamond:** I believe the critical thing is that we simply have to have ‘joined-upness’ across those government departments which do have an interest in this area. Certainly we are getting a very strong government lead. It is difficult to say who is pulling and who is tugging because we are all pushing at great speed but we are certainly not dragging government along behind. We are very much getting a lead from government. However the organisation of science and innovation is within government, there still have to be strong links and strong ‘joined-upness’ for example with the FCO and where we see that happening, then it is much easier obviously to move forward. That is really what we need to happen. Also, I stress one of the major partners with GSIF are the RDAs. In government I believe it is not only central government but local government as well which needs to be joined up because of the initiatives for example around the siting of large facilities or whatever.

**Chairman:** We keep coming back to that central theme about how we get these things joined up and effective.

**Q29 Dr Harris:** International collaboration, it is claimed by some people giving evidence to us, has not been given a high enough profile by research councils generally. Do you think there is something in that at all? Without repeating everything that you have said in your evidence that you are doing, do you think that is a fair point?

**Dr Richards:** Certainly from the EPSRC’s point of view, it probably has been a fair point but if you now take our latest strategic plan, one of our strategies in there is international engagement, so we are lifting the profile on that. For EPSRC that is probably fair comment. We are now doing something about it. I do not want to repeat myself. It is a feature in our strategic plan. Our council has just discussed that. The intention is that in a year’s time that will be discussed again and we will be asking what has moved on and what have you done since then and what are your future plans. So it is moving ahead.

**Q30 Dr Harris:** Would anyone like to disagree with my question?

**Professor Diamond:** I think I would disagree with it. The whole initiative towards removing barriers and removing double jeopardy internationally has come from the ESRC. In the ESRC we have had a real lead over a long period of time of making it a really important feature of our agenda. That is not to say that we are complacent in any way because we are trying to move it increasingly up the agenda and been to see being played a real lead, not only in raising theprofile in the UK but playing a real lead in social scientific policy internationally.

**Professor Mason:** That is precisely one of the reasons why we are opening the FCO to the extent that we have said. Because of their regulations we will let them do the peer review rather than having double jeopardy but we are trying to raise the profile.

**Q31 Dr Harris:** What about the alternative suggestion, which is not contradictory, that because there are so many different research councils and so many different research council schemes for international collaboration, the picture painted to potential overseas collaborators is chaotic and complicated and not as straightforward in comparison with other countries?

**Professor Mason:** To answer your first question, very simply, in the case of the STFC clearly the criticism is not valid because it is all to do with international. A more useful comment perhaps is this. As someone interested in that area, I do not see any lack of engagement or understanding from my research council colleagues in the international agenda. I think we are all moving forward in that and dealing with very difficult issues. In terms of the profile that overseas potential collaborators see, I think the reverse is even more so, that with the various different ways in which science is organised in countries, there is no standard and everyone works differently. That is one of the barriers that we have to deal with, to understand how science is organised in target countries and to work to get through those barriers.

**Q32 Dr Harris:** The point I was making was that if people wanted to collaborate with us, they do not just have to work out how the UK works; they have to work out the different approaches taken.

**Professor Mason:** My point was that that problem is shared by our people wanting to work abroad. It is not that everybody else has a much simpler system than we do. I think they are all complicated.

**Professor Diamond:** Can I put this in a slightly different way, without trying to appear trite? If you were, shall we say, an economist in the United States of America, you do not look at the UK and say, “Shall I collaborate with a particle physicist or a social anthropologist or a medical person?” You are more likely to say, “I want to work with an economist”, and therefore, as has already been said by Keith Mason, it is about people-to-people links and so your links tend to be with economists and they know that it is the ESRC and you are not looking across the entire portfolio of Research Councils. However, we are very clear in our minds that there is a real need sometimes for there to be a one-stop portal if you like to enable people to come from one place, which says ‘Research Councils UK’ and to be directed to the appropriate place, and that is precisely one of the reasons why we are opening offices in Beijing, Delhi and Washington.

**Q33 Dr Harris:** We do not need to get into a tête-à-tête but one of the issues is that there should be cross-boundary working between research councils so that you can always choose the pure economist or the pure medical researcher. It is the Royal Society and not me that says: “the structure of the RCs is overly complicated in comparison to scientific institutions
in other European countries and the USA, which are able”—in their opinion—“to present a much more coherent face to the international community. The research councils need to ensure this is not just about UK science as a brand when working with overseas partners.” Do you think that is a fair statement which you have to overcome? Do you argue with its premise?

Professor Blakemore: I hesitate to contradict a statement from the venerable Royal Society but I am the RCUK representative on the EuroHORCs and European Science Foundation committees where the whole issue of the complexity of funding institutions and portals for application and negotiation with European agencies is recognised Europe-wide as an issue. In fact, EuroHORCs has just produced a draft document to try to guide overseas researchers, particularly young researchers, in finding the right access point for their areas of interest. This is recognised as a problem across Europe. I do not see in those discussions the UK being singled out as a particular offender but even say in France and Germany there is a multiplicity of funding organisations.

Q34 Chairman: With respect, that is not an acceptable answer, is it, Colin, because what we should be doing is to say that we have actually solved this problem? I think the question that Dr Harris is putting is: where are we going to resolve this problem? When the Royal Society says that overall it is not clear what the international strategy of the research councils is, that is quite a powerful statement. That is a reasonably intelligent body of people.

Professor Diamond: It suggests to me that they have not read the individual international strategies of the research councils.

Q35 Dr Harris: What they say is that although the research councils have a sophisticated strategic approach to their thematic priorities, it would appear that some of the councils have yet to incorporate a coherent international dimension into their overall strategy. I understand you are going to plead not guilty to that and reject that but is it a concern that a stakeholder like the Royal Society is of that view or are you going to say that is typical Royal Society “never have been, they want more funding directed through us for this”?

Professor Diamond: Clearly it is a concern and that is why we are delighted that we have invited Dr Cox to join RCUK, for a meeting in the next few months. I am sure that we will be delighted to raise the points that they have made with you with him to take them on further.

Q36 Chairman: We are actually trying to add value to this process rather than just being critical. Professor Diamond: We do not think you are being critical. We just disagree with that.

Q37 Dr Harris: I am just reading the evidence we have had. Could you clarify for the record who Dr Cox is?

Dr Richards: He is the Executive Secretary of the Royal Society. Just to talk about that forward strategy and how it aligns with ours, we do not want to end up doing things in duplication. That is exactly why Ian has said it has come to RCUK to give a wider discourse so that again we get a line in various areas.

Q38 Dr Harris: What approach do you have and what mechanisms do you have for horizon scanning in respect of subject areas of potential international partners for collaboration?

Dr Richards: Within EPSRC, each of the research programmes has a strategic advisory team which is drawn from researchers and industry but it is not necessarily composed of, let us say, chemists. They meet three to four times a year and advise the programme manager on what is breaking and what is making and to whom we should be talking. We also talk to industry. We have a user panel composed of industrialists. We have a technical opportunities panel, composed of senior academics who advise at executive level. So we get advice bottom up and top down.

Professor Diamond: Certainly the Research Directors’ Group is part of RCUK, so RCUK has a whole has been developing multi research council programmes; we will be taking international advice on the best way to go forward and always involving an international element. In much of our peer review and commissioning panels we include international experts and increasingly we are participating in partnerships with sister research councils to take forward horizon scanning. So, for example the ESRF, together with a range of European research councils in a collaboration known as NORFACE, is now funding a joint programme currently of research following horizon scanning of some of the most important areas and discussing that. There is one programme that is going to be funded on religion as an emerging social force. There are other areas on population change and on the environment where research councils together across Europe are saying, “These are important issues to all of us. Therefore, there is much attraction if we put the money into a pot and work together to collaborate in that way”.

Professor Blakemore: I want to summarise as I see it the three levels at which the strategic development of international opportunities is tackled. The first, and it has been emphasised by Keith, is at the level of the individual researcher. So much of the bottom-up triggering of interaction with other scientists, and productive collaboration of high quality, has to be generated from the interests of individual researchers. Another is at the subject level, and I think it is quite appropriate that individual research councils representing academic disciplines broadly should be responsible for developing their own international strategies. Just like my colleagues have said for their councils, the MRC has an international group with a strategic advisory structure that advises on exactly that. Third, I think we are increasingly recognising the importance of working together within RCUK to brand UK science
collectively and efforts like the establishment of the international team within RCUK, the development of a specific RCUK international strategy this year and the collective efforts that have led to the offices in China and in the United States and almost certainly in India are very good examples of that.

Professor Diamond: May I quickly add one other area, which is specific largely to ESRC and also to AHRC and that is that we fund something called area studies, which is actually where UK researchers and those from other countries have a real study of international areas. That always tends to involve collaborations with those people in those countries, and it can have a real impact not only on the development of research in areas internationally but also, if you like, a potential impact on government policy by really understanding those areas.

Q39 Dr Harris: My question was about horizon scanning.

Dr Richards: EPSRC has regular and international reviews of aspects of the programme. We have just finished one on information and communication technologies. They very often point out to us what is lacking, what is missing, what we need to address. Two years ago physics said, “You are weak in quantum coherence, so do something about that”. At the end of this year we have the materials international review. We respond to that with an action plan and if we have the resource, we can do something about it.

Professor Diamond: It is exactly the same for ESRC.

Q40 Dr Harris: My last question is one to Colin Blakemore in particular. The Government says it is interested in international collaboration and has mechanisms to do it. We have had evidence from the Government. Sometimes domestic political exigencies can get in the way of that. For example, if the MRC was told that it had to devote more of its translational budgets towards dealing with the needs of the NHS, more than it is doing already or directing it more, then do you accept that that might provide a risk to what you would otherwise like to do in respect of investment in overseas work, such as the Gambia unit or indeed diseases of the developing world that are, generally speaking, not necessary NHS priorities?

Professor Blakemore: This sound like a side question cleverly slipped into this discussion. If you are asking me to comment on new translational initiatives that might conceivably be supported through the Spending Review, then it is impossible for me to do that until we know the outcome of the Spending Review. All I can say is that the proposals that we have put forward for strengthening international collaboration at any time, and then to use scientific excellence as the criteria. I think that is a very strong point that we need to hold on to. Having said that, very clearly, where there is a need, for example the ESRC together with the British Academy has schemes to bring researchers from America or from South Asia or from the Arab World or from China to the UK in order to develop the conversations in major centres which will lead to subsequent research proposals, then you need that seed corn funding. I have already talked about our collaborations with other research councils in Europe, which again has had pilots to lead to things happening. I think what you have to do is not necessarily to have pots of money but to remove barriers and at the same time to enable conversations and collaborations to happen.

Dr Richards: I agree wholeheartedly with what Ian has said. However, in my experience I have found that some countries will not move and will not support responsive mode applications. They say, “What is the size of your dedicated budget level?” That is why this year the EPSRC has created a dedicated budget to catalyse international collaboration. It is not the sole cause of activity but certainly it is evidence that we are in the game seriously.

Q42 Linda Gilroy: Looking at funding co-ordination, the Royal Society in their evidence have suggested that to get the full impact out of the aim to establish ourselves as scientific partners of choice around the world, the research councils should be prepared to back this up with dedicated budgets. Would this be of benefit and if not, why not?

Professor Diamond: I think there is a very interesting question in the context of extremely tight scientific budgets more generally. Our policy has always been not to say that we will have an international pot but simply to say that we will remove barriers to international collaboration at any time, and then to use scientific excellence as the criteria. I think that is a very strong point that we need to hold on to. I agree wholeheartedly with what Ian has said. However, in my experience I have found that some countries will not move and will not support responsive mode applications. They say, “What is the size of your dedicated budget level?” That is why this year the EPSRC has created a dedicated budget to catalyse international collaboration. It is not the sole cause of activity but certainly it is evidence that we are in the game seriously.

Q43 Linda Gilroy: You mentioned how we need to work in to achieve excellence in science but what about what was mentioned earlier on, building capacity in areas where we do not have strength but where it may be a national foreign policy goal to build up that capacity again? Does not the question of having dedicated budgets arise? I would like to hear from the other research councils.

Professor Diamond: Can I disagree with you? Where there is a market need to develop capacity or where there is if you like a market failure in terms of the UK’s ability to deliver something, then clearly you must have directed research and certainly ESRC
does that an enormous amount. You have directed research and you enable collaborations to happen, which would expand the capacity of the UK to deliver in that area.

**Q44 Linda Gilroy:** ESRC again has a framework apparently to do that, from what you are saying but what about the other research councils? Do they have dedicated budgets or anything approaching that to deal with that particular issue?

**Professor Mason:** As I said before, essentially everything that we do in the STFC, or a large fraction of it, is essentially a dedicated international budget because a lot of our work is subject to international organisations and the work that is supported by them. I think we already do that. I just pick up the point, and it echoes what I was trying to say earlier, that we can made decisions in terms of scientific need but if there are wider strategic issues involved, then we need to have joined-up government thinking about how we can go forward and that should be appropriately resourced if it is found to be something that needs doing.

**Professor Blakemore:** I am sure that my colleagues would agree with what I say on behalf of MRC and that is that we would want to commit money to international working without jeopardising normal standards of quality of assessment in what we do. In that context, most of the councils have found that committing dedicated budgets to particular scheme can sometimes be a hostage to fortune if the budget is not met with appropriate opportunities of high quality. The stage at which to commit particular sums seems to me to be the point at which you have assessed the quality of what is available. Certainly capacity-building programmes—for instance establishing programmes of overseas fellowships—or investment as we have in institutes and units overseas, requires a decision about the budget on a long-term basis and we have done that. My own feeling is that the MRC would be reluctant to say that we will commit a certain percentage of our budget to international working and would make simply more general encouraging statements that the MRC of course is very keen to continue to develop its international collaboration and will, as appropriate, commit the funding to do that.

**Q45 Linda Gilroy:** So is that a modified no to having a dedicated international budget, is it? Can I then ask you about a particular aspect which has emerged from science community comment on what happens in relation to developing research projects emerging from initial funding for networking events? There is money available to create these networking enabling events but how does the transition happen from investing in that to going on and taking advantage of that?

**Professor Blakemore:** I can give one example of that in the case of MRC. The decision to make a specific call for proposals in the area of flu, which has led to a lot of collaborative work with China, was based on network events of exactly that sort, first of all a visiting delegation to southeast Asia and then an international workshop that was held in London to advise on the structure of that call. So the intention of course is to follow up networking events with funding programmes when it is considered appropriate. But one has to accept that sometimes the initial pilot stage of that kind of exploration is going to come up with the answer that is not appropriate at that stage to invest.

**Q46 Linda Gilroy:** Are there also events in your experience then which fall by the way because there is not enough funding? Is it an area which needs increased funding and the same question to the other witnesses?

**Professor Blakemore:** If you are giving me the opportunity to say that the research councils need increased funding then I am delighted to accept!

**Q47 Linda Gilroy:** Within the order of priorities that are there is there a need to look at that with greater favour?

**Professor Blakemore:** I think you have touched on an important point and that is that any discussion about collaborating and spending money overseas has to be tensioned against the primary obligation of the research councils to support the science base in this country.

**Professor Mason:** Just some comments to add to that, one has to recognise that it is relatively cheap to start a network and to organise a few get-togethers and if that activity results in a more concrete proposal it rapidly gets more expensive, of course, to support the work that comes out of that. The fact of the point that I was making earlier was that such proposals then have to survive in the white heat of scientific peer review and have to be of a very high standard to get funded because we do not have the resource to fund anything but the very, very highest standard research for which we get proposals. So inevitably a number of activities will fall by the wayside at that point, and it gets back to the issue of do we, for other non-scientific strategic reasons, want to keep such activities alive to the next stage and should that be resourced appropriately?

**Professor Diamond:** That is where sometimes there is the point that you made earlier where there may be a real need to develop capacity in a particular area in the UK and then you do have to keep things going and ask the question, we have brought the best researchers in this area together, perhaps working with collaborators where we do not have the quality of the proposals that we need let us go back to the drawing board, let us keep the pot open and let us work out now how we are going to develop capacity which will be of the scientific quality, because at the end of the day there is no point in putting a pot around science which is not good science.

**Dr Richards:** We have a mixed mode where from a network we might already decide that this is an area we want to pursue so there will be some target funding there, but we might form a network, as people say, and proposals might go forward, go for responsive mode and then have to stand in competition because everything else goes through peer review. So it is not a question of walking away,
it is because it is the peer review which decides the standards, so some will fall by the wayside because of that.

Q48 Linda Gilroy: Finally on this sector, you have already given us some insights into how you are taking steps to deal with the issue of double jeopardy, particularly within the context of Europe, but to the three councils other than ESRC, do you have agreed agreements to address the problem of double jeopardy?

Dr Richards: Yes, we do.

Professor Mason: In our case we work primarily through the international bodies to which we pay subscriptions, and of course we have a whole process of arriving at a consensus for certainly strategic areas that we want to get into, which avoids the double jeopardy issue.

Q49 Linda Gilroy: So there is a transparent way of dealing with this? It maybe does not amount to a signed agreement, which would be appropriate to you. And the MRC?

Professor Blakemore: In our memoranda of understanding we have certainly referred to the issue. I think it is most acute for us in Europe where the issue has risen directly in connection with MRC collaboration in EUROCORES schemes, (Collaborative Research Schemes), and we have tried to address that question and have reached agreement on avoiding double jeopardy by accepting a single process of peer review.

Q50 Linda Gilroy: Outside of the European Union what possibilities are there for trying to come to that sort of understanding. Professor Diamond?

Professor Diamond: For our Council we have agreements with Australia and we have agreements with Korea. We hope to have an agreement of a similar nature with China very soon and with the United States we have particular agreements—and when I say particular agreements they are in particular areas of social science and that is not for the want of trying on our part, but it is very much an issue for the Americans, and other colleagues you will have heard this morning making exactly the same point. So there is a real desire for that partnership where there are bureaucratic reasons within the United States why it is not so easy for that to happen.

Dr Richards: At the EPSRC we have MOUs with China, Taiwan, Korea, USA and Japan. With the NSF, which is our closest body, what happens there is we have agreements with usually the programme director on how to avoid double jeopardy. So there is one in chemistry and there is one in materials particularly. And because of the difficulties that the NSF has what we usually do is we say we will accept the NSF peer review system, which is made transparent and known to all the UK applicants, as long as there is a UK participant in there as well and there are also some UK referees on the applications.

Professor Blakemore: Our experience has been that it is very important to settle these issues before beginning the process and, if possible, to arrive at agreement on peer review and how the process will be managed in advance. I can give a particular example. The MRC negotiated handling the international peer review process for an autism-genome project, which is a project with co-funding from North America and from the UK, and the agreement to use a single point of peer review was settled in advance.

Q51 Mr Newmark: Professor Blakemore, you alluded to some challenges but what challenges do you expect research council officers in Washington and Beijing to face? You touched on the cultural issues but I am wondering what else you see out there? It would be helpful to try and differentiate between the sort of challenges that one has in the US, which I suspect are slightly less than they are in China?

Professor Blakemore: I think in the US the challenge is very different because in the US the task of the office will be to build on existing considerable strengths. Despite the statistics that Evans presented the UK is very much a preferred collaborator with leading US scientists already. So I think that the office will principally be looking at other forms of interaction other than the peer to peer, senior scientist to scientist interactions, which are already very healthy. On the Chinese side I would say that the principal issue will be a matter of catch-up. I think Germany and France are ahead of us in having developed their connectivity with China. The Germans have had an international centre attached to their embassy in Beijing for several years, which is already a well recognised point of contact for Chinese scientists, students and so on. However, let me qualify that by the well known statistic that there are now more Chinese students in the UK even than in the US. So they are managing to find their way here even without the assistance of an office in Beijing, but we hope it will greatly facilitate that process.

Q52 Mr Newmark: Just touching on a point which Professor Diamond made, which is this whole concept of joined-up thinking. I know, because I visited the FCO Science & Innovation Network posts in Boston. How does this fit in with the work that they are actually carrying out? Are they mutually exclusive, are they working together?

Professor Blakemore: Absolutely not mutually exclusive. The Science & Innovation Network in Beijing facilitated the discussions about the establishment of the RCUK office. They are a partner in the use of the office, and I think it is a very good example of a well joined-up process.

Professor Diamond: Not only that, the original plan was for the office to be in the Embassy but the Embassy actually found the facilities for the office, and exactly the same with regard to the Embassy in Washington and indeed in Delhi, that the ambassadors are incredibly proactive in working with us to ensure that the office can be centrally located with the Embassy.
Professor Blakemore: It touches on Keith's point are trying to achieve here?

Professor Blakemore: I am not sure that gut feel is therefore come what may we are setting up there?

There are great opportunities for us in India, or are just simply saying, "We just know, gut feel, some measure of success to have made that decision, the decision to go to Delhi, so you must have had will be tackling it but you have already made a 

Professor Diamond: The decision to go to Delhi has been triggered but it is just that—

Professor Blakemore: You are quite right, we need to have the metrics for that and that is an issue which the RCUK international team will be tackling.

Q56 Mr Newmark: Professor Blakemore, you said will be tackling it but you have already made a decision to open up in Delhi, so you must have had some measure of success to have made that decision, or are just simply saying, "We just know, gut feel, there are great opportunities for us in India, therefore come what may we are setting up there"?

Professor Blakemore: I am not sure that gut feel is such a bad initial approach to dealing with China and India, and, in any case, it is perfectly obvious that China and India are an increasingly important player internationally, so it is very important for the UK to be working with them.

Q57 Mr Newmark: In China as opposed to the US—and I am not necessarily reflecting my relationship with my wife—but how do you stop a syndrome of what is mine is mine and what is yours is mine in terms of research that is carried out and work there, as opposed to the US? Is there any cultural challenge of being truly collaborative in work that is being done there?

Professor Blakemore: I think that the norms of the ownership of research are internationally accepted as represented through co-publication. If you are talking about intellectual property, that is another and important difficult issue.

Q58 Mr Newmark: But is that a separate issue from this or is that very much part and parcel of what we are trying to achieve here?

Professor Blakemore: It touches on Keith's point about the importance of using the overseas contacts to develop innovation as well as developing research effort, but that is going to require input from other aspects of—

Mr Newmark: I still do not know how you are measuring success.

Q59 Chairman: Can I bring in Dr Richards there because you have been nodding—

Dr Richards: Just a comment on the IP collaboration. I have been having discussions with Arden Bement, who is the Director of NSF, close collaboration, and we have all agreed that there is a double jeopardy issue that you have to get over and agree upon. Then there are the outcomes of the research. Okay, if it is a paper that is fine but more and more it is about economic impact and there you have to address the intellectual property rights—who owns them, especially on collaborative research, and who assigns them. We do not know the answer to that yet because we are going to have to agree those with the agencies we are dealing with and the lawyers are going to have to come in.

Q60 Mr Newmark: Is that more of a problem, for example, in China and India than the US?

Dr Richards: I was talking to a Chinese scientist last week and they are now, from what I understood, becoming more alert to the fact that they have to agree IP rather than, if you like, put it to one side in these issues. If they are going to join the global sisterhood of nations they are going to have to conform more with their behaviour.

Q61 Mr Newmark: But if we are allocating resources and IP is the ultimate end game with a lot of this work here, is our money best spent continuing to forge ahead with continuing to develop relationships with the US because they understand what needs to be done? Is the educational challenge in China educating them on the need to get with what goes on elsewhere in the world too much of a challenge, or do you think they will generally get there?

Professor Mason: I do not think there is any more or less of a threat from the US in terms of IP than China or India.

Q62 Mr Newmark: Tell that to the music industry.

Professor Mason: Right, point taken, but certainly in our areas. The key thing is that if you generate IP the issue for us is that we have to have the resources to capitalise on it and no amount of lawyers or whatever will protect IP that you are not using, so that is the key thing that we have to recognise.

Q63 Mr Newmark: How will international offices be supported—and this again comes down to money? Will money be taken from other budgets or not, or is the government effectively widening the amount of money it is giving for these sorts of projects?

Professor Blakemore: The research councils have agreed to share the cost of these international offices on the grounds that there are benefits to all of us from doing so.

Professor Diamond: We have taken a judgment.

Q64 Mr Newmark: Is the pie bigger or is it the same size pie but you are just reallocating money?

Professor Diamond: It is strategic reallocation of our budget because we judge that there are significant potential advantages to having these offices in these countries for slightly different reasons, as Colin has explained, and that therefore great British science and indeed the opportunity, as I stated right at the beginning, is to encourage the very best scientists to collaborate with us and to make it easy for them so to do, and then after they have perhaps spent time in the UK to have, if you like, a focal point where they
see their relationship being nurtured and maintained over time. That through that there is a very strong strategic use of our budgets and across all the research councils the amount of money being spent is not hugely significant, I would have to say, although it is clearly enough to make the operation happen.

Q65 Mr Newmark: So if it is a fixed budget there are clearly users. Is there any area of concern that you have as to where money is being taken from or are you saying that the amounts are so small it is not going to have an impact?

Professor Diamond: I am not saying the amounts are so small but in any organisation you have a budget constraint and at any time you have to allocate your resources so as to maximise the impact that you think you are going to have, and the judgment that we have all taken at the moment in conversation is that the best way to allocate these particular resources at the moment is to put them into these offices because there will be measurable benefits in the medium-term in terms of increased collaboration with those countries, which we really need to do.

Q66 Mr Newmark: Just changing tack slightly, do you envisage a change of direction for the UK research office in Brussels to enable a horizon scanning function?

Professor Blakemore: The UK research office in Brussels already of course does horizon scanning and it has been very useful in advising the research councils on new developments in Framework Programmes particularly and new opportunities.

Q67 Mr Newmark: Is it appropriate to limit UK research office services to universities and other organisations who actually pay a subscription and will this model be run in the Beijing and Washington offices on a similar basis?

Dr Richards: I think our sister council, BBSRC might be better placed to answer that sort of question; they manage UKRO on behalf of all of the research councils.

Mr Newmark: You must have an idea whether it is going to be a subscription based service or not?

Q68 Chairman: You all pay into this, do you not? Are you saying that you do not know what you get out of it?

Dr Richards: No. The actual question was with regard to the policy I thought might be better answered by the BBSRC.

Professor Diamond: Very simply, we all subscribe into UKRO, we are all subscribing into Beijing and we are all subscribing into Washington; it is a joint agreement across all the research councils that this is a good thing to do. All research councils are part of this and it was a decision taken—

Q69 Mr Newmark: So it is global, it is not just limited country by country.

Professor Blakemore: We are certainly in discussion with UK universities about their interest in using the office in Beijing and we would formalise that arrangement if it placed demands on the office that could not easily be met and were not clearly in the interests of the research councils to support. So we anticipate and hope that UK universities either collectively or individually will be joining the work of the office in Beijing and therefore contributing financially to it. Exactly what form that contribution takes has not yet been formalised.

Q70 Chairman: So if you do not pay the subscription you do not get access to an office which is being paid for by the British taxpayers?

Professor Blakemore: I think we have to judge that on a case by case basis initially. We do not have a policy yet for how we will interact with UK universities, although of course one has to say that the work of the research councils is largely delivered into UK universities, so our just being there in China, will benefit them. But we anticipate that many UK universities, if not collectively, will want to use these offices to get access to the local expertise, knowledge about applicants for places to work in UK universities and so on. If they do so, and if it stretches beyond the clear interests of the research councils to support that effort then of course we will negotiate charging.

Professor Diamond: One could not simply say that our resource will provide, if you like, unlimited access for 140 universities or whatever. If the demand was such for us to employ new staff to be able to take some of these agendas onwards then we might have a sensible conversation, for example with Universities UK, about how the resource could be made available to meet demand.

Q71 Mr Newmark: I have one final specific question, which is how do you monitor developments which may have a negative effect on UK research, and the example is the EU Physical Agents Directive, which obviously had an impact on the whole MRI sector and how could this be improved?

Professor Blakemore: Can I say that the research councils were quite active in responding to the challenge of the EU Physical Agents Directive. It is actually true that we did not have advance warning of the potential impact on the use of MRI in clinical research, but I have to say neither did anyone else who was affected by it elsewhere in Europe—it rather came out of left field. Actually I think that the Commission had not fully realised what those impacts would be before they passed that Directive. I hope you will agree from your own inquiry on that issue that the MRC, indeed the scientific community as a whole in this country was actually very agile and effective in mobilising arguments which perhaps mitigated the potential damaging effect of that Directive.

Q72 Chris Mole: Brooks took us to Brussels just now. The European Framework Programme is the third largest element of European Union general spending. How important is it to research in the UK? I note from the statistics in FP4 and 5 that the UK took the biggest slice of the cake, but Germany has an FP7, if I have the numbers right.
Dr Richards: On the industry side, yes.

Q73 Chris Mole: Is that something about which we should be concerned?  
Professor Blakemore: The Framework Programme is a very significant funding mechanism in Europe. However, it is, I think, only 6% of the total expenditure on publicly funded R & D.

Q74 Chris Mole: In the UK?  
Professor Blakemore: In the whole of Europe. So 94% of funding is actually handled through national agencies. As you say, the UK has been disproportionately successful in previous Framework Programmes despite some of the difficulties with which everyone is familiar in dealing with the Framework Programme processes. The Framework Programme remains the principal mechanism of collaboration within Europe and therefore is extremely important to the research councils. However, my own view is that the research councils should be looking for other mechanisms for working with their colleagues in Europe, and they do so in parallel with and complementary to the mechanisms that are offered through the Framework Programmes. So I am sure that all of my colleagues will be able to cite many examples of fruitful interactions with European colleagues outside the Framework Programme.

Q75 Chris Mole: Do you think they have begun to address those concerns about engaging with the Framework Programmers? Are there any problems that exist with other European funding programmes where the auditors come round and take the money away after the event, after you have spent it?  
Professor Blakemore: There are features of the seventh Framework Programme, which we are now just entering, which certainly are intended to address some of the criticisms about bureaucracy and too intense monitoring and so on in previous Framework Programmes, but the most significant development is of course the emergence of the European Research Council, which will draw an increasing fraction of the Framework Programme budget and which is intended to be a relatively independent executive agency, less cluttered by the bureaucratic baggage that is familiar in aspects of the Framework Programmes.

Q76 Chris Mole: What are the challenges of the ERC for you all?  
Professor Blakemore: There are several challenges. First, the scale of its agenda compared with the scale of its budget. The ERC is intended to operate as a response mode-funding agency funding the highest quality research without barriers, without juste retour, without the need for networking across the whole of Europe in every scientific area, yet its starting budget is less than €300 million. That is a real challenge to demand management, a challenge which has not been very well met, we learn from the latest figures, with something like 9000 applications for the Starting Grant scheme, which is only one of the instruments offered by the ERC. So the first problem will be demand management. The second will be the fact that the ERC, although it has been granted initially a very significant and unusual degree of independence—with a Scientific Council of considerable standing, with its own internal management structures and so on—it is in the end, an Article 169 executive agency of the Commission, and legal advice implies that at any point the ERC could be taken back into direct ownership and direct control by the Commission. That is something to be nervous about and the nervousness, I know, is shared even by Ernst-Ludwig Winnacker, who is the new Secretary-General of the ERC.

Q77 Chris Mole: Are there concerns about overlap with the work that you do because I was going to ask you how much overlap there is between the thematic priority areas of FP7 and those of your own research councils?  
Professor Blakemore: Perhaps my colleagues also on advisory panels for the themes within the Framework Programme. I am certainly on the advisory panel for the health theme, and I have to say that I am still a bit bemused about the process that leads to the identification of these thematic areas, and I think that we should be pressing for more involvement of national agencies at an early stage in working up proposals for the thematic areas, rather than just being brought in to comment on them after decisions have been made.

Q78 Chris Mole: Can anyone shed any more light on that?  
Professor Diamond: I think that is very true. One of the other areas, of course, as I am sure you are aware, with the Framework Programmes, has been the extent to which overheads are paid, so that one of the reasons of course is that some universities are not over keen for their researchers to prioritise European funding over funding which brings in more money for the same grant, so to speak.

Q79 Chris Mole: This is if we push FEC on them?  
Professor Diamond: Yes.

Q80 Chris Mole: Is that going to be a problem as we go forward with institutes and universities not wanting to bid into Framework Programmes?  
Professor Diamond: That has been something that has been said by some universities, that researchers are not encouraged with the overheads that are paid to make that a particular priority because clearly the levels of overheads which are paid will not cover the entire costs of the research.

Q81 Chairman: Do we now have an agreement from the Treasury that we do not in fact take funds back if in fact researchers get European grants?  
Professor Blakemore: The cap on the receipt of European funding has been removed.  
Professor Diamond: And we are very pleased about that.
Q82 Chris Mole: I was quite interested, Professor Blakemore, where we were going with the Framework thematic priorities. You were talking about the influence that the national councils might have on the development of that overall set of priorities. Presumably it is the Commission and the Parliament that get to comment in Brussels on that shape of that? It looks a little as though it might be historically industrially driven, which has been a feature of Framework funding.

Professor Diamond: I think there is every evidence of that historically and indeed it has only been in relatively recent Framework Programmes that, for example, the social science or indeed some of the more emerging areas of the economy have been acknowledged at all. I echo what Colin has said, there is a real need to engage those people who are thinking a lot about science horizon scanning in the development of areas such as that, and through some of the collaborations that virtually all research councils have had with their sister research councils in Europe there are examples of programmes jointly which can be developed through sensible horizon scanning across Europe, and I think there is a need for more in that in development of the Framework Programmes.

Q83 Chris Mole: The EIT is another institute that has come out of the Lisbon Process. What are your views on the European Institute of Technology? Are you supportive or is a waste of time and effort?

Dr Richards: It needs clarification.

Q84 Chris Mole: Is that a yes?

Dr Richards: It is a definite maybe. There are too many issues that unresolved there. Particularly recently the leading German energy producer, Aon, has said it does not want anything to do with it, which is a bit disturbing. So it is really not clear enough for me to say yes or no, I would just like to see more definition. It is not going to be like MIT, so its business model is not at all clear.

Q85 Chairman: The 2.4 billion that was going to be allocated to the European Institute of Technology, where is that money?

Dr Richards: I cannot answer that question. I guess where is that money?

Q86 Chairman: It seems to be a huge pot of money which is available, which is not going to be used for what appears to be very, very useful purposes.

Dr Richards: That is how it appears at the moment and that is why we would like more clarification on the issue.

Professor Diamond: I would not demur from that statement from the Chair.

Professor Blakemore: The EIT is aimed at improving improving the mechanisms of knowledge transfer and innovation.

Dr Richards: That is how it appears at the moment what appears to be very, very useful purposes.

Q87 Chris Mole: I am sorry to come back to the thematic priorities again because I do not think I have quite got to the bottom of how you mesh your priorities with what is in Framework 7, or are you saying that because it is only 6% of the research funding across Europe that that is not an issue, you just go with the flow?

Professor Blakemore: Of course the advisory meetings are an opportunity to comment on the themes and particularly on the scale of the funding devoted to particular schemes. The panel I am on has actually been quite effective in shifting the balance of funding. Of course we are responsive then to the new opportunities which are offered through the identification of thematic areas and would reflect them to some extent in our own strategy or the advice that we give to our own researchers.

Q88 Linda Gilroy: Earlier several of you stressed the importance of attracting students into the country but I want to ask a few questions about outward mobility of researchers and their careers. Was the concern reflected in the 2004 report funded by HFCE—and I do not know if some of you funded that research as well—justified; what are you doing about it; what sort of priority are you giving to enabling researchers to move about in international communities as a priority?

Professor Diamond: Many of us have schemes which enable junior researchers in particular to spend time in laboratories or in major institutes overseas. So, for example, AHRC and ESRC have a joint programme with the US Library of Congress, which enables UK researchers to spend time there, and also then to visit major institutions. So we try to make those opportunities happen. Clearly there are issues for UK going to other countries which are nothing to do with research councils—they often revolve around language, which has always been an issue for the UK in terms of any joint agreement to enable interaction with other countries.

Dr Richards: We have schemes that enable junior researchers to go overseas. One in particular, in the life sciences interface area they are required to spend 18 months of a three-year grant period abroad in a foreign laboratory and to bring that knowledge back to the UK. We try to encourage people to be as mobile as possible.

Q89 Linda Gilroy: In terms of priority, you have just said in one scheme, but how is that rated compared to the very strong theme that was emerging earlier of the importance to UK science of attracting people who will then go away and become ambassadors and...
have networks and links? Does it not work the other way around as well? It sounds as though it is rather a low border of priority that is being attached to that.

Dr Richards: Of course it works the other way as well and certainly our advanced research fellows, which I think is the area you are looking at, can have the opportunity, can use their funding to go and visit other laboratories and to engage in collaborations, build collaborations—they are not prevented from doing it. We set out what they can do but we put no limits, no real boundaries on it—it is for them to explore their abilities to the full.

Professor Diamond: All research students have a grant that goes to the university with their grant, which is to be used, if you like, for their support and many of them are used to attend, for example, international conferences and to be given those sorts of links. In fact for most research students I think it would be the norm so to do. In addition, in my own council if there are any reasons why it is good for a student to visit another country for fieldwork or to collaborate in another institution, then they simply have to write and information is normally given and that is funded.

Professor Blakemore: All MRC fellowships allow up to two years of work overseas and 12% of awardees take up that opportunity.

Q90 Linda Gilroy: You have mentioned language skills, should more be done to boost language skills of UK researchers, particular languages? How might that be achieved and is there a role for research councils in that?

Professor Diamond: I think frankly there is a need. I do not necessarily think that it is something that research councils can do alone. I think the more that is done to improve language skills of people coming right the way through the education system in the UK personally would be very good. Are there things that the UK can do? Yes, there are and AHRC and ESRC together with the funding councils recognised that there was a real need for social scientists across many areas of social science who were working on issues around particular areas of the world and the four areas that were initially mentioned were Japan, China, the Arab world and Central and Eastern Europe—12 different languages—and that is why we put together a major partnership called Language-Based Area Studies, which is funding five centres around the country with large numbers of research students, who will take their PhD over an extra year to enable them not only to become great social scientists but to properly be able to speak the language. Therefore we will, over time, for example, have economists working on the Chinese economy who are able properly to engage with China and understand those issues, or we will have political scientists working on the Arab world who are properly able to understand both the culture and language of Arabic. I think we have to do those things and to be proactive in making them happen, with the language teaching often having to be ab initio because otherwise it simply would not happen.

Q91 Linda Gilroy: I can understand that in your research council; how does it work in engineering and medicine?

Dr Richards: In engineering and physical sciences I am afraid the lingua franca is English across the world. People should go abroad to learn the culture—I certainly did when I was a student and post-doc—but the lingua franca is English.

Q92 Linda Gilroy: So it is not such a pressing issue as far as international collaboration in the engineering sciences. Is the same true in medical?

Professor Blakemore: It is certainly not a problem, of course, in North America, and increasingly it is not a problem for laboratory working in Europe where the use of English in the laboratory on a daily basis is now just standard. But it is an issue in some parts of the world, especially still in China.

Q93 Linda Gilroy: Is anything being done to address that?

Professor Blakemore: I really agree with Ian that I think it is not principally the responsibility of the research councils and this needs to be tackled at a relatively early stage in education where HEIs do, of course, offer the opportunities for language training.

Q94 Linda Gilroy: Has the Medical Research Council been seeking to influence that agenda and particularly amongst students who might be beginning to specialise in secondary education towards medical careers?

Professor Blakemore: We have not done so, no.

Q95 Linda Gilroy: How successful have you found the money follows researchers scheme, which I understand is an initiative developed by something I had not come across until today, which glories in the acronym of EUROHORCs—the European Heads of Research Councils. Is that working from a UK point of view? Has there been much interest from UK researchers and do any of you have plans to extend that scheme outside the EU?

Professor Blakemore: All research councils have signed up to that scheme and I think it is a very important symbol of the commitment to mobility in Europe to create of a real European research area. I do not know whether I should express delight but the fact is that no one has yet asked to transport their MRC support out of this country, so we do not yet have experience.

Q96 Chairman: Is it a successful scheme?

Professor Blakemore: The availability of it I think is important.

Professor Diamond: It is a scheme which has removed a barrier and therefore it is available, but I do not think it would be for us as research councils to propagate it. There are examples across research councils where a researcher, for example, moves a job and goes to work at a different university in Europe, and then it is not a problem for the money to go with him or her and that has to be a good thing.
But it may not be something that is going to be taken up the whole time just simply because people are not dashing about between jobs.

**Dr Richards:** Since the agreement has come in in EPSRC nothing has happened. However, prior to that we had a separate agreement with Germany, and I think there were two people in the UK—they were actual German nationals but they had grants here and they moved back to Germany and they took the EPSRC grant with them.

**Q97 Linda Gilroy:** But it sounds as if it is pretty minimal in its practical impact at the moment but a useful tool to have.

**Dr Richards:** Exactly.

**Professor Mason:** As somebody said, it is symbolic, and I think it is very valuable.

**Q98 Linda Gilroy:** Are there plans to extend it outside the EU? Is it appropriate to think in those terms? Is anybody thinking in those terms?

**Professor Mason:** If a situation arose on a case by case basis we would look favourably on that possibility.

**Professor Diamond:** I have to say that the reason it does not exist is probably because demand has not been high. If someone were to come it would be something that would be looked at very sensibly.

**Professor Mason:** Certainly in areas of my council I do not think the issue of mobility is really a big issue. I think people tend to move quite readily and they get jobs funded by people abroad.

**Q99 Chairman:** I thought that one of the aims of this though, Keith, was to try to support collaborative research so that you would get a grand and you would in fact be able to go to Manheim and be able to do your work there and then come back, and it surprises me that has not been taken up.

**Professor Mason:** It has not in my subject area so far. As I say, people do go to Manheim but they get funded locally.

**Professor Diamond:** There are often extraneous to research reasons why people do not wish to go and spend long periods of time. Communication is such now that people can collaborate across international boundaries and do so by, for example, using relatively short visits of face to face and a large amount of electronic communication and that can work really very well, and so you do not need to move lock stock and barrel and therefore take the money with you.

**Q100 Linda Gilroy:** Finally, you have said that there are other mechanisms to encourage UK researchers to be mobile. Some of them have come out in the course of the earlier questions. Are there ones that you finally want to make sure that we are aware of in the context of today's session and how might we encourage more UK researchers to go abroad to non-English speaking countries? Are there barriers at the moment?

**Dr Richards:** I do not think there are barriers. I think that all research councils have various vehicles—overseas travel grants—which enable people to go there. I think the germane question is what is the drive for them to go there? Rather than just force them to go what is the strategic reason for getting that engagement? I would say it is to gain new knowledge; it is to gain expertise, to get research collaborations going in particular areas.

**Q101 Linda Gilroy:** Presumably again in those areas where we need more capacity and areas where we have strengths.

**Dr Richards:** Exactly or where they have a particular perspective on the research, which we do not have in the UK, to try and bring that knowledge back into the UK.

**Professor Diamond:** I think the one thing that we have said to you is that these are areas—for example, the international reviews that the EPSRC do—where we are really taking an active role to identify areas where capacity is needed and then we strategically use funding to say how are we going to address this particular issue.

**Q102 Linda Gilroy:** To return to a point made earlier about whether there is sufficient government input into identifying those areas where we may need to make up for any global competitiveness issues, is there enough of that?

**Dr Richards:** It is increasingly caused by the formation of the Technology Strategy Board, which is becoming an arm's length body. I think that can take on some of that role from that point of view, but then it is for other bodies to get the joined-upness that Ian referred to earlier that we all want to see and provide the information to the research councils, to point out, “Look, in five years’ time we are going to need these sets of skills, can you get cracking on it now, please?” It is that sort of joined-upness that we need.

**Chairman:** Could I therefore bring this session to a close and to thank Professor Blakemore, Professor Diamond, Professor Mason and Dr Richards for your interesting comments this morning? Thank you very much indeed and thanks to my Committee.
Wednesday 6 June 2007

Members present

Mr Phil Willis, in the Chair

Dr Evan Harris
Dr Brian Iddon
Chris Mole
Mr Brooks Newmark

 Witnesses: Professor Stuart Palmer, Deputy Vice-Chancellor, University of Warwick and Professor Alan Jenkins, Director, Water Science Programme, Centre for Ecology and Hydrology, gave evidence.

Q103 Chairman: Good morning to our witnesses this morning. Professor Stuart Palmer, the Deputy Vice-Chancellor of University of Warwick, and Professor Alan Jenkins, the Director of the Water Science Programme, the Centre for Ecology and Hydrology. Thank you both very, very much indeed for coming this morning. This is the penultimate session on our inquiry looking across the Research Councils at international policies and activities, so we are grateful to you for giving evidence to us this morning. May I begin with you, Professor Palmer, and ask, clearly much of science is global these days, so how important is international collaboration to the UK?

Professor Palmer: You are quite right that research is indeed global. Research is both competitive globally and collaborative globally and, for the UK, it is absolutely crucial that we are able to choose the highest quality international partners to join in our research projects. In the UK, we do not have every facility and we do not have every area of expertise and, to make progress in areas now which are interdisciplinary and multidisciplinary, you really have to engage with your complementary partners in other parts of the world.

Q104 Chairman: Professor Jenkins, would you echo that?

Professor Jenkins: Yes, I would echo that and I would also add that some of the biggest problems that we face at the moment are truly global in extent and they need a global approach.

Q105 Chairman: So, we could not manage without international collaboration? We could not simply bury our heads and do our own thing?

Professor Jenkins: No, I do not believe that we bury our heads and do our own thing? international collaboration? We could not simply manage without international collaboration.

Q106 Chairman: The obvious question then is, how good are we at it? How successful are we?

Professor Jenkins: I do not have the direct metrics in front of me. I believe we have specialist niches. In the environment area, I would consider that we have a specialist niche in terms of, for example, the building and application of these big global models. So, in the environment field and in issues to do with quality of life or policy support in terms of the environment, I would say that the UK are leaders. Not perhaps the leaders but we are up there with the frontlines.

Q107 Chairman: You mentioned earlier that we cannot obviously do everything ourselves and certainly Professor Palmer made that point. Do you feel that we are strategically focusing our efforts internationally? Do you sense that there is a strategic plan for our international collaborations?

Professor Jenkins: Again, being a little parochial on the environmental issue and I apologise for that.

Q108 Chairman: That is all right.

Professor Jenkins: I would say, no, there is not a strategic plan. What we need is more communication between Government and researchers; we need more cooperation and coordination of our activities and above all we need increased collaboration to make ourselves most effective. At the moment, I do not think that we are necessarily strategically following a plan in the area of the environment.

Q109 Chairman: Professor Palmer, you are nodding your head.

Professor Palmer: Yes.

Q110 Chairman: Do you think that there is a lack of focus here?

Professor Palmer: I think that the power is with the researcher to choose his or her—

Q111 Chairman: The individual researcher?

Professor Palmer: The individual researcher; the individual research groups; the individual subject areas within universities and within research centres to choose their areas of research. In the main, talking about the external funders, to approach them in a responsive mode to fund the areas of research that they particularly see from their perspective as being important.

Q112 Chairman: Is that not a little haphazard?

Professor Palmer: Yes, you could say that, but research in many ways and in many cases, certainly blue skies research, is haphazard.

Q113 Chairman: Warwick University, 40 years in existence, one of the most successful research universities certainly in the UK with an international reputation. How does your organisation benefit from drawing down on this international research expertise?

Professor Palmer: It benefits enormously. It benefits enormously from having access to international facilities, for example, which of course even the UK
would not be able to provide on its own, so you look to CERN in Geneva and you look to Grenoble with the European facilities. We have collaborative partnerships with facilities in Japan. In the States, we have collaborative partnerships with American facilities. Of course, our people go there and their people come here and that exchange is—

Q114 Chairman: What is the perceived benefit of your people going to the States or to Japan?

Professor Palmer: The benefit is of course a whole spectrum of benefits. It benefits the research programmes and the speed with which these research programmes can be taken forward, the speed with which the results can then be made available not only to other researchers but to users of the research, to industry and to business. It benefits our students because the academics come back with that international dimension, with that frontier exciting research and build that into their postgraduate programmes and their undergraduate programmes, allowing the PhD students and the undergraduates in years abroad to go and take part in these activities.

Q115 Chairman: Do CEH do the same? Do your scientists get opportunities to work on collaborative programmes internationally?

Professor Jenkins: Yes, very much so. Historically, we have been very much involved in water research in particular around the world, in developing countries in particular, but I should say more widely within NERC. Of course, the Oceanography programmes and the Antarctic and Polar programmes are all rooted in a way in a global collaborative effort and that is important if you are going to move the science forward appropriately at the appropriate global scale and in a timely fashion.

Q116 Chairman: You mentioned some Polar research but, in terms of your own area, in terms of water research, do you target particular countries, on what basis do you target them and how does, if you like, the system in Research Councils actually support you in that targeting process? The Research Council are your paymasters, are they not?

Professor Jenkins: Answering the last question first—

Q117 Chairman: Partly.

Professor Jenkins: The Research Council provides approximately 50% of our funding. The other 50% we win from other sources, largely government departments and the EU. Yes, they are half of our paymaster. What I would say in answer to the first question as to whether we target areas, is, no, not generally. What tends to happen is that the science that we undertake is issue based or problem based and, if I can take the example of the difficulty of building and parameterising these huge global models of climate, it quickly became apparent that to understand what is happening at the land surface, the exchange between the land surface and the atmosphere, in different climatic regions, we had to have major field experiments. These were started in

Q118 Chairman: It is about issue first and then you find the most appropriate international collaborations?

Professor Jenkins: I would argue that that is the case.

Q119 Chairman: Are you assisted in that by the Research Council? Does NERC help you in that process or is it very much left to yourself?

Professor Jenkins: We tend to be more funded in that process through the government departments historically. So, we have drawn upon funding schemes which have been run by DFID for example and by Defra for example, but we also have had Research Council funding for those activities.

Q120 Chairman: Professor Palmer, what are the main barriers for working across international boundaries? What are the main barriers to your successful international collaborations?

Professor Palmer: Barriers of course are the boundaries? What are the main barriers to your successful international collaborations?

Professor Palmer: Barriers of course in terms of funding. I think that, on the positive side, there are—

Q121 Chairman: We cannot just leave funding in the air.

Professor Palmer: No.

Q122 Chairman: Is that funding in the sense of different arrangements for grants?

Professor Palmer: Yes. The positive side as far as funding is concerned is that, from our perspective, there are some very good schemes that the Research Councils have to support international collaborations of the sort you have just described. The fellowship scheme, for example, does allow us not only to fund our own staff but to fund people from other countries. UK funding can be used to bring fellows across from other countries. We have visiting fellowship schemes as well. Travel money from the Research Councils is usually relatively generous. Networking schemes are well funded to set up networks of collaborations. All that is pump priming. Then you say, what about the big collaboration and that is where it becomes difficult. To set up the strategic partnership between engineering at Warwick and engineering in South Korea or in China really requires a significant investment of funds from both sides and that is one of the major barriers that we see. Yes, the networking is there, all the build-up is there, but then the real projects are difficult to fund.

Q123 Chairman: Would you echo that, Professor Jenkins?
**Professor Jenkins:** Yes. May I add that I do not necessarily support the contention that it is only the size of the funding which is important. I believe that the real barrier to working across international boundaries is the longevity of the funding: long-term commitment to funding. Too much of our funding and too much of our support is and has in the past been on two or three year timescales. Spot an issue, define it in terms of a small project and go and do it, end of collaboration. That is really not the best way to take forward true international collaboration which I think would benefit from a longer term view.

**Q124 Chairman:** I thought that one of the benefits of having an institute was that a larger proportion of your funding is in fact core funding and that would enable you to have these longer term projects rather than the response mode funding.

**Professor Jenkins:** This is indeed correct, but a deal of our international funding comes from government departments and fall into the relatively short term. To me, to see that pulled together in a bigger framework, a coherent framework where everybody knew what was happening and—

**Q125 Chairman:** So, are we back to this business about focus and more strategic planning?

**Professor Jenkins:** Yes. Each government department and each of the Research Councils have good schemes as has been pointed out already and there is nothing wrong with those schemes; they are really good examples. However, they tend to be rather short term. It also seems to me and to my organisation that there is little communication between those departments and Research Councils and there is certainly very little cooperation and there seems to be a distinct lack of collaboration. A two-way conversation about how things should proceed brought together in a framework with some real resources would seem to me to be of tremendous advantage in the international scene.

**Chairman:** I would like to leave that there and bring in Dr Harris.

**Q126 Dr Harris:** To foster more international collaboration, where do you think the balance should be between lots of other approaches being done by people on the ground or being done instead by Government and the Research Councils first? Clearly, both are important but where do you think more needs to be done in particular at the moment, or indeed the policy makers, Parliament?

**Professor Jenkins:** My take on that of course is that we as scientists do not like to be told what to do, unfortunately. On the other hand, there are policy issues and there are policy drivers that mean that research has to be done in certain areas. So, as you point out, there has to be a mix of bottom up and policy driven research. My suggestion would be that there has to be more communication between those two. There has to be more links perhaps at all levels. Senior scientists in my organisation do not frequently and indeed very rarely have ministerial contact. When senior scientists from my organisation visit overseas countries/developing countries, it is not easy sometimes to get an appropriate diplomatic contact in that area and this seems to be peculiar to the UK because there are examples of other European countries where that is not the case. The scientists enjoy much closer liaison with their government bodies and with their overseas diplomats.

**Professor Palmer:** I think what we would see as very beneficial are firmer strategic links between research funders in the UK and research funders abroad. I know that these are developing. ESRC has now introduced a bilateral set of agreements with a few countries and are hoping to expand those bilateral agreements. If you can have that as the basis on which you can then build your research programmes, that would be very beneficial.

**Q127 Dr Harris:** So, the limiting factor is that sort of thing rather than the willingness of researchers in universities or institutes to seek collaboration.

**Professor Palmer:** There is no doubt that individual researchers/research groups are only too keen to seek collaborations but, if there is an umbrella mechanism that supports that, that would make it so much easier. If there is already embedded within the Research Council system a bilateral agreement between RCUK and Japan for example, that would facilitate and ESRC are setting that up but I think that it really should be something that is spread across the Research Councils.

**Q128 Dr Harris:** Professor Jenkins, in your evidence, you say that “. . . Research Councils, and government departments” need to have “the policies, strategies, structures and programmes in place to develop and benefit from international collaboration” and then you say, “This vision” presumably that package “is largely lacking from the UK government departments and the RCs [Research Councils]” which is not pulling your punches. Does that really matter? How important is that as a barrier to what we are seeking to achieve? Can you get round it?

**Professor Jenkins:** I believe that it is an important barrier because I believe that that lack of collaboration and coordination is the root cause of the short termism in the funding. If there were a more overarching framework approach, then a longer term view of this could be put into place. I am of course aware of the FCO’s Global Science and Innovation Forum but I was only made aware of this rather recently. I would say that it is distinctly low profile as far as my organisation is concerned and in some ways is a good initiative in bringing together this framework which I allude to in the evidence but, as I see it at the moment, it describes a funding landscape that really does not incorporate appropriately the universities and the research institutes and take advantage of the long-term relationships/collaborations that we can offer.

**Professor Palmer:** May I echo that. The FCO initiative is so low profile that it is just not visible to academics and research supporters in universities.
Q129 Dr Harris: Below that, what specific things do you have in mind that you want to see the Government doing in respect of the policies, strategies, structures and programmes? Obviously, we do not have a huge amount of time but do you have any specifics, things you have seen abroad in other countries that could be done here and that should be being done here?

Professor Jenkins: This framework that we have already talked about needs to be defined and it needs to be supported with ring-fenced funding which is targeted into certain areas. I believe that there needs to be a close dialogue between Government and Research Councils/Research Centres and the profile that is given is more a mindset, a UK mindset. In our overseas activity, we do not approach things in the same way as our European counterparts, so there is a diplomatic side to the UK in a foreign country and then there are the researchers who come out and work with other researchers and we need to join this—we need ‘joined-upedness’ here!

Q130 Dr Harris: In terms of international research policies in countries like France and Germany, not the clinical maths side but in terms of actual research policies, are there specific things that they are doing which we are doing not as well which we could copy?

Professor Palmer: That is a difficult question.

Q131 Dr Harris: You mention in your evidence the “greater coordination between research organisations and government departments that is embedded in the French systems and evidenced by established mechanisms for exchange of research policymakers, managers and administrators between research organisations, other government ministries and overseas postings”. So, there is a flow of people.

Professor Jenkins: There is definitely a closer relationship between senior scientists and up to ministerial level. How they have achieved that I am afraid I do not know. It is a system that would be of benefit in the UK; it is not easy to achieve.

Q132 Dr Harris: You also mention in your evidence and I quote, “Within the DTI, research capacity is not adequately prioritised as an asset to international trade, essential if the UK is to be seen as a country of innovation.” If you stick to the DTI, the next question is about the FCO, but can you back that assertion up?

Professor Jenkins: An example does not spring immediately to mind. I am sure that we could provide written examples backing up that sufficiently.

Q133 Dr Harris: Finally, you mention in your evidence an interesting example that “the UK research community is mobilised to provide information whenever a UK minister makes a science related visit to an overseas country” which would involve a trawl of what research is going on and that there may be a few short-term actions with an exchange visit or a workshop and you say, “There is almost never funding for any collaborative research, leaving both sides with the impression that the objective of these events is media impact”. That is very rarely said about government activity, surely! Can you comment further on that? Have you been a victim of this yourself in terms of being asked to do the work?

Professor Jenkins: It is not uncommon for this to happen. There are many times when we are invited to support ministerial visits with information related to global issues, environmental issues in particular, which we are very happy to do, but the feedback that we receive following the event from the researchers in the country involved is usually, “Well, where does that take us?” and I am afraid that the answer is often, “Nowhere”.

Q134 Mr Newmark: There are a number of schemes providing support for international research activity through the Royal Society and British Council. Is this beneficial to the research community?

Professor Palmer: I think that it is enormously beneficial to have a portfolio of funders for research activities. The various funding streams from the Royal Society, from the Leverhulme Trust and the British Council and so on in many cases are smaller schemes than you would see from the Research Councils, smaller schemes quite often quicker in response as well to requests for funding, but they are also in some cases targeted schemes, so they will be targeted to a particular research area or targeted to a particular country. So, you need the flexibility of the Research Council where funding can be sought for whatever initiative you want to seek but also the targeted schemes from the separate funders are very valuable to complement not replace the Research Council schemes.

Q135 Mr Newmark: How effective is the coordination between the different bodies supporting international research activity and I ask that in the context of some evidence that I read from the Royal Academy of Engineering that said that, “although the Academy is aware of the existence of mechanisms to promote co-ordination and collaboration between Research Councils and the Government Departments involved in international science activities, current performance would suggest that these are not yet working effectively” and the Academy went on, “...there is a perception that there are too many players’ operating in this area ‘with the consequence that funding is fragmented and could be better spent ...’”.

Professor Palmer: I think that first of all the Research Councils themselves operate different schemes. If you go to MRC, is their scheme for supporting this particular activity the same as with EPSRC or BBSRC and the answer is “no, it is not in many cases”. We would certainly welcome a commonality of approach across the Research Councils to international activities. We do not have that commonality at the moment. To give you one example, we have referred already to ESRC’s bilateral scheme, a very valuable scheme as it develops. However, to bid for that bilateral scheme,
you bid in competition with the straightforward bids for responsive mode funding. EPSRC have decided that that might not be the best way and they have started to put a little fund on one side that is dedicated for international projects: £4 million at the moment centrally and then that will be matched by an equivalent amount of money from the particular subject area within EPSRC. It is a small start but it is a little bit of ring-fenced money to support international activity. I think that we should spread both of these: we should spread the bilateral scheme across the Research Councils, we should spread the little pots of money and bigger pots of money dedicated to this scheme, but I think that there should be a commonality of approach rather than different approaches in the different Councils.

Q136 Mr Newmark: The bottom line is that, at the moment, coordination could be better. 
Professor Palmer: Yes, indeed.

Q137 Chairman: Just before we leave that, one of the main purposes of that question was not just funding between coordination within the Research Councils but between the different funding bodies.

Professor Palmer: My response to that is that we do not see any coordination.

Q138 Chairman: Thank you. We will leave that on the record.

Professor Jenkins: I feel that I should put in one rider to that. Within NERC, I would point to the new programme called the Ecosystem Services for Poverty Alleviation which is a joint initiative of NERC, ESRC and DfID. There is of the order of £10 million to be targeted for regions of the world to address for environmental issues and this is an excellent example of government working together with Research Councils but it is one of the few examples.

Professor Palmer: May I pick up a good point out of that scheme as well. It does allow you to fund the activity of your collaborators in other countries which might be in third world countries to fund them at 100% full economic costing. It is enormously valuable to get those partners on board.

Q139 Mr Newmark: How much interaction with the FCO science and innovation network have you had and how effective do you think this network is?

Professor Palmer: I think I mentioned earlier this morning that, until yesterday or the day before yesterday, it was not something that I was aware of.

Professor Jenkins: I am afraid that this is something that came to my notice only a couple of weeks ago and I must say that my initial response to the papers that I have now read on this is that it sadly, for me in my organisation, as it stands, focuses very much on technological innovation, wealth creation, and it needs to be complemented with another approach which targets quality of life type issues. So, it is on one side of the research spectrums.

Q140 Mr Newmark: Professor Jenkins, what would you like to see in a framework for international research activity and how would such a framework improve the current situation?

Professor Jenkins: The framework ought to at least encompass all activity that we have. There ought to be an awareness first of all. Anybody involved in the international research sphere needs to be aware of what is going on, so communication is very important. Communication could clearly be improved because there are many schemes/major schemes which we do not know about. That is partly our problem but it is also a problem of the other side. There needs to be a forum whereby those funding agencies, those government departments and research councils come together. That needs to be formalised to enable that to happen or force that to happen. I also reiterate the fact that, to be successful, it needs to be a real collaboration and it must not be either top down or bottom up. There needs to be a dialogue and there needs to be a dialogue at the appropriate level which may be at the level of senior scientists and ministers or it may be at the level of senior researchers and senior civil servants, I do not know. To me, the mainstays are those three things: communication, coordination and collaboration and the framework has to pull that together.

Q141 Chairman: Before we leave the FCO, are you aware of the Research Councils setting up offices in Shanghai and Mumbai and Mumbai and Washington and do you have any contact with those?

Professor Palmer: The Research Councils, as I understand it, are setting up first of all an office in I thought Beijing but it may be Shanghai.

Q142 Chairman: It is Beijing.

Professor Palmer: That will open in September. The methodology is that it will be RCUK but one Research Council will manage it. Then Washington will follow that and EPSRC will manage Washington. Then there will be an Indian office.

Q143 Chairman: Do you think that is a good model?

Professor Palmer: What I hope will happen is that it will be modelled on the UKRO office in Brussels which is the Research Council office to provide the interface between the researcher and the European Union, which we see as a very, very beneficial activity, a very beneficial office, and we hope that the offices, as they open in other key places, will play a similar positive role. We see it as exciting and interesting.

Q144 Chairman: In terms of paying for that, do you think that subscription base with organisations paying a subscription to access those offices is the right way forward?

Professor Palmer: I would not object to that method if we are getting value for money, yes.

Q145 Chairman: That forces them to give value for money.
Professor Palmer: Yes.

Q146 Chris Mole: Turning to the Research Council strategies for international research activity, if I can play the devil’s advocate for a moment, why should Research Councils have a role in promoting international collaboration and mobility and all? It could be argued that their function should just be to focus on support for excellent science and, if that requires international collaboration, so be it.

Professor Palmer: I do not see how you can separate the two. Yes, their role should be to fund excellent science, to fund excellent science that is focused in the UK, but to pursue that excellent science requires international collaboration and that international collaboration should be at least part-funded by ourselves in partnership with our colleagues overseas.

Professor Jenkins: I entirely agree. The fact that Research Councils are trying to fund excellent science, we need the best scientists to do excellent science and the best scientists are not always UK scientists.

Q147 Chris Mole: Let us look at the priority that that should have within what the Research Councils do. You said that the RCs do not give a high priority to international activity. Where should it be in the scale of activities?

Professor Palmer: A good question again! I think that they do in certain areas give high priority to international science. They do, for example, fund international facilities: international facilities here in the UK and international facilities abroad, and they fund that with a top slicing of their budget but a top slicing of their budget must immediately indicate that they give it a very high priority. What they do not do beyond that is then set aside specific funding streams for international collaboration and, without those specific funding streams, international collaboration is and has been very difficult. I will give you one example, an example of some ten years ago but, as I understand it, it is an example that is not do beyond that is then set aside specific funding streams for international collaboration and, without those specific funding streams, international collaboration is and has been very difficult. I will give you one example, an example of some ten years ago but, as I understand it, it is an example that is still alive today. The University of Warwick was in discussion with KAIST—KAIST is one of the senior research laboratories in South Korea. It was a collaboration that was being initiated in the area of semi-conductors, advance semi-conductors and therefore Samsung were very much involved as well from South Korea. The proposal was that we should forge this relationship and the initial project was a £4 million project. At that time, EPSRC had a memorandum of understanding with South Korea to promote collaboration between EPSRC and its activities and KAIST in South Korea. Immediately, almost at a stroke, the South Koreans produced their £2 million. We went through 12 months of negotiation with EPSRC in competition with responsive mode grant applications rewriting proposals and, in the end, it was rejected. The effect on that particular collaboration was significant but I went back to South Korea and to KAIST the institute there about three years ago and they still remembered it and they still remembered the frustrations of trying to collaborate with the UK and with a particular research team in the UK. So, we do need structures and we do need mechanisms which prevent that.

Q148 Chris Mole: Thank you. That is a good example. What more would both of you like the RCs to do in terms of promoting international research activity? Where does that sit in relation to the role of individual institutions in this area?

Professor Jenkins: I do not think it is necessarily the case that the Research Councils need to prioritise international research more. What they have to do is accept that funding international research is a necessity to advance science in some areas. So, the fact that one needs to bring in a team of international collaborators should not be a barrier to doing that research. The mechanism ought to be there for the funding to go to those international collaborators as appropriate. At the moment, what tends to happen is that if we can solve the problem by using somebody within the UK who are perhaps not as good as Brazilian counterparts, then it is mechanistically easier to do it within the UK but we do not have the best expertise on the job. It is not a question of prioritisation, it is a question of accepting that, when it is necessary, international collaboration needs to be taken on board and funded appropriately.

Q149 Chris Mole: What benefit would you say the researchers in your institutions gain specifically from RC support mechanisms for international activity and how do they compare with other organisations such as the British Council or the Royal Society?

Professor Palmer: I think that our academics have gained very significantly from collaborating with colleagues around the world in international facilities. We talked about CERN, we talked about Grenoble and we talked about Japan. In those laboratories, you have researchers from around the world who all come together to work together on similar problems. We have gained significantly from that through, for example, the training of our PhD students because the PhD students will go out there with the academics and join them and will research in an international environment which surely is good for them in the next stage of their career. It has also been beneficial because it has made us more competitive in attracting high calibre staff to come and join us in Warwick and other universities. Our recruitment now is international; we recruit internationally for our staff at the university and that is because we can provide that opportunity and we have met them already abroad in these collaborations and they realise that the University of Warwick might only be 40 years old but it is a good place to work or, more importantly, the infrastructure now in our university laboratories is much, much better than it used to be 20 years ago because of the investment that has gone into science and technology. A downside of that is that our PhD students after PhD do not look to go abroad in the main for their post-doc experience, they often get it
in the UK because of the facilities that we now have in our laboratories. Our laboratories are state of the art worldwide, so why go to the US or to Japan?

Q150 Chris Mole: Professor Jenkins, are you not so sure about that?

Professor Jenkins: I can see that. No, I am not so sure about it. Maybe Warwick has much better facilities than we do in CEH.

Q151 Chris Mole: While I have the floor, I would like to ask you both a question about barriers to international collaboration which the Chairman touched on earlier on. What difficulties are there in aligning datasets in a whole range of areas of science? It is something that we picked up on recently in discussion with some American scientists about international collaboration difficulties, particularly in environmental science and aligning datasets. Is that something anyone could give leadership to globally in order to ensure that the research work proceeds smoothly without having to spend long periods of time doing that alignment work?

Professor Jenkins: Absolutely. There are huge difficulties in pulling together appropriate data in a consistent manner to approach the kinds of problems of global climate and global climate modelling in particular. To a certain extent, the UK is at the front of that because the UK has been instrumental in the development of those computer models through the Hadley Centre largely, but it is also something that is very much at the heart of EU thinking at the moment, the coordination of information and datasets through their Inspire Initiative, and this is relatively new but certainly the issue of international data is something which demands international collaboration. It has never been the case that one could phone somebody in another country and demand their national datasets. It is an advantage, yes.

Professor Palmer: My understanding is that, when you have two candidates who are otherwise equal but one of whom had spent time abroad, that was considered to be an advantage for all sorts of understandable reasons, that they had exposed themselves to alternative approaches.

Q152 Chris Mole: Should the RCs be encouraging some global bodies to set standards?

Professor Jenkins: Yes and I think that, to be fair, the Research Councils are aware and signed up to the new initiatives in this area, so I would not criticise them for that.

Q153 Chairman: When you saw “new initiatives”, are you aware of any initiative to do this?

Professor Jenkins: The Inspire Initiative is relatively new.

Q154 Chairman: Who is actually leading on the Inspire Initiative?

Professor Jenkins: It is an EU initiative.

Q155 Chairman: It is no doubt from the European Research Council.

Professor Jenkins: No, it is not, it is from DG Environment, I guess.

Q156 Dr Harris: May I follow up on the point about researchers choosing to stay in the UK rather than go abroad. My understanding is that they are encouraged to go abroad because it is important for their career or is seen to be important to put it on their CV that they have spent some time abroad whether they like it or not, whether they find it convenient or not, whether it is appropriate for women who may have family commitments in this country or not. Is that not a problem in Warwick? Is Warwick different from every other research projectory?

Professor Palmer: I have not heard of that pressure on the researcher to go abroad and prosper. I think that researchers can prosper just as well if they stay in the UK and they perhaps move from lab to lab in the UK to get experience. Of course, a period abroad is and should be beneficial, but I have never given that instruction to one of my PhD students and I have never given that as an instruction to academic staff with whom I have worked and collaborated.

Q157 Dr Harris: My understanding is that, when you have two candidates who are otherwise equal but one of whom had spent time abroad, that was considered to be an advantage for all sorts of understandable reasons, that they had exposed themselves to alternative approaches.

Professor Palmer: Yes.

Professor Harris: What you are saying is that it is not a requirement, it is an advantage.

Professor Palmer: It is an advantage, yes.

Q159 Dr Harris: You have covered some of the matters to do with Research Councils but I want to probe a little further about what they are doing. Research Fortnight publicised a previous evidence session where criticisms were made similar to criticisms you make in your evidence of the Research Council strategy or lack of strategy and lack of mechanisms and the Chair of Research Council UK suggested, “that view suggests to me that they” in this case the Royal Society “had not read the international strategy of RCUK or that of the Research Councils”. Have you read the international strategy?

Professor Palmer: I have them in my bag! Yes, I have

Q160 Chairman: Had you read them before you were invited as a witness?

Professor Palmer: No, not at all. You are quite right!

Q161 Dr Harris: Do you think that it is your job and the job of everyone seeking to have international collaborations to read the strategy or are you entitled to criticise the lack of strategy or perceived lack of strategy without having read the strategy?

Professor Palmer: I think that you have to read the strategy before you criticise but I think that, in some cases, the international strategy is not easy to seek out on the web and, even if you know that you are
hunting for it, it is sometimes rather difficult to find, and the international strategies and the content vary quite significantly from Research Council to Research Council. ESRC is very good. Not only does it describe the strategies, it also is very helpful to the academic about how to approach the Research Council to receive international funding or to make approaches for international funding. Other of the documents are motherhood and apple pie, what you would expect them to say without much substance to it.

Q162 Chairman: Which in particular would you describe as motherhood and apple pie?
Professor Palmer: It is unfortunate to pick on the AHRC because it is so new but everything in the AHRC strategy is what “we propose to do in the future all being well” without anything that is actually happening at the moment, and I think that the AHRC needs to work hard on its international strategy and I hear this from my colleagues in the arts and social studies faculty.

Q163 Dr Harris: You have mentioned the need to search hard to find out about the schemes. Do either of you have any experience about how easy or not it is to apply for grants in these areas?
Professor Palmer: I think that is again another problem that our colleagues raise. It is the bureaucracy, if that is the right way of describing it, associated with the application process for small grants. Even small grants through the Research Councils associated with international collaboration suffer first of all from the problem of perhaps double jeopardy if the funder in the other country is involved as well, but it also takes a significant amount of time. For example, the small grant scheme that the EPSRC mathematics panel run takes at least 16 weeks to give you a decision on a relatively small amount of money and that is a long period of time especially if you get a “no” at the end.

Q164 Dr Harris: The University of Sheffield told us that “...the UK is perceived as an attractive place for study by foreign researchers, and it could be assumed that this is due in large part to the work of the RCUK”, but they go on to say, “however, the work of the Royal Society, other Learned Societies and the Welcome and Leverhulme Trusts is much more well known in facilitating international research” and that “RCUK would do well to emulate the approaches taken by the charities in promoting international mobility”. That is your own university. Do you share their view?
Professor Palmer: I think in one particular instance certainly. The other funders that you mention do allow in an international collaboration the funding to be used to support the activity abroad as well as the activity at home where that is possible, so you can move their money out of the country if you need to in order to facilitate the collaboration. As I understand it, that is not possible with the Research Councils.

Q165 Dr Harris: Have either of you heard of the Money moves with researchers’ scheme?
Professor Palmer: No.
Professor Jenkins: No.

Q166 Dr Harris: That was a scheme set up last year. Again, it is awareness. Finally from me, coming back to the question I asked about your own researchers, if we were to encourage researchers to have international collaborations, do you think that it is reasonable that the research funders should recognise that individuals are not always single bodies and that, if someone needs to go abroad with funding to work, it might be a wise idea to set up a scheme where their partner might have funding as well or do you think that the money should be better spent on creating more opportunities for individuals?
Professor Palmer: It is a very difficult question and it is a question that we wrestle with now across the whole spectrum of our activities in universities. Since we recruit worldwide, it is often a two-body problem when we are recruiting worldwide in that, if we recruit somebody from the States or from the Far East or from Europe, they will come with a partner and how do you deal with that problem? I do not see that it is an issue for the Research Councils as such to stretch their funding to a second person when the quality judgment has been made on one person.

Q167 Dr Harris: It is for the host institution.
Professor Palmer: Yes.

Q168 Dr Harris: I have one more point. CEH said that NERC does not provide funding to support long-term strategic research collaboration. Do you want to say something, if it has not been covered already, about follow-on funding and the need to be able to have that?
Professor Jenkins: Only to reiterate the point that short-term project based funding two to three years focused on a specific project achieves good outputs, delivers good science but it does not promote the kind of collaboration that might make real steps forward. So, it is a bit like what was referred to earlier, the issue of the ministerial visit and the people in the country left saying, “Well, what was that all about?” It is a little bit the same with short-term two or three year research contracts. They are good while they last but they are quickly forgotten and that is a missed opportunity in my opinion.

Q169 Dr Iddon: We want to finish this session by asking you a few questions about gaining funding from abroad, the main source of course of which is the framework programme in the European Union. I think it was Professor Palmer who was complimentary about the UKRO in Brussels a while ago. Do you think that research councils can do any more to help British researchers gain funding from the Framework programmes? Framework Programme 7 as it is now becoming?
Professor Jenkins: First of all, I would draw attention to the NERC and the funding initiative that they have established under Framework
Programme 6 which is a fund to aid coordination for applications to the framework programme, glue money, if you like, to enable researchers to come together across Europe to enable our participation in that because the mechanism of putting together these big integrated projects now which can be 10 to 20 million euros over two or three years takes a lot of coordination. That is a good practice. That could be more widely taken up. I feel that within NERC the understanding is there that they need to help us in trying to be involved in framework programmes. I wanted to answer the first question about the UKRO and comment on that, just to say that, yes, they do a good job but I would argue that they could do a lot more. To me, the UKRO is extremely efficient at gaining information, gleaning information, putting it together and distributing to its subscribers. I would like to see them be much more proactive and putting us in contact with senior Commission officials because that is not easy at the moment for us. So, to get real influence into the programmes and the shape of the programmes, I believe that the UK does not have the same access to some of the senior Commission officials as other countries do.

Q170 Dr Iddon: May I stay with you for a moment, Professor Jenkins. You have been rather critical saying that NERC does not engage well with the European Commission and you have made comment at the lack of political clout in Europe. Are you standing by those comments?

Professor Jenkins: Yes, political clout. We appear to lack the influence that other countries have in defining and shaping some of the activities of the programme.

Q171 Dr Iddon: Whose fault is that?

Professor Jenkins: On the one hand, one could argue that it is fault of the Research Council who pay the subscription to UKRO but we are part of the Research Council, so it could be my problem in demanding the service that I have just mentioned, a proactive service. I wonder again at a diplomatic level, senior levels, whether the UK has the same approach and the same mindset as other European countries. The Italian equivalent of the UKRO office in Brussels is headed by somebody with diplomatic status. So, it is a slightly different approach.

Q172 Dr Iddon: We need somebody who knows their way around the political system obviously in Brussels. Professor Palmer, would you like to elaborate a little more on what you said about UKRO and whether it could be doing more through the Research Council to gain this framework funding.

Professor Palmer: First of all, the Research Councils are very supportive of academics in terms of allowing them to apply, for example, for travel money to travel around Europe to develop their network in preparation for the grant application. They do provide information seminars around the country to provide the information backed up by the UKRO office with those seminar presentations. I say all of that except AHRC. As far as I understand it, the Arts and Humanities Research Council has not yet offered any information seminars and they do not have a travel fund, despite the fact that now FP7, the seventh framework programme, is available for arts and humanities grant applications. So, I think that we do need to do work there. Having said that the money is available and there is travel support and so on, I still think that we need to reduce the bureaucracy and the time and the effort involved to access that funding. In our region in the West Midlands, our RDA, Advantage West Midlands, has a scheme which is quicker and faster than the Research Council scheme and it is not very often we can say that about an RDA, but they really have been very responsive and money is available to stimulate the development of those collaborations.

Q173 Dr Iddon: We are all picking up comments to the effect that imposition of the track methodology and out of that full economic costing is now beginning to put people off applying for framework programme money. Is that your experience?

Professor Palmer: We are definitely not discouraging our staff. In fact, we continue to encourage our staff to apply for framework money. We see that the university research portfolio needs a spectrum of funders. Yes, we lose money on the European programmes but that provides funding for research that then will lead to other sources of funding which hopefully will generate a profit to balance the loss elsewhere. So, no, we still encourage our staff to apply for Framework Programme 7.

Q174 Chairman: But it is a problem?

Professor Palmer: It is a problem. We lose money on every European grant we receive, significant amounts of money.

Q175 Dr Iddon: Finally, a question to both of you. Framework programmes apart, can either of you give examples of where your organisations have gained money from other international sources, perhaps the National Institute of Health in America for example or any other organisations. Are there any other pots of money that you can tap into?

Professor Palmer: We have had some success recently with American charitable bodies where we have had money from the Mellon Foundation for example, in collaboration with American partners. One of the strategic objectives of the university is to develop our American partnerships not only so that we can collaborate with funding from American charitable sources but also from the health funding in the States. We have some money from defence funding in the States as well. That has been enormously valuable to us.
Q176 Dr Iddon: Professor Jenkins, do you know of any examples?
Professor Jenkins: We have in the past had funding from the ADB, the Asian Development Bank, for some of our work in India. At this moment, we are unable to accept funding from the US, in particular the World Bank, due to issues to do with unlimited liability clauses in the contracts.

Q177 Chairman: Would you let us have a note on that, please, because we have not heard about that and we would like to have a brief note about it.
Professor Jenkins: Sure.
Chairman: Professor Palmer and Professor Jenkins, thank you very much indeed. I am sorry that we have slightly overrun on your session but we did want to cover our programme. Thank you very much indeed.

Witnesses: Dr Lloyd Anderson, Director, Science, the British Council, Professor Lorna Casselton, FRS, Foreign Secretary and Vice-President, and Dr Bernie Jones, Head of International Policy, the Royal Society, gave evidence.

Q178 Chairman: Welcome to our second panel this morning and, first of all, my sincere apologies for over-running on the last session. I hope you found some of those answers interesting because we want to pick up on them and see how much you have listened and taken in. We welcome Professor Lorna Casselton, Foreign Secretary and Vice-President of the Royal Society and also a Fellow; Dr Bernie Jones, Head of International Policy, the Royal Society and Dr Lloyd Anderson, the Director of Science at the British Council. Welcome to you all. Can I start with you, Professor Casselton, and ask how important is international research activity to the Royal Society?
Professor Casselton: Since I am nominally in charge of our international activities I would say they are very important. We are very keen to support the very best scientists in the UK but we are also committed to ensuring that they can engage with the very best science internationally.

Q179 Chairman: The Research Councils say that the UK is very good at doing it—that is their quote, that we are very good at it. Is that your view, are we very good at it?
Professor Casselton: We are very good at it but we are concerned that we are losing our position. Other countries such as France and Germany are investing considerably in collaborations with overseas scientists, particularly in countries with developing economies such as China and India which we are very interested in. They are very competitive so we need to be equally competitive in ensuring that we can fund the best collaboration between international partners.

Q180 Chairman: Dr Anderson, is it just a question of funding then? Do you accept this premise that the Research Councils put forward that we are very good at international collaboration, it is just a matter of funding and if we put more money into it we will be absolutely brilliant?
Dr Anderson: No, I do not think that is right. I would just say for the British Council our purpose is to build long term relationships and trust for the UK and so we see science as an important tool in being able to build those relationships alongside the arts or English or education. We are coming at it slightly differently than the Research Councils because, in a sense, the Research Councils are saying what can international relations do for the UK research base, whereas I would say the philosophy behind the British Council is what can the UK research base do for international relations, it is the other way round. You can always throw more money at the problem and we hear Lord Sainsbury talking about 5% of the world’s science being done in the UK, therefore 95% is not, we need to access that 95% and, clearly, the more money that is there for international collaboration the better. There are all sorts of issues which we may unpick about the international perspective of UK researchers and their willingness to get involved in the international scene.

Q181 Chairman: What about you, Dr Jones. We are very good at it.
Dr Jones: We are reasonably good at it—historically we have been very good at it. I would say that UK scientists themselves, research practitioners, are very good at going out and making those contacts where they can but what we are not is good at is presenting ourselves at various UK stakeholders who are involved in this. It has done reasonably well so far, but it could still do better and particularly it could do better when we are actually sitting around a table overseas with the Indian or Chinese ministries of science.

Q182 Chairman: We heard from the previous panel about this perceived lack of co-ordination; do you know if there is a lack of co-ordination between the different organisations involved in international science collaboration?
Dr Jones: Yes, almost certainly there is; that is why Sir David King set up GSIF (Global Science and Innovation Forum) in the first place, years ago, and that has been working to better co-ordinate the various UK stakeholders who are involved in this. It has done reasonably well so far, but it could still do better and particularly it could do better when we are actually sitting around a table overseas with the Indian or Chinese ministries of science.

Q183 Dr Harris: Could I just ask on that, the Royal Society is a member of GSIF and you heard the members of the previous panel say that they had barely heard of it and it hardly impacted on them. I notice that the higher education institutions are not
Chairman: we can put money on the table to now establish a funding. It is all right to set up the collaboration by the countries involved, so we need long term suchlike—we need the cutting edge research of all disease, health problems, water problems and that we are facing at the present—climate change, be used to address many of the real global problems do cutting edge research, which we hope is going to also been pointed out this morning that if we are to collaborations, but science is international and it has Research Councils and even from the Royal Society this morning there are funds, particularly from the long-term funding. As many people have said to you

Professor Casselton: what are the main barriers to international research activity?

Professor Casselton: I hate to say funding, but it is long-term funding. As many people have said to you this morning there are funds, particularly from the Research Councils and even from the Royal Society for short-term inter-actions to establish collaborations, but science is international and it has also been pointed out this morning that if we are to do cutting edge research, which we hope is going to be used to address many of the real global problems that we are facing at the present—climate change, disease, health problems, water problems and suchlike—we need the cutting edge research of all the countries involved, so we need long term funding. It is all right to set up the collaboration by visits, but what we need to be able to do is to say yes we can put money on the table to now establish a long term collaboration.

Chairman: So this is a role for Government.

Professor Casselton: We feel that the Research Councils should be able to have money that is dedicated for international collaboration; the money is still funding UK researchers but it is ensuring that they can then make contact with overseas groups who will equally have dedicated funds to do that collaborative research.

Chairman: If we could just come back to GSIF for a second, what are the main mechanisms or methods which the Global Science and Innovation Forum uses to enhance international collaboration?

Professor Casselton: I am not so familiar with GSIF and I am going to kick this to Bernie.

Dr Jones: I would say there are a couple of mechanisms. One is that GSIF and the members of the various project teams that sit beneath GSIF over the last couple of years have been working on the international strategy which was launched last year which sets out a modest roadmap for various UK international science stakeholders. So the strategy is one thing and active co-ordination of all of our activities is the second one and to my mind, purely personally, is actually the main value. If we can ensure that whenever, for example, there is a ministerial visit we do not just agree things but that all the principal stakeholders are there as well to provide a single united front for UK science, that will make a far greater impact and portray the UK science brand far better internationally.

Chairman: Did you feel depressed hearing our previous panel talk about ministerial visits, preparing stuff for them and then nothing happened as a result? Have you had that experience?

Dr Jones: I slightly recognised where they were coming from. We are in a privileged position because we do not sit too far away from Whitehall so our communication with the FCO, the OSI and with the Research Councils is relatively good, although even then there are things that we do not hear about. I can imagine how much more difficult it is to be sitting in a lab or sitting in a university where the channels of communication are even longer.

Chairman: Dr Anderson, what benefits do you think we have had from the Year of Science scheme?

Dr Anderson: Would you mind if I just went back a bit? I somewhat disagree with the Royal Society about co-ordination because on the ground co-ordination works quite well; the Foreign Office and the British Council in wherever, Beijing or Thailand, are working well together and in fact it is a mutually beneficial relationship, each side can build on the work of the others and I would say that the Council adds value to the work of the Foreign Office and vice versa. Sometimes it looks different here in London because you see this plethora of funding bodies and people involved and therefore there is a worry that somehow it is a mess, it is not co-ordinated, but in some ways I feel we should celebrate the diversity of the sources of funding that are available and recognise that where delivery is taking place on the ground there is a joined-up approach. The co-ordination activities here in London that are most useful are about information sharing and I suspect that is what we were hearing in the last session, simply that the information was not getting through about what other people were doing and if there were better channels for information sharing then people would feel it was more joined-up and more co-ordinated even if there was a plethora of sources. Also on the point about feedback, I have heard that the other way too, that we bring over visitors to the UK and they go and have talks with the DTI or the British Association, then they go back to their country and the people here never hear another word about it. There is, therefore, a problem with our feedback and there should be proper reporting-back to the people who prepared briefs in the first place.
Q191 Chairman: Let me bring you back to the Year of Science; was that not a good focus for international collaborations?
Dr Anderson: You mean the Year of Science in China?

Q192 Chairman: Yes.
Dr Anderson: These big awareness-raising campaigns are good; because it allows you to have a large impact you can raise the general level of interest and the level of engagement. The problem with these big campaigns is that they are not necessarily sustainable and we have seen this in the past—not specifically in science but I am thinking back to the big campaign that was run in Australia called New Images which was about reconnecting Australia with the UK. It was a fantastic year, lots and lots of activities, great media interest, great enthusiasm, but it was not really followed through and so you just saw the thing die away again in successive years. The same happened in Canada, there was a general public diplomacy engagement, so whilst the Year of Science has been successful in China I am concerned about whether there is a long term commitment to keeping up those engagements.

Q193 Chairman: Would you prefer to have a longer term commitment with fewer countries rather than, for instance, having a year in China and next year in Japan or Korea?
Dr Anderson: The Years of Science have tended to be in the countries that we see as the next big players—the emerging economies—where they have suddenly started to increase their investment in research and development and so they are fairly targeted as to where those Years of Science are to be placed. I suppose I am coming at it from the point of view of long term relationships and a worry about short termism in having big campaigns.

Q194 Chairman: Professor Casselton, do you share those concerns?
Professor Casselton: I come from a slightly different angle in that we as the Royal Society would really like to see the Research Councils have a more aggressive policy towards funding international research, we would like to see them committing a small percentage of their funding. They have about £3 billion and just a few per cent of that budget being dedicated to overseas collaboration would make a big difference.

Q195 Chairman: Do think this focus on picking a country like China and having a major focus there and then moving on to somewhere else is the right approach, and if so which other countries would you want to see as having that focus?
Professor Casselton: That is hard for me to answer because the Royal Society has various policies towards different countries, but over the past two days we have had meetings with the Chinese in the Royal Society, we have had a meeting of the European ERAnet called COREACH and it is very obvious that there is a tremendous amount of exciting research going on in countries like China and there is UK engagement, but we would like to see the availability of more funds to develop that.

Dr Jones: It is actually a combination of all the points that have been made. The Years of Science are tremendously successful and they are very good opportunities to really try and sell the UK brand in these priority countries which, for one or two countries, some of the various stakeholders in the UK might disagree on, but for most of them we are agreed on 80% of what our priorities are. Lloyd is right and wrong to say they lack follow-up; the FCO and the British Council in country are always very keen to follow up those years; they put in a tremendous amount of work to bring about some of these things, to raise the profile of UK science there and they continue doing it, and indeed the team in China is continuing to do that this year. Where he is right is on the point that there is no greater follow-up, and this is the point that Lorna was making: having spent a whole year promoting UK science in the country, forging literally thousands of connections between UK research practitioners and those in country, we then have no central UK funds to actually support real research projects between them.

Dr Anderson: There are two things here: one is about the commitment of the Research Councils to relationship development rather than reactive, individual project funding, and the Years of Science do not necessarily lead to more relationship development on the part of the Research Councils. The other thing is that it is therefore a geographical focus and one could take a thematic focus, and I would mention climate change in this context because maybe the UK wants to raise the game in climate change and it wants to do that across the globe. The problem with the geographical approach is that you throw everything into it, all areas of science, and say we are going to target this country and then we are going to move on to that country. I would have thought that strategically for the UK it was important that certain issues or certain themes were explored globally.

Q196 Dr Iddon: Anyone listening to this conversation from outside who did not know enough about your organisations might say it is all a bit of a mess really—and I am deliberately saying that to provoke you, obviously. I ask, therefore, why do the Research Councils promote international activity when we have got the British Council, we have got the Royal Society to do it. Lloyd, you said we celebrate that diversity so you presumably agree with all this complexity, but why can we not have something simpler?
Professor Casselton: They have the money.

Q197 Dr Iddon: You have the money.
Professor Casselton: No, they have got the money, the Research Councils have the money, we have not. We have a small budget compared with the Research Councils and we devote something like 15 to 20% of it to international activity.
Q198 Dr Iddon: If the Research Councils have got the bulk of the money why should they not be left to get on with it.

Professor Casselton: You mean in terms of international?

Q199 Dr Iddon: In terms of promoting international activity.

Professor Casselton: Because we say we feel they should be devoting more of their funds to ensure that UK groups and overseas groups can work together.

Dr Anderson: I would say that the British Council and the Research Councils are working to different outcomes. The outcomes of international promotion of science to us are about global security, a more peaceful world, a more prosperous world as well, but we see science as a culturally neutral area a way of crossing what can be quite large cultural divides. Because of the common language of science and because it is fact-based and people can work together it allows us to cross very large cultural divides and enable relationships to be built. Those are the outcomes we seek and the outcomes that the Research Councils seek are really quite different, they are about the excellence and strength of the UK research base and about economic returns to the UK. I do not think it is a mess, we are trying to achieve different things; we happen to be in the same area of work.

Q200 Dr Iddon: I say to the Royal Society that the British Council has a clear difference, which you have just heard, but I have not heard yet a clear difference from yourselves. How would you differentiate the work that you do internationally from that which the Research Councils do internationally?

Dr Jones: Some of our broad aims are the same as the Research Councils; we believe in supporting excellence in UK science, excellent UK scientists and promoting that science internationally; it is just that we might be doing it a bit more aggressively than the Research Councils are able to at the moment and we have a wider remit in subject terms than individual Councils themselves have. We are firm believers that science should be international and that we should do everything possible to facilitate both international collaboration and contact and also real international research. It is on that final point that we believe the Research Councils could do a lot more.

Q201 Dr Iddon: We are picking up vibrations around this Committee that the co-ordination is not as good as it should be, although we have seen some evidence to the contrary this morning. How can you, therefore, in the Royal Society be sure that you are not duplicating the efforts of the Research Councils or even occasionally the British Council?

Dr Jones: It is something that we are very conscious of and we have frequent meetings with all of the Research Councils and with the British Council and other UK stakeholders—other charities, other learned societies—and we do regularly evaluate and review our programmes to make sure that there is as little overlap as possible, or if there is some overlap that we are working together.

Q202 Dr Iddon: Could you tell us how often you meet with the Research Councils and at what level, is it with RCUK or the individual Research Councils. How often do those discussions take place in a year, for example?

Dr Jones: I could not tell you the number of all the interactions we have with the Research Councils.

Q203 Dr Iddon: Is that because they are not formalised in any way?

Dr Jones: Some of them are formalised and some of them are not but they happen at all sorts of different levels—our chief executive, our president and our vice-president very frequently meet with their counterparts at the Research Councils and indeed many of our vice-presidents and Fellows are on the boards, or are chief executives or chairs of the Research Councils, so there is a very close relationship with them. Our chief executive very frequently meets with the chief executives of the various Research Councils, we meet with them at GSIF, I meet my counterparts who run the international offices at the Research Councils very often at GSIF called official group meetings and their regular Research Council international network meetings, and my colleagues who run our grants programme in the Royal Society frequently speak to their counterparts who hand out funding at the Research Councils. There are many meetings, some of them are to regular timetables and some of them are more ad hoc.

Q204 Dr Iddon: When you say ad hoc, from what you are saying there is no formality about them.

Dr Jones: No, that is not true; some of them are quite formal, for example the ones which happen under the aegis of GSIF.

Q205 Chairman: You did mention other learned societies. Some of them, like the Royal Academy of Engineering, have recently launched major international initiatives; what relationship do you have with those, in the same tenor of Brian's question?

Dr Jones: Again, we have frequent contact and many fellows in common between a lot of these organisations, but in view of the fact that the Royal Academy of Engineering in particular has recently launched a lot of international initiatives I am intending to set up a regular meeting between the international heads of the various academies in the UK.

Q206 Chairman: At the moment, in specific answer to Brian’s question, the Royal Academy of Engineering could be having an international project in country A and you could also be having a project in country A without co-ordinating your activities; is that true?
Dr Jones: No, it is not true because there have been meetings between our funding organisations, but you are right that there is nothing formal in place. We do intend to change that.

Q207 Dr Iddon: Where does your funding come from in the Royal Society, is it all from the Office of Science and Innovation to promote international collaboration?

Dr Jones: It comes from three different sources: it comes from the Parliamentary grant in aid from OSI—most of that is money that we receive from OSI and we then give out to excellent UK scientists and in order to support international collaboration—the second source is from private foundations, private individuals or corporate organisations who give us money for specific purposes and the third source is from our endowment which we have built up over the years.

Q208 Dr Iddon: What are the proportions; which is the biggest chunk of funding in those three streams?

Dr Jones: The biggest chunk is the Parliamentary grant in aid, the money that we receive from OSI and then hand out to fund excellent UK scientists and international scientific collaboration.

Q209 Dr Iddon: What am I really trying to get at is because the Research Councils have so much international activity themselves, why should they bother to give the Royal Society a small amount of that; what is the advantage to the OSI of doing that, can you tell us?

Professor Casselton: Could I just stress that the Royal Society is an independent science academy. We are an independent science academy so we are putting money where we think it is most appropriate and that is for funding the best science.

Q210 Dr Iddon: Let me move on to the interest in your schemes from researchers around the country; are you over-subscribed or do you have to chase people? Perhaps I could start with the British Council.

Dr Anderson: Can I just come back on a couple of points there? There is an issue in the sense that for a long time there has not been a clear international policy on the part of the Research Councils, a coherent, clear international policy, so it has been difficult to know what their geographical subject priorities have been. It is important to know that to avoid the sorts of overlaps and duplications that can occur otherwise. For the British Council’s part we have collaboration schemes and we have very carefully targeted those at the younger researchers, by which I mean early stage researchers, end of post-grad, through post-doc up to a couple of years of tenure, because our feeling was that there is money available for the more established scientist through the Royal Society or through the Research Councils, but there is not much money there to help those young researchers get onto the first rung of the collaboration ladder. Once you have got them onto the first rung there are other bodies which can help fund them and get them up, so in a sense we have differentiated in terms of target audience and taken an attitude that we should be underpinning the work of the Research Councils. We have two schemes, one is International Networking for Young Scientists, which are N+N workshops, where we would pick, say, 15 young British researchers to go to Spain and meet with 15 young Spanish researchers and talk about stem cells or some other subject. Biotechnology and reproductive technology have been other areas that we have carried out workshops on in Spain. We get far more applications to run these workshops than we can fund. We also have just started a scheme called Research Exchange Programme which gives individuals what is essentially a travel grant, a bit of money to be able to go to the lab in the other country and establish some contacts. Again, that was oversubscribed in its first year. We had 300 odd proposals and we could only fund about 70 exchange visits. Going back to the workshop scheme, that is allowing us to fund about 1000 participants a year to take part in workshops, so they are oversubscribed, it makes them competitive and maybe a bit more of a thing to have. Otherwise we have to push people towards professional bodies or towards the EU or towards the Royal Society to see if they have sums of money that would be able to support that sort of work. I would also point out that the British Council manages schemes on behalf of others, so for the DfES we manage a very large scheme of collaboration with India called UKIERI (UK-India Education and Research Initiative) and we also manage DFID’s funds for DELPHE which is a programme of collaboration between higher education institutes in the UK and developing countries. Our schemes are oversubscribed, therefore, but we are also managing other schemes and we are aware of what the other players can offer.

Q211 Dr Iddon: I have to confess I have benefited from both those organisations in the past so if I sounded critical it was just to provoke you. What about the Royal Society, are your schemes oversubscribed?

Dr Jones: They are oversubscribed. I would say that one of the main things that differentiates our schemes from some of the other schemes—for example those of the Research Councils—is their flexibility. On the international side that means the broad subject scope and also the broad geographical scope, the number of countries that we collaborate with. In terms over-subscription the most recent figures show that our fellowships are heavily oversubscribed, with typically four to ten applicants per position. Our other schemes are also oversubscribed, typically two or three applicants per grant award. We could therefore fund a lot more people with more funding without compromising on the standards of excellence.

Q212 Dr Iddon: Could I just ask one last question of the British Council. I do not know whether it was a deliberate policy but I went to some quite awkward places with the British Council, for example East Germany when the Wall was up, and it was rather
I would really like to reinforce Professor Casselton: it exists. It does sound as if that policy still relates as much as they think about their science. perspective and to think about international like the UK researchers to have a more international perspective and to think about international relations as much as they think about their science. It was not a deliberate policy. Dr Anderson: There is an important point there. We have just recently moved quite a lot of resource out of Europe and into the Middle East because we see it as important in engaging in those countries. So we would very much like to see science being used as a way of building those bridges in the Middle East. It is difficult to get UK researchers to go there because they are going to say the science is not that great in Yemen or Saudi Arabia or wherever, so we would like the UK researchers to have a more international perspective and to think about international relations as much as they think about their science.

Q215 Dr Iddon: It does sound as if that policy still exists.
Professor Casselton: I would really like to reinforce that statement. When I was 24 I was sent off to Nigeria to teach for three months; it was an incredible experience and I feel that young scientists, particularly in their early research career, should be encouraged to visit other countries. If they are going to be our scientific leaders, if they are going to be policy-makers they need to understand—I think I have said this before—that these countries do not necessarily run like ours and it is a case of using science as the basis of exchanging this social interaction which I think is very important for the future.

Chairman: I was sent to Chapeltown in Leeds, and I can tell you that was an international experience. We have to move onto Dr Harris.

Q216 Dr Harris: Turning to the Royal Society’s criticisms of the Research Councils, your written evidence I imagine was prepared by Dr Jones and it says approved by you, Professor Casselton. For each of you, at the time you drafted this and approved it had you in fact read the RCUK strategy and the strategies of the individual Research Councils, as you were alleged not to have done by Professor Diamond when he gave oral evidence?
Dr Jones: I can answer that on behalf of both of us. Yes, we had read it. The RCUK strategy is not yet published, it is a draft in discussion. The other Research Councils have various versions of their strategies available; some are longer than others, some are older than others and some are more focused than others. Some of them, we believe, are reasonably good, some are almost very good—the BBSRC’s is a very recent document, it is very nicely put together; however, we still maintain our original objective that all of these strategies or part strategies or draft strategies are insufficiently well-aligned with each other, insufficiently well-aligned with the rest of the UK stakeholder community and they are insufficiently proactive and insufficiently bold.

Q217 Dr Harris: Having heard his defence or read the transcript—I assume you have—of the Research Councils’ defence in our previous evidence session, do you stick with your view beyond what you have just said, that the international strategies of the Research Councils are not clear, they have yet to incorporate a coherent international dimension into their overall strategy, they need to develop more strategic partnerships with organisations that offer a complementary portfolio, the structure of the Research Councils is overly complicated in comparison to scientific institutions et cetera et cetera.
Dr Jones: Yes.

Q218 Dr Harris: You stand by all of those. Dr Jones: Yes, but we very much look forward to the publication of RCUK’s international strategy later on this year and we hope to be happier with that.

Q219 Dr Harris: In what ways do you (a) seek them to improve first, and (b) in what ways do you expect them specifically to improve in that new strategy.
Dr Jones: They are already doing a lot of international work; clearly, we did not say they did not do any at all. We would like to see that strategy, when it is released, showing that the various Research Councils have aligned their strategies, their practices, their procedures for emerging international collaboration, that they have reflected a real buy-in into the GSIF international strategy and are working together with the other stakeholders in the UK, but what we would really like to see is that they have decided to dedicate some of their funding to supporting international collaborative research projects in a way that they are not doing at the moment.

Q220 Dr Harris: That is the key thing above all the others that is so important for you. What about the fact about recording information? I would say that underpinning all of this is the need to record information about international collaboration because without that data it is very hard to measure progress.
Dr Jones: That is very true. I do feel a little bit sorry for the Research Councils on this because this was a question that they were recently asked, that they have been asked in the last couple of years, and just before those questions were asked we understand that they had introduced a lot of new systems which did not reflect the need for this information to be gathered at all. We can appreciate that it is a bit difficult for them at this stage to go out and collect this data, but if we were able to have that data it would be a very good thing.

Q221 Dr Harris: Can I just ask again about the international mobility of scientists and engineers? In your evidence say it is not clear that the Research Councils’ policies internationally (or a lack of them)
have any particular impact on post-doctoral mobility. Can you explain why you feel that it is and what would you like them to do more of to enhance that?

Dr Jones: There are two sides to that. The first is that at the moment, because scientists are more or less left to themselves when it comes to international collaboration, if they want to collaborate they can go and find mobility funds from the Research Councils who have relatively generous schemes, from the Royal Society, from the British Council, from a number of providers, so they can be mobile. That is why we said it was not particularly affecting mobility because they are able to by themselves be mobile. What we would like to see the Research Councils doing is encouraging them to be more mobile and then provide some follow-up funding. The other side of the answer to that is that we do think the Research Councils could do a lot to support the mobility of post-graduate researchers rather than post-doctorate ones.

Q222 Dr Harris: You think this is important in and of itself beyond the international collaboration for the careers of scientists—you may have heard our previous exchange where there was a question about whether it was really desirable to have to go abroad. Is it a perception of your academy that it is increasingly important to build up CVs to be able to go abroad?

Dr Jones: It is our perception—and Lorna can give you her own views on that—it is also, however, importantly the perception of our principal overseas partners who tell us when we go out there “We rarely see your PhD students out here in our country; we see many German PhD students, we see many French PhD students, we see many American PhD students, we see very few British PhD students, they do not understand us, they do not come here.”

Professor Casselton: That brings up another issue which is, of course, the language problem; we are notorious for not having language skills and this was brought up very much in the meetings we have just had at the Royal Society this week, about the fact that Russian is daunting as a language for someone who is going to spend a short time there doing research, but I think and I am sure you would agree that it is a very important part of their training that young scientists going to work in places like China or other countries would actually enjoy learning the language and we feel that the Research Councils should in fact be encouraging that sort of visit so that they do, it makes us more international and we are going to have to be more international.

Q223 Dr Harris: Most researchers would say “I will get a couple of publications out” than learn a language because they probably would not find any potential employer that would be forgiving about a publication gap while they learned a language possibly, or had children.

Professor Casselton: As a fellow Oxford person I would say that might be an attitude at Oxford, but I think you are wrong there; you would get the papers out and they would be learning the language at the same time.

Q224 Dr Harris: Finally on the point of mobility, you say in your evidence, “Policies related to the travel of UK PhD students should take into account the needs of those scientists with family or other commitments.” What do you mean by that because you heard in the previous session that it is generally the policy (or not) for the host institution to see if they can provide for a partner post, and the US universities do this in particular, we probably do not do it so much here? What do you mean by that statement?

Dr Jones: That statement was made in connection with our recommendation that more PhD students be encouraged to go overseas, but we acknowledged that that was a problem. I would agree with the previous panel who said it is not necessarily the responsibility of research councils to pay an extra salary for that period of time, but they may be able, in conjunction with the British Council and the Foreign Office negotiate some sort of schemes with the overseas partners so they would give some sort of support or would provide some sort of environment which would encourage that.

Q225 Dr Harris: Dr Anderson, do you have any points on what the Research Councils can do, firstly, to stimulate the mobility of researchers to and from the UK and on anything you have just heard?

Dr Anderson: For the last three years the British Council has been running an EU/Oslo funded project called Network UK which is to help foreign researchers relocate to the UK for a period of work. The policy for that comes from a high level working group on barriers to mobility in Europe, which discovered that having awarded Marie Curie fellowships to a number of people they did not necessarily take those fellowships up and so they wanted to know what the reasons were for that. A lot of it comes down to domestic issues. We have touched on a very important one, which is about finding a job for your partner; there are other issues such as child care, being able to open a bank account, being able to find accommodation and so on. The universities exercise a good duty of care at the undergraduate level, but as you go up through post-graduate to post-doc and so on the extent of that duty of care falls away, it becomes something that the individual supervisor who has invited the researcher to come may or may not worry about. We have been trying with this project to give all the sorts of information that would make it easier for researchers to come here, and on the point about jobs we have in fact put a job search engine onto the website so that researchers are able to look for jobs for their partners in the localities that they are going to. I would agree, I cannot see that the Research Councils should be funding or providing financial support for the partner but they could certainly be assisting us in pointing out what jobs are available—
there may be other jobs within the university or within the education system or whatever. I have also said in our evidence that we were somewhat disappointed by the Research Councils’ lack of interest in the EU project that we are running.

**Q226 Dr Harris:** That is in that portal that you were mentioning, the mobility portal for research.  
**Dr Anderson:** Yes, and that is a mistake. Certainly at the moment if you look at the statistics for the Marie Curie fellowships across Europe, then there is a very, very large peak for the UK and every other country has a much smaller share of the Marie Curie fellowships. A lot of that is to do with the English language, but it is also to do with the fact that Britain is seen as the place to come for science but we cannot assume that that position is going to remain. Germany and France are getting much more sophisticated in the ways they attract researchers to come. France, for example, offers a sort of research passport—before you ever leave your own country you can get this passport from the French foreign ministry that enables you to fast-track visa, to find cheap accommodation, to get discounts on things, to open a bank account. A bank account will be waiting for you when you get to the country. They are doing lots of measures, therefore, to encourage the inward flow of researchers.

**Q227 Dr Harris:** Whereas we just have queues.  
**Dr Anderson:** We just have queues. Sorry.  
**Chairman:** I will leave that there if I could, because I want to try and get Chris in just before we finish and we only have seven minutes left.

**Q228 Chris Mole:** I get the impression that you would welcome the development of dedicated funding streams for international research activities within the Research Councils; how would you respond to concerns that such funding might be taken from other areas such as basic research?  
**Professor Casselton:** If the Research Councils do not have additional funds then obviously it will be taken away from the traditional funding streams, but really what we are saying is that we have to be more outward-looking, we have got to go out.

**Q229 Chris Mole:** Even at the expense of basic research.  
**Professor Casselton:** We said that a small percentage of the Research Councils’ budget would be enough to fund the research we are thinking about, so I do not think we would be jeopardising too much fundamental research in the UK—in fact, we would be enhancing it because we would be having our researchers working with researchers elsewhere, equally funded, twice the number of people working on the project and presumably twice the productivity. It is probably going to be fundamental research, or it could be.  
**Dr Anderson:** Science is an international endeavour, it is no longer a national endeavour, so it has to be a priority for the Research Councils. Going back to the Lord Sainsbury figure, 5% of the science done in the UK, 95% is not. You do not see similar sorts of proportions applying to the way that the funding is distributed in the Research Councils’ activities, so perhaps there needs to be some levelling up.

**Q230 Chris Mole:** What would it look like in terms of follow-on funding; can you give us some examples of how the support through follow-up funding would benefit the research community?  
**Dr Anderson:** I would point to the States. The US has been very successful in attracting researchers by simply inviting post-docs to work in labs and providing money for post-docs to be able to do that.

**Q231 Chris Mole:** How would that differ from normal response mode funding?  
**Dr Anderson:** The response mode funding is on the back of a UK researcher, as I understand, submitting an excellent proposal and going through peer review. There can be a component of that that is for international activity, but the primary focus is for that piece of research to be done in the UK by the UK researcher; it is not the same thing at all as having schemes which enable foreign post-docs or post-graduates to be able to come to the UK and work the periods in excellent labs.  
**Dr Jones:** The important point to make is that it is not money taken away from UK basic research, it is just money given to UK basic research in a slightly different form because that research has to be international, and there are many different ways that the Research Councils, together in partnership, could do that. Just to give you one example of what it might look like is that next time Sir David King or the minister sit down with their Chinese counterparts they say “Right, we from the British Research councils have £20 million to put on the table; are you willing to match that funding?” to which the answer will probably be “Yes” and then the Chinese funding agency and the Research Councils in the UK can sit down together to explore on which particular themes those calls might be made and how that £20 million might be split up between the UK Research Councils and sort out how the double jeopardy can be addressed, all of those sorts of process issues, and then the call is made, joint research teams apply for it, win the funds, the UK Research Councils fund the work in the UK and the Chinese fund the work in China, but it is aligned and it has been put on the table so it is a great political success and it is a success for UK science.  
**Dr Anderson:** Can I illustrate this with an example? I mentioned that there was a year of awareness-raising in Canada; one of the concrete things that came out of that was an agreement between the British Council and the National Research Council of Canada to create a joint research fund which ran for three years. At the end of those three years we said we need to use our money for other things and went to EPSRC to ask them if they could pick up the UK end of that scheme, but they could not. They could not because they insisted that all proposals on the UK side went through their peer review system and the Canadians should go through theirs, so the issue of double jeopardy was such a problem that in
the end, despite the fact that the Canadians were prepared to pour a lot of money into a bilateral scheme, the UK could not pick the other end up. Something went badly wrong there.

**Q232 Chris Mole:** Can I finish then with looking at metrics. Professor Casselton mentioned the progress in French and German investment and when we look at the UK share in international co-publications you can see what has been happening there; is that the right metric for measuring international collaboration, and how do you measure the success impact of international activities within your own organisation?

**Professor Casselton:** It is a good measure of international collaboration, yes.

**Q233 Chris Mole:** That example.

**Professor Casselton:** Yes, at one level. Sometimes it is difficult in that international collaboration occurs without funding and so some of the best laboratories are talking to each other, but it is a good measure of how much collaboration is going on and it is one that people like China—and I do mention China a lot today because we have been surrounded by Chinese for the past two days—they are very, very conscious of what it means in terms of publications and that is what they want, good publications with good collaborators.

**Dr. Anderson:** It is different for the British Council. It goes back to the point that we are seeking different outcomes. The problem with science metrics and the British Council is that if we look at the standard performance measures of numbers of co-authored publications or the leverage of downstream funding from the framework programme or whatever, whilst in themselves they are very good measures—as Lorna is saying, within the British Council there is a 'so what' factor because these metrics do not relate particularly well to our outcomes. What has been interesting is that OSI and the Foreign Office recently collected evidence about collaborations in China and India, and if you do a retrospective analysis you will discover, going back 10, 15, 20 years, that a lot of these collaborations which are now so important started out as a British Council travel grant or something like that. That is a very useful measure because it demonstrates that a relationship has been established which has worked in the long term and has led to an increase in scientific output.

**Q234 Chris Mole:** I am not sure if you are saying that is a metric you have or you should have.

**Dr. Anderson:** It is one we are working on.

**Chairman:** On that note I will bring this session to an end. Professor Casselton, Dr Bernie Jones and Dr Lloyd Anderson, thank you very much indeed for coming before us this morning; we have very much enjoyed our exchange with you.
Wednesday 20 June 2007

Members present

Mr Phil Willis, in the Chair

Linda Gilroy
Dr Evan Harris
Dr Brian Iddon

Chris Mole
Dr Desmond Turner

Witness: Professor Sir Keith O’Nions, Director General of Science and Innovation, Department of Trade and Industry, gave evidence.

Q235 Chairman: Welcome to this second part of the Science and Technology Select Committee’s evidence session this morning, this time on International Policies and Activities of the Research Councils. We are delighted to have as our witness this morning the Director General of Science and Innovation, Professor Sir Keith O’Nions. The Committee agreed that we would look at overarching themes in our review of the Research Councils and this has turned out to be a particularly interesting one. As Director General of Science and Innovation, what role do you play in actually influencing the UK’s international research activity?

Professor Sir Keith O’Nions: Let me say that I agree totally with the remarks that you make. I would draw on three statistics which I think highlight just how international our activities are. In terms of papers—published papers, cited papers—we are up at close to 40% of those now which are internationally authored from the UK, and that has been increasing quite rapidly. Getting on for half of our PhD students in the UK are international or from a non-UK source. If you look at business R&D in the UK, I think the present number is around 45 to 48% of all of the R&D spend in business in the UK which is through investment of overseas-located companies. So it is thoroughly international and is becoming increasingly international. Given that, my vision, as it were, is that an international dimension and strategy should really be embedded in all of the delivery agents that we have—the Research Councils, the Academies—and should be a part of normal business, and we should have a very clear strategy from those organisations. This probably needs to be clearer than it has been in the past all round, and we are asking Research Councils to produce much clearer strategies for each of them and an overarching one for RCUK. I therefore think that should be embedded. Perhaps I may add that we are, within a few days, establishing the new Technology Strategy Board, at arm’s length in Swindon. Obviously that is occupying a lot of time, but we need quite soon to turn our attention also to the international dimension of its activities, and we have not done that so far. Over and above that, I think that organisations, particularly the Research Councils, need to plan for some financial flexibility; because in numerous cases it will be necessary to earmark a particular increment of money to either start a new relationship with a country where we do not have strong relationships, or jointly to fund a particular project. My vision then is that this is deeply embedded, with enough flexibility to be earmarking particular funds for strategic purposes, for new relationships or strengthening the existing ones. Fundamentally, however, it has to be part of the way we do business.

Q236 Chairman: In terms of, for instance, the resources you put to the Royal Academy of Engineering and to the Royal Society, are there strings attached to those in terms of international activity?

Professor Sir Keith O’Nions: Yes, to the extent that the Royal Society has a formal UK responsibility for particular international relationships; it would propose to us a budget for that and we would agree that budget. In terms of the detail and the mechanisms of that—

Q237 Chairman: You leave that?

Professor Sir Keith O’Nions: We are fairly confident that they know what they are doing. If we felt that they did not, we would intervene more.

Q238 Chairman: You would step in. There is no doubt, and I think that every inquiry we do now really points us in the way of international collaborations and international activities. Science is a global activity, and trying to pretend that it is not seems to be a rather pointless activity. What is your vision, as, if you like, the key person here in terms of the UK’s international research activity?

Q239 Chairman: There is a real tension here, and we have picked it up in this inquiry, between your role and your responsibility, that we only fund the very best science, and yet having international collaborations which, if you like, are seed-corn

1 Note by the witness: The actual figure is 30%.
funding with countries which may not necessarily have the best science, but they are a pathway into collaborations which can have huge benefits later on. How do you actually manage that?

Professor Sir Keith O'Nions: I think that we square the circle. Let me give you a specific example. We have had a scheme called Science Bridges with the United States latterly, and the aim of this was to make institution-to-institution relationships—the Cambridge-MIT was the grandest of all of these. I think that there is an important role for those, but to meet the requirements by the particular projects that are ultimately funded they really must be of an international standard. For example, the Science Bridges we have in the US at the moment has particular projects in health research in Texas; it has things on aerospace and composites with University of Washington; but the projects that are being undertaken are clearly of international standard. I think that is how we square the circle. I do not think that we would ever ask Research Councils or an Academy to be funding things that were demonstrably second-rate.

Q240 Chairman: The other comment that we have received is that sometimes the speed of response, because of the way in which we evaluate research programmes, does not allow you to make the sorts of more immediate responses to international collaborations, and therefore we lose opportunity. Are you aware of that, and is there anything we can do about that?

Professor Sir Keith O'Nions: Yes, I am, and I think that it is a fair comment to some extent. There are two responses to that, looking to the future. There is the one I have pointed to, the vision I have for more financial flexibility in the way in which the Research Councils plan strategically, such that they are able to earmark money and respond quickly. The second thing is—no doubt you have encountered this problem in the inquiry—there is always a risk of double jeopardy. Our Research Councils are working quite hard to develop memoranda with other countries that clearly avoid double jeopardy. Our Research Councils are working quite hard to develop memoranda with other countries that clearly avoid double jeopardy. Double jeopardy can put enormous time delays in things, and we have numerous examples of them; e.g. funding is available in the UK but the funding source in China is still held up. We have numerous examples of that sort. The only way we can deal with them is by better MOUs and understandings with other organisations.

Q241 Dr Harris: Do you think that we are held back, in terms of creating international partnerships, by the lack of mobility of UK researchers—for example, language skills? There is a separate question about what you could do about that, but I would be interested in your view on it.

Professor Sir Keith O'Nions: I do not have an analysis of it, but my instinct says that we are not seriously held back, given that English has become pretty much the lingua franca of science. I think that in many organisations around the world one can use English. There are some cultural issues that may impinge on this. Historically, it has been quite difficult to get enough UK people to go to Japan, for example, where there has been a greater uptake and willingness of Japanese to come here. I think that does have something to do with language and culture. It may not affect their ability to communicate with scientists in the lab and do the research; it is the broader difficulty in some countries of surviving in everyday life without foreign language ability.

Q242 Dr Harris: You say that English is the lingua franca of science, but it is more appealing to UK scientists to go abroad if they think that they will be able to communicate with the non-scientists that they come across, and even some of the scientists. Do you speak foreign languages yourself fluently?

Professor Sir Keith O'Nions: None well, a couple very badly.

Q243 Dr Harris: I am interested in the European angle. There was a debate a couple of days ago in this House, looking at the implications of the Green Paper from the Commission on the European Research Area. Do you think there are particular things that the UK has to do to grasp the opportunities set out in that vision, in order to make sure that our people are as mobile and able to take advantage of levered-in funding through the ERA as other countries?

Professor Sir Keith O'Nions: Are you again thinking in terms of language skills here?

Q244 Dr Harris: I am just talking generally. Moving on from language skills, what about the mobility of young scientists and the ability for them to be able to be funded abroad?

Professor Sir Keith O'Nions: I think that there are a great number of things in place across the Research Councils and across the Academies that do encourage mobility, and I think that the UK community is highly mobile actually. I believe that the evidence you have had from the Research Councils shows that—and they are rather different—each Research Council does have various schemes to promote mobility, mobility in research, to give the opportunity for people to travel. The Royal Society has had a very effective system of grants for conferences and laboratory visits internationally. I think that we have been rather well-off in that area in the UK, even though it is quite disparate perhaps in how it is handled across seven different Research Councils and the Academies.

Q245 Dr Harris: Do you think that we are pretty mobile because in many of the research disciplines we are pretty male?

Professor Sir Keith O'Nions: We are . . . ?

Q246 Dr Harris: We are pretty male. So if women were better represented in some of the physical sciences, you might find the mobility of scientists restricted because of the failure for there to be mechanisms and funding to enhance mobility of people with caring responsibilities or families.
Professor Sir Keith O’Nions: I am not aware of serious gender difficulties at the early career stages, PhDs, post-doctoral, early career.

Q247 Dr Harris: I will send some of my constituents to your house to tell you about it!

Professor Sir Keith O’Nions: Please do. You may have a specific example, but I am not aware of any study or analysis—and I am not saying that you are incorrect. I am just not aware of any study showing that, if you take an area where women are extremely active in science—in the medical and biomedical sciences—is there any significant difference in the mobility, in terms of conferences and so on. There are other sorts of difficulties, further on in career for women, for example, that still have quite a long way to go to sort that out in universities and research institutes, but I do not think it is at the earlier career stage—but that may be my lack of awareness.

Q248 Dr Harris: I note your response.

Professor Sir Keith O’Nions: You may be sending your constituents to my front door!

Q249 Dr Harris: Maybe one day this Committee will look into this.

Professor Sir Keith O’Nions: It would be a good thing.

Q250 Dr Harris: I think that it would be a good thing too. Finally, the EU Framework Programme—how important is that, do you think, in dictating UK strategy?

Professor Sir Keith O’Nions: Very. The EU Framework has been immensely important. It would be responsible for a large part of the increase of multi-authored international papers, because most of the Framework Programme has funded multiple-country contracts. The amount of money in the Framework, €50 billion, the amount of money that is likely to go into the European Research Council, will have increasing impact on what we are doing and how we should align ourselves in the UK.

Q251 Dr Iddon: Sir Keith, how has the Global Science and Innovation Forum developed UK international research activity, in your opinion?

Professor Sir Keith O’Nions: I think that for the first time it brought together around one table all of those responsible for international activities in science, including DfID. It has helped us get a much better understanding of what we do. I am not sure there was anybody who could reel off all of the activities that we were involved in internationally across Research Councils, other government departments, and so on. I think that has been hugely beneficial. It has pointed the way forward in a number of areas, in which there have already been responses. For example, one of the things that came out very early on was the need for the Research Councils to improve the interface they have with other countries. Not that there was poor science going on, but the interface was not as fluid as was desirable or indeed what other countries have achieved. There is the establishment of the RCUK offices. There is the one in Washington later on this year, almost a one-stop shop if you like, co-located with the FCO science and UKTI staff. There will be one in Beijing later this year, and the ambassador in Delhi has been very helpful in trying to establish one there early next year. I would say that has come out of GSIF, plus considerations of branding—which sounds the sort of thing you may not do in science. We have many fellowships across the system, which we do not sell as a single brand—as something comparable perhaps to a Humboldt Fellowship. Having some branding of international fellowships from the Royal Society to Research Councils, therefore, will be helpful and give greater clarity to what is available in the UK to people in other countries. I would say that it has set us off in the right direction, including the much stronger relationships now between international development funding and our Research Councils. There is a grouping that has been formed as a result of that which I think will produce much better alignment. I therefore think that it has been wholly positive.

Q252 Dr Iddon: Are you suggesting by what you have just said that there is quite a lot of collaboration now with DfID?

Professor Sir Keith O’Nions: The Research Councils are collaborating with DfID research and development, yes. You may have some of the details of that in the submission from the Research Councils, but I am very happy to give you any additional information we have on that.

Q253 Dr Iddon: Sir Keith, what is your role in GSIF? Professor Sir Keith O’Nions: A.N. Other! I am a member of GSIF and I participate as one of the members. Clearly, with the budget responsibilities I have, I am in a fairly strong position to nudge the system forward on the back of GSIF recommendations.

Q254 Dr Iddon: Are you aware that there has been some criticism made in the evidence we have received about the low profile of GSIF and also the FCO network? Professor Palmer of Warwick University, for example, has said that GSIF is “so low-profile that it is just not visible to academics and research supporters in universities”, and the same gentleman has also been critical of the low profile of FCO networks. It appears that the people who should know just do not know about these matters. How can we increase the profile of both?

Professor Sir Keith O’Nions: I think that is a fair remark. GSIF does not have any executive function. It is rather like Funders’ Forum, which brings together the Research Councils, the charities, and so on. I do not think that its profile has been strong externally. It has not done what Funders’ Forum has done and had town meetings, put minutes on a website, and so on; but I suspect you would find people who say that the profile of Funders’ Forum is somewhat below the radar. The strength of these organisations is what people go off and do, on the basis of their considerations. If GSIF is going to
have an ongoing role, then the way in which its profile would be increased would be by having, following Funders' Forum, an open meeting once a year with stakeholders, putting minutes on the website and engaging more in that way.

Q255 Dr Turner: Has anybody assessed the effectiveness of OSI's activities in the international context? For instance, how important in this area are the high-level links, such as visits by yourself or Sir David King?

Professor Sir Keith O'Nions: It is very difficult to quantify the value of visits, but you know how much you lose if you do not make them. Obviously, responsibility for an international dimension is very central to Dave King's role; to cement relationships internationally and to develop them. I think that is extremely important. In my own role, I tend to make international visits where I think that there are real things that the UK needs to understand from another country, or where deals are to be made. For example, I was in the United States not many weeks ago. We signed an agreement with NASA on a collaborative arrangement for technology development. That was a specific purpose. I also spent time in southern California. I was particularly interested in understanding the way in which universities there engage with the business community in knowledge transfer, how venture capitalists came in. The University of San Diego has a system called CONNECT, which has been extremely effective in developing the biotechnology industry in southern California. Something like that has been enormously valuable to OSI and how we think about the future in knowledge transfer. I think that has been my role—and I could roll off another series of visits, but they are of similar ilk.

Q256 Dr Turner: The Year of Science—a lot of people seem to think that it has been quite successful. What benefits have you seen from it? How do you think we will follow it up and sustain the effort?

Professor Sir Keith O'Nions: The key point is the second one. I think that it has been successful in profile-raising all over the place. We have very successfully raised our profile in China. I made a visit to China not very long ago. It is quite easy to wind up the system and increase the profile; the challenge is always in sustaining it, because sustaining it usually requires investment and requires a number of organisations to be making these connections.

Q257 Dr Turner: Who do you think should be responsible for that?

Professor Sir Keith O'Nions: Primarily, the responsibility has to be with those organisations that have the resources to develop this. For us, I think that is principally the Research Councils and the Academies. The stimulus and some of the winding-up can come from within government or a government department; but to get any continuity of this, any continuity of funding, or that sort of flexibility of funding that I alluded to right at the beginning, that has to be part of the planning horizon of Research Councils and the Academies. In detail, it requires a lot of experience and knowledge of the research areas and the research opportunities, and that largely is not in government; it is largely there in the universities, the institutes and the Research Councils.

Q258 Dr Turner: What evidence do you have that the overall level of government funding is sufficient for OSI to be effective internationally?

Professor Sir Keith O'Nions: I do not think that being effective, or more effective internationally than even we are at the moment, is a matter of money. I think that we are sufficiently well resourced to do that. Going back again to my first point, I think that it is a matter of having a very clear strategic approach and flexibility in financial planning, in Research Councils and elsewhere, to deal with it. Fundamentally, however, I do not think there is a real problem of money. Almost half of everything that we do already has an international dimension; so it is not that we need a very large increment of additional money to be international. That is actually already there. I think that it is a matter of strategy, coherence and flexibility in planning.

Q259 Dr Turner: One issue that was raised with us by the CCLRC in its dying days was that the Government was not being sufficiently proactive to ensure that international facilities were hosted in the UK, thereby British science achieving the benefits of that.

Professor Sir Keith O'Nions: Some people do hold those views. I actually disagree with them quite profoundly. I think that the UK has been extremely sensible in the way in which it has approached an area which is becoming increasingly international and increasingly costly. The formation of a Large Facilities Road Map in 2002 has been an example the UK has set which Europe has followed with ESFRI—there is an ESFRI Road Map with 30-odd potential programmes in it. Aligning the UK road map and the European Road Map is the next task. The CCLRC's advice on a specific area that was of interest to it, on neutron sources, was that we should be looking for a European strategy—which I think is right. My view, therefore, is that we have the correct approach to this. These are very expensive facilities, and you need to have very clearly thought-out reasons for those situations where you will invest probably 50% of the capital and ongoing costs and host them in the UK, rather than contribute to an international source. I think that an ad hoc approach to this is very risky.

Q260 Dr Turner: What you have not told us, Sir Keith, is whether we are likely in the foreseeable future to be hosting any of these facilities, such as the spallation source that CCLRC wanted.

Professor Sir Keith O'Nions: As we go into the future, I believe that we will host additional large facilities. There are some big beasts in the road map, like the fourth-generation light source aspiration—a successor. We are already investing heavily in
Professor Sir Keith O’Nions: Yes, I do. Given that half of everything we are doing is international anyway, I think that it is a bit beyond the wit of man to say at this point, “We need X per cent of Research Councils’ budgets available for international activities”. Over the period of the next two or three years, however, there will be opportunities that can be met with some flexibility in resource.

Q263 Linda Gilroy: Again, I know that follow-on funding has been mentioned, and it does seem to be the one thing that we keep coming across. We have come across it in our investigating the oceans: that people can take part; they can go to things, but it is the actual follow-on and making the linkages there that seem to be the weak point.

Professor Sir Keith O’Nions: We use follow-on funding in two ways. We use follow-on funding for knowledge transfer, commercialisation—

Q264 Linda Gilroy: Yes. This is follow-on to having established initial links through international one-off or perhaps one or two events that they have been to, and then following through on links that they have made there.

Professor Sir Keith O’Nions: By and large, if you are making links, for example with the United States, as a result of some initiative on climate change and so on, if that research is going to get funded it has to be of top international quality, and it should not just be earmarked so that, whatever the quality is, we will do it. The bigger risk there is the double jeopardy issue. On the last trip I made to the US, I was talking to the National Science Foundation about trying to achieve an overarching MOU for collaboration with the National Science Foundation, for example, that removes some of those things and avoided our having 30 or 40 different MOUs for every project we were trying to achieve.

Q265 Chairman: I think that the one key thing we would take out of this session, Sir Keith, is this issue of co-ordination and the need to drive it. What we constantly come back to with our oversight of the Research Councils is how do we bring these things together, and is RCUK effective enough in driving that co-ordinated, collaborative approach. You seem to be very conscious of that as an issue.

Professor Sir Keith O’Nions: I am conscious of it. I am conscious of the critical remarks, that have some justification. RCUK was the right move to build that overarching body. It has found its feet very well and I believe that it will produce a “strategy of strategies”, if you like, which will move things along. I am conscious of it because it does put the onus on RCUK to produce that level of coherence. It is now quite a well-established body, but quite a lot is hanging on RCUK’s ability to pull that off.

Q266 Chairman: You are confident?

Professor Sir Keith O’Nions: Yes, of course I am.

Chairman: On that very positive note, we again thank you very much indeed, Sir Keith, for coming before the Committee.
Written evidence

MEMORANDUM 1
Submission from Evidence Ltd

SUMMARY

The UK’s exceptional relative international performance in science and technology, reflected in the data we present in our annual report to the Office of Science & Innovation, should make it an ideal research partner for many other countries. Other data confirm that international collaboration is expanding very rapidly, as are the domestic research bases of countries such as China, India and Iran. That means that not only are opportunities for international partnerships increasing but also the diversity of likely outcomes will increase: there will be new approaches to research as well as a greater global knowledge pool. The UK has a good share of international collaboration, but it is not as strong as might be anticipated, it is not expanding as rapidly as some countries, and it is less consistent in the biomedical areas where the UK has a position of world leadership on research quality. The UK might benefit from a more assertive approach to collaboration and from promoting the mobility of its own researchers as well as encouraging visits from elsewhere.

BACKGROUND

1. We note that the Science and Technology Committee has decided to hold an inquiry into the international policies and activities of the Research Councils. We are submitting this note and attachments to the Committee so that it is aware of emerging evidence relevant to that inquiry and on which we are currently working for UK Government offices but which is not yet in the public domain.

2. Evidence Ltd works for the Office of Science & Innovation (OSI) and individual Research Councils, and for the Higher Education Funding Councils (HEFCs) and HE Institutions in analysing their research activity and performance in order to support better management of their research portfolios. For OSI, we have produced the annual Public Service Agreement (PSA) target indicators on the “relative international performance of the UK research base”. We also publish the UK Higher Education Research Yearbook, which this year included a Foreword from the Chief Executive of HEFCE.

3. Evidence has particular experience in using bibliographic and bibliometric data (data on publications and their citations) to analyse research activity.

4. We are currently carrying out work for the Foreign & Commonwealth Office (FCO) Science and Innovation network, to evaluate changing patterns of UK collaboration with China and India. We have just completed work for OSI on “international patterns of research collaboration” but this remains unpublished at this time.

RELATIVE INTERNATIONAL COLLABORATION

5. In current work for OSI and the FCO S&I network on international collaboration, which should be published later in 2007, we find that the UK has a well developed network with other leading economies but it is not expanding its collaborative links as quickly as some competitors. This is noticeable in considering links with China and India.

6. Research collaboration can be measured by analysing inputs (money), activity (the numbers of projects and the numbers of people involved) and outputs (publications).

7. It is difficult to assign funding to international activity because many collaborative links draw not only on dedicated funds but on separate funding held by one or both partners. This is particularly true of bottom-up collaboration, driven by researchers’ desire to be involved in high-quality or particularly innovative research, whereas the dedicated funding that emerges from top-down collaboration initiatives tends to be driven by policy priorities. Thus, on balance, analysing dedicated funding may concentrate more on the research platform than the research peaks.

8. On project and people numbers, it is difficult to validate data and acquire useful international comparisons. We simply do not know the substantive value of a “visit” of a researcher to or from a laboratory in another country. We do not have the information on the pattern of movement for other countries.

9. Publication data are therefore the key evidence of international collaboration, because researchers do not freely give away co-authorships so where a paper carries addresses from more than one country we know the data is likely to be valid. Databases provide ready international comparisons, and data can quickly be aggregated by field. Furthermore, the associated citation data allows us to attach quality measures.
10. The main data source is Thomson Scientific®, which covers around 8,700 journals of international standing. About 35% of 700,000 catalogued research articles published by UK-based researchers over the last ten years have a co-author from another country. The rate of international collaboration has increased progressively, but the UK has a slower rate of increased collaboration than some of its competitors.

11. The UK has a record of close collaboration with the USA. About 30% of its international links are with that country.

12. The UK also collaborates closely with France and Germany. Its links with Germany have expanded more rapidly than those with the USA (1.5 vs 1.4 for 2001–05 compared with 1996–00, see table below). The relative increase in collaboration for France and Germany with the UK is greater than it is for them with the USA (France 1.39 vs 1.31, Germany 1.50 vs 1.37). The leading European nations have therefore increased their relative interaction, which is likely to be a consequence of EC cohesiveness measures.

**RECENT INCREASE IN COLLABORATION (RATIO 96–00/01–05) MEASURED BY CO-AUTHORSHIP OF RESEARCH PUBLICATIONS**

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**Collaboration Outside the G7**

13. The UK has good and growing links with both China and India and, as a research-excellent partner, should be well positioned to build on these. However, Germany is increasing its general rate of collaboration with both countries more rapidly than the UK (table above).

14. For the UK, in many science and technology fields the rate at which collaboration is increasing is slower than that for other major research economies. The problem is therefore pervasive.

15. The UK has particular research strengths in the Biological sciences.¹ China and India have thus far focussed much of their expansion in the Physical and technological sciences. (for example, China published 132,000 papers in Physical sciences in 2001–2005 compared with 28,000 in Biological sciences; the UK published similar numbers in the two areas, as did the USA). It is essential that the UK places itself in a good position to capitalise on its existing competency so as to take advantage of the opportunities for collaboration that will appear as China and India move into the bio-medical area.

**The Benefits of Collaboration**

16. International research collaboration provides access to larger pools of innovative ideas, emerging knowledge and highly trained people. The work it produces also has “value added”.

17. In a study carried out for Sir Gareth Roberts’ study of “International Partnerships of Research Excellence”, Evidence demonstrated that both UK and US research partners gain added value from their collaboration compared with their domestic outputs.

18. We have now extended that analysis and created an Impact Profile™ to illustrate the overall gain made by the UK through its international links over the last ten years. The unpublished note on this is attached. A related analysis on five-year windows will be included in the current work for OSI.

19. It is quite clear that significant value accrues to international collaborative work, but it is important to disaggregate the reasons for this. Perhaps the most important factor is opportunity cost: researchers only spend time and resources to create links when they look promising at the outset. The exception to this is when national agencies put up money for such links, when the researchers’ goal changes and becomes the acquisition of a share of the inputs rather than the outcomes.

**Researcher Mobility**

20. China offers not only “more” research but also “different” research. There is a growing research base in Iran which will offer further challenges to western research paradigms. The UK can acquire knowledge of what China and Iran are doing, albeit belatedly, by reading what they publish. It can only find out how and why if it actively collaborates and, particularly, if UK researchers travel to and work in China and Iran as well as those researchers travelling to the UK.

21. In 2004, in a report published by the Higher Education Policy Institute (HEPI), we used bibliographic data to track the career pathways of samples of individual highly-cited researchers from a number of countries (highly cited researchers are those who have an exceptional number of publications that are recorded as being in the most-cited 1% of world publications).²

22. Rather than indicating problems of “brain drain”, which had been repeatedly claimed, we showed that the typical pathway for the highest performing UK researchers was to spend some time overseas—particularly in the USA—before returning to the UK to pursue a successful career. By contrast, the few USA researchers who left North America tended not to return.

23. We argued that international research mobility not only contributed to individual career development but also conferred significant national benefit. Evidence has noted that some smaller countries with profiles of exceptional research excellence are associated with relatively high levels of researcher mobility. A notable example is Switzerland where most elite researchers have spent time abroad and where national research performance is world-leading in some fields, which is unusual for a relatively small research economy.

24. We suggest to the Committee that it is essential that more UK researchers should be encouraged to spend time overseas at an early stage in their career. UK research mobility is better than some countries but is not exceptional in European terms, and the UK is therefore losing the opportunity to gain from making contacts with and learning lessons from others.

25. Contacts made early in a researcher’s career also lead to collaborative links which are then maintained for life. This enables the UK to tap into innovative research across a global network and to gain value form investments made in other economies.

THE RESEARCH COUNCILS AND OSI

26. We have not sought to comment on the current international initiatives run by the UK Research Councils but to provide evidence to contextualise the significance of the Committee’s inquiry.

27. For the same reason, we have not provided full details from our report on international collaboration to OSI. OSI will wish to convey its own views when it has had an opportunity for due reflection and interpretation. However, with OSI’s agreement, we could supply more detailed information if this is useful to the Committee.

OVERVIEW

28. We have been analysing UK research data for over ten years. Research is an increasingly global activity and both knowledge and knowledgeable people are sourced globally. If the UK is to maintain the competitive edge that we have demonstrated in our annual reports for OSI, then it must do so by ensuring that it is intimately linked to the most research-active economies elsewhere. We suspect that this will not be done by open-ended agreements on the development of cultural links but through much more specific compacts on clearly identified research objectives supported by tangible resources and with clear and substantive benefits to each party. Allied to this must be programmes that motivate UK researchers to work in those partner countries and thereby to further UK understanding of those research cultures and enhance our ability to interact. Relying on links maintained primarily by visits of others to the UK, where their objective is to learn about UK research culture but not to convey their own, will no longer suffice.

April 2007

MEMORANDUM 2

Submission from the Deafness, Cognition and Language Research Centre, University College London (DCAL)

1. DCAL (the Deafness, Cognition and Language Research Centre) is one of a number of social science research centres funded by the ESRC. Research Centres are major investments in one or more of the ESRC’s priority themes. They are funded for an initial period of ten years, subject to a satisfactory mid-term review. Selection is based on a competition steered towards one or more of the themes, with peer and merit review processes involved.

2. DCAL comprises a series of thematically linked research projects, each directed by a senior researcher, with Professor Bencie Woll as Centre Director. The five specific themes of DCAL’s research are (1) Language processing; (2) Face-to-face communication; (3) Language development; (4) atypical sign

² http://www.hepi.ac.uk/pubdetail.asp?ID = 181&DOC = Reports
language—developmental and acquired disorders of sign language; and (5) the deaf individual and the community. The study of communication and cognition in deafness is used as a model for the broad study of human language—its origins, development and processes.

3. DCAL has a budget of around £4.2 million for the first five years of its activity (2006–10). DCAL is based at University College London and is affiliated to the departments of Human Communication Science and Psychology within the Faculty of Life Sciences. There are four directors; nine post-doctoral research staff; four administrative staff; 12 associated research staff; and ten research students. Eight of the current research staff and five of the research students are from outside the UK;

4. While some opportunities for international collaboration have been effected through Research Councils, our experience as senior scientists responsible both for scientific programmes and for training new scientists, is that initiatives founded in European funding have generally been more successful in fostering international collaboration at all levels than those based from UK Research Councils. However, the level and amount of bureaucracy involved in the various framework schemes, and a perception of less than transparent assessment and appraisal, have often deterred would-be UK applicants from major involvement—even where a good scientific case could be made.

5. The picture concerning outcomes from such schemes is mixed. On the whole, graduate and postgraduate training seem to have been more successful in fostering genuine international cooperation at the highest level, whereas Euro-wide projects in life and social sciences show a more patchy profile in terms of value for money, whether assessed in relation to scientific advance or closer collaboration between possible partners.

6. In relation to postgraduate study, the UK is losing out competitively, particularly in comparison to the USA, because of the limited funding available to support overseas students. Inevitably there are more applicants seeking opportunities for post-graduate study in the UK than in other countries, for both academic and linguistic reasons. Although the ORS and Dorothy Hodgkin Scholarships provide a degree of assistance, European applicants are disadvantaged by Research Council restrictions on subsistence allowance funding and the competition among applicants from outside the EU means that there is insufficient or no funding available for many highly qualified applicants. In our own area of work, this problem is particularly acute for applicants for studentships who are themselves deaf since we are especially committed to capacity building and training of deaf researchers who may be unable to obtain appropriate places for study in their own countries.

7. Among very useful UK small schemes are those funded by the Royal Society and similar learned societies: typically these are unbureaucratic and are seen to work efficiently. Similarly, overseas scientific foundations including the Max Planck Institutes, Human Frontier Science and MacArthur Foundation have been more successful in supporting genuine international cooperation at the highest level. These are seen to be driven by top-level science, with commensurate prestige and clarity, rather than by a variety of competing social and economic pressures.

April 2007

 MEMORANDUM 3

Submission from Professor Shaun Quegan, Director of the NERC Centre for Terrestrial Carbon Dynamics (CTCD), University of Sheffield

SUMMARY

1. NERC's current strategy clearly states the need for international cooperation and it has supplied funds specifically to support this.

2. NERC administers the ESA Earth Observation Explorer Programme funding and affects the content of the programme mainly by the quality of the ideas its scientists produce, but also through pressure within the ESA EO Programme Board.

3. NERC correctly expects Centres and Programmes to consider the international dimension as a routine part of their planning, and should take this into account when judging their success.

4. NERC could be more proactive in its approach to supporting major international treaties, such as the UN Conventions on Biodiversity and Climate Change, and the Kyoto Protocol, that have huge implications for the environment. This needs a long-term vision, developed with DEFRA, and mobilisation of the NERC community.
WHO I AM

I am the Director of the NERC Centre for Terrestrial Carbon Dynamics (CTCD), one of six Centres of Excellence in Earth Observation (EO) set up by NERC in the last five years. Previously I directed the Sheffield Centre for Earth Observation Science, and prior to that I ran the Remote Sensing Applications Group at Marconi Research Centre, Great Baddow. Currently I am a member of ESA’s Earth Science Advisory Committee and NERC’s Earth Observation Expert Group (and its replacement, the EO Directors Advisory Board). I’m also an invited member of the Terrestrial Observations Panel on Climate and the Japanese Space Agency Kyoto and Carbon Advisory Group. From 2001–03, I was a member of the BNSC Earth Observation Programme Board.

This evidence is written from my limited perspective in which I deal exclusively with NERC and with CTCD’s interactions with NERC as regards international policies and activities.

FACTS AND OBSERVATIONS

1. NERC’s current strategy “Science for a sustainable future” is very clear on the need to work closely with other national and international funders and users of environmental science, and they have been prepared to support this aspiration. For example, in 2005, NERC announced a new temporary scheme whose objective was to deliver high impact, international actions & activities aligned to NERC’s Research and Collaborative Centre and Directed Programmes. The call for this scheme noted that “all NERC Programmes should have well defined international dimensions incorporated as part of routine programme planning. However Council has recognised these activities may need boosting and has allocated a temporary fund: the NERC Programmes International Opportunities Fund is a funding opportunity intended to stimulate and enhance international collaboration & co-operation within NERC Programmes”. Total funding was £2.4 million over four years, and CTCD benefited greatly by being selected to lead an International Collaboration on Data Assimilation in Terrestrial Carbon Cycle Science; this is continuing, and allows staff interchange, workshops and organizational support for collaborative projects. The UK has also benefited from NERC financial support for involvement in the European Science Foundation “Role of Soils in the Terrestrial Carbon Balance” programme, at CTCD’s request.

2. Interestingly, the current draft NERC strategy (attached) is much weaker on international context and international cooperation (for example, its section on climate makes no reference to the definitive international reports on the Global Climate Observing System and its implementation) though this may reflect the process of producing such a draft, and it is likely to change after consultation with the community (closing date 16 April 2007).

3. NERC has responsibility for handling the UK’s contribution to the ESA Earth Observation Explorer Programme (EOEP), which is a major area of international cooperation. NERC’s influence on the use of this funding is exerted through the ESA EO Programme Board, and this has been used to good effect over recent years, possibly because of alignment between many of the recommendations of the 2005 EOEP Science Review (in which I was a Panel member) and UK aspirations. NERC (as with other countries) has only an indirect influence on the science carried out under the EOEP, since missions are selected from internationally peer-reviewed responses to Announcements of Opportunity. However, the UK does well though this route: it provides the lead scientist on the Cryosat mission (Duncan Wingham), and, in the six missions currently being reviewed for the next Core mission, the UK provides lead proposers on two (BIOMASS and PREMIER, respectively rated as numbers 1 and 3 in the initial assessment).

4. NERC provides good information flow as regards EU FP7 opportunities though regular e-mail communications and events.

5. As part of their criteria for success, NERC stipulates that its Centres show international competitiveness. One of the ways Steering Committees tend to judge this, included in their reports to NERC, is by their impact on international programmes. This indirect way to promote international cooperation is probably appropriate, as long as it is factored into assessments of the success of Centres and Institutes.

6. I’ve progressively come to feel that NERC could and should be more proactive in its approach to supporting major international treaties, such as the UN Conventions on Biodiversity and Climate Change, and the Kyoto Protocol, that have huge implications for the environment. Real concern for the environment would seem to oblige NERC to be actively supporting science targeted at the developing needs of these treaties. My perception is NERC pursues a more passive approach (at least in the areas I know about), perhaps because this is seen as in the policy arena and hence more the concern of DEFRA. There is some wisdom in that. However, clearly, long-term research programmes, tempered by the foresight of DEFRA but very much within the remit of NERC, could greatly help in developing the necessary evidence base and the community involved in providing it. NERC has a lot of resource through committed people to offer in this regard, but it needs to be mobilised. It should be noted that the NERC QUEST programme has adopted such a proactive, directed approach in its recent Biosphere Management call.
RECOMMENDATIONS

1. The success of the NERC Programmes International Opportunities Fund should be evaluated and the need for a further call should be considered against strategic criteria (which should emerge from the new NERC strategy).

2. NERC should be encouraged, with DEFRA, to articulate its position and approach as regards support for major international environmental treaties, and how this will be translated into NERC science programmes, if at all.

April 2007

EXECUTIVE SUMMARY

1. Our evidence covers UK research in computing, which is internationally strong and vigorous, and a major national asset. Researchers in computing already work with colleagues overseas and we foresee continuing growth in the scale and spread of our international collaboration.

2. RCUK provides excellent support for overseas collaboration. We encourage EPSRC to continue seeking ways to reduce the overheads and potential “double jeopardy” when bidding for such funding.

3. UKCRC has established a programme of “Grand Challenges” in computing, as a focus for international collaborative research. It may be useful to explore whether this approach should be more widely adopted.

4. UK researchers derive great value from the EU Framework Programmes of collaborative research. We do not believe that any further support from RCUK to stimulate UK participation is needed, or desirable.

5. We support the establishment of the European Research Council (ERC). We recommend that RCUK should establish good relationships with the ERC, not excluding the possibility of some strategic funding in the early years.

6. There is little visibility among computing researchers of the role of Defra, DfID and the FCO in overseas collaborative research, though we are much aware of the support available from the Royal Society and other learned societies, and the Wellcome and Leverhulme Trusts.

7. There appears to be no need to stimulate international mobility of researchers.

INTRODUCTION

8. The UK Computing Research Committee (UKCRC), an Expert Panel of the British Computer Society, the Institution of Engineering and Technology and the Council of Professors and Heads of Computing, was formed in November 2000 as a policy committee for computing research in the UK. Its members are leading computing researchers from UK academia and industry. Our evidence reflects the experience of researchers who each have an established international reputation in computing.

9. The UK has always been exceptionally strong in computing research: the first modern computer was developed at Manchester University and ran its first program in June 1948; since that time, the UK has played a part in almost all the scientific and engineering advances in computing. Computer systems have transformed modern life, but computing is still a young discipline and the world is still in the early stages of discovering, inventing and exploiting its full potential. UK computing research remains world-class3, and is a national asset that enhances the UK’s international prestige, attracts inwards investment, and supports innovation for wealth creation and improved quality of life.

10. World-class researchers need to collaborate with other world-class researchers, and this is particularly important in a research field such as computing which is developing rapidly and where there is considerable international activity. The main countries for collaboration are still the USA, Canada and Australia, because of the strength of their science and the benefits of a common language, but there is significant and growing collaboration with other countries, in Europe and in Asia.

11. Three years ago, UKCRC introduced a programme to identify the Grand Challenges in computing: major open questions whose solution would be a major scientific advance and where there are grounds for believing that a major, international effort over a decade or more could make a breakthrough. Grand Challenge programmes already underway can be found on the Internet at http://www.ukcrc.org.uk/grand_challenges/current/index.cfm.

3 This has been confirmed by successive EPSRC International Reviews, the latest of which reported earlier this year.
12. UKCRC members have very strong experience of working with EPSRC and with European programmes. Our evidence should be assumed to refer to EPSRC except where explicit reference is made to other funding agencies.

**The Strengths and Weaknesses of Existing Research Council and OSI Mechanisms and Activities to Maintain and Promote International Collaboration**

13. It is important to distinguish between collaborative research projects, and the important but less resource-intensive collaboration through short-term visits to (or by) international colleagues.

14. One of the biggest problems relating to international collaborative research projects is the double jeopardy with respect to funding. In the past, UK computing researchers submitted their proposal to EPSRC and the overseas collaborators submitted to their funding organisations. Each organisation had their own procedures and priorities for funding, so the chances of both proposals successfully being funded were quite low. This tended to deter researchers from applying for this type of funding.

15. Section 5.1.6, “Collaboration with the World” of the recent EPSRC International Review of Information and Communication Technology (ICT), available at http://www.epsrc.ac.uk/CMSWeb/Downloads/Other/ICTIntReviewReportV2.pdf, is strong on the need for US research linkages, and notes that experience with Framework Programmes has been “mixed”. EPSRC has recently stated they will try to set up arrangements with the National Science Foundation (NSF) in the USA and with similar international organisations, so that a collaborative proposal only requires approval by one of the funding organisations and then both accept that result. This type of agreement is essential for substantial research collaboration but such agreements are not easy to set up; they are needed with other countries such as Canada, Japan, Korea etc. We strongly support EPSRC’s efforts to facilitate such collaborative research.

16. EPSRC does provide support for travel grants and visiting Fellowships which can be used to initiate collaboration, but such grants are not sufficient to support any larger-scale collaborative projects.

17. Although the UK Research Councils have effective methods for providing funds for travel grants, workshops and visiting researchers, they have to be applied for in a form identical to that for other, usually much larger, responsive mode grants. This creates delays and overheads that are disproportionate to the value of the grant, and we would prefer some other method with a quicker turn-around time and lighter peer reviewing.

18. We recommend that negotiations for international collaborative research in Computer Science should be focussed on an agreed list of Grand Challenge topics like those described above. We draw special attention to the proposed initiative in Verified Software (an offshoot of GC6), which has already been the subject of intensive international scientific discussion. It is likely to feature among the early candidates for support by any new scheme.

**International Collaboration Through the European Framework Programme, Including Resources Enhancing Partnership Between the Research Councils and European Agencies in the New Framework 7 Initiative and the Provision of Resources to Stimulate UK Participation in International Programmes**

19. The Framework Programmes are very valuable to UK researchers and this is shown by the level of involvement of UK researchers in successive FPs.

20. UK scientists benefit greatly from the current range and choice of sources of support. We get more than our juste retour from the EU programmes, so it would seem that there is no need for the UK Research Councils to do more to stimulate UK participation. Research funding is a marketplace and, by bidding for EU Framework projects, researchers are demonstrating that the percentage of full economic costs (FEC) provided by the EU (70% of direct costs plus 60% overheads) is sufficient to justify their involvement. The UK has already provided its due share of research funding to the EU Framework, and we see no need nor benefit in additional top-up funds as this would inevitably mean that less research was funded overall.

21. The new European Research Council (ERC) has been created to support the best European researchers with less red tape and greater flexibility than Framework Programmes offer. Several UKCRC members have worked over many months to ensure that fundamental and basic research could be funded without the complexities of the standard Framework funding rules. The rules do not require cross-border co-operation, in fact single groups can be funded in one institute/university. Nor is industrial collaboration required, although it can be included if it will benefit the research. We recommend that RCUK should establish good relationships with the ERC, not excluding the possibility of some strategic funding in the early years.

22. EPSRC funds groups of researchers to visit a number of overseas institutions with the possibility of setting up collaborations—for instance, there were recent visits to India and Japan. However following this up with real collaborative projects has been difficult for reasons outlined above.
23. EPSRC has travel grants that can be used to help initiate EU grants and other international collaborations. EPSRC are very flexible in their attitude to using travel funds that are included in existing grants to support meetings to set up new international projects in areas relating to the current grant. In our view there is no need for any additional support.

The Effectiveness of Collaboration Between the Research Councils and the Government Departments Involved in International Scientific Activities, Including the OSI, Defra, the Foreign and Commonwealth Office’s Science and Innovation Network and the Department for International Development

24. There is little visibility among computing researchers of the role of Defra, DFID and the FCO in overseas collaborative research, though we are much aware of the support available from the Royal Society and other learned societies, and the Wellcome and Leverhulme Trusts.

The Impact of the Research Councils’ Policies on the International Mobility of Scientists and Engineers

25. There appears to be no need to stimulate international mobility of researchers—the UK’s researchers are traditionally some of the most mobile in the world, and foreign researchers always constitute a large part of the application list for any RCUK funded post; it is usual that most of the research assistants in the leading departments are foreign nationals.

26. The travel grants and visiting fellowships available from EPSRC and elsewhere provide adequate means of supporting the international mobility of scientists and engineers.

April 2007

MEMORANDUM 5
Submission from the Department for Environment, Food and Rural Affairs (Defra)

Summary

This paper sets out evidence from the Department for Environment, Food and Rural Affairs (Defra) on the international policies and activities of the Research Councils. It highlights Defra’s engagement with the Research Councils to promote UK participation in international collaborative research particularly through the various mechanisms available in the EU’s Framework Programme. Specific areas of research are included as examples of where the Research Councils, Defra and others are collaborating, including climate change, global biodiversity change, flood management, air quality, and waste. This is not exhaustive and areas where there is direct Defra involvement only are covered—information on Research Councils’ international bilateral activities, for example, is not included.

Introduction

1. The core purpose of the Department for Environment, Food and Rural Affairs (Defra) is to improve the current and future quality of life. Our mission has been defined as enabling a move towards “one planet living”—reducing the overall footprint of our society to a level consistent with long-term global sustainability. To be successful in this mission, we must deliver effective, fit-for-purpose policies and work with others to foster and enable change, using a robust and diverse range of evidence.

2. Work to meet this challenge includes our policy and scientific leadership on climate change and the natural asset base, to which work on sustainable development, eco-innovation, and understanding behaviour all contribute. Other areas of responsibility are contained in our Five Year Strategy, such as animal health and welfare, the sustainability and safety of the food chain, water, waste, marine and rural policy, and environmental risks.

3. The knowledge required for policy-making purposes comes from a range of expert disciplines and constitutes a major area of activity, with approximately £330 million of programme expenditure4 and over 260 professional staff in the core Department and many more in our wider network. We draw on the research resources of our laboratory agencies—the Centre for Environment, Fisheries and Aquaculture Science

4 This includes approximately £150 million of research and development, a similar amount of monitoring and surveillance, as well as lesser expenditure on analysis and advice.
4. While a distinction can be made between some of the fundamental research undertaken by the research community through the Research Councils and the more applied research for policy funded by Defra, collaboration with others is becoming increasingly important, both in terms of those organisations who commission research of interest to Defra, and in promoting the better use of our funded research by other policy-makers and opinion formers. This is important because of the need to be more effective with our science budget and because of the role that must be played by other players in achieving our policy goals.

5. Collaboration includes that with the UK Research Councils, in particular: with the Biotechnology and Biological Sciences Research Council (BBSRC) and its institutes with a view to developing better strategic understanding on land-based research and to facilitate adjustment to lower levels of Defra investment in traditional areas of agricultural science, taking a longer-term view of our evidence needs; the Natural Environment Research Council (NERC) with which we engage closely on a range of globally important issues, in particular on climate change; and with the Economic and Social Research Council (ESRC), for example in establishing a joint post-doctoral fellowship scheme to increase our analytical capacity.

**DEFRA’S RESPONSE**

6. For Government departments with policy and regulatory duties that are heavily influenced by EU and international agendas, engagement in international science is important because it promotes the UK’s policy interests directly and influences European and other international decisions. Being able to collaborate with others in addressing common policy challenges through joint research, exploit the complementary strengths of different national research programmes, or achieve the critical mass needed to fund large-scale projects is important. Where possible, therefore, the UK needs to increase its efforts to engage in collaborative research activities using the available mechanisms to overcome potential barriers.

7. One mechanism for promoting such collaborative activity is the Government’s Global Environmental Change Committee (GECC), a UK Inter-Agency Committee, chaired by Defra, which reports to the Government’s Chief Scientific Adviser through the Global Science and Innovation Forum (GSIF) and the Chief Scientist’s Advisory Committee (CSAC). GECC helps to co-ordinate UK involvement in the science and technology of climate change and other global environmental change, both nationally and internationally. It aims to ensure that UK government policy is informed by a robust science base. BBSRC, the Engineering and Physical Sciences Research Council (EPSRC), NERC, ESRC and Medical Research Council (MRC) are members of GECC. The GECC’s Global Biodiversity Sub-Committee (GBSC) has responsibility for identifying significant gaps in scientific understanding of global biodiversity change and for proposing options for addressing them, including through collaborative programmes with the EU and other international players. GBSC is chaired by Defra and membership includes NERC, ESRC and BBSRC.

8. The Research Councils play an important role in developing the “European Research Area”, particularly through promotion of and participation in the Seventh EU RTD Framework Programme (FP7). The Research Councils were active during FP7 negotiations, and both BBSRC and NERC worked closely with their science communities and with Defra (and also the Food Standards Agency) providing significant input to the development of the Co-operation themes of most interest to the Department—“Environment (including climate change)” (ENV) and “Food, Agriculture and Fisheries, and Biotechnology” (FAFB). This included input towards the development of the UK lines for negotiations and through direct influencing of other Member States and the European Commission. The inclusion of these themes in FP7 is an improvement on the preceding Framework Programme (FP6) and is a good result for Defra and the Research Councils, in that environment has its own theme with dedicated funding (£1.9 billion) and agriculture and fisheries have been re-introduced into a major theme (£1.9 billion).

9. With FP7 up and running and the European Commission’s calls for proposals for the 2007 work programmes in place, the Research Councils play an important role in promotion of the programme and in supporting participation by UK researchers. Both NERC and BBSRC provide support to the National Contact Points (Defra and the Food Standards Agency (FSA)) for the FAFB and ENV themes, including the co-hosting of awareness-raising events. This is supplemented by the important work of the BBSRC managed UK Research Office (UKRO) in Brussels through its early publication of opportunities, education of potential UK participants and direct contact with the European Commission on issues such as simplification and rules of participation.

10. The Research Councils play an important role in the development of the FP7 work programmes themselves and in ensuring that UK priorities are covered as far as possible. Both NERC and BBSRC provide valuable input to the work of the Programme Management Committees for the ENV and FAFB

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5 “Examining the Design of National Research Programmes” commissioned by the European Commission as part of the wider activities of CREST in relation to the application of the Open Method of Coordination identified 21 barriers to programme coordination at the “policy level”, “programme level” and “project level”.

(Cefas), the Central Science Laboratory (CSL), and the Veterinary Laboratories Agency (VLA). These agencies provide world-class, strategic expertise and facilities in areas of science with direct relevance to Defra’s remit.
themes respectively, working closely with Defra and FSA in these areas. Through the UK’s Framework Programme Network the research councils are also able to make a valuable contribution to Framework Programme management issues and the development of the UK position on horizontal issues.

11. Research Council institutes have long been active participants in the Framework Programme and in collaborative activities with other research providers from across Europe and wider. The Sixth Framework Programme (FP6) introduced for the first time the possibility of financial support for the networking of funders of research through the “bottom-up” ERA-NET scheme. This has provided opportunities for programme managers in Government departments and the Research Councils to share information on strategic activities and best practice with other leading European players in their fields, adding value to domestic research programmes and enabling the pooling of national budgets to fund projects of common interest. NERC and BBSRC have both been active in ERA-NETS covering significant areas of research such as (of relevance to Defra) biodiversity, marine science and plant genomics, with joint calls for transnational research already launched in some areas.

12. The Framework Programme is seen as a major tool for achieving the EU’s 2005 Lisbon objectives, and the 2002 Barcelona Council aim of increasing the European research effort to 3% of the EU’s GDP by 2010. However, it is highly unlikely that this target will be achieved due, in part, to the required increase in industry-funded research not being realised. In response to this the European Commission has encouraged the development of industry-led European Technology Platforms (ETPs), which have been established to define medium to long-term research objectives and priorities and consider strategic issues in areas where Europe’s competitiveness depends on major technological advances. The ETPs are influential in terms of how funding within FP7 is being directed so it is important that they include an appropriate range of stakeholders. Research Councils have been involved in the stakeholder consultation by some ETPs, and it is important that they maintain an influencing role, such as through their participation on the ETPs on Global Animal Health, Farm Animal Breeding and Reproduction and Plants for the Future.

13. In the area of flood management, Defra and the Environment Agency work closely with the EPSRC, contributing £1.5 million to the EPSRC’s Flood Risk Management Research Consortium (FRMRC), which has a total budget of around £5m, and with NERC on its “Flood Risk from Extreme Events” (FREE) research programme (£6m). FREE is compatible with and complements the applied research of the FRMRC, and both programmes look to engage with relevant research opportunities and initiatives funded by the EU, such as the Framework Programme, to achieve their objectives.

14. Defra funds a large amount of work which feeds into evidence that underpins development of international air quality policy. The most significant input is work undertaken to support the UNECE Convention on Long Range Transboundary Air Pollution (CLRTAP). As part of an agreement under the Convention, Defra funds around £300k pa on this activity through task forces, expert groups and international co-operative programmes. Generally, the UK is considered as one of the most proactive countries under the Convention and our contribution to the whole process has been significant over the years. Much of the Defra funding goes to the Centre for Ecology and Hydrology (CEH) and, although value from the NERC core funding of CEH is gained indirectly, the mechanisms for direct support from NERC for this work are not in place.

15. In terms of waste and resources research, Defra collaborates with the Research Councils at national level for example through EPSRC, NERC and ESRC representation on the Waste and Resources Research Advisory Group (WRRAG). However, potential for collaboration with the Research Councils at EU and international levels is largely untapped but presents an opportunity to bring together research outputs in specific areas. Defra is developing a web-based research portal on waste and resources research which will facilitate collaboration between the Research Councils and Defra and will be made available internationally. Links also exist on WRRAG to raise awareness of international research opportunities such as those through FP7.

16. In 2005, the EU resurrected the Standing Committee on Agricultural Research (SCAR) with a renewed mandate to play a major role in the co-ordination of agricultural research efforts across Europe. The Committee is taking this forward on a number of fronts, including the establishment of Collaborative Working Groups (CWG) that aim to exchange information on national programmes and develop joint calls for research. BBSRC is a participant on the CWG on Animal Health, which is co-ordinated by Defra and involves 21 SCAR partner countries. This is an area with considerable scope for increased national programme co-ordination not least because most disease threats are common to various EU Member States, and collaboration would allow an integrated approach utilising the different expertise in Member States, and the possibility of sharing costs in what can be an expensive area of research (eg containment facilities, genome sequencing etc.).

17. In conclusion, collaboration between research providers has long been supported by mechanisms such as the EU’s Framework Programme, COST and programmes provided by organisations such as OECD, and the Research Councils have played, and should continue to play, an important role in supporting the UK researcher participation. Their influence on the development of FP7 work programmes should also continue to ensure that UK priorities are being addressed where appropriate.
18. In recent years, there has been an increasing focus on collaboration between research funding organisations and the coordination of national research programmes, and this impacts on the Research Councils and other funders directly. The potential benefits of better coordination of national programmes are wide-ranging, such as the avoidance of unnecessary duplication of effort, achieving the critical mass needed for large-scale projects, and the potential to address common challenges through a common evidence base, so participation by the Research Councils is important. Even where external financing for this is available (eg through ERA-NET funding) such collaboration can require significant investment of effort upfront so it is important that the resources needed for this are made available.

April 2007

MEMORANDUM 6

Submission from the Foreign and Commonwealth Office (FCO)

EXECUTIVE SUMMARY

1. The FCO has contact with the Research Councils (RCs) on international priorities and activities through the overseas Science and Innovation Network (SIN), the Science and Innovation Group (SIG) and the Polar Regions Unit (PRU).

2. The RCs are key stakeholder for the SIN and understanding the priorities of the RCs is crucial to having an effective collaborative relationship. Collaboration is good but there is scope for greater understanding. Mechanisms are in place to ensure there is a strong two-way communication of priorities and expectations. SIN is keen to work more closely with RCs.

3. On UK polar policies, the FCO suggests the UK science community should focus resources on science issues of current concern at international meetings. This science should deliver rapidly in order that science advice to be fed into policy decisions.

INTRODUCTION

4. The evidence is provided in respect of:
   — The strengths and weaknesses of existing Research Council and OSI mechanisms and activities to maintain and promote international collaboration, and;
   — The effectiveness of collaboration between the Research Councils and the Government Departments involved in international scientific activities, including the FCO Science and Innovation Network
   — The impact of the Research Councils’ policies on the international mobility of scientists and engineers

5. This submission describes two important examples of the relationship between the FCO and RCs. Firstly, it sets out the interactions between SIN/SIG and the RCs. Secondly, it describes the more specialised relationship between the PRU and the British Antarctic Survey (part of the Natural Environment Research Council).

RESEARCH COUNCIL INTERACTIONS WITH THE SCIENCE AND INNOVATION GROUP AND THE SCIENCE AND INNOVATION NETWORK

6. The FCO’s main contact with the Research Councils (RCs) on international policies and activities is through the SIN and the SIG. The FCO established the SIN in 2000 as part of HMG’s overall science strategy. There are now over 100 officers in 42 missions in 28 countries across the world. The SIG in London coordinates the Network and ensures that science is factored into FCO policy-making where appropriate.

7. The SIN and the RCs work together in many ways:
   — On visits to host countries
   — Providing access (through the SIN’s contacts) to a country’s science base
   — Providing access (through the RCs’ contacts) to the UK science base
   — Exchanging intelligence on UK science priorities from the RCs and on other countries’ priorities from the SIN
   — Responding to fact finding requests
   — On specific projects or initiatives eg UK/China Partners in Science
RC collaborations with SIN

8. The SIN’s experiences of working with RCs are broadly positive. For example, in China the UK/China Partners in Science initiative resulted in strong links between the RCs and the SIN China team. Outcomes of the first phase of activity, of benefit to both the RCs and the FCO, include:
   — The signing of several new Memoranda of Understanding between the RCs and Chinese research organisations, formalising arrangements for exchanges and cooperation
   — The launch of an ongoing series of meetings to establish collaborations in space technology (STFC)
   — Workshops on foodborne pathogens (BBSRC), climate change (NERC), cancer research (MRC), spintronics (EPSRC), astronomy (STFC), synchrotron radiation (STFC), e-Science (EPSRC), and polar research (NERC)
   — An agreement between the MRC and the National Centre for Drug Screening in Shanghai to collaborate on drug discovery in malaria research
   — Participation of RC-funding scientists in press briefings and networking events involving senior Chinese scientists, policymakers and funding agencies.

9. Examples of positive collaborations from other countries include:
   — In India the RCs provided names of peer reviewers for the UK-India Education and Research Initiative (UKIERI). Discussions are underway about more active RC involvement in future UKIERI programmes.
   — In Japan the SIN team worked closely with NERC to enable three British researchers to be based in Japan for three years at the Earth Simulator supercomputer to collaborate on climate modelling.
   — In France the SIN team have been working closely with EPSRC on a maths (representation theory) initiative. EPSRC are developing a UK which they will support in collaboration’s with their French equivalents. An MoU is expected to be signed in September 2007.
   — The USA SIN team has supported visits from senior representatives from several RCs, including EPSRC to look at models for interdisciplinary research, BBSRC to benchmark its work against various groups in the US and the MRC to benchmark scientific expertise and look at policy priorities.
   — The German SIN team is in regular contact with STFC regarding two German-led international science projects (XFEL and FAIR) for which the Germans are seeking to attract international funding.

Current UK International Strategy

10. In October 2006 the Global Science and Innovation Forum (GSIF) published its international strategy for the UK Government as a whole. Both SIG and the RCs are represented on this forum and were involved in the development of the strategy. It is now for the SIN, RCs and the other members of GSIF to take forward the recommendations in the strategy.

11. To complement the GSIF strategy we welcome the development of an international strategy for the RCs that is currently underway. This will provide the SIN with a clear framework for its interactions with the RCs and again increase our understanding of where we can most effectively work with the RCs.

12. We also welcome the proposed establishment of an international team within the RCUK secretariat. This will undoubtedly benefit the RCs. We hope it will also provide a clear communication channel between the RCs and their key stakeholders (including SIN and SIG). We look forward to working with this team.

The relationship between RCs and the SIN

13. The RCs are a key stakeholder for the SIN, since they hold the UK science funding budget and are charged by the UK government to invest this in areas of UK priority. Therefore, the SIN needs to work closely with the RCs to form effective collaborations for the UK with partner countries, and to pursue opportunities which are in line with the RCs’ priorities and strategies. Each RC organises its international engagement in a different way, and the SIN therefore needs to understand each Council to be able to help effectively with RC international engagement. They also need to be able to explain these differences to contacts in their host country.

14. The above points can be addressed through clear communication between RCs and SIN/SIG. Communication between the SIN and RCs about ongoing in-country activities eg new MoUs or events, is particularly important to be able present a joined-up UK to the host country. Two way communication about the UK priorities and host-country priorities is important to ensure that the SIN is not spending time initiating collaborative activities which the RCs will not want to take forward.
15. Communication has generally been good and is getting better. It is being addressed in several ways:
   — SIG attends the Research Council International Network meetings, which bring together the international teams from all RCs with some key stakeholders. This is useful and minutes of this meeting are distributed to the SIN
   — SIN conferences and familiarisation courses for S&I officers always include a session with RCs, providing an opportunity for RCs to explain their priorities and to discuss working together
   — Key RC announcements/documents are distributed to SIN through an extranet system and weekly updates
   — The FCO has recognised the RCs as being one of its 10 key stakeholders and a representative from SIG is the FCO stakeholder manager for the RCs. This provides a clear point of contact for the RCs to access the wider FCO and in particular the SIN.
   — As part of Recommendation 6 of the GSIF Strategy, GSIF members (including the RCs) were invited to provide feedback to each SIN post’s business plan for 2007–08.

16. There have been a few occasions where SIN officers have received different information from the RC international team and the relevant RC programme manager. SIN attaches have worked successfully both through international RC teams and directly with relevant RC programme managers, and will continue to do so. The international teams in most RCs are very small and are not resourced to have in depth knowledge of all the projects the RC is running, so communication with the relevant programme manager is essential.

17. In countries with the largest SIN teams, SIN officers are often responsible for managing client relationships in specific areas, which correspond to RC priorities. This should enable greater co-ordination with the RCs.

18. It is important that both the SIN and the RCs recognise that each has several other stakeholders in the international arena, and that expectations need to be carefully managed. The SIN needs to recognise that the RCs will have particular target countries and areas of research, and these may not match up with the opportunities that the SIN has identified for potential collaboration within countries. Equally, the SIN has to make its limited time and resources available to all its stakeholders.

19. The SIN would like to work more closely with the RCs. In particular the SIN recognises more could be done on engaging with ESRC. The research that ESRC funds will often touch on the issues generated from the priorities the SIN focuses on eg stem cell regulation and ethics, science in public policy, S&I for security/behavioural research.

20. The SIN would like more information from RCs on their country by country priorities so that it can focus on these in the specific countries. This would enable more effective collaboration between the SIN and RCs but also between RCs and the host country.

21. The SIN has a role to add value to the RC interactions overseas. However there are many cases where RCs already have good relations with their in country interlocutors and the SIN’s involvement would not add any value. In these situations the SIN does still need to be made aware of any outcomes in order to present a joined-up UK government to that country. This is crucial to avoid situations where by not knowing about development SIN could damage relations with important contacts.

RCUK INTERNATIONAL OFFICES

22. RCUK is in the process of establishing its first overseas office based in Beijing. The China SIN team has worked very closely with RCUK and the RCs on this project. The SIN has provided key interactions with the Chinese government, identified the office building location and arranged for its rental, been part of the project team from the start and involved in scoping the role, budget and programme. It is hoped the RCUK office will work in close co-operation with the China SIN team to build on recent activities (especially the UK/China Partners in Science initiative) to extend the UK’s reach into the Chinese scientific community and institutional research base.

23. There are important differences between the role of the SIN and the RCUK overseas offices. In China it is important for the SIN team to have credibility with the Chinese government as well as with the research funding community. The RCUK office will be able to interact directly with the research funding bodies. It is separate from HMG and in that way raises the profile of research in the UK in a similar way to the German or French research funders who already have offices in China.

24. RCUK is planning to open another overseas office later in the year in Washington. Again the Washington SIN team has been critical in putting mechanisms into place for the delivery of this project. The Washington RCUK office will have a different focus from the China office and the number of opportunities that are available to collaborate with US funding agencies, eg NIH, NSF and DoE, warrant the establishment of this RCUK office.

25. RCUK is also considering setting up an office in India. Discussions are at a preliminary stage but again the India SIN team is closely involved.

26. The SIN recognises and agrees with the importance of raising RCUK presence abroad. However, it is essential that the UK is, and is seen by other countries to be, joined up.
Barriers to Increasing the UK’s International Collaboration

27. Not all countries fund their research in a similar way to the UK. Some countries would prefer (because of how they organise their science funding) to have a clear fund for bilateral collaborative R&D. This differs from the UK system which works on the basis of getting the best value for money through a bottom-up system of research funding. RCs need to be fully aware of these differences and their effects on achieving international collaboration. The SIN can provide in-country expertise on these issues and work with the RCs to overcome any difficulties.

28. Related to this issue of bottom-up funding is that it can be difficult to obtain comprehensive data on the amount of collaborative funding the UK has with a specific country. This has implications for “selling” the UK as a collaborative partner for science and there will generally be more collaboration underway between the UK and a specific country than that country is aware of.

29. Additionally, there is the issue of “double jeopardy” where international research collaborations often have to gain approval for project funds from two (or more) agencies in two (or more) countries. The probability of failure multiplies with the number of approvals required, and the fact that often agencies’ countries’ timings for calls are different, means that it can take a long time to find out the result of project bids. We suggest that RCs look more closely at the possibility of running joint calls or synchronising the timing of calls to reduce the impact of “double jeopardy” and encourage further international collaboration.

SIN/SIG Conclusions

30. Overall collaboration between the SIN and RCs is good; the successes far outnumber any difficulties. There are still opportunities for increased understanding both ways of priorities and aims but this is being addressed.

31. The RCs are key stakeholders for the SIN and understanding the priorities of the RCs is very important to having an effective collaborative relationship. To achieve this clear communication is essential, and many mechanisms are in place to ensure there is a strong two-way communication of priorities and expectations.

32. The SIN welcomes RCUK establishing international offices and looks forward to working closely with RCUK during both the set up and operational phase.

33. The SIN would like to work even more closely with the RCs, in particular the ESRC, whose priorities will touch on many of the key priorities for the SIN. In particular the SIN would like more information from RCs on their country by country priorities so that it can focus on these in each specific country.

Research Council Interactions with the FCO Polar Regions Unit

34. The British Antarctic Survey (BAS; part of the Natural Environment Research Council) has a two-fold mission:
   — to undertake a world-class programme of scientific research; and
   — to sustain for the UK an active and influential regional presence and a leadership role in Antarctic affairs.

The latter part of this mission statement contributes directly to the Foreign and Commonwealth Office’s obligations under the Antarctic Treaty System and its wider policy for the South Atlantic. BAS provides a permanent presence for the UK in the British Antarctic Territory and South Georgia. Experts from the British Antarctic Survey are actively involved in the UK’s Delegations to the Antarctic Treaty Consultative Meetings and the meetings of the Commission for the Conservation of Antarctic Marine Living Resources, and are given full rein in the scientific mechanisms aligned to these Treaty institutions.

35. The ability to call upon the expertise of those within a dedicated research institute, such as BAS, underpins the FCO’s objective to uphold the UK’s prominent profile and ensure that the UK is central to all decision-making within the Antarctic Treaty System. There is often a great deal of scientific uncertainty raised in the Antarctic context, partly because there is still so much unknown about the continent and its complex processes. In this respect, the ability of the UK to call on experts within an integrated inter-disciplinary scientific institute has enabled the UK to maintain a leading role in policy discussions. BAS’s active engagement in international collaborative work adds to the UK’s standing and influence within the Antarctic Treaty System.

36. However, all elements of the Treaty System have been expanding considerably over recent years, and consequently so has the demand for scientific input and advice. There is a clear distinction between science undertaken as a result of larger core peer-reviewed programmes and the more applied science required to provide for the scientific input to international treaty mechanisms. For the UK to maintain its influence and status within the Antarctic Treaty System, it will therefore be important to ensure that this type of specialised scientific and technical advice continues to be readily available and that it can keep pace with the political agenda.
37. The UK's polar interests are clearly heavily weighted towards the Antarctic, in light of our sovereign interests. However, the International Polar Year (IPY) 2007–08 is focusing the world's attention on the importance of scientific research in both polar regions and the UK is playing an active role in IPY scientific activities, which will complement existing international collaboration. In respect of the Arctic, UK scientists are actively involved in research and the UK maintains a small research station in Svalbard, Norway (funded by the Natural Environment Research Council). The UK is an observer to the Arctic Council, which was established in the mid-1990s as a mechanism for the eight Arctic States to engage on regional issues, particularly climate change impacts, environmental protection and maritime transport. The Arctic Council has established working groups to provide technical and scientific advice to inform policy development. The UK is invited to send experts to these working groups, but as the UK does not have a public funded Arctic research institute, it is less straightforward to identify and fund attendance of scientists or technical experts.

Polar Research Unit Conclusions

38. In respect of the UK's polar policies, the FCO would suggest that the UK science community needs to devote resources to more focused and specific science that responds to the issues raised of current concern at international meetings. Crucially, this must deliver rapidly, so that scientific advice can be factored into emerging policy decisions. Without the provision of science to adequately address current topics in a timely manner, there is the potential danger of policy-making overtaking science, rather than being influenced by it.

April 2007

MEMORANDUM 7
Submission from the University of Warwick

Summary

Broadly speaking, the University of Warwick is concerned that the Research Councils and the OSI do not give a high enough profile to international research collaboration. We believe that their policies and activities do not consistently support international research collaboration and that too little is done to encourage the participation of international collaborators in research applications.

The strengths and weaknesses of existing Research Council and OSI mechanisms and activities to maintain and promote international collaboration.

1. The University can identify examples of good schemes and initiatives but, overall, it seems to us that the profile of the work Research Councils do to promote international research collaboration is not high and that evidence of good support mechanisms is patchy.

2. There are some excellent examples of the Research Councils promoting international collaboration. The EPSRC has been very helpful in helping in the development of links with China, India and Japan using international network awards. We would also highlight the recent Agence Nationale de la Recherche (ANR)-BBSRC agreement, which appears to be very interesting but possibly somewhat bureaucratic, and the ESRC's work in establishing bilateral agreements which have had a beneficial effect and are increasing in scope. The AHRC's policy of giving bigger network grants if they involve collaborators from particular countries is also a welcome development.

3. However, the extent of Research Council links with funding bodies abroad seems to be limited. The Research Councils could usefully raise the profile of their activities in support of international collaboration with more schemes to encourage strategic partnerships with centres of excellence worldwide, perhaps using the ESRC's bilateral agreements as a model. We also believe that Research Councils' reporting of their international activities is poor, even where the activities themselves are exemplary.

International collaboration through the EU Framework Programme, including resources enhancing partnership between the Research Councils and European agencies in the new Framework 7 initiative and the provision of resources to stimulate UK participation in international programmes.

4. Again, there is good practice but not across all Research Councils. For example, both the EPSRC and the ESRC offer small grants or visiting researcher travel grants to support the establishment of networks. These schemes are necessary for minor amounts of money but are crucial in providing seedcorn funding for large research projects. These schemes are welcome but, in particular, the EPSRC's application process is overly bureaucratic given the sums involved. This means that researchers apply for funds from other
institutions, such as Regional Development Agencies where the requirements are less onerous, or they do not apply at all. The ESRC’s scheme is targeted towards “large asset holders” but is extremely light touch in terms of application procedures.

5. Our experience is that not all Research Councils have supported the development of networks for FP7. For example, the AHRC has not offered any sort of travel or project preparation grants for FP7 nor has it run any tailored information sessions for researchers.


6. In our opinion, these collaborations are at a high level and are either not visible at university level or their benefits do not seem to filter down.

THE IMPACT OF THE RESEARCH COUNCILS’ POLICIES ON THE INTERNATIONAL MOBILITY OF SCIENTISTS AND ENGINEERS.

7. We believe that, especially in the area of the physical sciences, the impact of the Research Councils has been substantial. This success has been achieved as a result of schemes which are relatively flexible when compared, for example, to similar Royal Society programmes. We would argue for a deepening of Research Council activity in this area and a consistent approach.

IN CONSIDERING RESEARCH COUNCIL EFFECTIVENESS IN COLLABORATION VIA EUROPEAN UNION-LED RESEARCH PROGRAMMES, THE COMMITTEE IS INTERESTED IN RECEIVING EVIDENCE DEMONSTRATING BENEFITS AND DRAWBACKS OF RESEARCH COUNCIL PARTICIPATION IN PREVIOUS AND CURRENT FRAMEWORK PROGRAMMES. THE COMMITTEE IS ALSO INTERESTED IN RECEIVING EVIDENCE ON THE ROLE AND SUCCESS OF RESEARCH COUNCIL SUPPORT FOR FACILITATION OF UK PARTICIPATION IN PREVIOUS AND CURRENT INTERNATIONAL PROGRAMMES.

8. We find it difficult to comment on this topic since we have little evidence of such activity.

April 2007

MEMORANDUM 8

Submission from Rothamsted Research

1. THE STRENGTHS AND WEAKNESSES OF EXISTING RESEARCH COUNCIL AND OSI MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION;

1.1 Rothamsted Research makes considerable use of the BBSRC schemes for international collaboration such as the International Scientific Interchange Scheme (ISIS). This scheme in particular represents great value for facilitating emerging collaborations and providing seed-corn funding for future research projects. The Partnering Schemes are also important and it is recognised that with limited funding available there is a need for specific country focus in order for there to be sufficient resource to deliver meaningful partnerships.

1.2 Rothamsted Research welcomes the launch of the DFID-BBSRC programme, Sustainable Agriculture Research for International Development. This is a good example of a mechanism that will promote international collaboration, and bridge gaps across UK Government Departments. However, it is currently funded only at a moderate level and there is a critical need to build longer-term continuity into this programme.

1.3 The work of the OSI’s Global Policy Team plays an important role in placing UK S&T on the global map through its high level bilateral visits, Joint Commissions and Networking Schemes (eg UKIERI). Rothamsted agrees with OSI’s Global Science and Innovation Forum that mechanisms are needed to support UK researchers becoming fully engaged with the very best research internationally, and allowing them to develop strategic partnerships, through new schemes to link world class UK universities and research institutes with counterparts in China and India, and indeed throughout the world.

1.4 The Research Council and OSI mechanisms do not provide sufficient funding for the development of collaborative research projects and there is an overall shortage of funding that is substantial enough to support important initiatives. This is particularly critical when operating within an FEC funding structure.

1.5 If the UK is to take full advantage of international opportunities, there is need to clarify Research Council’s policies in this regard over the medium to long-term. Research Councils are keen to ensure the all the science that they fund is internationally competitive and yet, with the exception of small amounts of funding for exploratory discussions and workshops, there are no earmarked sources of funding for
involvement in strategically important collaborative trans-national ventures involving the best research groups. Examples of where this could be of great benefit include involvement in large genome sequencing consortia and post-genomic gene function and genome annotation activities.

2. INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK PROGRAMME, INCLUDING RESOURCES ENHANCING PARTNERSHIP BETWEEN THE RESEARCH COUNCILS AND EUROPEAN AGENCIES IN THE NEW FRAMEWORK 7 INITIATIVE AND THE PROVISION OF RESOURCES TO STIMULATE UK PARTICIPATION IN INTERNATIONAL PROGRAMMES;

2.1. The EU Framework Programme is critical for the provision of funding targeted at building European partnerships in research. These partnerships are important for maintaining UK research at the forefront in key areas of international importance. The Framework Programme budget is the minimum to allow sufficient funding for productive research projects covering all areas of importance.

2.2. The new cost models introduced under the Seventh Framework Programme (FP7) are welcome and the 75% maximum EU contribution for Public Sector Research Establishments (PSREs) will enable Rothamsted Research to continue to participate in Framework Programme research projects even with the constraints of full economic costing.

2.3. The UK Research Office in Brussels is an important source of information, guidance and advice. It appears to be extremely well run and has successfully adapted its service to meet the changing demands of the users.

2.4. Mechanisms for participation of third countries within FP7 are unclear. Neither DFID nor DEFRA provide sufficient engagement with this area of the Framework Programmes.


3.1 There appears to be a serious lack of joined-up thinking between the Research Councils and the various Government bodies involved in international research collaboration. Continuity in funding programmes and links between the various mechanisms available are poorly defined.

3.2 There is insufficient coordination and active support for UK involvement in the international research centres (CGIAR).

3.3 The World Summit On Sustainable Development Implementation Fund, provides an example of the above government departments working together. However, this funding is small. This sort of instrument could be expanded on.

3.4 Lack of joined-up thinking results in S&T capacity no longer supported by one department (eg DEFRA) being lost, when other Departments (eg DFID) are eager to access this sort of capacity but lack the mechanisms/instruments to engage.

4. THE IMPACT OF THE RESEARCH COUNCILS’ POLICIES ON THE INTERNATIONAL MOBILITY OF SCIENTISTS AND ENGINEERS.

4.1 There is little encouragement and active support for the mobility of research council employed scientists and engineers.

April 2007

MEMORANDUM 9

Submission from the University of Sheffield

SUMMARY

The University of Sheffield welcomes the opportunity to present evidence to the House of Commons Science and Technology Committee. Our submission is based on the experience of principal investigators who have held both EU and RCUK grants, and who have used RCUK funding to leverage international collaborations or who have established effective international networks.
1.0 INTRODUCTION

1.1 The University of Sheffield is a research intensive university with research income of circa £100 million per annum from a broad portfolio of sources, including research councils, charities, government departments, industry and EU Framework programmes. Using our international networks, such as the Worldwide University Network (WUN), we have been able to leverage funding to enable the international mobility of our researchers in line with our strategic objective to engage with overseas collaborators. We believe that although there are signs that the research councils and OSI policies are changing positively with regard to international mobility, more needs to be done to enable and strengthen joint funding with a variety of international research sponsors including but not limited to, application processes and peer review mechanisms to facilitate joint funding.

2.0 RESPONSE TO THE INQUIRY

2.1 Strengths & Weaknesses of Existing RCUK Policies for Promoting International Collaboration.

2.1.1 A major strength is the recent development of bilateral agreements with other funding sponsors to reduce incidence of “double jeopardy” in relation to comparative international research (eg ESRC). Such schemes are operated under a 70:30 rule, where only one country’s review process is applied provided that no more of than 30% of the funding goes to the other country. Such schemes should be encouraged for a broader range of countries, as in our experience, most of these apply currently within the European countries.

2.1.2 Another strength is that RCUK funding can be leveraged to initiate global multi-disciplinary research initiatives through existing networks such as WUN. For example, the WUN weathering science consortium lead by University of Sheffield and funded by NERC which includes Universities of Leeds & Bristol, Pennsylvania State University and other US associates. Typically, RCUK funding has been used to facilitate collaborations with scientists from North America ie non European collaborations. That there is no barrier to international inclusion in RCUK applications (ie EU researchers on the continent can already apply for RCUK grants), is a strength, however, that this is not generally known nor overtly promoted, is perceived as a weakness.

2.1.3 The funding which RCUK provides for international networking workshops and visiting researchers is perceived as a strength, but the responsive mode application method for this type of funding is perceived as overly cumbersome.

2.2 International Collaboration through EU Framework/RCUK partnerships

2.2.1 Principal Investigators with experience of both RCUK and EU Framework funding tend to believe that RCUK should be wary of losing its autonomy and reputation by immersion into EU programmes. Furthermore, it is held that there is nothing to gain by amalgamation of RCUK and EU programmes. Administrative difficulties have been perceived/experienced by researchers applying for joint RCUK/EU funding with peer review for discrete country specific parts of the project being done locally (eg ESRC/ESF). UK scientists perform well in EU framework programmes, hence there is not perceived to be a great deal of value-added from collaborative programmes.

2.2.2 In our experience, EU Framework programmes tend to be driven by the need to create networks for collaborative, applied research, whereas RCUK (eg EPSRC) calls tend to be driven by the scientific inquiry into a particular, basic research problem and the collaboration, if appropriate, follows. As the fundamental orientation of towards the collaboration is different and requires different supporting and reporting mechanisms (eg semi-monthly with EU versus end of project with RCUK), it is widely held that the distinctiveness between the two should be maintained.

2.2.3 RCUK could encourage more lasting international networks by enabling movement of young scientists by relaxing restrictions on EU students taking up PhD places and by a more positive attitude towards the Bologna process (in order to make exchange at the postdoctoral level more effective).

2.3 Effectiveness of collaborations between RCUK & Government’s international initiatives.

2.3.1 Our academics had little to comment on this point, except to note that whilst some of the research councils (notably MRC) invest heavily in overseas research (eg in Africa regarding HIV Aids and vaccine development), and indeed host research centres overseas, it is difficult to engage with such initiatives without a relationship broker. It is felt that RCUK could act as broker of relationships between UK universities and research centres and other institutions overseas to facilitate greater engagement in the Government’s international initiatives, particularly with reference to China and India. The establishment of RCUK offices in both these countries is particularly welcomed in this regard.
2.4 Impact of Research Councils Policies on International Mobility of Researchers.

2.4.1 The UK is perceived as an attractive place for study by foreign researchers, and it could be assumed that this is due in large part to the work of the RCUK, however, the work of the Royal Society, other learned societies and the Wellcome and Leverhulme Trusts is much more well known in facilitating international research. RCUK would do well to emulate the approaches taken by the charities in promoting international mobility. Furthermore, the recent introduction of incentives for gaining international experience could be facilitated by repatriation grants, which are similar to those currently being introduced by the EU.

2.4.2 RCUK could encourage more lasting international networks by enabling movement of young scientists by relaxing restrictions on EU students taking up PhD places and by a more positive attitude towards the Bologna process (in order to make exchange at the postdoctoral level more effective).

3.0 Conclusions and Recommendations

3.1 In order to improve effectiveness of the Research Councils and OSI’s international policies, the following recommendations are made:

3.2 That RCUK should:

— Continue to develop and employ collaborative application processes with overseas funders thereby making it more attractive for researchers to apply for funding to conduct international research owing to perceived reduced bureaucracy;
— Build on the success of existing and emerging complementary peer review processes and extend these further with overseas funders to reduce “double jeopardy”;
— Improve awareness of the fact that international researchers can apply for RCUK funding;
— Broker relationships with UK and overseas researchers to advance collaboration between RCUK and the Government’s international initiatives; and
— Do more to promote international mobility of individual researchers through incentives such as repatriation grant schemes.

By presenting the above evidence The University wishes to draw the Committee’s attention to the important role that the research councils play in facilitating international research and the mobility for researchers. In doing this we would like to ensure that the Research Councils continue to recognise and support this role and indeed enhance their provision for doing so.

April 2007

MEMORANDUM 10

Submission from the Royal Society

Summary of Key Points

— We do not believe that the international directorate of the Office of Science and Innovation (OSI) and the Research Councils (RCs) allocate sufficient budget to effective international collaboration, or that their existing budget is being used to have maximum impact. The UK cannot remain a leader in science if it does not actively engage with the best science around the world.
— Overall, it is not clear what the international strategies of the RCs are. Although they have a sophisticated strategic approach to their thematic priorities, it would appear that some of the Councils have yet to incorporate a coherent international dimension into their overall strategy. In addition, the RCs need to develop more strategic partnerships with organisations that offer a complementary portfolio of activities designed to be attractive to both overseas partners and the UK.
— We urge the RCs to actively pursue an international strategy which aims to make the UK the partner of choice for scientific research worldwide. This would require some RCs to actively develop an international strategy. International strategies should include the use of dedicated funds for international collaboration and substantial jointly-funded programmes with overseas partners. They should also identify ways to promote UK science worldwide, and seek to implement policies that encourage international mobility among postdoctoral researchers and postgraduate students.
— The OSI International Directorate should continue to devolve funds to the Royal Society and British Embassies in priority countries in order to continue to generate international interest in themed events and grants schemes, which are having a major impact in stimulating international...
collaboration. It should work more closely with the RCs to offer larger funding packages, in conjunction with overseas partners, for high-level bilateral agreements, in addition to the comparatively small packages it currently offers.

— The establishment of the Global Science and Innovation Forum (GSIF), the Core Official Group (COG), which operates below GSIF, the UK Collaborative on Development Sciences (UK CDS) and the Research Councils UK (RCUK) China office, are all developments which the Royal Society welcomes. We hope that these bodies will encourage greater coordination between UK stakeholders, and further promote engagement and collaboration with overseas partners.

The Royal Society welcomes the opportunity to submit evidence to the House of Commons Science and Technology Select Committee inquiry on the International Policies and Activities of the Research Councils.

This document has been prepared in consultation with Fellows of the Royal Society and other leading experts. It has been approved on behalf of the Council of the Royal Society by Professor Lorna Casselton FRS, Foreign Secretary and Vice-President.

The strengths and weaknesses of existing Research Council (RC) and OSI mechanisms and activities to maintain and promote international collaboration

RESEARCH COUNCILS

1. Overall, it is not clear what the international strategies of the RCs are. Although they have a sophisticated strategic approach to their thematic priorities, it would appear that some of the Councils have yet to incorporate a coherent international dimension into their overall strategy. In addition, the RCs need to develop more strategic partnerships with organisations that offer a complementary portfolio of activities designed to be attractive to overseas partners and the UK.

2. The structure of the RCs is overly complicated in comparison to scientific institutions in other European countries and the USA, which are able to present a much more coherent face to the international community. The RCs need to ensure that this does not disadvantage UK science as a brand when working with overseas partners.

3. Some RC grants for international collaboration are only available to scientists who already receive RC funding. This ensures that quality control has already been established (ie their work has already passed peer review) and therefore these international grants are awarded to excellent researchers. However, these researchers are likely to be working in areas which are UK thematic strengths, which may not be priority research areas for overseas partners. It should be a strategic priority to ensure that the UK can also engage with areas of strength in other countries, in order to build up the UK capacity in these areas. It is therefore important to ensure that international opportunities offered by the RCs are designed to be as attractive as possible to both overseas partners and the UK and that the RCs work closely with other organisations to achieve this.

4. In contrast to their European counterparts, most of the UK RCs do not engage in significant jointly funded programmes with overseas partners. Many European RCs have launched strategic, targeted joint schemes or built joint laboratories in specific areas to push forward joint research in topics where partner countries are perceived to have advantages and/or cutting edge capabilities (eg Centre National de la Recherche Scientifique (CNRS) laboratories, collaborations of the German Federal Ministry of Education and Research (BMBF) with India and the German Research Foundation (DFG) Sino-German centre). The UK RCs have not to date engaged strategically in analogous jointly funded programmes, although the opening of the RCUK office in China is a very sensible first step to engaging in this way and scoping future possibilities. Generic extension of this approach will demand a further shift in current policy thinking, along with enhanced intercommunication and joint planning by the RCs and OSI. The provision of substantial funds by the Natural Environment Research Council (NERC) to international programmes such as the World Ocean Circulation Experiment (WOCE), the Joint Global Ocean Flux Study (JGOFS) and the UK’s subscription to the Deep Sea Drilling Programme, has been welcomed by the scientific community.

5. If RCs do not dedicate funding to international collaboration, it makes it difficult for the UK to achieve full impact in its overseas relations. If it is an agreed aim of UK foreign policy to establish ourselves as scientific partners of choice of priority countries around the world, then the RCs should be prepared to back this up with a dedicated budget. Dedicated funding for collaborations with priority countries is not irreconcilable with funding excellent research and the Councils’ high standards need not be compromised.

6. Many of the RCs lack mechanisms for recording information about international collaboration, and it is therefore difficult to quantify the amount of international collaboration which they support. The proposed alumni scheme which will accompany the new International Fellowships programme (see point 8) is a welcome development which will help to ameliorate this problem.

7. Many of the RCs’ criteria for funding projects do not allow for the design of programmes which nurture and sustain science in countries where science is not at an internationally leading level (ie in developing countries). Certain collaborative research projects with developing countries therefore fall outside the funding criteria of the Department for International Development (DFID) and RCs. We recommend that the RCs dedicate some funding to supporting scientific projects in developing countries, perhaps with contributions from DFID, with the emphasis on projects which scientists in the countries
concerned are involved in planning, and which aim to minimize the risk of brain drain to the developed world. We note that the Economic and Social Research Council (ESRC) and the Biotechnology and Biological Sciences Research Council (BBSRC) have started joint programmes with DFID which we welcome (see point 20). The International Mathematical Union, London Mathematical Society and African Mathematics Millennium Science Initiative are pioneering projects supported by the Nuffield Foundation and Leverhulme Trust to mentor research groups in Africa. The Association of Commonwealth Universities might be a useful partner in similar initiatives. The Royal Society’s own long-term programme with South Africa provides another useful model.

THE OFFICE OF SCIENCE AND INNOVATION (OSI)

8. In 2006 the Chancellor of the Exchequer announced a proposed new International Fellowships programme which will be managed by the Royal Society along the lines of the German Alexander von Humboldt Fellowships. This is a welcome step in positioning the UK as a destination of choice for the best international scientists. We look forward to working with the RCs and other scientific organisations to develop the accompanying alumni programme.

9. The Royal Society’s Networking Themed Events, which are supported by funding from the OSI International Directorate, have been extremely successful in bringing together high-level experts from the UK and priority countries on themes as diverse as pandemic influenza, plant conservation, climate change and innovation, and have generated significant international interest. This has generated many ongoing collaborative projects, exchange of researchers, and has acted to showcase the best of UK science to selected countries around the world.

10. The fact that the OSI International Directorate devolves some (small) funds to the Royal Society or British Embassies in country is a positive and sensible strategy as the funds are therefore managed by bodies with credibility and experience in running grant schemes. Together both organisations can produce a better impact from these events than each could achieve on its own.

11. The OSI signed bilateral agreements with partners in China, India, South Africa and South Korea to establish networking schemes with each country, with the Royal Society running the UK side, to develop enduring partnerships between the UK and scientists in these countries. Under each of these agreements, both sides agreed on the need to bring together excellent scientists in bottom-up networking, in which the event themes are decided upon by the researchers. The sums that the OSI International Directorate provide under joint S&T agreements with these countries are very small. For example, funds provided for the networking schemes run by the Royal Society for China and India are in the region of £100–150,000 per year. These amounts can be perceived as derisory by the partner Ministries, who, in negotiating with OSI, may expect to be negotiating with the holders of significant research budgets (i.e. the RCUK budget). It is difficult to convince potential international partners of the UK’s commitment to collaborative projects with only these comparatively small amounts of money. In addition to these valuable schemes to build research links internationally, OSI should work more closely with partners, including the RCs, in order to offer more significant funding packages which would give OSI a lot more weight in negotiations with partner ministries overseas.

12. There is no strategic follow-on funding programme to the bottom-up networking programme and the themed networking events mentioned above. This makes it difficult for valuable collaborations to develop further. This is potentially an area where the RCs could engage, and for which the Society has requested extra funding in the Comprehensive Spending Review.

13. There is a risk of a loss of respect for the UK because of partner ministries having to engage in long and complex negotiations with OSI over the networking schemes. In addition, OSI currently identifies and deals with overseas partners on a somewhat ad hoc basis. A more strategic approach would be beneficial, particularly with a view to understanding the role of partner organisations/ministries and their distinct functions. The international strategy of the new GSIF is a step towards this goal.

INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK PROGRAMME (FP), INCLUDING RESOURCES ENHANCING PARTNERSHIP BETWEEN THE RCs AND EUROPEAN AGENCIES IN THE NEW FRAMEWORK 7 INITIATIVE AND THE PROVISION OF RESOURCES TO STIMULATE UK PARTICIPATION IN INTERNATIONAL PROGRAMMES

14. UK Higher Education Institutions and Research Institutes are increasingly reluctant to apply for EU FP funding as the contribution to overheads is significantly less than the full economic cost (FEC) of research in the UK, although participation in this programme is still ongoing. This means that the UK is not getting the maximum benefit from a programme to which the government is contributing financially.

15. There are some outstanding examples of European collaboration, such as the EU Marie Curie Fellowship scheme. The new EU Responsive Model funding scheme via the European Research Council (ERC) also has a lot of potential, initially for early-career researchers. It is not clear to us whether UK researchers are fully aware of this opportunity. There are also European Science Foundation (ESF) links through the European Heads Of Research Councils (EUROHORCS), and several other EU schemes which link the UK to other Member States.
16. One benefit of EU FP funding is that it can bring together larger groups than would otherwise be possible. The UK tends to align itself with partners in networks across Europe to attract FP money, but this is more likely to be led by individual institutions than the RCs themselves. We are not suggesting that the RCs should take a leading role or to be too prescriptive, but there is a role for them to provide relevant information and advice in this direction.

The effectiveness of collaboration between the RCs and the government departments involved in international scientific activities, including the OSI, DEFRA, the Foreign and Commonwealth Office’s Science and Innovation Network and the Department for International Development

17. The principal mechanism for coordination between UK stakeholders in international science is the Chief Scientific Advisor’s GSIF committee, and COG, which operates below it. This is a huge improvement on the Chief Scientific Advisor’s International Committee (CSAIC) which preceded it, and it has shown itself to be a group which can forge a real consensus between these stakeholders and has the ability to bring about coordinated action. For logistical reasons, not all the RCs attend. It is not always clear that those Councils who are not present feel as much buy-in as the RCs with designated responsibility for attending.

18. The RCs’ International Network does bring the RCs’ international offices together with some, but not all stakeholders, but has yet to prove its ability to generate significant coordinated activity. It did however work well in the process of bringing the RCs’ China office to fruition.

19. The Royal Society welcomes the decision to create the UK Collaborative on Development Sciences (UK CDS) to bring together key funders and stakeholders who provide support for the development sciences research base. The Royal Society hopes that the UK CDS will help to enhance coordination within RCs and between RCs and UK funders. A coordinated approach by the UK CDS to research on development will take advantage of the multidisciplinary nature of the forum. We look forward to being involved in the UK CDS when it has been established.

20. The ESRC and DFID have a joint scheme which aims to fund high quality basic research that enhances understanding, develops thinking and has the potential to impact on the international development agenda for reducing global poverty. The BBSRC and DFID also have a joint scheme, the Sustainable Agriculture Research for International Development Programme, which has already generated a significant amount of interest within the scientific community. As with the ESRC initiative, this appears to be a sensible strategy for achieving both organisations’ goals and adding value/exploiting synergy. However, it is too early to know the results and impacts of these new schemes and careful monitoring is recommended.

The impact of the RCs’ policies on the international mobility of scientists and engineers

21. It is not clear that RC international policies (or lack of them) have any particular impact on postdoctoral mobility. Some grants provide specific, dedicated funds for international mobility, but many of these are fairly new schemes. In the absence of data about the extent of mobility prior to the existence of these grants, it is difficult to assess the impact these are having. More funds to encourage travel and collaboration are to be welcomed. One possibility could be to include an obligatory element of international collaboration under large schemes such as Engineering and Physical Science Research Council (EPSRC) Platform Grants.

22. Some of the RCs have strict time limits on PhD completion rates. As with the Funding Councils, this may be one way of measuring the success of postgraduate programmes, which is an important factor in the Research Assessment Exercise. However, this can be a clear disincentive to the international mobility of PhD students. An excellent way of getting young UK scientists some real overseas experience would be for RCs to incentivise time abroad for studentship holders, for example by adding up to a year onto regulation completion times for those who spend time abroad. Another approach could be to making it a requirement for studentship holders to spend between 3 to 6 months abroad. All research groups in the UK should have some international collaborators, with whom PhD students could benefit from spending some time with. This would contribute to broadening their horizons and encouraging them to think internationally in the future. It is a consistent request from overseas scientific communities that more young UK researchers be able to travel and spend time with them. However, policies relating to travel of UK PhD students should take into account the needs of those scientists with family or other commitments.

The benefits and drawbacks of RC participation in previous and current Framework Programmes

23. Although there is not much RC involvement in FP programmes, a clear benefit would be in being able to tackle large, complex problems. However, many UK scientists feel that EU programmes are excessively prescriptive, restrictive and bureaucratic. This paperwork and the lack of FECs are significant drawbacks, and many researchers would prefer simpler, national funding streams. In addition, the need to involve partners based on their nation rather than their expertise in the first instance means that expertise from some nations is excluded from the process.
24. The European Science Foundation schemes manage to combine a relatively straightforward application process with rigorous peer review, and it is hoped that the ERC and European Research Area schemes will more closely follow such a model.

**The Role and Success of RC Support for Facilitation of UK Participation in Previous and Current International Programmes**

25. More resources are needed to facilitate UK participation in international programmes. For example, although Antarctic research benefits hugely from the Scientific Committee on Antarctic Research (SCAR), it receives very limited funding. Therefore, SCAR is only able to have a minor impact on major programmes. It does this through the goodwill of the scientific membership, which although hugely beneficial to SCAR, may be difficult to sustain.

26. Some often very successful international collaborations such as the NERC UK-Japan earth observatory seem to come about on an ad hoc, unplanned basis or as a result of political pressure, not as part of a strategic plan. This does not detract from those collaborations, but it would be good to see the RCUKs engaging strategically in more such small-scale international collaborations (which do involve some dedicated budgets).

**Conclusion**

27. The Royal Society welcomes the opportunity to respond to this enquiry, and is ready to give oral evidence if requested. Overall we stress the need for a more coherent approach to international scientific relations for OSI and the RCs. The picture currently painted to overseas partners is chaotic. We need to project a more coherent impression in the future.

*April 2007*

**MEMORANDUM 11**

*Submission from the ESRC Centre for Competition Policy, University of East Anglia*

1. **Executive Summary**

1.1 The ESRC Centre for Competition Policy at the University of East Anglia is an interdisciplinary group of economics, law, management and political science scholars, funded by the UK Economic and Social Research Council as a 10 year research centre. The initial grant for 2004 to 2009 is for £3.2 million. The Centre disseminates its academic research through regular peer reviewed academic channels, has an international visitor programme and runs conferences, workshops and seminars throughout the year. Because of the subject matter, most of our activities involve a mixture of about 60% academics and 40% policy makers from both the public and private sectors.

1.2 ESRC funding for the Centre facilitates international collaboration on a number of different levels, encouraging the discovery of global solutions for global competition challenges. Moreover the position of the Centre as an academic institution independent of stakeholders (including states, regulatory authorities, business and pressure groups) enables us to provide analysis and advice on a completely disinterested basis. In an area such as competition policy with very large stakes and pressure from powerful international bodies, both public and private, such independence is crucial to assessing appropriate solutions. In this context we set the agenda for our own research, rather than having directed research, which might bias both questions and the answers.

A major theme in the evolution of competition policy in recent years has been the convergence of analytical practice. In particular, most national and international authorities have been putting economic analysis centre stage at the expense of national legal idiosyncrasies. One example is the European Commission, where the chief economist’s team was established in 2003 and is now doubling in size. This trend means that our policy advice has international application and is recognised as such.

1.3 Questions related to competition policy are inherently international, and are explored by the community of international scholars of which we are a part. This international academic peer group provides a benchmark for the quality of our research. As a result, considerable formal and informal exchange is arranged through the Centre. As well as exploring issues and suggesting solutions, we are able to build capacity in areas where competition and regulation policy are just emerging, and build such capacity independent of local interests or international funding bodies.

1.4 The Centre funding facilitates both research which crosses national boundaries, using data from several countries and addressing international issues; and a number of international collaboration activities. International research includes work on the reform of Competition Law and practice in Europe, comparisons with US and Canadian practices, study of regulatory reform overseas and a major project on
the reform of electricity in South East Europe. These include a visitor programme for overseas scholars to the Centre, presentations overseas at international conferences by members of the Centre, support for international travel for research/engagement purposes by Centre members, and collaborative research and support, particularly for doctoral students, to attend academic events at the Centre.

2. Examples of international collaboration activities funded by ESRC

2.1 The first arena for collaboration arises from the research subject matter itself, and we provide a number of examples of areas in which this involves direct collaboration with colleagues overseas. The first is reform of EU Competition Law and its application, and the modernisation programme which delegates implementation of that Law to member states. The Centre is holding an international conference on this topic in June 07. Second, CCP is editing a book on the economic analysis of competition cases from authorities across Europe. This project involves authors from the USA, UK, Denmark, France, Spain, Belgium, Singapore and Switzerland. Third, a recently completed project on EC Merger Remedies was jointly funded by the ESRC and DG Enterprise and Industry, resulting in a forthcoming book with strong policy recommendations. The collaboration facilitated access to material that is not normally available to academics, while allowing a depth of academic analysis that would not otherwise have been feasible.

2.2 The fourth is a major research project on reform of the electricity sector in South East Europe, an issue of considerable political and international interest, where the Centre is able to take a disinterested academic view. The first stage of this is a book, whose chapters are co-authored by members of the Centre, a co-editor who is based at the US Department of Justice, and academics and practitioners from the countries concerned. As well as thematic chapters, the issues of specific countries in the region are addressed. Participants from nine countries (Croatia, Romania, Serbia, Bosnia Herzegovina, Slovenia, Turkey, Greece, Montenegro and Macedonia) are actively involved. A workshop to be held in Romania in July 2007 will involve local regulators as well as authors. Moreover authors are visiting the Centre between February and April to present a series of seminars and discuss their papers and the issues with the CCP team, helping to build capacity in the region and encouraging an academic discussion of intrinsically complex and political issues. We have visited the relevant EU officials who are overseeing this reform, and they have welcomed and encouraged our research. Further fieldwork in the region will be funded through the Centre grant as the project develops after the Romania workshop.

2.3 The fifth direct involvement is in working with authors from overseas, where ESRC funding has enabled fruitful collaboration with the US, both through their dedicated joint scheme with the American equivalent, and through providing funding for research related travel by members and visitors. One example of such collaboration arises in collaboration between the Centre and Professor Greg Shaffer (University of Rochester, USA) on the effects of price guarantees offered by firms to consumers. The work which has already been completed is well cited in the literature and has also been cited in the international press (New York Times). Professor Shaffer has been an associated member of the Centre since its foundation. The centre and its funding, together with a specific grant under the joint visitor programme funded by the ESRC and the American Social Science Research Council, have enabled us to attract Professor Shaffer to visit for extended periods in 2006 and 2007, and we are expecting to make this a recurrent event. The benefits of having Professor Shaffer visiting while his co-author is on buy-out are very significant, because both are available at the same time to make progress on joint research. Although much can be accomplished via email, finding overlapping research time and being in the same location makes a huge difference to what can be achieved.

2.4 Having an international scholar visiting the centre has many additional benefits. We organise discussion groups related to the research expertise of the visitor. In the case of Shaffer the topic was buyer power. This enables new research questions to emerge, with a speedier assessment of their importance than is possible by distance correspondence. We also encourage colleagues in general and research students in particular to pass drafts of their paper to the visitor for comments and suggestions. For example, Shaffer provided valuable feedback to several of the doctoral students at a critical stage of their studies.

2.5 International collaboration is also evident in the management of the Centre. The Centre’s Advisory Board and Academic Committee include several distinguished overseas academics, including professors from Trinity College Dublin, the Haas Business School and the Department of Economics at University of California at Berkeley. These colleagues facilitate the Centre’s research and links overseas through their support and advice.

2.6 The Centre has a thriving visitor programme. Since the establishment of the Centre in September 2004, we have hosted 35 international visits, 9 of these have been long term (longer than 1 week). Of these, 26 have been from European countries, 7 from USA and 2 from elsewhere in the world. We have highlighted the benefits of such visits in the case of a continuous relationship with one leading American academic. More generally these visits help to further our research programme through discussion and debate; inform our members about international research and raise the profile of the centre in international organisations. (See Appendix for a list of our international visitors.)

2.7 The initial stage of most research findings is that they are written up as a working paper which is available with a non technical policy briefing or an executive summary on the web. This is available to an international audience. In March our website statistics showed that 38.92% of visitors to the website were in South Africa, 23.41% from the United States and 2.10% from China, for example. A monthly email
bulletin alerts those who have signed up to such postings, and 29% of the recipients are overseas. A twice yearly hard copy newsletter is mailed (as well as being available electronically) and 31% are sent to overseas addresses.

2.8 As part of the dissemination of our research, members present their papers at international conferences. Since the establishment of the Centre, members have given 58 international conference presentations, including 4 invited, key-note presentations. The Centre ensures it has a strong presence, with a number of members presenting, at key competition related conferences including the Association of Competition Law and Economics, the Association of Competition Economists and the Association of Research in Industrial Economics.

2.9 Centre members are also invited to present their findings to policy makers overseas, for example recent visits have been made to Sweden, Italy, Hungary and Brussels. While such invited visits are usually paid for by the host, Centre funding gives us a base from which to disseminate our findings, and provides underwriting for such expenses. A more formal on-going role in international advice is provided by one senior member of CCP who is on the Economic Advisory Group for Competition Policy at the European Commission. For example, he is currently leading a small team of four eminent economists from across Europe who will provide a short independent (unfunded) opinion on the reform of rescue and restructuring aid guidelines.

2.10 In addition to travel to conferences etc, the Centre funds travel for research purposes. Three examples of this are: the visit to Brussels of researchers on the South East Europe Electricity project to undertake a series of interviews with EU officials; the funding of a week in Florence for a PhD student to undertake archive searches on original European Community documentation to assist understanding of the intentions of the founders in drafting the original competition provisions; and funding a PhD student for a two month visit to Washington to compare the relationship between the Federal and state governments in the US in implementing competition policy, with the corresponding relationships between the European Union and its members states.

2.11 ESRC funding is enabling CCP to explore the establishment, jointly with the University of Tilburg, of a network of Centres employing law and economic disciplines to facilitate joint research and the exchange of staff, particularly at a junior level.

2.12 The core funding for the Centre from the ESRC has enabled us to respond flexibly to opportunities, and to develop an independent research programme with crucial international dimensions. While some of these (for example capacity building) are likely to coincide with the objectives of other funding sources (in this case Department for International Development) our core funding has enabled us to establish research and build capacity much more independently and flexibly in our early years, with benefits to the quality of the research and the value of the training. Now that we are well established, we will continue to take such independent initiatives, while building on the initiatives which core funding has provided to explore parallel funding, including opportunities within the EU framework programme. The table in the appendix indicates where outside funding has already been used for past international activities.

April 2007

Appendix

List of Visitors

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Møllgaard</td>
<td>Copenhagen Business School</td>
<td>1 month (Mar–Apr 05)</td>
</tr>
<tr>
<td>Prof Meghan Busse</td>
<td>Haas School of Business, Berkeley</td>
<td>2 weeks (May 05)</td>
</tr>
<tr>
<td>Florian Zettlemeyer</td>
<td>Haas Marketing Group, Berkeley</td>
<td>2 weeks (May 05)</td>
</tr>
<tr>
<td>Severin Borenstein</td>
<td>University of California, Berkeley</td>
<td>3 days (Aug 05)</td>
</tr>
<tr>
<td>Maarten Pieter Schinkel</td>
<td>ACLE, University of Amsterdam</td>
<td>2 days (Oct 05)</td>
</tr>
<tr>
<td>Russell Pitman</td>
<td>Director of Economic Research and Director of International Technical Assistance, Economic Analysis Group Antitrust Division, U.S. Department of Justice</td>
<td>3 days (Jan 06)</td>
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<tr>
<td>Thibaud Verge</td>
<td>Research Fellow, University of Toulouse</td>
<td>2 days (Feb 06)</td>
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<tr>
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<tr>
<td>Fabian Bergès-Sennou</td>
<td>Research Fellow, INRA and University of Toulouse</td>
<td>2 days (Mar 06)</td>
</tr>
<tr>
<td>Bruno Jullien</td>
<td>Research Director, IDEI, University of Toulouse</td>
<td>2 days (Mar 06)</td>
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<tr>
<td>Joe Farrell</td>
<td>Professor of Economics, Berkeley</td>
<td>1 day (May 06)</td>
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<tr>
<td>Greg Shaffer</td>
<td>Professor of Economics and Management, University of Rochester</td>
<td>1 month (May 06)</td>
</tr>
<tr>
<td>Jan Boone</td>
<td>Professor of Industrial Economics, Tilburg University</td>
<td>2 days (Sep 06)</td>
</tr>
<tr>
<td>Imelda Maher</td>
<td>Sutherland Professor of European Law, University College Dublin</td>
<td>1 day (Nov 06)</td>
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<tr>
<td>Ulf Mueller</td>
<td>Research Associate, Institute for Information, Telecommunications and Law of Communication Media, University of Muenster</td>
<td>1 day (Dec 06)</td>
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<tr>
<td>Hana Horak</td>
<td>Assistant Professor, University of Zagreb</td>
<td>3 days (Feb 07)</td>
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<tr>
<td>Desa Mlikotin Tomic</td>
<td>Professor, University of Zagreb</td>
<td>3 days (Feb 07)</td>
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<tr>
<td>Mirna Pavletic Zupic</td>
<td>Member of the (Croatian) Competition Council</td>
<td>3 days (Feb 07)</td>
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<tr>
<td>Necmiddin Bağdadioğlu</td>
<td>University of Hacettepe, Turkey (Jean Monnet Scholarship)</td>
<td>3 days (Mar 07)</td>
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<tr>
<td>Kati Cséres</td>
<td>Assistant Professor of Law, University of Amsterdam</td>
<td>2 weeks (Mar—Apr 07)</td>
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<tr>
<td>Nevenka Hrovatin</td>
<td>Professor, University of Ljubljana</td>
<td>2 days (Mar 07)</td>
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<tr>
<td>Katerina Iliadou</td>
<td>Legal Advisor, Public Power Corporation 8A and University of Athens</td>
<td>2 days (Mar 07)</td>
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<td>Necmi Odyakmaz</td>
<td>Turkish Energy Market Regulator</td>
<td>3 days (Mar 07)</td>
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<td>Carlo Scarpa</td>
<td>Professor, Universita di Brescia</td>
<td>2 days (Mar 07)</td>
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<td>Jelena Zoric</td>
<td>PhD Assistant, University of Ljubljana</td>
<td>2 days (Mar 07)</td>
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<tr>
<td>Trajce Cerepnalkovski</td>
<td>Electricity Regional Projects Co-ordinator, South East Europe Co-operative Initiative (SECI)</td>
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<tr>
<td>Sandra Jednak</td>
<td>University of Belgrade</td>
<td>3 days (Apr 07)</td>
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<tr>
<td>Greg Shaffer</td>
<td>Professor of Economics and Management, University of Rochester</td>
<td>6 weeks (May–Jun 07)</td>
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**VISITORS FUNDED BY OTHERS**

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<tr>
<td>Alberto Prandini</td>
<td>Luiss University, Rome</td>
<td>3 months (Nov 04–Feb 05)</td>
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<tr>
<td>Rajan Dhanjee</td>
<td>United Nations Conference on Trade and Development (UNCTAD)</td>
<td>1 day (May 2005)</td>
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<tr>
<td>Mita Bhattacharya</td>
<td>Monash University, Australia</td>
<td>1 month (Sept 05–Oct 05)</td>
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<td>Necmiddin Bağdadioğlu</td>
<td>University of Hacettepe, Turkey (Jean Monnet Scholarship)</td>
<td>1 year (Sept 05–Aug 06)</td>
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<tr>
<td>Liu Jiejiao</td>
<td>Institute of Industrial Economists of Chinese Academy of Social Science</td>
<td>1 day (Dec 2005)</td>
</tr>
<tr>
<td>Gert Brunekreeft</td>
<td>Professor of Energy Economics, International University Bremen</td>
<td>1 day (Feb 06)</td>
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MEMORANDUM 12

Submission from the Royal Academy of Engineering

1. SUMMARY

1.1 This response is submitted by the Royal Academy of Engineering, the UK’s national academy for engineering and technology. The Academy believes that it is essential for the UK to have a clear and effective strategy for global engagement in science and engineering. It is therefore pleased that the Research Councils and OSI are paying increasing attention to the international aspects of their work. Although broadly supportive of the approach being taken by the Research Councils and OSI, the Academy has identified various areas where improvements could be made. These are set out below and include the coordination of strategies at the national, European and international levels and the communication and marketing of opportunities for international collaborations and the benefits arising from them. In addition, the Academy calls for more creative approaches to international partnerships focussed on innovation and a more inclusive approach to the development of international science policy by the Government.

2. INTRODUCTION

2.1 The Royal Academy of Engineering welcomes the opportunity to contribute towards this inquiry examining the international policies of the Research Councils and Office of Science and Innovation (OSI). The Academy brings together over 1200 distinguished engineers, drawn from all the engineering disciplines. Its aim is to promote excellence in engineering for the benefit of the people of the UK. This response has been collated on the basis of input from Fellows and Research Chairs of the Academy with expertise in this area.

2.2 Engineering research, practice and markets are all based on global networks and UK wealth creation is now inextricably linked with international flows of goods, services and capital. On current trends, countries will increasingly have to compete for access to skilled engineers and technologists. This is particularly relevant to the UK where the ageing population and declining interest in engineering amongst young people mean that, in addition to nurturing home-grown talent, the country needs to make sure that it is well-placed to attract the brightest and best engineers and technologists from around the world. Already, the proportion of foreign students among PhD students in the UK is second only to the US (in absolute terms)—and this is especially true for engineering: 51% of engineering doctoral degrees from UK universities are awarded to foreign students.6 It is clear, therefore, that the international policies of the Research Councils and OSI are of increasing significance.

2.3 In recognition of such imperatives, the Academy has also been placing a growing emphasis on the international dimension of its policies and programmes and is in the process of finalising its first International Strategy. The Academy, in developing this Strategy, undertook a survey of its Fellows to explore their international links and their views on which countries were of strategic importance to the Academy. The results indicated that Fellows participate in an extensive international network, encompassing both academic and industrial links and covering a wide range of countries and regions. Overall, the countries/regions which Fellows deemed to be most important for Academy relations were: the US; China; Europe; India; Japan; Australia; Canada; and Singapore. These correlate well with the countries identified by the UK Government as being of strategic interest in the context of R&D and innovation.7

2.4 The remainder of this document provides the Academy’s responses to the specific questions raised by the Committee. It is worth noting that comments made regarding the Research Councils apply mainly to the Engineering and Physical Sciences Research Council (EPSRC), with which the Academy’s Fellows predominantly interact.

3. THE STRENGTHS AND WEAKNESSES OF EXISTING RESEARCH COUNCIL AND OSI MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION.

3.1 Much work has been done on the benefits of international collaborations. To take just one example, internationally co-authored papers have been shown to be more highly cited than papers produced by UK authors alone.8 The Research Councils and OSI appear to have taken on board the potential benefits of international linkages and the Academy broadly supports the measures they are putting in place to promote collaboration. The recent creation of the new Science and Technology Facilities Council is welcome too. The Council has an important role in enhancing the effectiveness of the UK in international negotiations regarding the promotion and use of large facilities based both in the UK and abroad. These facilities are enormously expensive but crucial to scientific and technological progress, and the Council must be

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supported in this objective. The Academy also praises the practice of holding international reviews of UK research as a means of benchmarking the engineering research being carried out by UK universities. The Academy and EPSRC jointly led the review of engineering research which reported in 2005.9

3.2 In terms of specific Research Council programmes, while schemes such as travel grants and visiting fellowships are helpful for enabling academics to network and develop possible collaborations, there is a lack of more substantial funding to support any subsequent joint research projects. Fellows have also suggested that responsive mode applications for relatively small sums (eg to enable attendance at international workshops) can be overly cumbersome.

3.3 A more fundamental weakness in the current approach is the lack of connection between the strategic areas identified for international collaboration and the national strategies of the partner countries. This can make it difficult for researchers to target their applications appropriately. In addition, where there are national networks of excellence in specific areas of science or technology, there would seem to be a certain logic in using these as focal points for international collaborations. However, this does not seem to happen, other than on ad hoc basis.

3.4 There is also scope for greater cooperation between the UK Research Councils and their counterparts in other countries. The Academy applauds EPSRC’s recent efforts to develop bilateral agreements with other national funding organisations (eg the US National Science Foundation) to reduce the so-called “double-jeopardy” problem, whereby collaborative grant applications have to be approved by the funding organisations in both of the collaborating countries. Further developments of this nature would be most welcome. Another example of good practice is the provision of Research Council support to enable universities in collaborating countries to jointly develop grant applications to their national research funding organisations.

3.5 In considering policies on international collaboration, it is also important to ensure that partnerships in innovation (rather than just research) are developed, which include industrial as well as academic players. The Government has highlighted the need to improve the UK’s ability to capitalise on the creativity and productivity of the science base—this cannot be achieved without business involvement. The trend towards "Open Innovation", involving innovation ecosystems in which industrial, start-up and academic partners combine their strengths to create competitive business advantage for each party, additionally needs to be taken into account by the Research Councils and OSI in their future models for collaboration.

3.6 In this context, it is also of significance that the UK has a high proportion of business R&D funded from abroad relative to other G7 countries.10 This brings both advantages and risks. The Government continues to seek to attract foreign direct investment in R&D but it needs to have mechanisms in place to buffer the UK against changes in funding patterns by multinational corporations outside their home markets. Whilst outside the remit of this inquiry, the Academy notes that Government’s disappointing decision to claw back funds from the Research Councils to fund other aspects of DTI activity seems unlikely to increase the attractiveness of the UK to overseas investors.

3.7 Interestingly, Fellows noted that some of the problems they observed were not due to flawed policies on collaboration, but were instead due to the fact that the opportunities and benefits were not well publicised. For example, the ability of international scientists to apply for Research Council funding was considered to be a constructive policy but one which was not widely known about. Furthermore, initiatives such as international “Years of Science”, which focus on raising the profile of UK science and engineering in a particular country (eg Brazil in 2007–08), tend to have low visibility in the UK. This may be because the aim is to showcase British science and innovation overseas, but many UK innovation partnerships with researchers in the relevant country which could be leveraged for the benefit of the Year of Science. Greater engagement within the UK could also help to ensure that the Year of Science activities appropriately reflect the full spectrum of UK science, engineering and innovation—something which has not always happened in the past.

3.8 Although not directly relevant to collaboration, a further example where publicity could be used to greater effect is in celebrating British successes on the international stage. In March 2007, for instance, a UK company was one of the three Grand Prize winners of the prestigious European ICT Prize, awarded annually for innovation in ICT. If this success story had achieved a higher profile, it could have raised awareness of UK innovation both at home and abroad.11

4. INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK PROGRAMME.

4.1 The Fellows who provided input to this response generally believed that there was scope for greater coordination between the Research Councils and the EU Framework Programmes. It was noted, for example, that the Research Councils' strategies took little, if any, account of European priorities. If the Research Councils were to review the EU strategic research agenda, opportunities could be identified to

11 http://www.ict-prize.org/
promote collaboration and avoid overlap. In addition, Research Council funding could play a useful part in sustaining particularly successful networks of excellence established under the Framework Programme. However, some Fellows had the perception that the Research Councils took little interest in the Framework Programmes and did not promote them as a potential funding route to UK researchers.

4.2 The fact that the EU does not fund research at full economic costs remains a problem for UK academia, even under the new funding model, but Fellows have divergent views about whether Research Council support should be available to bridge the resulting funding gap. There is agreement that the distinction between Research Council and EU Framework Programmes should be maintained. While Framework Programmes tend to be influenced by a desire to create networks for collaborative research, Research Council calls are more usually driven by the scientific inquiry into a particular research problem and the collaboration, if appropriate, follows. The Academy would oppose any attempt to divert UK Research Council funding to the Framework Programmes.

4.3 When considering European support for research and innovation, the recent establishment of the European Research Council (ERC) and the proposed creation of a European Institute of Technology (EIT) must be taken into account. The ERC has the potential to fulfill an important role in supporting basic research, selected on the basis of excellence. Its performance will need to be monitored closely to assess whether it is delivering its potential as it develops. The EIT is an ambitious new initiative which aims to bring together the “three sides of the innovation triangle”: education, research and innovation. Although the objectives of the EIT are laudable, it is far from clear that the EIT as currently envisaged will be able to achieve them. The Academy has been active in drawing the Commission’s attention to its concerns through the European Council of the Academies of Applied Sciences, Technologies and Engineering (Euro-CASE). These include the fact that the Institute should not be granted degree-awarding powers; must avoid a top-down approach; and should select on the basis of excellence. The Academy has also called for greater clarity regarding the funding of the EIT and supports the UK Government view that there should be a phased implementation, allowing assessment of pilot projects prior to establishment of the full EIT.

4.4 More generally, it is obvious that Europe now exerts an important influence over UK policy on science and technology-related matters and it is thus essential that the UK plays its full part in the development of European policy. The UK Research Office (UKRO) provides a helpful role in disseminating information about European funding opportunities. However, the Academy sometimes finds it difficult to identify the right contact point within the UK Government and Research Councils for information and advice regarding European policy developments. In some cases, the Academy can support the efforts of Government in drawing attention to European issues and providing expert advice in critical policy areas, both through national activities and through its involvement in Euro-CASE. Adopting a more joined-up approach across UK science and engineering public sector organisations could help to strengthen efforts to influence European science and technology policy making.

5. THE EFFECTIVENESS OF COLLABORATION BETWEEN THE RESEARCH COUNCILS AND THE GOVERNMENT DEPARTMENTS INVOLVED IN INTERNATIONAL SCIENTIFIC ACTIVITIES.

5.1 Although the Academy is aware of the existence of mechanisms to promote coordination and collaboration between the Research Councils and the Government Departments involved in international scientific activities, current performance would suggest that these are not yet working effectively. There is a perception that there are too many players—DTI, UKTI, RDAs, FCO etc—operating in this area with the consequence that funding is fragmented and could be better spent if pooled to support larger, strategic initiatives. Fellows of the Academy also report that the lack of coordination between the Research Councils and Government Departments has resulted in mixed messages being sent to collaborators in partner countries.

5.2 The Academy notes that the Global Science and Innovation Forum (GSIF) provides the main vehicle for coordination of the international science and technology activities of different Government Departments and the Research Councils. The membership of GSIF also includes the British Council and Royal Society. In October 2006, GSIF published A Strategy for International Engagement in Research and Development. While the development of a clear strategy setting out the UK’s objectives in its international science and technology policy was welcome, the Academy regrets the fact that it was not given the opportunity to provide input to the strategy. With a Fellowship encompassing some of the UK’s most experienced and distinguished engineers and innovators, from both academia and industry, the Academy believes that it has the potential to provide valuable advice and access to expertise to Government on such matters.

5.3 The Academy also notes that OSI networking funds to promote international collaboration are usually administered by the Royal Society. Without in any way wishing to detract from the excellent work of our sister academy, the Academy would suggest that the Government could gain better value for money by enabling a wider range of organisations to access this funding. For example, in many instances, countries

of strategic importance to the UK (including China and India) have a particular interest in developing partnerships based on technology, engineering and innovation—areas in which the Academy possesses unique expertise.

6. **The impact of the Research Councils’ policies on the international mobility of scientists and engineers.**

6.1 The Academy is generally supportive of the current Research Council policies to promote international mobility of scientists and engineers. These are complemented by the work of other funding organisations, including the Royal Society, Wellcome Trust and Leverhulme Trust and the Academy itself. Mobility could be further promoted if the Research Councils were to relax their policies on awarding studentships to non-EU nationals. The introduction of more flexible inward and outward mobility schemes, allowing researchers to spend anything from a few weeks to a year in another country, coupled with a fast-track application process, would also be helpful.

6.2 Although not necessarily within the scope of this inquiry, the Bologna declaration merits a mention in the context of mobility. The Academy has set out its concerns in detail elsewhere but, in summary, there is an urgent need for comprehensive advice to be issued on how university engineering departments should respond to the Bologna process. Unless action is taken, the current international standing of the UK integrated Masters degree in Engineering (MEng) could be compromised, with a potentially damaging effect on the prospects of UK engineers wishing to work abroad and the ability of UK engineering departments to attract overseas students.

April 2007

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**MEMORANDUM 13**

**Submission the Royal Astronomical Society**

The Royal Astronomical Society (RAS) is the UK’s leading professional body for astronomy & astrophysics, geophysics, solar and solar-terrestrial physics, and planetary sciences. We welcome this opportunity to comment on the international policies and activities of the research councils, especially STFC’s.

The RAS response appears after each of the issues raised in the committee’s call for evidence viz.

— the strengths and weaknesses of existing Research Council and OSI mechanisms and activities to maintain and promote international collaboration;

UK research in astronomy and solar system science is heavily dependent on access to data collected by international scientific projects including ground-based observatories and space missions. The great strength of this mechanism is that it gives UK scientists access to the best data in the world—and is realistically the only mechanism available for large projects. Its weakness has long been the limited funding available for internal UK activities that support our involvement in these projects. The recent (2005) International Review of UK Physics and Astronomy identified this as an important issue and strongly recommended “that the funding agencies maintain a healthy balance between the large investments in international facilities and funds spent nationally for exploitation of these opportunities through experiment development and data analysis programmes.” It is important that Research Councils and OSI have the financial capability to maintain that balance, especially when faced by short-term financial pressures.

Some international projects are based on agreements established via international scientific organisations rather than between funding agencies. A good example is the international system of data exchange (“World Data Centres”) established 50 years ago under the auspices of the International Council of Scientific Unions. This is an older, more informal, model of international collaboration and one that was particularly valuable in the Cold War era. However, it leaves these projects at greater financial risk than projects that are subject of modern legal agreements between funding agencies. It is important to ensure that project reviews are aware of this older collaboration model and give consideration on how it can be best carried forward into the future (should the collaboration continue, should it be made more formal, can it successfully carry on using the old model?).

— international collaboration through the EU Framework Programme, including resources enhancing partnership between the Research Councils and European agencies in the new Framework 7 initiative and the provision of resources to stimulate UK participation in international programmes;

UK participation in FP7 depends on two key factors:

1. the detailed content of the FP7 Work Programmes and Calls for Proposals, which are reviewed at least annually. It is important that OSI and the Research Councils raise scientific community awareness of the need to lobby on the content of these documents, eg through personal contacts with the Commission and other players.

2. EU financial requirements on co-funding of proposals and on overhead costs. The details depend on the nature of the organisation and of the particular FP7 programme. But in many cases, universities and public sector research institutes must find 25% of FP7 project funding from other sources. So it is important that Research Councils have the vision and means to help researchers find that 25%.

   — the effectiveness of collaboration between the Research Councils and the Government Departments involved in international scientific activities, including the OSI, Defra, the Foreign and Commonwealth Office’s Science and Innovation Network and the Department for International Development; and

International collaboration in astronomy and geophysics is predominantly supported by the Research Councils. However, we note that FCO has played a valuable role by providing travel funds to stimulate international scientific collaboration at the level of individual scientists.

   — the impact of the Research Councils’ policies on the international mobility of scientists and engineers.

The UK faces a growing crisis through its failure to establish a decent career structure for young professional scientists. Recent reforms, especially increased stipends, have improved the position of PhD students, but the status (salaries, job security and support for career development) of young scientists in the years immediately after their PhD is unsatisfactory. This was recognised in both the 2000 and 2005 International Reviews of UK Physics and Astronomy. The effect is to encourage many home-grown young scientists to leave the UK and pursue their careers in more supportive environments. This is partly balanced by an inflow of young scientists from other countries—but these may be able to command higher salaries because they usually have greater experience (their PhD courses are longer and provide more training).

Thus current policies may be said to encourage international mobility but in an unplanned and unintended way and one which may be to the detriment of the UK skills base in the longer term. While it is important that the UK benefits from the inflow of foreign talent, and that UK researchers gain overseas experience, this should be a planned strategy and not the bye-product of an inadequate career structure.

April 2007

MEMORANDUM 14

Submission from the Institute of Grassland and Environmental Research

EXECUTIVE SUMMARY

1. IGER carries out research in support of land-use within grassland-dominated landscapes.

2. The European Framework Programmes (FPs) have been very effective at fostering collaborations between IGER scientists and other research and research-industry partners within the EU.

3. The number of visiting scientists at IGER has increased with some support from Marie Curie Fellowships but also from OECD and Royal Society Fellowships.

4. There is some concern that the FPs have become more narrow and prescriptive in relation to defined policy objectives with less emphasis on scientific discovery.

5. The UKRO office (and BBSRC International Office) is useful as a conduit for information from EC and as a source of advice on FP regulations but with better resources they could be more proactive in early stage work programme development and in establishing research priorities.

6. Matched funding for FP projects within IGER has traditionally involved support from Defra but increasingly in future it will need to be sought from other research funders.

7. The ERANET programme has some advantages over the Framework Programme with stronger links to the Research council (BBSRC).

8. Developments with regard to the European Research Council appear promising in the support of basic research.

9. IGER is also involved in a number of other European funding programmes such as Interreg III B and the European Regional Development Fund Objective 1.

10. Outside Europe IGER scientists have been involved in DFID Plant Science Programmes and have a proposal in the DFID-BBSRC sustainable agriculture initiative.
Detailed Comments

1. The Institute of Grassland and Environmental Research (IGER) carries out research aimed at determining viable options for grassland-dominated landscapes and land use systems that lead to a sustainable rural economy, a healthy environment, and a safe and high quality food chain. IGER’s Mission also emphasises the dissemination and exploitation of the results of basic, strategic and applied research in order to sustain and extend the effectiveness of grassland related agriculture and related bioscience and environmental industries.

2. The European Framework Programmes (FPs) have been very effective at fostering collaborations between IGER scientists and other research and research-industry partners within the EU. During the last ten years IGER has been a partner in 15 FP5 and three FP6 projects, five of which IGER coordinated, and all of which included private sector partners.

3. IGER has also hosted several Marie Curie Fellowships and an increasing number of visiting scientists from Europe and beyond based on support, for example, from the OECD and the Royal Society. The BBSRC ISIS scheme is also a very effective mechanism for facilitating interaction with scientists from other countries. However it would be valuable to have further support from BBSRC and others for visiting fellowships, both inward and outward.

4. Compared to FP5 the priorities of FP6 moved away from agricultural production but IGER maintained a significant input such as being a major partner in a project on “Improving the safety of beef and beef products for the consumer in production and processing”. The Work Programmes for FP7 appear to mark a return to potential support for agricultural research in the “Food, Agriculture and Biotechnology” programme. This should provide greater scope for IGER project proposals of which several are in preparation with a broad range of European Partners.

5. There is some concern that the FPs have become more narrow and prescriptive in relation to defined policy objectives with less emphasis on scientific discovery. Details of the calls for proposals are subject to intense political lobbying and there is considerable bureaucracy attached to the application and approval procedures and in reporting. Scientists tend to feel that they are part of a “political game” in which projects and partners are selected for other than scientific reasons. They also feel that UK lobbying in Brussels is less strong and effective compared to other European partners, eg Ireland, and that the lines of communication with scientists are less direct than in some other countries.

6. The UKRO office (and BBSRC International Office) is useful as a conduit for information from EC to Research Institutes and as a source of advice on FP rules and regulations. However UKRO could be better resourced so that they are able to be more proactive in liaising with Institutes, understanding research priorities, proposing mechanisms for lobbying at very early stages of work programme development and helping to arrange trips by institute scientists to hold the necessary discussions with the relevant EC officials. Defra should also be more active in this respect.

7. Matched funding for FP projects within IGER has traditionally involved support from Defra in the areas of Sustainable Agriculture/Quality of Life rather than the Research Council (BBSRC). However Defra’s financial support for many areas of science associated with agricultural land-use is declining and matched funding will increasingly need to be sought from other research funders. This is made easier to some extent by an increase in the proportion of European support from a maximum of 50% to 70% in FP7.

8. The ERANET programme has some advantages over the Framework Programme in that it uses national funding for international collaboration, has a lighter touch and is much less prescriptive. However, it is dependent on national sign up and therefore is not really EU-wide. Links with the Research Council (BBSRC) are much stronger through ERANET.

9. Developments with regard to the European Research Council seem promising. We understand that this will fund more basic science in responsive mode. This would suggest that the EU is moving closer to having a range of tools that will go some way to meet objectives re the Lisbon Agenda and maintaining Europe’s competitive position.

10. IGER is also involved in the Interreg III B programme as part of the ECAS (Energy crops in the Atlantic Area) project. The main objectives of this “Atlantic Area” programme are to encourage the coherence and cohesion of the Area and to improve its economic competitiveness and its efficiency, in order to overcome the handicaps of a peripheral location compared to the more central regions of the European Union. It seeks to promote sustainable development projects through integrated strategies and territorial development that harmonise social, economic and environmental objectives, by respecting conservation issues and the cultural, historical and environmental assets of the Area.

11. Other European funding for IGER includes Regional Development Fund Objective 1 support for a project to develop heat and power from short rotation coppice willow. Prior to 2001, IGER also established a “Grassland Technology Transfer” project in Wales funded under the European Structural Funds 5b project. Subsequently the project continued as the “Grassland Development Centre” within the Farming Connect network funded by the Welsh Assembly Government and Wales Objective 1 European Funding. IGER was also involved in a similar programme in Cornwall (the “Grassland Challenge” project) funded by Defra and the European Regional Development Fund Objective 1.
12. With regard to work outside Europe, IGER scientists have been involved, together with researchers at ICRISAT and other institutions in India, in the successful transfer of downy mildew resistance and drought tolerance genes into commercial pearl millet varieties that are now being used by farmers in India and Africa. This was supported by a long-term research investment strategy through the Plant Science Programme (DFID-PSP) which produced considerable benefits. However recent emphasis of DFID Plant Science has been on the use and uptake of existing research results with little new research investment. The recent DFID-BBSRC sustainable agriculture initiative aims to support new basic research in tropical agriculture but its long-term future appears uncertain.

27 April

MEMORANDUM 15

Submission from the National Oceanography Centre, Southampton

1. The National Oceanography Centre, Southampton (NOCS)\(^4\) welcomes the opportunity to provide evidence. NOCS has a longstanding international profile through representation, international collaboration and hosting of international project offices, and an excellent track record in winning funding, leading and delivering major international multi-partner projects. NOCS has also contributed to the response provided by the Natural Environment Research Council (NERC) through RCUK. Additionally we draw to the Committee’s attention our response\(^5\) to their inquiry “Investigating the Oceans”, in January 2007. This contained detailed evidence of our international engagement and the challenges we face.

SUMMARY

2. The marine environment is fundamental to earth system processes and to developing solutions to pressing societal needs. Legislation and Policies to protect and manage the oceans are increasingly internationally based and the research to inform them is conducted on a global collaborative basis. Effective international collaboration is thus essential to deliver the UK’s commitments to the international policy agenda. We are heavily reliant on national and international collaborations and access to major infrastructure and logistics support (eg ships, internationally managed satellite programmes) required for operating in or observing the oceans and earth’s geological processes.

3. The EU Framework programme provides an essential source of “matching funding” and our participation enables the UK to lever international research programmes. Policy influence and support from the Research councils/OSI, especially for the provision of the UKRO service, should be maintained.

4. The UK must recognise that the scale of investments in major infrastructure required over the coming decades (eg cabled sea-floor observatories) will require cooperation particularly at the European Level such as envisaged by the European Strategy Forum on Research Infrastructures (ESFRI). We must engage collaboratively with initiatives in Europe and internationally that afford the opportunity to develop and share major research infrastructures and develop the capacity to fund observing systems on a sustained basis, bridging the research to operational divide. This requires coordinated cross-Departmental action.

THE STRENGTHS AND WEAKNESSES OF EXISTING RESEARCH COUNCIL AND OSI MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION

5. NOCS welcomes the coordination of international strategies of the Research councils, OSI and other Government Departments through the Global Science and Innovation Forum. The GSIF report in October 06 “A strategy for international engagement in research and development” provided a helpful summary of measures to maintain and promote international collaboration. However more could be done to publicize both the existence of this report and the individual measures available.

6. Effort and funding appears to be focused on two European aspects: i) EU policy formulation, where OSI and the Research Councils have a good record of seeking advice directly from their Centres (as the participants) on both scientific priorities and practical implementation [participation issues, model contracts etc] and using it to influence the development of EU programmes; and ii) Encouraging participation in the EU Framework programmes.

7. This balance of policy effort for EU vs. wider international research support and influence appears to be appropriate. The UK ocean and earth science research community is increasingly reliant on winning EU funding to supplement and lever our national strategic funding programmes. The effort and infrastructure needs for ocean and earth research are too large and expensive for any single nation acting alone and we need this coordinated international effort to deliver the UK/NERC’s strategic research objectives. Hence

\(^4\) The National Oceanography Centre, Southampton is a collaborative Centre owned by the Natural Environment Research Council (NERC) and the University of Southampton. NOCS is home to some 520 research scientists, lecturing support and seagoing staff as well over 700 undergraduate and postgraduate students.

\(^5\) Not yet published, awaiting Parliamentary due process.
the EU programmes need to be aligned to UK aims and strengths. Whilst much effort is put into the formal policy making channels through OSI/Research Councils it is also essential that our key scientists engage in direct dialogue with the Commission. NOCS places particular importance on this in its undertaking of major Framework programme projects

8. The promotion of opportunities to engage with partners in the US is not given much stimulus, and the policy of the research councils [and most UK universities] to not allow contracts under US Law (because of insurance and liability implications) means that we are not able to tap into certain additional sources of funding, potentially disadvantaging the UK research community.

9. Government and Research Council mechanisms to facilitate bilateral international engagement outside of Europe appear primarily to be driven by top down government to government relationships. With some countries these high level MoU-type arrangements can provide an “entry point”, politically necessary to stimulate and lever interactions. For others they are of little added value unless they open up new funding lines or specific joint opportunities.

10. As a world leading centre NOCS attracts considerable international interest both in our research activities and in the way that UK marine science is organized. We have a number of institution-to-institution MoUs and we host many incoming visitors. However we find it difficult to reciprocate for mutual benefit. Although it is possible to access modest sources of funding to explore partnership building there is no dedicated research funding stream; unlike the increasingly common situation where Chinese intuitions tell us they have ready access to research funding especially for international collaborative projects. Additionally practical issues, such as synchronizing applications to existing national programmes’ timescales and the “double jeopardy” of two peer review systems can prove a disincentive.

11. There is little direct visibility to the research community of OSI/Research Council broader international policy interactions. NOCS is regularly asked to provide briefing through NERC to OSI [for example as briefing for ministerial visits] but we only rarely get feedback on its usefulness or opportunities arising as a result. Similarly MPs visits may provide useful opportunities to follow up.

HOSTING INTERNATIONAL PROGRAMME AND PROJECT OFFICES

12. The UK hosts a significant number of International Project Offices (IPO) for major international programmes. The coordinating function of these Offices is vital for the efficient conduct of very large programmes, involving many different countries and organizations, and is something the UK is generally “good at”. At NOCS the most significant of these is the IPO for the CLIVAR Programme (Climate Variability and Predictability) which is part of the World Climate Research Programme (WCRP). The hosting of IPOs provides the UK with visibility and influence internationally. Participation in such international projects has brought clear advantages to UK science by providing wider opportunities for data and information sharing, shared facilities and exchanges with other scientists worldwide. They also provide coordination of large scale international activities which feed into policy (the worldwide organization of the climate model runs and associated database providing input to IPCC by WCRP/CLIVAR is an example).

13. The support provided by the UK Research councils to the IPOs is much appreciated by the international community and helps to raise the international profile of the hosting institutes. The presence of these offices has the advantage for the UK that it helps to keep us in touch with research elsewhere, providing direct access to information on the international research agenda. It also helps to ensure that the international projects themselves are kept abreast of developments within UK. We believe such activity should be viewed as integral to the leadership role that the UK seeks to provide internationally in science and the environment.

14. Although undertaken on an impartial basis with access for the whole research community, the hosting of IPOs usually requires some degree of subsidy by the host nation/institution. NERC continues to be generally supportive of the hosting of IPOs, though it does not do so at full economic cost. Hence where international sources of funding come under pressure, the host institute may find itself subsidising the operational costs of the Office. The Councils perspective is that benefits accrue to the host Centre and therefore hosting is very much a judgment for the host centre management. However it is important that such decisions are taken with full understanding of the implications.

PARTICIPATION IN INTERNATIONAL PROGRAMMES AND MECHANISMS FACILITATED THROUGH THE RESEARCH COUNCILS

15. On behalf of the UK research community the Research Councils engage in and or subscribe to a number of international programmes and initiatives. Those of particular importance for NOCS include the International Ocean Drilling programme (IODP), International Cooperation in ridge-crest studies, International Marine Past Global Change Study (IMAGES) and InterRidge as well as the European Science Foundation’s Marine Board. It is vital to the UK community that such participation is maintained.
International collaboration through the EU Framework Programme, including resources enhancing partnership between the Research Councils and European agencies in the new Framework 7 initiative and the provision of resources to stimulate UK participation in international programmes

FP mechanisms

16. NOCS has a strong track record of participation in the EU Framework programmes, including leadership of major projects such as HERMES. We maintain an in-house “intelligence” of FP issues, facilitated by tailoring the intelligence, practical assistance and training activities provided through the UK Research Office in Brussels (UKRO). UKRO’s activities are welcomed by the research community, are well utilized and acknowledged as being of high quality, timely and effective. It should continue to be fully supported.

17. The support mechanism provided by DTI/OSI to stimulate non-academic UK engagement in the Framework programmes is via a series of “National Contact Points” (NCPs). In the Environment area, confirmation of the NCP was delayed. As the assessment criteria for projects include the engagement of industry, particularly SMEs, we are concerned that they may not be getting the support needed.

18. Once approved, projects are taken forward and managed by the individuals and institutions concerned, with little down stream support when projects run into difficulties (eg contractual, consortium issues, payments from Commission). A more holistic approach might encourage greater confidence in the Framework mechanisms.

Marine Science in FP7

19. We particularly welcome the decision in the 7th EU Research Framework Programme to give special attention “... to ensuring there is effective coordination between the thematic areas and to priority scientific areas which cut across themes, such as marine sciences and technologies”. We have yet to see how the Commission will implement this and it is essential the UK Government maintains pressure to ensure such coordination is implemented, with the active engagement of the marine science community.

FP infrastructure issues

20. The policy focus of the Infrastructure programme in FP5 was to enable access to existing large-scale infrastructure, (large equipment, ships etc). However in FP6 it was changed to an emphasis on development of “new, smaller” infrastructure such as databases. This has disadvantaged the Community by making it more difficult to access and more difficult to afford to continue provision of large scale facilities, particularly an issue for ocean and earth scientists.

21. Future Marine Science will depend heavily on major infrastructure for sustained observational networks (eg cabled sea-floor observatories) which the UK science base will not be able to support in isolation. It is essential, therefore, that the UK rapidly engages with initiatives in Europe that afford the opportunity to work collaboratively to share the costs of such infrastructure. For this reason NOCS is keen that the UK engages in the European Strategy Forum on Research Infrastructures (ESFRI). Nine of the Roadmap projects map directly onto NERC science. Of the 35 projects currently on the ESFRI roadmap we are particularly interested in EURO-ARGO (European contribution to the global profiling float programme) and EMSO (European Multidisciplinary Seafloor Observatory).

22. The UK Research community needs the proactive support of OSI/Research Councils if the UK is to get the best possible return from the FP7 call for bids for preparatory phase studies for science infrastructure projects on the ESFRI Roadmap. The view here is extremely strong that this is something the UK simply cannot afford to be left out of because this is such a big part of the future direction of Marine Science—and the infrastructure requirements are massive. The UK is very well placed to play a significant role and provide much intellectual leadership but we are in danger of slipping behind. Consequently we believe OSI/NERC needs to do more than keep a watching brief and become more proactive.

Capacity building

23. It is unclear where or whether an international capacity building role is recognised in the strategic priorities of the Research councils. Many research challenges eg those related to climate change, require us to work to develop observing programmes in developing Countries. In these circumstances the need for local capacity building becomes apparent to institutions work at this “sharp end”. However this seems less apparent in Research Council priorities which focus on scientific excellence.

24. We see an increasing role in the development of training materials such as those produced by NOCS under the UNESCO Bilko Project. http://www.noc.soton.ac.uk/bilko/about.php to facilitate “hands-on” training in coastal and marine remote sensing for those traditionally excluded by the:

- high cost of commercial image-processing software,
- need for expensive computer equipment to run that software,
25. The continued worldwide success of the Bilko project (which has distributed software and training materials to over 600 marine science laboratories and educational establishments and more than 3000 individual users in nearly 100 countries) bears witness to the widespread demand for the training in countries both with limited and advanced remote sensing capabilities.

26. The inclusion of developing countries as equal partners in FP7 consortia where appropriate should be welcomed from a capacity building point of view. This should make it easier to build true, 2-way collaboration, which is more than mere technology transfer. There are opportunities for Research Councils/OSI to bid into the “Capacities” part of FP7—to set up INCONETS with different regions of the developing world. This would provide a golden opportunity for UK to influence future FP7 plans for capacity building through future FP7 calls.


27. NOCS fully endorses the longstanding commitment to coordinate across departments on issues related to marine science, through the mechanism of the InterAgency Committee on Marine Science and Technology (IACMST) chaired by Professor Howard Dalton. NERC provides the Secretariat, which is hosted at NOCS.

28. Internationally the Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO) is the recognized body within the UN system for science of the oceans. NERC is the designated lead for the UK; the IOC Office is hosted by NOCS, the same personnel also run IACMST so helps to promote greater cohesion with national activities in marine science. Current or recent IOC activities involving active NERC participation include: the intergovernmental committee for developing the Global Ocean Observing System (GOOS) (A NOCS scientist leads the UK delegation and also represents NERC in the European component of GOOS), the International Oceanographic Data and Information Exchange committee (member of BODC is present chair), an advisory group on Law of the Sea issues grappling with some fundamental issues as to how the UN Convention on the Law of the Sea applies to operational oceanography (NOCS scientist heads UK delegation), intergovernmental coordination groups on tsunamis within multi-hazard framework (one on NE Atlantic and Mediterranean where NOCS leads UK delegation, the other on global aspects, where NOCS represents UK). With the recent-establishment of the UK National Commission to UNESCO, encouraged by the Secretary of State, a Natural Sciences Committee has been formed. The head of the UK IOC Office at NOCS is a member of this committee.

29. The Joint IOC/WMO Commission on Oceanography and Marine Meteorology (JCOMM) coordinates, regulates and manages a fully integrated marine observing, data management and services system. One of its roles is implementing the open-ocean part of GOOS. NERC and the Met Office have developed a close working relationship to represent the oceanographic and marine meteorological communities in this Commission. The UK is represented on all the subsidiary groups of JCOMM including several NERC scientists. The full meeting of JCOMM is held every 4 years with the lead alternating between the Met Office and NOCS. The Director of NOCS has recently been appointed to join the Steering Committee of GCOS, the Global Climate Observing System of the World Meteorological Organisation.

30. Because NERC is an NDPB and not a Government department we are concerned that it may not be automatically included in departmental briefing meetings on intergovernmental issues, though some ad hoc arrangements are in place. Drawing on our experiences in respect of IOC/UNESCO the UK IOC Office (based at NOCS) is currently assisting FCO to develop plans for improving overarching aspects of coordination of UK inputs to international bodies.

31. It is important that science funders (eg NERC) and operational agencies (eg Met Office) and policy makers (DEFRA/DTI/MOD) work more closely together on global ocean observing systems. The present UK funding system is not well-suited to funding cross-departmental contributions to observing programmes. Also, the criteria for monitoring national needs are different from those used in the evaluation of research proposals where observations are needed to meet specific, short-term research objectives. Hence there is currently a gulf between operational funding for observational infrastructure and that for science. However, as science moves to sustained observation as a key tool in addressing decadal-scale change, the observing infrastructures will increasingly need to be developed with dual science and operational use in mind. Many parts of the global ocean observing system (eg Argo) continue to be supported by research funding which is unsustainable long term.

32. IACMST has provided the methodology for conducting a cost-benefit assessment to establish the value of maintaining or stopping long-term monitoring programmes. The seriousness of this issue has been recognised by the Marine Assessment Policy Committee, the Environmental Research Funders’ Forum and
the Global Environmental Change Committee. The problem is common to many countries but there is an
opportunity for the UK to take a lead in finding a solution to this problem which is a significant barrier to
developing a sustained ocean observing system.

33. Although there are encouraging signs [viz new cross-Departmental programme in NERC’s draft
strategy “Living with environmental change”] the research community still perceives a lack of engagement
by DfID. The Ecosystem and Poverty Alleviation programme http://www.nerc.ac.uk/research/programmes/
espa/administered by NERC on behalf of NERC, ESRC and DfID only has a 1m budget for its first call
for 4 situation analyses, with further support dependent on DfID ministerial approval and the 2007 spending
review. DfID also let the Canadians administer 24m of UK funds for research into climate change
www.idrc.ca/ccaa/ev-94429-201-1-DO_TOPIC.html. Although the Canadian contribution to the fund was
a third of that from DfID, it appears from the website to be primarily a Canadian programme—see http://
www.idrc.ca/ccaa/. The IDRC no doubt does an admirable job, but we could do with greater support for
UK researchers wishing to build partnerships with colleagues in Africa and other parts of the developing
world and improved recognition of the DfID interests.

The impact of the Research Councils’ policies on the international mobility of scientists and
engineers

34. The UK, which needs to attract the best researchers to come here, struggles to compete eg with
Germany, whose more generous pension and other benefit arrangements tend to lock researchers into their
system.16

April 2007

Memorandum 16

Submission from the Proudman Oceanographic Laboratory

Strengths and weaknesses of existing Research Council and OSI mechanisms and activities to
maintain and promote international collaboration

International policies and activities of the research councils work well where there is a community of
relevant UK scientists with research interests that map into international programmes. A good example is
climate research where the UK is one of the international leaders in climate prediction and our research in
this field maps into IOC/WMO for the IPCC reports and the WCRP. It is natural for the NERC to develop
a policy at a corporate level for international collaboration on climate change research driven by its
“bottom-up activities”. It is also important that the NERC works closely with Defra on developing
international collaboration on climate change research, the latter being strongly engaged in this field.

The effectiveness of collaboration between the Research Councils and the Government
Departments involved in international scientific activities, including the OSI, Defra, the Foreign
and Commonwealth Office’s Science and Innovation Network and the Department for
International Development

We are pleased to see a new collaborative initiative between DfID and NERC in which state of the art
environmental research will be used to alleviate poverty in targeted regions of the world. However, the threat
of coastal flooding due to rising sea level and storm surges has the potential to claim many lives in developing
countries and despite our overtures to DfID about this matter they are still unable to fund work on this topic.
The Permanent Service for Mean Sea Level (PSMSL) based at POL has been campaigning for the
deployment of tide gauges in NW Africa to provide data for a coastal flood forecast system. Rapidly
growing cities such as Lagos are vulnerable to storm surges, potentially leading to a loss of life measured in
the tens of thousands. The International Oceanographic Commission (IOC) and NERC co-fund PSMSL
but this does not cover the cost of deploying and maintaining a tide gauge network in NW Africa. In practice
the best way of ensuring maintenance of tide gauges in this part of the world is to train local people such as
harbor masters to become the custodians of the system. In our opinion it would be entirely appropriate for
DfID, together with the IOC and NERC, to contribute towards the cost of developing a coastal flood
forecast system for NW Africa.

16 See NOCS submission to the Investigating the Oceans Inquiry.
INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK PROGRAMME, INCLUDING RESOURCES ENHANCING PARTNERSHIP BETWEEN THE RESEARCH COUNCILS AND EUROPEAN AGENCIES IN THE NEW FRAMEWORK 7 INITIATIVE AND THE PROVISION OF RESOURCES TO STIMULATE UK PARTICIPATION IN INTERNATIONAL PROGRAMMES

POL scientists are very well served by UKRO as regards European Union issues and funding. We believe that it is important that the UK continues to be represented on Framework Programme committees by Ruth Boumphery and her counterparts with good contact with the research community, not just by “faceless” civil servants in Defra.

The EU is developing plans for large scientific infrastructure such as an ice breaker and marine cabled observatories. However, we are concerned that there has not been wide enough dialogue between UK scientists (in the HEI and Research Council sectors) and the Research Councils about constructing a priority list for these large facilities. How will the Research Councils decide which of the large EU infrastructure projects will be supported if wide consultation with the scientific community has not taken place?

April 2007

MEMORANDUM 17

Submission from the University of Leeds

EXECUTIVE SUMMARY

International activity across the Research Councils appears to vary considerably. There is further scope for them (or OSI) to provide seedcorn funding to further facilitate international collaborations. Support in accessing overseas research funding needs to be considered but support for EU funding collaboration is well provided for.

1. There is a perception that the international activities of the Research Councils varies considerably from Council to Council. In terms of funded activity, opportunities are relatively scarce. The BBRSC has a seedcorn scheme to fund embryonic international collaborations. This small-scale funding is useful for the academic community, and may be a model that other Research Councils could replicate. It should be noted that the University of Leeds is a member of the Worldwide Universities Network. Getting valuable research led collaborations such as these off the ground would be assisted enormously by a dedicated funding stream for setting up international research links.

2. Again, experience of Research Council activity as a bridge to overseas activity is mixed. In some areas (for example PPARC), the nature of the work is unavoidably international and as such much valuable work is undertaken directly by the Research Councils with overseas partners to facilitate access to equipment for example.

3. Providing substantive funding for research activity overseas varies from Research Council to Research Council. Our experience would suggest that direct funding of overseas partners is seen as problematic by Research Councils. A more nuanced approach may be appropriate where there is a real academic gain for the University and the UK as a whole—and perhaps the prospect of longer term collaborations or funding from overseas sources.

4. Another problematic areas is in relation to accessing international non EU funding. US funding sources are increasingly open to bids from non US based organizations. Many of the larger charities and organizations such as NIH, now treat European participation with parity. It is noticeable however, that whilst the UK is gradually increasing its share of the market, other countries (notably Canada and Australia) appear to be more successful at this time. There may be a role for Research Councils and more probably OSI in brokering relationships with these major funding organizations and UK Universities and perhaps through the organization of seminars and workshops. A physical presence in the US may be worthwhile, but encouraging these funders to visit our shores and to showcase research excellence in the UK may be of equal benefit.

5. The UK is very well served in relation to EU Framework Funding support. The University/Research Council sponsored UKRO (UK Research Office, Brussels) provides invaluable support and advice on Framework Funding for virtually all of UK HEI and other organizations. UKRO has recently appointed a dedicated resource to policy support for Research Councils. This is to be welcomed as a way of ensuring that RCUK become further engaged in European Funding activity—again this has varied from Research Council in the past.

6. Many countries within Europe receive dedicated funding to support Framework activity. This is often administered through Research Councils. Whilst some travel grant support is available which may be “shoe-horned” to support preparatory work in relation to Framework funding, there is no dedicated travel money for preparatory work pre-award. A relatively small amount of funding for travel and preparation costs would make a considerable difference.
7. The Framework Programme also offers the opportunity for the first time for “co-funding” of Marie Curie Fellowship activity. This will effectively provide match funding to open up existing Fellowship Schemes to a wider (international) client base. It is suggested that there are obvious opportunities here (perhaps with a co-ordinating role from OSI, which is the programme committee member for Marie Curie) to use this as an opportunity to increase the number of talented overseas researchers choosing to work in the UK. It is not clear what preparatory work is on-going to kick-start this initiative at present.

April 2007

MEMORANDUM 18

Submission from the Department for International Development (DFID)

INTRODUCTION

Research, new technologies and ideas are crucial in the effort to eradicate poverty, tackle disease, and fight the impact of climate change in developing countries. Progress in medical science has led to the development of vaccines for diseases, progress in agriculture science has led to improving crop yields, and progress in information and communications technologies enables worldwide information sharing benefiting also developing countries.

2. The Government’s 2006 White Paper Making Governance Work for the Poor emphasises the importance of new technologies, knowledge and evidence-based policies for development; it sets out that these are fundamental to growth and poverty reduction. DFID sees research as a vital tool to help deliver the internationally agreed Millennium Development Goals. That is why the White Paper announced a doubling of DFID’s research budget from £110 million in 2005–06 to £220 million in 2010. Partnership with the UK Research Councils will be an important element in harnessing research to fight poverty. It brings the best of UK academic excellence to our work. It will also increase the linkage between developed and developing countries on research for global issues, such as climate change, which need global knowledge and solutions. Development science is broadly defined as “science with a direct or indirect potential to contribute to international agendas for development in the poorest countries of the world”.

EMERGING IMPACT

3. Partnerships between DFID and UK Research councils are already showing success and demonstrating their value:

— Research Councils’ main focus is the UK and provision of research support to UK-based researchers. DFID’s focus is poverty reduction with a focus on Africa and South Asia. Combined, the UK research base is better able to contribute to global issues related to development and DFID is able to draw on the world-class level of UK research expertise.

— The schemes have a high volume of good quality applications, which effectively link development issues to UK expertise. This demonstrates strong demand for the schemes and the increase in UK academic focus on development issues.

— Collaboration between the UK academic community and overseas counterparts is growing. This will help to increase the capacity of developing country researchers to do better research and increase the likely impact of research on development.

— New partnerships between UK Universities and international development NGOs are emerging.

— Developing countries are better able to access unique and long-term data sets held by Research Councils; vital to improved service delivery, for example in public health. For example research done at the MRC unit in the Gambia has informed the global Hib (a form of meningitis) vaccination programmes and has contributed to the elimination of Hib disease from the Gambia.

— Increased focus on communicating research outputs to users: Research Councils are learning from DFID initiatives in this area ad sharing experiences with other researchers. This will result in the increased impact of research.

— Working with Research Councils has enabled DFID to access technical expertise not available in-house.

— Research Councils are better able to represent the UK internationally in the international development field.
Ev 80  Science and Technology Committee: Evidence

Collaborative Research Programmes between DFID Central Research and Research Councils

4. DFID has four existing partnership schemes with the UK Research Councils: Economic and Social Research Council (ESRC); Medical Research Council (MRC); Biotechnology and Biological Sciences Research Council (BSRC) and a joint scheme with National Environment Research Council (NERC) and ESRC.

— The Economic and Social Research Council/DFID Scheme for Research on International Poverty, a new research grants scheme, was launched in August 2005. It funds world class scientific research that contributes to poverty reduction in developing countries. This joint scheme has a total budget of £13 million over four years, ending in 2010. DFID is contributing £7 million and ESRC £6 million to the scheme. Applications can be made by UK and non-UK institutions. There is much to indicate that the scheme has been a success to date and that more is yet to come. The scheme has developed over time through continuous learning between partners, and both ESRC and DFID have signalled a willingness in principle to consider a consolidated regular scheme. This decision will be made in the light of a mid-term review in 2007.

— DFID has a longstanding concordat with the Medical Research Council, contributing approximately £4 million per year. The use of high quality biomedical and public health research generated through the programme will help to tackle health problems in developing countries. The concordat has built on previous work and ensures that there are good communication channels between MRC and DFID. The increased mutual understanding has enabled the Health Funders Forum (a meeting of organisations funding health research relevant to developing countries) to develop, and both organisations to represent each other if required at meetings etc. of joint interest. The Health Funders Forum includes DFID, Wellcome Trust, MRC and ESRC. We will review the model of collaboration during 2007. In addition DFID has two projects with MRC on HIV/AIDS: A £42 million Microbicides Development Partnerships programme of which MRC contribute £2 million; and anti-retrovirals therapies for adults and children—two £5 million programmes with the MRC contributing £2.5 million or higher.

— DFID is working successfully with the Biotechnology and Biological Sciences Research Council (BBSRC) on the new £6 million programme on research on sustainable agriculture for international development. DFID contributes approximately two thirds of the funding. The first call of this programme was launched in September 2006 and provides grants to UK and non-UK researchers to generate new knowledge that contributes to growth and poverty reduction in developing countries. This programme forms an integral part of DFID’s strategy for research on sustainable agriculture. Further joint programmes with research councils on agriculture and natural resource management are planned.

— A £30 million climate change research programme on Eco-systems services was established in 2007 with the Natural Environment Research Council and ESRC. The idea of a collaboration on ecosystems and biodiversity has been endorsed in two cross-Whitehall groups: the Research Coordination Working Group of the Environment Research Funders Forum, and the Global Biodiversity Sub-Committee of the Global Environmental Change Committee. It will directly address HMT’s policy challenge 5—the increasing pressures on natural resources and global climate from rapid economic and population growth in the developing world—and deliver against DFID’s new White Paper commitments to (a) invest in science, technological advances and innovation to manage global environmental challenges; and (b) provide developing country governments with access to the best international expertise.

Indicative Strengths of the Schemes

5. Familiarity with the schemes extends beyond self-designated development studies departments and institutes. That is to be welcomed and, for example, the ESRC will seek to build upon this. However, though well-established in the UK, much remains to be done on the international front, especially with regard to developing-country participation.

6. The ESRC/DFID scheme has been very important in adding an impetus to a debate that had started in the research community about where international development research had reached, and where it should be going. It has stoked the debate already underway about the perceived tension between intellectual innovation and rigour on the one hand, and impact of research results. DFID requires impact on poverty reduction and policy relevance to be demonstrated in the schemes.

7. Outside the UK, there is considerable interest in the ESRC scheme amongst other national and international agencies, both research and development aid agencies. It is recognised that this model of collaborative working is innovative in attempting to bridge the agendas of both research and development aid agencies.
8. Relationships with the MRC continue to evolve and this has been important, for instance in the setting up of the European and Developing Countries Clinical Trials Partnership (EDCTP). MRC is the UK representative on this body and has worked closely with DFID to identify the research that can be “counted” towards member states’ contributions to developing-country research. Continued close working is essential for the development of EDCTP.

9. DFID is committed to partnerships with the Research Councils, building on success of MRC and ESRC programmes.

OTHER COLLABORATIONS

10. Following the recommendations of the House of Commons Science and Technology Select Committee report The use of science in UK international development policy (2004), the UK is strengthening the link between technology innovation and international development. DFID has become increasingly active in UK scientific fora to give a development perspective to UK-funded research and new technologies, and the Research Councils have become increasingly interested in development—recognising the value of their global research to the development agenda.

11. The UK Collaborative on Development Science (UK-CDS), announced in December 2006 as a recommendation of the Development Sciences Working Group (DSWG) chaired by Sir David King, will bring together the main UK funders and stakeholders who support the UK development sciences research base and will create a framework for a more co-ordinated approach to development sciences research in the UK (and monitor its “health”). It will also provide a link with the European Commission Research Framework Programme. Its Steering Board will initially comprise the Office of Science and Innovation (OSI), the Department of Health, the Research Councils, the Wellcome Trust and DFID. DFID will contribute to the running costs of the Collaborative through the UK CDS secretariat. The Secretariat will play a pivotal role in establishing, directing and managing the Collaborative’s work and the relationship between its members.

May 2007

MEMORANDUM 19

Submission from the University and College Union (UCU)

1. The University and College Union (UCU) represents nearly 120,000 further and higher education lecturers, managers, researchers and many academic-related staff such as librarians, administrators and computing professionals across the UK. We welcome the opportunity to respond to the select committee inquiry into the international policies and activities of the Research Councils.

INTERNATIONAL COLLABORATION

2. International academic collaboration is an important activity because it helps to enhance the quality and vitality of UK research. In recent years there has been a greater emphasis on the international role of the seven UK research councils. Most research councils offer overseas travel grants and workshops to enable researchers to exchange ideas and develop future partnerships. Some research councils now fund postgraduate students from overseas to work on projects. We welcome these initiatives, though awareness of them remains fairly low amongst the academic and research community. We also believe that the research councils could do more to encourage greater participation from new academics, from individuals in “less research intensive” institutions and from staff based in geographically remote parts of the UK.

3. Research council partnerships with international agencies and institutions remain heavily focussed on countries within the European Union. Within the EU research collaboration is not only actively encouraged by national government agencies but also via the EU-funded European Framework Programme. The newly-established European Research Council will promote further collaboration between EU higher education institutions.

4. Outside the EU, formal collaboration schemes involving the UK research councils are much less developed. A recent report for the Gatsby Charitable Foundation shows that this is true even in relation to “research strong” countries such as the United States. We welcome the fact that a number of research councils are now looking to strengthen their links with reciprocal US funding agencies such as the National


18 For example, the research councils might look to provide short-term development funds to improve opportunities for international collaboration amongst low-applicant and geographically remote departments, including subsidising expensive travel costs incurred during the preparatory application stage.

5. The UCU would like to see more research council funding for collaborative projects with developing country institutions. We welcome the joint research council poverty reduction projects with the Department for International Development (DfID) but believe that more could be done in this area—both in terms of levels of funding and research council working methods. For example, the current rules on eligibility for grant holders sometimes leads to UK researchers working in developing countries when local researchers could be gaining the experience and, in some cases, might be doing a better job. We feel that when projects are funded to conduct research in developing countries it should be expected that local researchers are employed whenever possible.

EU FRAMEWORK PROGRAMME

6. The UCU believes that EU-funded research brings considerable benefits to UK higher education. We, therefore, are concerned about possible cutbacks in the 7th Framework Programme (FP7) as a result of the establishment of the new European Institute of Technology (EIT). We believe that the whole concept of the EIT is wrong-headed and has been put forward for political reasons without having been thought through in detail. Now that detail is put in place it becomes clear that the EIT project will be a drain on higher education activity elsewhere, and may well be supported at a cost to other research activities, including Framework 7 funded-programmes. As well as creaming finance from proven areas of work, the EIT proposals pose other problems including governance, academic freedom and intellectual property rights. On the other hand, so far there is little concrete evidence of potential added value from the EIT proposals as they stand. The UCU calls on the European Commission to abandon their EIT proposals and to use the resources to fully fund the 7th Framework Programme.

INTERNATIONAL MOBILITY

7. The genuine mobility of academic and academic-related staff is a key issue for UCU members. International mobility is not only a tool to promote cooperation across borders but also contributes to the personal and professional development of staff. In order to examine this issue in more detail we recently hosted an official “Bologna” seminar on staff and student mobility within the European Higher Education Area (EHEA). This seminar, hosted in conjunction with Education International and ESIB—the European students’ movement, flagged up the need for concerted institutional, national and international action to remove the obstacles to staff mobility.

8. In general, most “inward” and “outward” mobility in UK universities takes place amongst postdoctoral scientists and engineers working in “research intensive” institutions. To some extent this type of international “early career” mobility occurs irrespective of the specific policies of individual research councils. As one of our members suggested in response to the current inquiry:

"Scientist mobility is increasing rapidly in Europe anyway, as young PhD students and post-docs (certainly those from Eastern/Central Europe) no longer see national boundaries as important, and they are willing to learn English to pursue their careers in the UK and USA."

At the same time, the research councils can play a role in facilitating the mobility of researchers across borders, for example, via exchange programmes, study visits and foreign language training, particularly in less frequently spoken languages. We believe that the current mobility support policies of the research councils also need to be underpinned by a stronger equality dimension as opportunities for certain groups of staff (eg women) and for researchers from particular parts of the world (eg developing countries) remain unequal. As part of this process, the research councils could do more to utilise the potential of “virtual” mobility, including use of the internet, e-libraries and video conferencing, as alternatives to physical relocation.

9. Making international mobility meaningful also requires action on the part of national governments, for example, in removing current visa and work permit restrictions. There also needs to be greater convergence of social security and pension arrangements across the EHEA. We realise that these issues are extremely complex and go way beyond the remit of the UK research councils and the current select committee inquiry. However, if ministers, funding agencies and higher education institutions want to make researcher mobility a reality across the EHEA and beyond, these issues will need to be addressed.

May 2007

20 The papers from the Bologna mobility seminar are available on the Education International website http://www.ei-ie.org/highereducation/en/calendarshow.php?id=68&theme=highereducation

MEMORANDUM 20

Submission from the Met Office

EXECUTIVE SUMMARY

1. Research Councils, government departments and department agencies, including the Met Office, currently work together in a number of areas to coordinate UK engagement and influence on the international stage. There is a continual need to focus national coordination on meeting user and policy requirements, primarily to convert R&D funding into tangible benefits to national and international economies, communities and the environment. Continued engagement between these bodies is required to support top level UK government priorities such as climate change and the UK’s input to, and influence upon, international policies and funding programmes.

INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK

2. The Met Office participates in the EU Framework Programmes as a consortium partner in a number of FP6 projects, as the Coordinator of a large FP6 Integrated Project (ENSEMBLES), and as a partner in a number of project proposals responding to the first call opportunities under FP7. The Met Office’s participation uses a cost model which accesses 50% funding from the European Commission, and requires matching funding from internal programmes. A majority of FP projects require matching funding from the Met Office’s contract with Defra. Within ENSEMBLES there are seven UK research institutions who are partners. They attract 100% funding from the European Commission for work effort within the project. This does not directly leverage support from Research Council resources. However, permanent University staff provide additional research leadership to the project through their positions funded by the Research Councils.

3. It has been the Met Office’s experience that reporting procedures, auditing procedures and the requirements for project consortia partners (large number, recent member states and SME participation) can lead to administrative and management overheads which reduce the efficiency and effectiveness of Commission funding.

4. The Met Office feels it is important that R&D funding (e.g., through the Framework Programmes) is converted into tangible benefits to the European economy (the Lisbon Agenda). The Met Office brings a user focus to UK engagement in the Framework Programme series; R&D collaboration with European partners is converted into improvements in climate and weather-related products and services provided by the Met Office. A review of national engagement in the Framework Programme series to support UK priorities and investment would be beneficial, particularly now FP6 calls have closed.

THE EFFECTIVENESS OF COLLABORATION BETWEEN THE RESEARCH COUNCILS AND THE GOVERNMENT DEPARTMENTS INVOLVED IN INTERNATIONAL SCIENTIFIC ACTIVITIES

5. The Met Office has recently been working closely with NERC and Defra national contacts in developing the UK priorities for the FP7 Cooperations: Environment (incl. climate change) specific programme and detailed work programme calls. This coordination between NERC and Defra is encouraging in influencing international scientific activities through e.g., the Framework Programme series. Continued development of such departmental and research council coordination across government will be beneficial in representing UK government top level priorities such as climate change.

The strengths and weaknesses of existing Research Council and OSI mechanisms and activities to maintain and promote international collaboration.

6. Last autumn (2006), Defra led a cross-government group consultancy process with DTI, NERC, BNSC and the Met Office to develop a paper for taking a more strategic and long-term approach to the UK’s future global environment data and monitoring needs, particularly with respect to engagement in European and international initiatives. Recently the DG of OSI and the DG of the Strategy and Evidence Group, Defra have jointly instigated a mechanism to address these issues. They argue that a government-wide strategy is required for the acquisition (including funding) and use of data and evidence on the global environment to support the UK’s role on climate change and other global environmental issues. A strategy will need to take account of:

— the need to share costs and ensure value for money through partnerships (public and private, as appropriate);
— the UK’s desired role in EU and other international systems and initiatives in this area;

22 The Met Office is an Executive Agency of the Ministry of Defence.
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7. The Met Office is supportive of, and encourages, this Defra/OSI activity to develop a framework for UK funding of cross-cutting, European and global environmental information initiatives to support top level government priorities such as climate change.

April 2007

MEMORANDUM 21

Submission from the British Antarctic Survey (BAS)

EXECUTIVE SUMMARY

1. BAS science is global, and its work is almost all international. Providing expert advice in support of FCO policy is a key function. As well as providing most of Britain’s presence in Antarctica, BAS operates on South Georgia and runs a base in Svalbard. International Polar Year 2007-2008 has opened up new possibilities for science, including the Arctic. BAS has a vast range of overseas collaborations, including programme agreements with other national organisations, and international partnerships involving individual scientists and research groups.

DETAIL

2. The mission of BAS has always been international. Originally the Falkland Islands Dependencies Survey, it was not transferred from the Colonial Office to the Natural Environment Research Council (NERC) until 1967. The FCO remains a major stakeholder, with which BAS is in daily contact, and there are also close links with the British Council’s overseas programme of science outreach. Advice is also provided to DEFRA, for example on climate change and global sea level rise. At all major Antarctic Treaty meetings BAS provides key senior members of the UK delegation, as well as scientific, environmental and logistical advice. In doing so, its mission is “to sustain for the UK a leadership role in Antarctic affairs”.

Without this input from BAS, the UK would not be as influential in the international governance of Antarctica, and the UK’s ability to maintain its sovereign claim in Antarctica (the British Antarctic Territory) would be weakened. This close coordination between BAS and FCO was illustrated clearly at last year’s Antarctic Treaty Consultative Meeting in Edinburgh, which was described by Lord Triesman as a huge success for Britain (hosting for the first time in 30 years). BAS contributed over 60 staff, including 10 members of the UK Delegation, and its Royal Research Ship James Clark Ross, and drafted many of the meeting’s essential papers. Operation of permanent bases in the Antarctic, at Rothera and Halley, and a summer station at Signy Island, is also a major BAS contribution to the maintenance of Britain’s territorial claim.

3. BAS represents the UK on the Council of Managers of National Antarctic Programmes, achieving greater impact there than any other country except the US: many newer members, including Korea and the Czech Republic, have come to BAS for practical advice. BAS scientists are highly influential in the Scientific Committee on Antarctic Research (SCAR), and in July 2006 Professor Chris Rapley (Director of BAS) was elected as its President for the next 4 years. He will therefore be well placed to guide the work of SCAR through the whole International Polar Year period (see para. 11 below).

4. BAS’s international role extends throughout the South Atlantic: its written evidence submitted on 19 January 2007 to the Committee’s Inquiry “Investigating the Oceans” covers this. Its ships and aircraft are all registered in Stanley, Falklands, which is the forward logistic base for BAS Antarctic operations (contributing over £1 million annually to the Falklands economy). FCO evidence to this Inquiry will be relevant here.

5. BAS has a base on Bird Island (South Georgia). Under a MoU with the FCO and the Government of South Georgia, it also provides the British presence at King Edward Point, formerly an MOD responsibility, which is essential for HMG as well as for the Government of South Georgia (a UK Overseas Territory, like the Falklands and the British Antarctic Territory).

6. BAS science covers the whole gamut of theoretical and applied. It gains much from the interdisciplinary nature of BAS research, and from the organisation’s integrated structure, which also makes BAS a more attractive—and often essential—partner for international collaborators. Here are three examples of BAS’s international science profile, with direct policy implications:
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(i) Atmosphere science. Identification of the ozone hole and its causes, together with long term monitoring of its recovery, is a high priority for BAS. This work led to the Montreal Protocol and the subsequent global agreements to remove chloro-fluoro-carbons (CFCs) from use.

(ii) Climate history in ice cores. BAS makes a major contribution to the European Project for Ice Coring in Antarctica (EPICA). EPICA is a multinational project for deep ice core drilling in Antarctica. Its main objective is to obtain full documentation of the climatic and atmospheric record over the last 1 million years archived in Antarctic ice, by drilling and analyzing ice cores. It has been a remarkable success for Europe and for BAS scientists.

(iii) Sea level rise. Determining the West Antarctic Ice Sheet’s future contribution to sea level rise is vital: it was the largest uncertainty identified in the recent report by the Inter-Governmental Panel on Climate Change. BAS made key inputs to the final report, both on describing recent changes and on assessing their impacts.

Success in these and other areas of science is due largely to the BAS policy of doing global science, with wide applications, not restricted to narrow polar research. The very nature of the challenge means that earth system science has to be international, and it is in Britain’s best interest to tackle it in this way. Antarctica is used as a natural laboratory for scientific questions which cannot be answered anywhere else, and which often require an interdisciplinary approach. As the international focus on climate change increases, and the global significance of the polar regions is better understood, this approach will pay even greater dividends for BAS and for the UK. The BAS website is already used worldwide as a vital resource. Other aspects of the global impact of BAS science are covered in the separate evidence submitted by NERC to this Inquiry.

7. An essential part of the international governance of Antarctica is environmental protection. Under the Environmental Protocol to the Antarctic Treaty, all Treaty nations are responsible for this, but in practice a handful take the lead in formulating policy and making sure that it is implemented. Britain is a leading player, and the expertise is provided by BAS. The output includes sophisticated management plans for the most vulnerable areas, and greater awareness of the fragility of the Southern Ocean’s ecosystem. The environmental approach to the construction of the new British base at Halley over the next 3 years will be a model for other nations to follow.

8. In biology, BAS work on biodiversity and Southern Ocean ecosystems has a direct impact on international policy. Scientific advice to the Commission for the Conservation of Antarctic Marine Living Resources (described in BAS’s Investigating the Oceans evidence) is crucial to managing the Southern Ocean’s rich fishery resource properly, and thus to the income of the Government of South Georgia from licences. Similar input is made to the Agreement on Conservation of Albatrosses and Petrels, which was largely inspired and drafted by BAS scientists.

9. Another practical output is Polar View, a European-funded project for monitoring sea ice by satellite. This is a major new BAS contribution to the safety of international shipping in Antarctic waters. Like BAS’s search and rescue capacity there, and the hydrographic work done by BAS’s own ships, and by HMS Endurance (with which BAS cooperates very closely), it reduces the risks to British citizens travelling on tour ships in the Antarctic.

10. Although the main focus is Antarctic, BAS operates for NERC a research station at Svalbard, and much of BAS science is by nature bipolar. There is already collaboration on science and logistics with certain Arctic nations, especially Norway, and BAS is actively seeking ways to expand this. Greater use of BAS assets in the North during the austral summer is possible, but would require some additional funding.

11. International Polar Year 2007–08 (IPY) is providing an additional dimension for BAS’s international work over the next two years. The IPY International Programme Office, funded by NERC, is at BAS Cambridge and is overseeing 170 science projects at both poles. The UK is involved in about half of all IPY projects, with a major BAS input to those in the Antarctic. This makes BAS by far the biggest UK participant in IPY, and one of the most significant worldwide. The UK IPY National Committee, with a large input from BAS, helps to coordinate the significant UK involvement in the Polar Year.

12. Part of the legacy of IPY will be even stronger international collaboration for Britain in this field. Already BAS has over 100 international MoUs. IPY is an opportunity to gain access to new areas of science or different geographical regions where Britain is relatively weak, and to showcase our specialities. For example, BAS is currently negotiating with an international group to carry out aircraft survey work in East Antarctica (Dome A) which is likely to lead to involvement in the deepest ever ice core drilling programme.

13. BAS intends to build on earlier successes in stimulating new strategic partnerships at national level. For example, there is a lively relationship with China: an MoU with Holland, from whom BAS provides their primary Antarctic access for biological research; a productive new link with Malaysia: and advanced plans for a MoU with Ukraine, who will host the 2008 Antarctic Treaty Consultative Meeting. Against this background, it is not surprising that BAS itself employs over 20 nationalities, and chooses its individual collaborators from the widest possible range of countries.

14. At the European level, BAS is fully engaged. It provides advice to the European Space Agency, and has activities with both the European Parliament and the European Science Foundation (ESF). There has been substantial involvement through representation on and interaction with the ESF European Polar Board, and BAS senior staff are contributing significantly to the EU-Funded European Polar Consortium.
In Antarctica, European (including BAS) input into ice core climate record research over almost two decades has been of fundamental importance, and BAS research at remote sites like Berkner Island has led the way to new discoveries. The UK Research Office (UKRO) provides assistance to UK researchers bidding for EU funding. However, BAS believes that the UKRO could be more proactive, to ensure that UK polar interests are fully incorporated into FP7 and the work of the European Research Council.

15. International outreach is an important activity for BAS, also stimulated by IPY. Its learning website for children—"Discovering Antarctica"—has global reach, and since its launch last June has received over 3 million hits. Its international success means that it is now being translated into other languages. A major Antarctic exhibition opening at the Natural History Museum in May, with a lot of BAS input, will go on to tour internationally, reaching millions of people.

CONCLUSION

16. There is no significant area of BAS activity which is not international in its nature and output. Contributing to international understanding of Antarctica’s influence on the earth system, and on climate change, is the essential business of BAS, and is reflected in its vision and mission statements. BAS seeks the widest possible international collaboration, in both science and logistics, because that is the way to maximise the value of the UK investment in the polar regions. Its aim is to provide sound evidence on which international policies can be based, and to increase Britain’s influence in the community of Antarctic nations. That is why the FCO is a key stakeholder for every division of BAS, and DEFRA too is of increasing importance as its role in climate issues develops. BAS aims is to underpin and promote British science worldwide, particularly on climate and environmental issues, and to provide the necessary support for British foreign policy in Antarctica and the South Atlantic.

April 2007

MEMORANDUM 22

Submission from the Natural Environment Research Council (NERC) Centre for Ecology and Hydrology

EXECUTIVE SUMMARY

The current international policies and activities of the Research Councils lack cohesion. This mirrors the low priority and lack of coordination of international research across UK government departments. A lack of vision and inadequate resources curtail the development of strategic international research policies and priorities.

An increasing amount of research is being undertaken collaboratively through networks of world leading organizations that will move towards coherent virtual institutes. The Research Councils must transform their international policies and activities if the UK is to secure a leading research role, and deliver an innovation and knowledge based economy.

1. The NERC Centre for Ecology and Hydrology (CEH) is the UK’s Centre of Excellence for research in the land and freshwater environmental sciences. Research is aimed at improving understanding of the natural processes that underlie the Earth’s support systems (eg climate, water resources, natural hazards, ecosystem services), and of the impacts of human activity on the natural environment. CEH provides the knowledge base for UK government, European and international policies to underpin solutions to environmental issues arising from global change and the need for sustainable economies.

2. Many of the scientific issues that CEH addresses are global in extent, and require studies to be undertaken at key sites around the world. In order to benchmark and improve its knowledge, CEH works with, and learns from, other world leading research organizations. Through its international activities CEH is able to attract world class scientific staff. CEH has undertaken research in more than seventy countries.

3. While CEH’s science falls mainly within the remit of NERC, the new and increasingly complex challenges that CEH is seeking to tackle often cut across several RCs (ESRC, EPSRC, BBSRC and MRC). CEH is therefore affected by the international policies and activities of these different RCs.

4. The International Dimension to Research

The international policies and activities of the Research Councils must be assessed in terms of how current, and expected future, research will be undertaken.

4.1 Understanding and finding answers to the large and complex challenges facing individuals, nations, and the global community requires the mobilization of massive resources. These resources can only be realised through international coordination and collaboration between teams, using costly research infrastructures that are established and operated on the basis of shared financial support, and levels of usage.
4.2 Other drivers of change include the advances in Information and Communications systems, the standardization of English as the language of research, personal (hyper-)mobility and global environmental monitoring.

4.3 In the future far more research will be undertaken across globally networked organizations acting as virtual institutes. National research organizations will increasingly commit resources to collaborative programmes that are agreed and implemented through both bi-lateral agreements, and as part of formal multinational research networks.

4.4 These international programmes will need far greater mobility, including secondment, of researchers between collaborating institutions, and between research organizations, RCs and UK government departments.

4.5 International policies and activities must progress from mere communication, through coordination into mature strategic research collaboration.

4.6 If the UK is to be a world leading knowledge and innovation based economy, it must have research organizations, Research Councils, and government departments that have the policies, strategies, structures and programmes in place to develop and benefit from international collaboration. This vision is largely lacking from the UK government departments and the RCs.

5. Research Councils, UK Government Departments and International Research

It would be a mistake to review the international research policies and activities of the RCs in isolation from those of UK government departments. Many of the short-comings of RC international policies and activities are linked to a lack of vision and collaboration between UK government departments.

5.1 The international research activities of some of our EU partners (eg France and Germany) are more strategically planned and executed with greater coordination between the research organizations, RC equivalents, and government departments. This coordination is embedded in the French systems, and evidenced by established mechanisms for exchange of research policymakers, managers and administrators between research organizations, other government ministries and overseas postings.

5.2 The French and several other European research communities enjoy high level diplomatic support in establishing long term international research collaboration. This long term commitment encourages research organizations to commit their resources to participate in and support these strategies.

5.3 In implementing the Lisbon Agenda, the European Commission has launched a number of initiatives to change the industrial culture of Europe. These initiatives increase the opportunities for UK RCs to work collaboratively with the private sector in industrially relevant international research.

5.4 Within the DTi, research capacity is not adequately prioritized as an asset to international trade, essential if the UK is to be seen as a country of innovation.

5.5 Compared to other European Ministries of Foreign Affairs, the FCO does not make adequate use of scientific research as an instrument of foreign policy. While recent expansion of the FCO Global Opportunities Fund is welcome, the implementation mechanism is pre-disposed to short term collaboration.

5.6 The primary role of the recently expanded FCO S&T network is to identify S&T advances in other countries and drawn these to the attention of UK industry. There is scope for a similar network to actively promote and support the participation of the UK research community in international activities.

5.7 The overseas offices of the British Council have high a degree of autonomy in setting their own funding priorities. While the BC provides “pump-priming” support for individual scientific exchanges, it can not make commitments to tackle large complex scientific challenges.

5.8 Historically, the UK research community has been mobilized to provide information whenever a UK minister makes a science related visit to an overseas country. These enterprises typically involve a trawl of what research collaboration already exists, followed by a few short-term actions—eg organize an exchange visit or participate in a workshop to define research needs. There is almost never funding for any collaborative research, leaving both sides with the impression that the objective of these events is media impact.

6. The role and activities of UKRO

6.1 NERC, the other RCs and subscribing Universities support the UKRO office in Brussels. While this provides an adequate level of information through e-mail, visits, training programmes and its annual conference, UKRO operates within well defined constraints. UKRO will need to innovate if it is to maintain its historical superiority as a national research support service.

6.2 NERC does not engage with the European Commission in the same way as its European counterparts. While its EU research council partners are able to “command” the regular presence of very senior DG Research staff at national events—this is rarely the case in the UK. This is attributable to a lack of political muscle in Brussels in support of the UK research community.
6.3 UKRO operates in a neutral information gathering and advisory capacity, and not in a proactive promotional role for UK science in Brussels. It should be noted that the various Member State research offices in Brussels offer quite different services. For example, the Italian research office in Brussels is headed by a diplomat.

6.4 There is a need for an additional Brussels based service to promote and facilitate the involvement of the UK research community in long term collaborative Agreements. This function would therefore be better delivered through a different office (UKREP?) so that UKRO’s effectiveness as a neutral advisor is not compromised.

6.5 The establishment of a RCUK office in China is a welcome step. This office needs to have access to specific and adequate funds for new UK-China collaborative research, and enjoy high level political/diplomatic support.

6.6 NERC does not provide funding to support long term strategic research collaboration with research organizations (eg CSIRO, CSIR) elsewhere in the world. There are no mechanisms within NERC by which the objectives and potential benefits of such collaborative research agreements could be evaluated and approved.

7. International Activities with NERC

7.1 NERC has responsibilities for financial support of various international research programmes and infrastructure (eg the International Geosphere Biosphere Programme IGBP), and hosts Programme Offices. This support can be detached from the mainstream activities. The RCs could do more to ensure maximum involvement of UK researchers in, and return from, these programmes.

7.2 NERC has longer term policy commitments and mechanisms to support international collaborative research in some areas of science (eg. marine, ocean drilling and atmospheric sciences). However, in the area of terrestrial sciences, there is not this level of activity.

7.3 The new science strategy being developed by NERC comprises seven thematic areas. As yet it is unclear how international science will be funded within the new strategy, particularly when issues cut across the proposed NERC science themes and across RC interests (eg economic sustainability of the Amazon rainforest).

7.4 Thematic Programme mode is typically for 4–5 year duration, and hence is not designed to support long term strategic partnerships with major research organizations.

7.5 The CEH benefits from the work of the NERC International Strategy Group. This Group is hard working, diligent, and able to provide high quality strategic insight into the Environment Priority of the Framework Programme. However, the constraints on their role, responsibilities, and resources means that the Group is not able to fulfil its potential.

7.6 This NERC International Strategy Group probably provides some of the best European support of any of the Research Councils.

7.7 A prime responsibility of NERC ISG is to provide scientific support to DEFRA in the EU Framework Programmes. As an outcome of this role, NERC ISG is therefore able to provide information to the UK research community, and feed information back to DG Research—but only on the Environment Programme. NERC International does not provide information about other FP priority areas—eg Biotechnology, Energy, ICT, Nanotechnology etc that are of interest to CEH.

7.8 For the last four years NERC has supported the participation of its Centre/Surveys in the EC Framework Programme through the “NERC Incentive Fund”. This is a significant step in the right direction and should be continued throughout FP7.

7.9 When there has been an explicit NERC International policy (eg the SE Asian “Tiger Economies” as a priority for collaboration), this has not been supported by any financial resources to implement the policy.

7.10 The importance of international research is not adequately represented across the whole NERC structure. There is a lack of high level staff with the specific authority and responsibility to promote international activities.

7.11 When considered in terms the need for international research, the rapidly developing globally networked research community, and the activities of EU counterparts—NERC’s international policies and activities, together with those of the other Research Councils, lack cohesion.

7.12 Fine tuning existing policies and procedures is not an option.

8. A Vision for future International Research

8.1 In order to deliver its mission, CEH needs to be able to establish long term collaborative research programmes with other major research organizations around the world. This “bi-lateral” collaboration will occur within the context of coordinated programmes involving several (sometimes many) other world leading research organizations.
8.2 There must be a framework within which CEH and similar organisations can proceed with developing strategic long term collaborative research programmes with specific international research partner organizations. This framework should include both the RCs and UK government departments. It should be supported by experienced senior staff in RC international groups, with high level political support from the UK representative offices overseas, and in Brussels.

8.3 More generally, this framework should facilitate better integration of UK foreign policy (FCO), trade (DTi), environmental (DEFRA) and development (DFID) policies.

8.4 This framework should enable delivery of the strategic vision, but not be so rigid that it constrains opportunistic collaboration arrangements that are identified by the research community.

8.5 Funding to support this framework should be distributed between government departments, the RCs and research organizations to ensure both a strategic and responsive implementation.

8.6 This requires a change in current policies, priorities, and resourcing by both the RCs and the UK government departments involved in international research activities.

April 2007

MEMORANDUM 23
Submission from the Centre for Market and Public Organisation

We simply have two comments to make relating to the ESRC’s international policies and activities.

1. We fully support the ESRC’s aim to secure more joint funding with other countries. In economics, this is particularly important with respect to the US. Funding for large scale teams of researchers on the key social science issues of the day is very important. This obviously produces new knowledge on those issues themselves, but also helps to cross-fertilise academic techniques, and foster cooperation. More and more of modern social science research takes place in teams now rather than lone scholarship, and it is important that these teams include researchers from different intellectual environments. In moving away from a “cottage industry” approach to social science research, the ESRC must enable team-building across national frontiers. In addition to large team-building funding, we would advocate more funding for early career researchers to spend time in academic institutions in other countries. Again, for economics, this particularly means the US.

2. It is important to continue to work towards streamlining the admission process for international funding.

April 2007

MEMORANDUM 24
Submission from Research Councils UK

1. Research Councils UK is a strategic partnership set up to champion the research, engineering and technology supported by the seven UK Research Councils. Through RCUK the Research Councils are working together to create a common framework for research, training and knowledge transfer. RCUK was launched on 1 May 2002 and further details are available at www.rcuk.ac.uk

2. This evidence is submitted by RCUK on behalf of all Research Councils, as requested by the Committee separate evidence from the Council for the Central Laboratory of the Research Councils, Particle Physics and Astronomy Research Council and Science and Technology Facilities Council is included, and also the UK Research Office in Brussels. This evidence represents the independent views of Research Councils. It does not include or necessarily reflect the views of the Office of Science and Innovation. The submission is therefore made on behalf of:

   Arts and Humanities Research Council (AHRC)  Annex A
   Biotechnology and Biological Sciences Research Council (BBSRC)  Annex B
   Council for the Central Laboratory of the Research Councils (CCLRC)  Annex C
   Engineering and Physical Sciences Research Council (EPSRC)  Annex D
   Economic and Social Research Council (ESRC)  Annex E
   Medical Research Council (MRC)  Annex F
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INTRODUCTION

3. The UK is a world leader in research and the UK’s talent pool of excellent researchers is world class. Numerous studies have shown the high regard in which the UK research base is held by businesses and academics in other countries (eg the Council for Industry in Higher Education report “International Competitiveness; business working with UK universities”) and in terms of published outputs, the UK is second only to the United States in terms of its achievements, productivity and efficiency.

4. However, the international research environment is changing rapidly and, with increased economic and scientific growth from countries such as India and China, the Government’s aim is to ensure that the UK should be the most attractive location in the world for science and innovation. RCUK shares this vision and is committed to ensuring that the Research Councils play a full role in supporting world class research, training skilled people and providing access to state-of-the art facilities and laboratories.

5. Research is, and has always been, an international endeavour. Aside from the benefits that come from exchanging knowledge and new ideas with others working in the same field, there are some disciplines which, because of their scale or the size of funding required, are undertaken by a number of countries working in partnership. This is the case with particle physics, planetary science, fusion, clinical trials on rare diseases, and some research on genome sequencing for example. Other disciplines, such as some language and social research, polar research and much astronomy research, are entirely location dependent necessitating collaboration with host countries. There are also disciplines which transcend national boundaries eg climate change research and research on human and animal diseases. Therefore, an important role of the Research Councils is to put in place strategies and policies to engender collaboration between UK researchers and international collaborators, wherever they are located. The Councils have been successful in enabling international collaboration, as evidenced from international science reviews and bibliometrics studies which have shown increasing levels of international co-authorship in scientific publications.

6. Each Research Council has its own international strategy or policies, detailed in the attached Annexes. Although there are subject specific differences, each Council aims to facilitate international engagement by promoting the movement of researchers, removing obstacles to collaboration and identifying strategic partners, while allowing their researchers to define their own research priorities and determine whom they need to collaborate with.

7. The Research Councils recognise that to grow or indeed maintain the strength of the UK research base within the evolving global context, and to maximise the UK’s influence on the direction and exploitation of world research, they need to evolve their policies and target their investment decisions so that their communities can take full advantage of global opportunities.

Global Science and Innovation Forum (GSIF)

8. A key forum for discussing international issues is the Government’s Global Science and Innovation Forum (GSIF), on which the Chief Executive of EPSRC represents RCUK interests. GSIF brings together OSI, Government Departments, the Royal Society and others to help coordinate international activities and ensure that these are aligned with the Government’s agenda for science and innovation. RCUK is also represented by BBSRC on the supporting officials group.

9. In 2006, GSIF published its International Strategy—a framework of objectives for prioritising and coordinating the UK’s international engagement in R&D. The Councils were involved in the development of the strategy and the Chief Scientific Adviser met with the RCUK Executive Group to discuss the implementation of the strategy. RCUK is working with the other GSIF partners to deliver the strategy, including leading on the delivery of the recommendations about improving researchers’ access to information on international funding opportunities.

10. Research Council’s (and RCUK’s) international strategies take into consideration the priorities of the GSIF strategy and references to target countries, thereby broadly aligning themselves with the international strategies of the Government departments and agencies represented on that forum.
Research Council’s funding and resources for international activities

11. Each of the Research Councils structures its international teams and invests in international activities in accordance with the different sizes and requirements of their academic communities. As international activities within Research Councils are an integral part of the research programme, facilities and infrastructure, training and communications agenda, each of the Councils has a small team of “international” staff to provide coordination and focus within each Council’s remit.

12. In terms of funding, the Councils, in general, prefer not to ring fence specific sums for international collaboration. Instead, most Councils open up the majority of their funding to an element of international partnership—demonstrating that international working is seen as integral to the research they support. This removes artificial constraints to the amount of collaborative activity funded and drives up research quality by ensuring that proposals with an international element compete directly against the best national research.

The role of Research Councils UK

13. The role of RCUK in the international sphere is increasing. It is the norm for one (or two) Research Council Chief Executives or senior officials to represent the interests of all of the Councils on international bodies such as the GSIF, the European Heads of Research Councils, G8, the European Strategy Forum for Research Infrastructures. Key international players are also invited to meet Research Council Chief Executives collectively eg the President and senior team of the European Science Foundation have attended RCUKEG and Councils have invited the Chairman to the European Research Council Scientific Committee to meet with RCUKEG. At a more operational level, the Councils run an RCUK International Network, which brings together the Heads of International of each Council, plus on occasion a wider spectrum of stakeholders including the OSI, OSI International and the FCO’s Science and Innovation Network. This forum provides a useful means for developing strategy, coordinating (RCUK and British Council) activities and sharing information.

14. For many years the Councils have also collectively funded the UK Research Office in Brussels, which provides highly regarded services to the UK academic (and user) communities, promoting and enabling effective UK participation in EU-funded research programmes.

15. Whilst each Council will continue to develop and refine its own international strategies, there is an increasing need to present the UK research endeavour collectively on the international stage and increasing opportunities for Councils to deliver some activities jointly. Major new RCUK international activities include: publishing an RCUK international strategy; launching two (potentially three) new RCUK international offices; implementing a programme of profile raising activities; and setting up a new RCUK international team to better coordinate strategies, activities and information about international collaboration across the Councils and with other UK stakeholders.

16. RCUK will publish an international strategy in 2007. This will highlight UK excellence in research and innovation, identify where the UK can provide global direction and leadership and show how the Research Councils are delivering their part of the GSIF International Strategy. The RCUK strategy will set out the Councils collective international aims and priorities which may include:
   — promote collaboration between UK researchers and the best in world, particularly those in Europe, the US, China and India
   — promote the movement of researchers and students to and from the UK
   — provide UK researchers with access to world class facilities and data
   — influence the international research agenda in terms of strategy formulation, priority setting and research delivery and exploitation
   — raise the collective international visibility of the Research Councils

17. Information on profile raising and international offices is given below.

Strengths and weaknesses of Research Council and OSI mechanisms and activities to promote international collaboration

Promoting collaboration between UK researchers and the best in world

18. All of the Councils support research collaborations through international visits, workshops and research grants to foster and deepen links between researchers, as well as actively tackling the barriers to international partnership. The Councils also pay international subscriptions for the UK research community, host international facilities and international project offices, represent the UK academic community on key international forums, and lead or belong to major international networks. Information on these activities is provided later in this document. Overall, the Councils emphasise the need for flexible support, given cultural differences and the different ways in which research is funded and organised in other countries.
19. Research Councils encourage researchers to pursue collaborations with international partners, wherever they are located, on the basis of scientific excellence. There are, however, instances where other priorities influence international collaborations. Examples of this are UK strategic priorities (eg as identified in the GSIF strategy document), and cases where research is location specific. Many Councils, and RCUK as the collective, are focusing strategic efforts on building and strengthening cooperation with Europe, US, China and India, reflecting the breadth of research opportunities available in these areas and UK Government priorities.

20. Many international research collaborations arise from multilateral programmes or international organisations rather than through bilateral working. The EC Framework Programme is the largest such programme and its importance is recognised by OSI and FCO. However, other multilateral programmes eg those organised through UN bodies or through the International Council for Science (ICSU) are also important and there is scope for improving UK access to and influence of these programmes.

21. Whilst this approach generally works well and the Research Councils work alongside the OSI and FCO in developing collaborative activities, Departments may also wish to develop activities with specific countries which are of less interest to the Research Councils. Whilst targeted workshops and exchanges can encourage contacts and exchanges of information, it is important that all parties are realistic from the outset about the level of research funding Councils may subsequently be able to make available and the chances of securing this in competition with other proposals.

22. All of the Research Councils offer forms of funding to enable UK researchers to travel overseas and to develop collaborative ideas through networking or workshop activities—some Councils build this provision into their normal grant applications and others run separate schemes. A range of examples are given below, with more information provided in the attached annexes. Information on awards to promote mobility of students and researchers are covered at paragraphs 98 to 117.

- AHRC supports a Research Networks and Workshops scheme which provides funding for researchers to exchange ideas and expertise via workshops, conferences and symposia which are can be used to initiate and develop international links and act as a springboard for sustained collaboration. The scheme is targeted at building research capacity and relationships in countries and regions which are not well serviced by existing funding mechanisms.

- BBSRC enables any grant holder to apply for funding to visit, or send research staff to visit, any other country during the course of their research. It also provides funding for workshops between UK and international researchers and invests in “Partnership Awards” to provide support for up to four years for specific interactions with researchers in Japan, China or India.

- EPSRC provides its researchers with the flexible means to pursue international collaboration with their chosen partners, including funding for overseas travel and workshops to initiate partnerships and meetings, as well as exchanges of staff and students.

- NERC has established an International Opportunities Fund to stimulate high-profile, high-impact international activities. Rather than directly funding research, this fund supports international collaboration and leadership, encourages and facilitates planning of international activities and supports new international partnerships.

- PPARC’s rolling grants give researchers the flexibility to use some of the funding they receive to travel abroad and form partnerships without having to submit a separate application for funding to travel. This approach has been adopted by STFC.

- MRC facilitates international collaboration in medical research through Grant Terms and Conditions which permit co-applicants and collaborators on Research Grants to be based overseas. MRC Grants can include significant allocations for travel.

23. Councils also support a number of schemes with specific countries as well as joint calls with UK Government Departments and overseas funding agencies. Details are given in the Council Annexes and, for example, include:

- On a bilateral basis, BBSRC has co-funded specific calls for research proposals with DFID (£2 million from BBSRC in the UK and with ANR (BBSRC up to £5 million) and INRA (BBSRC £1.7 million so far) in France;

- EPSRC funds activity with China, India and Japan via its INTERACT scheme, which supports small grants for UK academics to visit research groups in these countries with a view to raising awareness of the quality of UK research and forging new partnerships leading to collaborative research;

- ESRC funds a Transatlantic Visiting Fellows programme, enabling Directors of ESRC centres and programmes to nominate either an inward or an outward visitor, with the aim of developing ideas for new international collaborative research projects. ESRC supports specific visits programmes with South Asia and the Middle East, in partnership with the British Academy;

- NERC’s RAPID programme (£20 million from NERC) has had contributions from, and joint calls with, the USA (NSF and NOAA) the Netherlands (NOW) and Norway (RCN).
24. Research Councils welcome participation by leading scientists from other countries in the research they fund, even though that participation is not normally eligible for funding by the Councils. The Councils are currently examining ways of recognising such participation by recording the status of international scientists as non-funded co-investigators in our systems. Research Councils have a variety of approaches to supporting research overseas, either directly or indirectly. These are designed to encompass and facilitate the mobility of staff and students between UK and overseas institutions and the funding of projects or other research activities that are performed in the UK or overseas. This flexibility ensures that the Research Councils remain responsive to the individual and specific needs of their own communities. The ability for UK researchers to transfer active grants to European institutions through the ‘Money follows Researcher’ initiative is one successful aspect of this flexibility.

25. Building relationships between Research Councils and overseas funding bodies is an important means for promoting information sharing, identifying opportunities and building partnerships between national research communities, enabling access to facilities and tackling administrative barriers to collaboration. To facilitate such relationships, the Research Councils have over many years had discussions with potential funding partners and developed Memoranda of Understanding (MoUs) or similar agreements with many overseas funders. For example, in 2006, Research Councils had some 35 agreements with US funding agencies or research organisations, 30 with Chinese organisations and smaller numbers with other key funders or research organisations in Japan, Germany, India, France, Korea, Canada etc. Further details are provided in the Annexes.

26. Agreements and MoUs are often developed for strategic purposes and are also used to pave the way for removing or limiting double jeopardy in collaborative proposals. The Research Councils are aware that the issue of double jeopardy—where a collaborative proposal has been peer reviewed or assessed in some way by the funding body in the UK and also in the other country—can be a real barrier to collaboration and a source of frustration to the academic community. Where a dual process exists, timescales between application and funding decision are likely to be extended, and problems may arise if the two potential funding bodies take a different view over peer review standards or the quality of the research. The Councils remain committed to tackling this through building agreements with overseas funders to establish a single application, single peer review and single decision making process. Although Councils have been successful in removing the double jeopardy issue in specific areas or through the establishment of specific programmes (eg AHRC’s MoU with the NSF’s Human and Social Dynamics Programme, EPSRC’s agreement with the NSF’s Materials World Network), this remains a piecemeal approach to a difficult problem. The Research Councils will continue to work with OSI, FCO and other agencies to influence overseas funding agencies.

27. As well as the double jeopardy issue, there are other structural and operational barriers to successful international collaboration. In some countries, different structures for funding research means that there are no obvious counterparts for Research Councils to engage with to build collaborations, this is a particular issue for the AHRC. Further, since national research funding comes from national taxpayers, there are often legal—or simply attitudinal—barriers or restrictions on how and where research funding can be used. In the UK, the research funding system seeks to balance national interests and the sectoral interests of research communities, so the case can be made for UK international engagement including, where appropriate, spending UK research funds overseas. This is not always the case in other countries. Also, many foreign research funding agencies support research either through permanent institutes or directed programmes, with little or no scope for competitive bottom-up funding requests. Finding ways to work productively with such agencies requires sustained effort on both sides. Experience shows that a good starting point can be small visits and workshops which enable researchers from the UK and partner country to explore research challenges, leading to the development of specific programmes if there is sufficient interest.

28. Specific initiatives, such as the UK/India Education and Research Initiative (UKIERI), can also help to address differences in funding systems. UKIERI is a Government consortium that aims to improve educational and research links between the UK and India by, for example, funding mobility awards to stimulate ideas for research collaboration. The Research Councils are working with a Government consortium to help with the review of proposals and explore ways of building linkages with Councils research programmes.

Establishing international laboratories

29. A number of Research Councils fund research units or collaborative centres based overseas to undertake location specific research, examples include:

— STFC contributes to astronomical observatories in Hawaii and Chile, taking advantage of the favourable observation conditions at these locations

— MRC has two overseas units, the MRC Laboratories in the Gambia, and MRC Unit on AIDS Research in Uganda. The units host a number of international researchers, and participate in a large number of international collaborations. They engage with international bodies such as WHO, OECD, Global Fund, Gates Foundation, and with national Governments
— BBSRC’s Rothamsted Research has three joint laboratories in China, one on crop genetics (Huazhong University of Science and Technology), one on novel pest control (Nanyang Normal University) and one on soil science (China Agricultural University, Beijing).

— NERC has a facility at Ny Alesund in Norway to facilitate Arctic research as well as research stations in the Antarctic.

Establishing international RCUK Offices

30. The establishment of RCUK overseas offices is another mechanism for achieving the Research Council’s international aims. Overseas offices will provide additional resources in priority countries/regions to help raise the collective profile of the Research Councils amongst national research funders and academia and promote and engender collaboration opportunities. The offices provide dedicated funding and local expertise (in tandem with the FCO’s Science and Innovation Network posts) to enable UK research funders, research organisations and individual researchers to collaborate effectively. The exact nature of the support and resources provided varies depending on the nature of the existing relationship between the country and the UK and the priorities and objectives for strengthening collaboration.

31. The Research Councils have been sponsoring the UK Research Office (UKRO) in Brussels since 1984 to ensure the research community they fund has the information and guidance to participate in EU programmes. RCUK will be opening offices in Beijing and in Washington in 2007. Work is underway to explore the opportunities for an RCUK office in India.

Promoting the movement of researchers and students to and from the UK

32. This is addressed at paragraphs 98 to 117 below.

Providing UK researchers with access to world class facilities and data

33. All of the Research Councils are committed to providing their academic communities with access to world class facilities, wherever these are located. As such the Councils pay the UK subscriptions to a number of major international facilities and are actively engaged in shaping the underpinning technology and development of these facilities. For example CCLRC managed the UK subscriptions to the multinational European Synchrotron Radiation Facility (ESRF) in Grenoble and to the Institute Laue Langevin (ILL) also in Grenoble whilst PPARC managed the UK subscription to CERN, ESA and ESO. MRC led the UK bid which successfully acquired Beamline 14 at the ESRF Synchrotron in Grenoble to support UK crystallography efforts. Further examples are given at paragraphs 70 to 85.

34. A key advantage of taking part in international collaborations is that it entitles partners to data rights, thus even small scale UK involvement in collaborative programmes can prove very cost effective. In each of their fields the Councils are responsible for enabling the curation and accessibility of data from UK research for international audiences and helping to secure access to international data for UK researchers. For example, ESRC has developed National and International Data Strategies, which provide frameworks for key stakeholders to discuss the usability of data for research, as well as any practical, ethical and attitudinal hurdles that need to be overcome.

Influencing the international research agenda in terms of strategy formulation, priority setting and research delivery and exploitation

35. All of the Research Councils seek to influence the international agenda throughout the research lifecycle ie influencing the development of international strategies, setting of priorities, and the funding, management and exploitation of research.

36. In terms of influencing the research agendas and priorities of trans-national funders the Research Councils seek to exert influence through OSI and Government Departments as well as by hosting international meetings, belonging to major networks (such as European Research Area Networks) or international consortia and by ensuring that leading UK researchers are nominated to governing or management boards of international bodies and programmes, and to their peer review panels.

37. Likewise these approaches are also valuable in influencing how trans-national research is carried out—its peer review, funding model, ethical and governance frameworks, its evaluation, the curation of data and use and exploitation of outputs. In all of these areas, the UK Research Councils and the UK academic community have particular strengths and expertise and are keen to promote good practice, whilst learning from other nations. To facilitate this, the Research Councils also encourage secondments between their own staff and overseas funding agencies. In recent years, there have been exchanges with the German funding agency DFG (Deutsche Forschungsgemeinschaft), the NSF and ESF.
Raising the collective international visibility of the Research Councils

38. All of the Research Councils undertake activities to raise their profiles internationally and, within their fields of expertise, individual Councils are well known by overseas research funders. Following the publication of the GSIF international strategy the Councils are exploring collectively what further steps might be taken to promote the Councils collectively, utilising the FCO Science and Innovation Network and RCUK overseas offices.

International collaboration through the EU Framework Programmes, including resources for enhancing partnership between Research Councils and EU agencies in the new FP7 initiative. The provision of resources to stimulate UK participation in EU programmes. Benefits and drawbacks of Research Council participation in previous and current FPs

39. All of the Research Councils support the principles of the European Research Area and increasing collaboration between the best researchers across Europe. Engagement is primarily via the European Union’s Framework Programmes (FPs), which support research, researcher mobility and knowledge transfer activities across the European Research Area.

40. The Research Councils have been active participants in FPs since their inception, and fulfil a number of roles, which include:
   — influencing and shaping overall policy direction and thematic priorities
   — promoting opportunities and stimulating the participation of UK researchers and UK business
   — encouraging the adoption of good practice in the funding, delivery and exploitation of research
   — supporting greater cooperation and integration between European national research funding bodies
   — participation in research through research council institutes

41. These responsibilities are addressed through a variety of means and approaches, including discussed below.

Dialogue with OSI and direct engagement with FP management and decision making structures

42. The objectives of Framework Programmes are set out in the EU Treaty of Amsterdam, which states that:

“The Community shall have the objective of strengthening the scientific and technological bases of Community industry and encouraging it to become more competitive at international level, while promoting all the research activities deemed necessary by virtue of other Chapters of this Treaty” (Article 163)

43. Due to the policy-led objectives of Framework Programmes, Government Departments lead on the majority of Framework negotiations, with overall activity coordinated by OSI. In FP7, as in the earlier FPs, the Research Councils play an important role in advising on the research which may be needed in areas of the Framework Programme to deliver the agreed policy objectives. This is achieved by working in partnership with OSI and the lead Government Department, or through the Research Councils representing UK interests on the relevant EU programme committee. For example:

   — In FP6, Research Council officials were part of the UK delegation on the following Programme Committees:
     — EPSRC on the EURATOM Fusion Programme Committee
     — ESRC on the Citizens and Governance and Science and Society Programme Committees
     — MRC on the Life Sciences, Genomics and Biotechnology for Health Programme Committee
     — NERC on the Global Change and Ecosystems Programme Committees
     — PPARC on the Research Infrastructures Programme Committee
     — UKRO on Programme Committee for Human Resources and Mobility

   — In FP6 BBSRC worked closely with Defra and FSA representation on the Food Quality and Safety Programme Management Committee, on issues such as topics to be covered in calls for proposals. This continues in FP7 for the Food, Agriculture and Fisheries and Biotechnology programme

   — In FP6 EPSRC hosted the UK National Contact Point (NCP) for the New and Emerging Science and Technology (NEST) Programme. This involved managing a helpdesk and promoting the NEST programme within the UK research community through a programme of visits and conferences. The positive response to NEST from the UK academic community would indicate that this model of working was well received. NEST was innovative both in its emphasis on frontier research and its bottom-up driven model. As such, NEST could be considered a precursor to the ERC, but with a closer relationship to the Commission
— FP7 now includes humanities explicitly in the cooperation programme for the first time. Consequently, AHRC represents the UK (together with ESRC) on the FP7 Social Sciences and Humanities Programme Committee. Through this forum, AHRC has been successful in pressing for a more humanities-friendly programme specification. Other Research Council involvements includes MRC on the Health Programme Committee.

— In FP7, NERC worked closely with environmental scientists in its Institutes and more widely, with OSI and Defra (the UK policy lead on FP Environment Programme negotiations) to influence the content of FP7’s Environment (including Climate Change) Theme; NERC sits on the Environment (including Climate Change) Programme Management Committee. In collaboration with Defra and the EC Environment Directorate General, NERC co-funded a joint FP7 Energy and Environment Themes launch in 2006, timed to immediately precede the start of FP7.

— In FP7, UKRO is the nominated expert on the “People” Committee and frequently attend other Programme Committee meetings as nominated experts.

— In FP7, STFC will continue the role formerly undertaken by PPARC on the Research Infrastructures Programme Committee.

**UKRO**

44. The UK Research Office (UKRO) promotes effective UK participation in EU-funded research programmes, higher education programmes, and other related activities. See http://www.ukro.ac.uk/about/index.htm.

45. UKRO is funded by the Research Councils (with BBSRC as the managing agent) and also by subscriber organisations, some 140 at present. Any UK HEI, charity or public sector research organisation can subscribe to UKRO; with associate membership (restricted services) available to companies and non-UK research organisations. Defra, the Food Standards Agency and the Health and Safety Laboratory of the HSE also have subscriptions to UKRO, as do Universities UK, the British Council, HEFCE and the Scottish Funding Council.

46. UKRO’s mission is to promote effective UK participation in EU-funded research programmes, higher education programmes, and other related activities by:

— supporting sponsors and subscribers through early insight and briefing on developments in European programmes and policies;

— disseminating timely and targeted information on EU funding opportunities;

— providing high quality advice, guidance and training on applying for and managing EU projects; and

— exchanging information between the UK research and higher education community, the Institutions of the European Union, and other countries participating in EU programmes.

47. Annex J summarises the work of UKRO, including its services and policy support, and its relationship with the OSI International Directorate, and other UK and European bodies.

**Framework Programme Network (FPN)**

48. Research Councils and UKRO are members of OSI’s Framework Programme Network, which brings together Government Departments, the Research Councils and the RDAs to discuss common issues about the policy and delivery of FPs.

**National Contact Points (NCPs)**

49. The policy leads appointed for each part of the Framework Programme are responsible for delivering the UK National Contact Point, to raise awareness amongst potential participants in the UK of opportunities and funding available under the respective area of the Framework. In some instances this is routinely contracted out. Under FP6 and increasingly FP7, the Research Councils are increasingly taking on the policy lead and this NCP role—although OSI retains a coordinating, cross-cutting role which works well.

For example under FP6:

— BBSRC, together with the Food Standards Agency and Defra, provided the UK National Contact Point for the FP6 thematic programme Food Quality and Safety, co-funding a launch event for the theme in London, and advising on scientific issues in the programme. This continues for the relevant part of FP7.

— ESRC provided the NCP for the thematic programme on Citizens and Government and Science in Society.

— MRC provided the NCP for health academics.
— UKRO provided the NCP for the Mobility Programme (under contract from the OSI policy lead)
— PPARC provided the NCP for the Research Infrastructures Programme

For FP7:
— MRC is the NCP for health academics
— UKRO is the NCP for the European Research Council and Mobility programmes in FP7 under contract from the OSI policy lead

50. Discussions are underway with OSI for the Research Councils to also take on the NCPs for Science in Society and Research Infrastructures for FP7.

51. Additionally, some Research Councils offer additional support to encourage engagement with FPs. For example:
— BBSRC travel schemes are often used to build consortia for FP proposals
— ESRC runs a competition to offer seed money to ESRC award holders aiming to lead major European research collaborations.
— MRC provides resources for its Units and Institutes to assist in the preparation and coordination of FP proposals
— NERC set up an incentive fund to stimulate leadership for FP6 from within its Institutes
— EPSRC makes available travel funds to UK researchers to enable them to build consortia to bid for Framework funding

European Research Area Networks (ERA-NETS)

52. ERA-NETS are a FP6 funding instrument designed to promote cooperation and co-planning between funders of national research programmes (for the UK, government departments, agencies and/or Research Councils). The scheme, particularly the ERA-NET Plus scheme, is advantageous in attracting EU research funds to bolster national research priorities. The Research Councils have also found ERA-NETS of value as a means for sustained and structured information exchange between European funders and for sharing good practice and improving operational effectiveness. An independent review of the scheme, published in December 2006, identified similar benefits, and the need for more top-down focus and coordination in FP7. RCUK is pleased that ERA-NETS are being maintained and expanded in FP7 as a means for strengthening the European Research Area, but would emphasise that different European research communities are at different stages of maturity and degrees of connectivity and that one size does not fit all.

53. The Research Councils are currently involved in more than 20 ERA-NETS including:
— AHRC is a member of Humanities in the European Research Area (HERA) ERA-NET, which includes 14 other European agencies and ministries. Two agreed trans-national research programmes will operate using single pot funding, removing bureaucratic obstacles to European research collaboration and avoiding double jeopardy
— BBSRC is a lead in ERA-NET schemes in plant genomics (11 partner countries, BBSRC £5.2 million) and systems biology (14 partner countries, BBSRC £6 million), publishing joint calls for proposals with EU partners. As a result, BBSRC enjoys closer relations with, and greater understanding of, its European counterparts
— EPSRC is involved in 6 ERA-NETS, including Bio-energy, Applied Catalysis, and Nanoscience in the European Research Area
— ESRC helped to develop, and now plays a leading role in, the 12-nation NORFACE ERA-NET (New Opportunities for Research Funding Agency Collaboration in Europe). NORFACE is developing possible themes for a major trans-national research programme to start in 2008. ESRC are also partners in a Dutch-led ERA-NET on social aspects of Genomics
— MRC is a partner in the EUROCAN+ study looking at the feasibility of coordinating national cancer research activities
— NERC participates in 6 ERA-NETS, including Innovative Energy Research, the European Consortium for Ocean Drilling Research, and the EU Water Initiative
— PPARC participated in 2 ERA-NETS, ASTRONET and Aspera

Joint Technology Initiatives (JTIs)

54. Under FP7 the Commission is launching JTIs, which will emerge from some of the European Technology Platforms. These will pool funding from the private sector, European and national research programmes towards common research goals in priority technology areas. FP7 identifies six possible areas, with the UK strongly supporting the proposed JTI on Innovative Medicines. MRC was involved in provisional planning for the UK to host the secretariat of the Innovative Medicines Initiative in partnership with the DTI which leads the UK IMI consultative group. MRC represents the UK on the IMI member states contact group and keeps the UK stakeholders up dated on ongoing developments.
Article 169 programmes

55. MRC represents the UK at the general assembly of the first European Programme established in FP6 under the terms of Article 169—the European and Developing Countries Clinical Trials Partnership (EDCTP). The aims of this initiative are to accelerate the development of effective, affordable and sustainable interventions against infectious diseases related to poverty (specifically HIV/AIDS, TB and malaria) by improving co-ordination and co-operation between European public sector and private sector research organisations and research institutions in Africa. This is an area that requires coordinated activity to provide clinical trials in a sustainable research environment in Africa. More information is at Annex F.

European Research Council (ERC)

56. From the outset, RCUK has been closely involved in discussions with OSI about the creation of the ERC. The Research Councils have always taken the view that there is a strong case for developing cooperation and integration between research funders in Europe, but has cautioned against additional bureaucracy and complexity in research funding. With the decision to proceed with the ERC, the Councils have sought to influence its structure and mode of operation to ensure the application of scientific rigor and good practice. Chief Executives agreed advice for OSI which was subsequently used by the UK team in these negotiations.

57. RCUK welcomes the governance model adopted, including the creation of the Scientific Council with a significant degree of autonomy from the European Commission, European Parliament and Council and individual Member States. Councils have been meeting individually with members of the ERC Science Council and the Chair has been invited to meet collectively with Research Council Chief Executives to discuss how top UK researchers can be encouraged to seek funding from the ERC.

58. The Research Councils support the aims of the ERC; it should support the very best researchers and research projects. Given the concerns voiced by participants about the complexity of accessing FP research funds, the Councils have pressed for a simple application and assessment process, based on rigorous peer review of research excellence. The Councils have also emphasised the need for some form of demand management to ensure that success rates are reasonable and that the administrative arm of the ERC is not overwhelmed with applications. The measures taken to date by the Science Council, including the use of outlines, limiting resubmissions, funding arrangements, and portability of awards, all bode well for an effective and robust pan-European funding system.

59. The debate now is with regards to how the ERC evolves. The Research Councils are keen to ensure that the ERC will add value to national research activities, and neither duplicate nor undermine national agenda eg by any top slicing of the UK Science Budget. One option Councils would like to encourage is funding of teams of trans-national researchers. UKRO is the UK national contact point for ERC and attends the Programme Committee as an expert.

European Institute of Technologies (EIT)

60. The proposed EIT is intended to help strengthen innovation performance across the European Research Area, by building new bridges between research users, HEIs and other research institutions. As set out in commission communiqués, it is intended that the EIT will set up strategic long term partnerships between the various players in the knowledge transfer arena. A Governing Board will determine strategic priorities and select, evaluate and coordinate “Knowledge and Innovation Communities”, joint ventures between businesses, universities and research organisations. Discussions about the EIT are on-going with the aim of establishment in 2008, with the first Knowledge and Innovation Communities running by 2010.

61. Whilst the Research Councils fully support the need to strengthen knowledge transfer in the UK and across the European Research Area, there are a number of significant uncertainties and concerns regarding the EIT proposals. The main issues include:

- The added value to, and incentive for, HEIs and business of participating in the EIT is unclear
- The organisational and governance structure of the EIT and its relationship with the European Commission etc is unclear
- The need to address IPR issues in detail to encourage universities and business to participate in the Knowledge and Innovation Communities (experience in the UK shows differences of opinion over the value, ownership and protection of IPR remains barrier to HEI-business collaboration, even with the introduction of standard contracts following the Lambert Report)
- The relationship between the EIT and existing national and European knowledge transfer initiatives is unclear eg Networks of Excellence under FP6, the ERC and the new FP7 Joint Technology Initiatives. In the UK is there is a specific need to clarify the relationship between the EIT and the Technology Strategy Board
- The legal status, role and aims of Knowledge and Innovation Communities is unclear
There is no clear budget for the EIT or allocated funding. The proposals assume that a large proportion (up to 85%) of the support will come from the private sector—although at present there is limited incentive for businesses to become involved.

UK businesses continue to report concerns about the level of bureaucracy as a reason for not engaging in Framework Programmes.

62. Until these issues are addressed the Research Councils remain cautious about the plans for the EIT. On behalf of RCUK, UKRO is coordinating the Councils’ inputs to OSI and relevant European forums to influence the shape of the EIT, particularly to minimise the bureaucracy and ensure that UK researchers and business are able to benefit from the resulting initiative.

Participation in previous and current FPs

63. During discussions about the development of FP6 and then FP7, the Research Councils have been keen to emphasise a number of important aspects in seeking to influence the European agenda. Issues have included:

— ensuring that thematic priority areas and research objectives are well defined so that resources are not spread too thinly and that real progress can be made in the chosen areas
— the need to do more to address the fragmentation of some areas of research effort across the European Research Area, through better networking
— pressing the Commission to allow for adequate consultation with Member States about the development of research priorities and new funding instruments
— making it easier for researchers and businesses to apply for FP funding
— minimising bureaucracy in establishing new European funding instruments and institutes (eg ERC and EIT as outlined above)
— making it easier for non-EU countries to joint FP partnerships

64. Research Councils and UKRO invested a great deal of effort to alert the UK community to the new modes of funding under FP6 and the expected requirements to secure funding. As well as launch events, the Research Councils have provided practical and in some cases financial help for consortium building, and UKRO operated a partner search service in conjunction with similar Member State research offices. The European Commission has also provided timely information through its websites, and on-line partner search facilities, and officials have participated in national and regional information events. For FP6 the application forms have been simplified and the electronic application software for FP6 is a significant improvement to the much criticised FP5 system. RCUK, through UKRO, has ensured that the UK research community has been fully involved in the design and testing of the new system.

65. OSI statistics show that the UK continues to secure more funding through competitive bids to Framework Programmes than it pays through UK membership of the EU, and in FP6 the UK’s performance in securing funding was second only to Germany. Although the overall picture is healthy, there is a decline in the level of return. Statistics also show a low level of participation by UK businesses. The Research Council’s private sector stakeholders suggest that this is in part due to increasing complexity, the lack of flexibility in building collaborations (a particular challenge for SMEs) and the overall level of bureaucracy. Discussions in various RCUK forums indicate that there are different concerns in different parts of the UK research base, and that large companies and SME also have their own issues.

66. As part of FP7, the Commission will be introducing further improvements to the administrative process including a simpler registration procedure and reduced audit requirements. It is hoped that these measures will go some way to address the UK’s concerns. Additionally, the Global Science and Innovation Forum have been exploring the options for better aligning regional, national and European activities and making better use of existing UK networks to increase business engagement.

European Heads of Research Councils (EUROHORCs)

67. EUROHORCs brings together the heads of the major public national funding organisations across Europe. It is an active player in the field of European research policy, aiming to promote and enhance inter-country cooperation and serving as an advisory body for the European Commission. The Chief Executives of the Research Councils are all members of EUROHORCs and the Chief Executive of MRC represents RCUK interests on the EUROHORCs steering committee. More information is at: http://www.eurohorcs.org/
Research Infrastructures

68. The European Strategy Forum on Research Infrastructures (ESFRI) supports a coherent approach to policy-making on research infrastructures in Europe, and acts as an incubator for international negotiations about specific projects. The Research Councils represent UK interests on ESFRI. It is chaired, in an independent capacity, by Professor John Wood, Director International Affairs for the Science and Technology Facilities Council. UK representation is being reviewed in light of the establishment of the Science and Technology Facilities Council.

69. The ESFRI roadmap was published in October 2006. It describes the scientific need for a range of research infrastructures for the European Research Area over the next 10–20 years (excluding infrastructure projects in the field of high energy physics which appear in the CERN and ESA roadmaps). The Councils have identified potential UK interest in each of the projects and advised OSI accordingly, and are developing a coordinated approach to engagement, including determining which, if any, of the projects the UK might want to host.

The role and success of Research Councils in facilitating UK participation in international (non-Framework Programme) programmes

70. The Research Councils are responsible for facilitating UK participation in other, non-FP, international programmes through a wide variety of means, including payment of international subscriptions on behalf of the UK, hosting international facilities and international project offices, representing the UK academic community on key international forums, leading or belonging to major international networks and providing key personnel for the steering committees of international programmes. These activities help to ensure that the UK is part of large-scale research endeavour and that UK researchers can benefit from the use of facilities and opportunities open to them. Directly and indirectly, these efforts also raise the international profile of the Research Councils, which helps to forge strategic partnerships and alliances, and contribute to the UK being a partner of choice for research collaborations.

71. There are many examples of this involvement given in the individual Research Councils annexes, and the Research Councils lead for the UK in its membership of major intergovernmental collaborations such as the European particle physics laboratory (CERN), the European Space Agency and the European Southern Observatory. A selection of major international programmes highlighted here:

- the European Science Foundation (ESF)
- CERN
- the European Southern Observatory
- Human Frontier Sciences Program
- European Molecular Biology Laboratory/European Bioinformatics Institute
- Fusion research
- Fostering Collaboration in the Social Sciences
- Research vessels
- Integrated Ocean Drilling Programme
- European Space Agency

European Science Foundation & EUROCORES

72. All of the Research Councils and the British Academy are members of the European Science Foundation (ESF), a pan-European association of scientific organisations, which seeks to facilitate European cooperation through networking and various collaborative initiatives. Within the UK there is also a UKESF Coordinating Group facilitated by ESRC; the MRC Chief Executive represents RCUK Executive Group on the Governing Council of ESF.

73. Under the ESF framework Member Organisations benefit from opportunities to participate in the joint funding of trans-national programmes, forward looks, and funding for the community for research networking (Research Networking Programmes). A major scheme is EUROCORES, which brings together national research funding organisations to support interdisciplinary research in selected priority themes, thereby opening new horizons in science. Research Councils have previously expressed concern about the standards of peer review being applied and the ESF have made improvements in this direction; although EUROCORES is a useful mechanism in promoting European research collaboration, it is felt that there is scope for improvement in the operation and timescales for each round. EUROCORES have been evaluated by an independent agency and proposals for future development are being discussed by EuroHORCS and the Governing Council of ESF. Current UK engagement includes:

- AHRC is involved in EUROCORES programmes on the Origins of Man and Language and Consciousness in a Natural and Cultural Context. Research Network Programmes with UK components include Associated Chronologies of the Ancient Near East and From Natural Philosophy to Science
— EPSRC is supporting five programmes (including European Quantum Standards and Metrology, Smart Structural Systems Technologies and Fundamentals of Nano-electronics) with a total portfolio worth £3 million

**CERN**

74. Understanding the origins of matter and developing theories towards possible unification of all particles and forces, including gravity, is an enormous undertaking. World-class particle physics and astronomy can usually only be achieved through international partnerships to share the cost of investment and to have a community of researchers large enough to undertake the experiments.

75. The European Organisation for Nuclear Research (CERN) is the world’s leading centre for particle physics research. CERN employs almost 3000 people and some 6500 visiting scientists, half of the world’s particle physicists, come to CERN for their research. Through STFC the UK is an important partner in CERN and membership ensures UK particle physics researchers have access to the best facilities and opportunities possible.

76. The highest priority in particle physics in the next two years will be the completion of the construction, and the commissioning of the Large Hadron Collider (LHC) and its detectors at CERN. UK groups are playing leading roles in all four detectors for the LHC.

**European Southern Observatory**

77. In July 2002 the UK became a member of the European Southern Observatory (ESO). Membership has enabled UK astronomers to have full access to the four 8-metre-class telescopes that comprise ESO’s Very Large Telescope. The UK’s membership of ESO will also enable it to play a major role in the Atacama Large Millimetre Array (ALMA) project—an array of 64, 12-metre radio telescopes.

78. Membership of ESO helps enable the UK to remain one of the leading nations in astronomical research and in addition to having access to some of the world’s most advanced telescopes it will help enable UK researchers to play a major role in future developments.

**Human Frontiers Science Program**

79. BBSRC and MRC pay the UK subscription to the Human Frontiers Science Program, which funds collaborative international research grants and fellowships into the complex mechanisms of living organisms. To encourage new approaches to understanding complex biological systems, HFSP brings biologists together with scientists from physics, mathematics, chemistry, computer science, bioinformatics, nanoscience and engineering. Many EU member states are involved together with Japan, Australia, Canada and the USA. More recently India, South Korea and New Zealand joined the Program. The UK contributes about 3.5% of the HFSP budget. In 2006 the UK received 9.5% of the research grants awarded and 6% of the long-term fellowships and remains a net beneficiary of the programme.

**European Molecular Biology Laboratory/European Bioinformatics Institute**

80. MRC pays the UK subscription for the European Molecular Biology Laboratory (EMBL), which carries out fundamental research and promotes co-operation between European countries in the field of molecular biology. It also provides essential services to scientists in EU member states, provides high-level training for staff, students and visitors, and develops new instruments for biological research. One of EMBL’s laboratories is the European Bioinformatics Institute in Cambridge. It hosts the world’s largest collection of expertise on genomics and bioinformatics. MRC and BBSRC provide significant additional funding. EPSRC and BBSRC support the development of grid-based projects. This is an extremely valuable resource for the bioscience research community and is an example of effective international cooperation.

**Fusion research**

81. The international fusion programme is on the verge of taking the first step towards the development of a first fusion plant with the construction of the International Tokamak Experimental Reactor (ITER). ITER represents a major development in international research collaboration, whose partners are the EU, China, Japan, Korea, Russia and the US. The UK’s fusion research programme will develop in such a way as to ensure optimum alignment with the ITER project.
Fostering collaboration in the Social Sciences

82. Fostering Collaboration in the Social Sciences is a major initiative co-funded by ESRC and the US National Science Foundation (NSF) and managed by the Social Science Research Council in New York. It brings together around 40 national and multi-national agencies from all continents to explore ways to enhance co-working in social and economic research. Six strands of activity have been identified as priorities and ESRC is leading the International Data Forum strand, which will be launched at a workshop in Beijing in June 2007. This will be a tangible sign of global UK leadership.

Research vessels

83. NERC provides three ocean-going research vessels with associated specialist oceanographic equipment. Over the past five years, 50% of NERC’s research cruises have involved collaboration with international scientists, from 49 institutions and 17 countries. NERC is also heavily involved in ship-time bartering, which has grown markedly since 2000 to a point where NERC now exchanges approximately 200 barter days per year. NERC has a ship/marine facilities barter agreement with France, Germany, the Netherlands, Norway, Spain, and the USA (NSF).

Integrated Ocean Drilling Programme (IODP)

84. Participation in IODP allows UK scientists to influence and benefit directly from more than $1.5 billion investment in drilling platforms and their operation, in order to undertake research to improve climate change predictions. NERC is investing £12.5 million in IODP through membership of the European Consortium for Ocean Research Drilling (ECORD) comprising 16 European nations plus Canada. ECORD is a partner in IODP alongside the NSF and the Japanese Ministry of Education, Culture, Sports, Science and Technology.

European Space Agency (ESA)

85. NERC provides the UK’s subscription (~£34 million per annum) to ESA’s environmental sciences programmes (EOEP), and Envisat/ERS operations, and a share of the UK’s subscription to the general budget (around £7 million per annum). EOEP funds the development and operation of Earth explorer science missions, providing earth observation data in support of environmental sciences. NERC engagement helps to assure scientific excellence in the mission selection and maximise scientific benefits for the UK’s environmental sciences community. Please see Research Councils recent evidence to the Committee on the Space Policy inquiry for further information.

Effectiveness of collaborations between Research Councils and Government Departments involved in international scientific activities

86. As outlined above, the Global Science and Innovation Forum (GSIF) is the primary means for the Research Councils to influence the Government’s international science and technology agenda, and to work at the high level with the other major players across Government and others including the British Council and Royal Society. The paragraphs below cover the Councils major relationships with OSI and other Government Departments. Equally importantly, the Councils work closely with Universities UK on international issues, and it is anticipated that their new International Team will work closely with RCUK.

OSI and OSI International

87. The Research Councils work individually and collectively with OSI on a number of levels, particularly with the OSI International Directorate. The engagement is regular and highly varied. Research Council representatives are invited to join UK delegations to priority countries, which helps to further high-level dialogue with overseas funders and government agencies, Councils also routinely provide inputs and representation to Ministerial visits and activities (eg G8 agendas, bilateral meetings).

Foreign and Commonwealth Office

88. Although the Research Councils’ experience of working with the FCO Science and Innovation (S&I) Network is largely positive; we are identifying areas for improvement. Research Councils use individual S&I Network contacts informally to inform their international strategy development and have found the S&IN contacts in country extremely valuable when organising visits for Chief Executives and senior academics from the UK. The local knowledge and contacts that these posts provide has proved invaluable in brokering high-level meetings between the players, opening the door for discussions about collaborative agreements and collaborative research. This is particularly the case in Asia where there are significant cultural differences and research relationships are less mature. For example, MRC’s visits to South East Asia to explore potential research on avian flu was greatly facilitated by the local FCO S&I Network team, resulting
in the establishment of an MoU with the Beijing Municipal S&T Commission to cooperate on research about emerging infections. Likewise, the FCO’s regular regional S&I Network conferences are valued by Research Council staff as they provide a good opportunity to exchange information with Network contacts.

89. Research Councils have formal input to FCO business planning, advising on the draft business plans of each member of the S&IN. For 2007–08 this was coordinated through BBSRC.

90. In developing their plans for RCUK international offices, the Research Councils are working very closely with the S&I Network teams in China, Washington and India, who have provided invaluable guidance, advice and practical support.

91. Although the Research Councils have collaborated successfully with the FCO on specific projects (eg AHRC is providing financial and intellectual support to the FCO Year of Science in Brazil and BBSRC has collaborated with the S&I Network working with British Embassy Tokyo on structural genomics and the British High Commission New Delhi on biotechnology), the Research Councils have found that some country specific initiatives developed by the FCO team would have benefited from earlier dialogue with the Councils and other stakeholders about potential levels of interest and available resources, and also better planning in terms of delivery. AHRC has experienced particular difficulties in utilising its S&I Network as there is a lack of coverage of arts and humanities research issues by science attaches. Regular attendance of FCO representatives at the Research Councils International Network meetings helps to address communications issues and the recent appointment by the FCO of a specific stakeholder manager for the Research Councils is welcome. Further RCUK/ S&I Network discussion could enable the better achievement of mutual aims through multilateral organisations and networks.

92. Conversely, the Research Councils are aware that some S&I Network contacts have experienced difficulties in obtaining comprehensive information about Research Councils interactions with particular countries or sectors, and that consistency of information has also been an issue. The Research Councils are working together to put in place more robust means for gathering and verifying information on international activities. The new RCUK international team is expected to play a specific role in this regard.

Department for International Development

93. The UK research base can make an important contribution to helping the poorest countries meet the Millennium Development Goals and all Research Councils (with the exception of STFC) contribute to the research base for international development, and to the training of scientists and technicians from developing countries.

94. Building on the recommendations made by the Development Sciences Working Group, DfID established the UK Collaborative on Development Sciences in 2006 to provide a framework for a more coordinated approach to development sciences research in the UK. RCUK will be represented by BBSRC, ESRC, MRC and NERC as appropriate and in addition, he Wellcome Trust hosts the Collaborative’s Secretariat team with HR support from BBSRC. RCUK is fully supportive of the Collaborative and will work with DfID and other partners (including OSI, DH, Wellcome Trust, HEFCE, UUK) to realise the Secretariat team with HR support from BBSRC. RCUK is fully supportive of the Collaborative and will work with DfID and other partners (including OSI, DH, Wellcome Trust, HEFCE, UUK) to realise the...

95. Other collaborative international activities with DfID include:

- Joint DfID and BBSRC £6 million call for proposals to translate UK research on crop science into practical solutions and benefits in the developing world.

- BBSRC provides input to DFID lead on CIGAR (International Agri-Food Research Institutes in the developing world)

- ESRC-DfID co-fund a £13 million programme on Poverty Alleviation, which supports high-quality basic research projects led by researchers anywhere in the world, to underpin efforts to alleviate poverty. The successful launch of this programme has led to a further co-funded programme with the US William & Flora Hewlett Foundation to enhance the quality and impact of social science research addressing the key international development issue of how population dynamics and reproductive health outcomes impact economic growth and poverty reduction

- MRC has a concordat with DFID to facilitate development research in Africa. Under the five year agreement (which has been renewed twice following external evaluation since being established in 1993) MRC receives £4 million per annum to support an agreed portfolio of research projects. In addition to the activities supported under this concordat MRC and DFID have jointly collaborated on funding a number of important studies in Africa, including studies on the best methods for distributing antiretroviral drugs to adults and children with AIDS in Africa. MRC has established a Funders’ Forum with DFID, Wellcome Trust and ESRC to address issues of health research in developing countries. The Forum enables UK funders to work together and position themselves in relation to new international initiatives

- NERC has a long history of working closely with DfID, and is currently working with them and ESRC on a new joint research programme on Ecosystems Services and Poverty Alleviation
 Department for the Environment, Food and Rural Affairs

96. Engagement with Defra on international issues is primarily within the remits of BBSRC and NERC. At policy level, BBSRC supports Defra in the annual Tetrapartite meetings, the annual agri-food research and policy forum involving USA, Canada, France and the UK. BBSRC also supports Defra in its lead on representing the UK in the EU’s Standing Committee for Agricultural Research (SCAR), which was particularly effective in ensuring appropriate coverage of agricultural and related research in FP7. Other examples are at Annex B.

Department of Health

97. MRC works closely with the Department of Health and has a concordat that ensures that research activities are complementary and cover the UK’s health needs without duplication. On international issues the concordat with DH further clarifies that MRC will take the lead on behalf of the Department and DTI on EU framework programmes for health and that both parties will work together to promote mutual international research interests including global health.

IMPACT OF RESEARCH COUNCILS’ POLICIES ON THE INTERNATIONAL MOBILITY OF RESEARCHERS

98. In an increasingly competitive international market the Research Councils and other funders are keen to maximise the mobility of students and researchers, both to and from the UK. International mobility of researchers helps to share expertise and cross-fertilise ideas, and enables UK researchers to benefit from international training and development programmes. Furthermore, researcher mobility underpins cross-disciplinary activities that may be difficult to achieve within a single country, contributes to the sustainability of basic disciplines, and helps research to address international development challenges.

99. The RCUK ‘Strategy for Research Careers’ sets out the Councils’ aspirations for enhancing the attractiveness of the UK as a destination for the best researchers. The forthcoming RCUK international strategy articulates the need promote the movement of researchers and students to and from the UK—both to contribute to the Government’s agenda of making the UK one of the best places in the world to undertake research and to help UK researchers seize opportunities for working overseas.

100. The Research Councils support international mobility in a variety of ways, including postgraduate training in another country, individual research fellowships, visiting fellowships, overseas travel grants, networks of researchers and through collaboration on grants. Many of these activities are undertaken at the research subject level, and are therefore delivered most effectively through individual Councils and their research strategies, although Councils continue to review and develop collective policies and approaches where appropriate. The sections below focus on students and individual fellowship awards. Information on travel awards and enabling mobility to stimulate new research collaborations is provided earlier in the submission.

European Framework Programme mobility activities

101. The UK has also been successful in Framework mobility programmes, with approximately 30% of all EU fellowships held in the UK. This section focuses primarily on students, and awards to individuals. Research Councils support for international visits and collaborative research are outlined earlier in the document.

102. UK engagement in FP Researcher Mobility activities is largely co-ordinated through UKRO. The Research Careers and Diversity Unit of RCUK works closely with UKRO, and with OSI, to ensure that Government policy is fully represented in their activities. UKRO is a key support provider for the main EU funding initiatives concerning researcher mobility and is formally contracted by OSI to be the National Contact Point for the Marie Curie Actions (funded under FP5/6 and 7). Marie Curie Actions remain popular with UK researchers and are an important aspect of EU policy on researcher career development, mobility and cooperation.

103. UKRO is also a UK delegate on the FP7 “People” Programme Management Committee alongside the OSI. UKRO plays a key enabling role in informing the HE sector with regard to mobility of researchers and the relevant EU funding opportunities. RCUK provides the UK delegate to the DG Research Steering Group for Human Resources and Mobility—UKRO provides a nominated expert as necessary. The steering group advises DG Research on the wider policy issues related to human resources and mobility in the context of the Lisbon agenda.

104. RCUK and UKRO are working together to influence the developing guidelines for the co-funding of national fellowship schemes planned as part of FP7. Through this scheme the Research Councils anticipate that many more Research Fellows—many of whom are likely to be research leaders in future—will be able to gain experience of working abroad during the course of their fellowships. It is anticipated that a call will be issued for this scheme later in 2007.
**The Bologna Process**

105. The Bologna process aims to create a European higher education area by making academic degrees, and accompanying quality assurance, more comparable across the EU. Although mobility in itself is not a responsibility of the Research Councils, RCUK is aware of the benefits that can accrue from researchers who have experienced education and research in other countries.

106. The Research Councils have, through the RCUK Research Careers and Diversity Unit, taken steps to engage fully with the development of the doctoral cycle of Bologna. RCUK has been represented at the official Bologna Process seminars on Doctoral Programmes in Europe and has co-operated strongly with the UK Higher Education Sector Europe Unit with the overall objective of maintaining the position of the UK as an attractive destination for doctoral studies and to continue to ensure the high quality of its doctoral graduates. RCUK assisted the Europe Unit in producing a co-ordinated view from the UK HE sector on the doctoral cycle. A key outcome of that collaboration was publication by the Europe Unit of a briefing note outlining the UK position and highlighting examples of UK good practice with regard to 10 key areas of doctoral education.

**The European Charter and Code for Researchers**

107. The European Commission has adopted the European Charter and Code for Researchers as key elements to make research an attractive career in the EU. RCUK believes that for the UK to demonstrate that it is fully engaged with the European Higher Education Area and ERA, it important to show that the UK is supportive of the principles of the Charter and Code. In co-operation with UUK and sector representatives, RCUK has undertaken a gap analysis which has demonstrated that in most cases the UK already meets the requirements of the Charter and Code.

108. The Charter and Code will be linked formally into UK guidance when the new Concordat for Research Staff—for which RCUK is leading in the development—is published in late 2007. RCUK will also continue to engage, together with the HE sector, in constructive dialogue with the European Commission to take forward these principles in order to make the UK and Europe a more attractive place for researchers.

**A European Network on Research Careers**

109. The Research Careers and Diversity Unit of RCUK is a key partner in a proposal—led by DFG from Germany—to establish formally a European Network on Research Careers under the auspices of the European Science Foundation. The forum will serve as a joint platform for the exchange of views and experiences and for the development of strategy concepts. It will involve experts from national Research Councils, the European Research Council, the European Commission and the European University Association. The long-term goals will be to create or improve programmes aimed at promoting different career stages and to work on marketing campaigns to raise the international visibility of the ERA in the global competition for research talents.

**Promote the movement of non-EU researchers and students to and from the UK**

**Studentships**

110. It is a key aim of the Research Councils that the UK should produce internationally competitive postgraduates. The Research Councils collectively support 15,500 (mostly full-time) doctoral students of whom approximately 12% are from other EU member states. The Research Councils provide support for a limited number of non-UK students through sponsorship and the operation of the Dorothy Hodgkin Postgraduate awards and through project studentships driven by the needs of peer-reviewed research projects. The Councils aim to assist the universities to improve the quality of UK doctoral programmes and to enhance the international attractiveness of UK research training noting that the HE sector is already an attractive destination for non-UK doctoral students. Of 58,000 full time doctoral students in 2004–05 48% are non-UK and 14% are from other EU member states—in addition of 54,000 part-time doctoral students 35% are non-UK and 11% are from other EU member states.

111. Individual Council activities include:

— AHRC, in collaboration with ESRC, makes Library of Congress Scholarships available to UK doctoral students, postdoctoral fellows and research assistants who wish to pursue a course of study for a short period in the US

— ESRC offers all its postgraduate studentship awardees a three-month paid extension to undertake an overseas visit relevant to the studentship

— MRC recently signed a MoU with the Agency for Science, Technology and Research (A*STAR) in Singapore to enable Singapore PhD students to work in MRC Units in the UK. A*STAR is expecting to send around half of its overseas PhD students to the UK.
NERC encourages PhD students on NERC awards to undertake collaborative fieldwork overseas, and provides an extra £600k per year funding for this purpose.

Due to the nature of the research supported, PPARC has always had a significant amount of international mobility amongst its research community. The majority of PPARC PhD students spent a significant period (up to 2 years) of their studentship overseas.

The Research Councils support the Dorothy Hodgkin Postgraduate scheme which brings outstanding students from India, China, Hong Kong, South Africa, Brazil, Russia and the developing world to come and study for PhDs in top rated UK research facilities. This scheme is seen as a success and HEIs like it, but challenges remain in finding industrial partners to match Research Council funding.

In addition the Councils are continuing to explore removing the eligibility barrier for PhD stipends for non-UK EU students on a discretionary basis by Council.

**Fellowships**

The fellowships offered by the Research Councils have world-wide visibility and significant recognition within their target subject communities both in the UK and beyond. The majority of the fellowships are open to UK and overseas candidates regardless of nationality, and are assessed in competition with each other. Many Research Council Fellowships have a strong international element as international collaboration is actively encouraged as part of the process of building an international reputation; many awards include the option to undertake research training outside the UK. A survey of Fellow’s nationalities suggests that, depending upon the discipline, between 20% and 50% of all Research Council Fellows are non-UK nationals.

Individual Research Councils activities include:

- BBSRC’s five-year postdoctoral fellowships (David Phillips Fellowships) are available to the very best scientists whatever their country of origin. In the past five years 43% have been awarded to non-UK nationals to be taken up in UK Institutions.
- The EPSRC Life Sciences Interface programme runs an annual Overseas Post Doctoral Fellowships Exercise. A key aim of the scheme is to allow physical sciences or engineering researchers, who wish to work at the life sciences interface, time in leading international research laboratories.
- MRC fellowship schemes allow both clinical and non-clinical fellows to work for 1–2 years overseas and Fellowships can be held full time in one of MRC’s overseas Units. MRC also have an agreement with the Wellcome Trust over Fellows wishing to work in their overseas Units and vice-versa.
- The agencies to which MRC pays subscriptions such as Human Frontiers Science Programme, European Molecular Biology Organisation and the International Agency for Research on Cancer, all support fellowships that facilitate international movement.
- PPARC’s postdoctoral fellowship scheme enables Fellows to spend an extended period of the fellowship at a university overseas. During the course of their fellowship, many fellows spend a significant period on research at overseas facilities/experiments.

**Money follows researcher scheme**

All of the Research Councils have signed up to the “money follows researcher” initiative developed by EUROHORCs. This scheme allows academics within Europe moving between institutions in different countries to take certain research grant funding with them when they move, promoting researcher mobility in Europe.

**RCUK alumni scheme**

RCUK is planning to launch an alumni scheme principally for overseas nationals holding Research Council fellowship awards. The scheme will be informed by improved information about Councils’ fellowship holders, practices in alumni tracking used by universities and by the German Humboldt Fellowships Programme. RCUK will use the scheme to pilot activities/events designed to maintain the connections to UK research of those alumni who have gone abroad or returned home. Specific attention will be given to the key target countries (China, India etc). In implementing this, RCUK will continue to explore synergies with the schemes run by the Royal Society, RAEng and other funders.

April 2007
Annex A

Evidence from the Arts and Humanities Research Council (AHRC)

INTRODUCTION

1. AHRC became a research council on 1 April 2005 and published its first strategy for international engagement March 2006. The strategy built on a low level of international engagement which had been developed by its predecessor body (Arts and Humanities Research Board), principally participation in multilateral European funding mechanisms such as European Science Foundation (ESF) and the humanities ERA-NET initiative (HERA). In all other respects, the Council’s international activities began ab initio. The international strategy covers the period 2006–08 (http://www.ahrc.ac.uk/about/international/international_research_policy.asp), and has three principal aims. The aims are as follows, together with examples of how the Council has implemented them:

— Facilitating access to other funding sources
   In September 2006, AHRC signed a landmark agreement with NSF which facilitated the participation of UK researchers in its Human and Social Dynamics programme and other NSF programmes which overlap with AHRC remit. The agreement promotes UK-US collaboration while avoiding double jeopardy.

— Fostering collaboration to improve the quality of funded research
   AHRC provides funding for researchers to exchange ideas and expertise through its Research Networks and Workshops scheme. The scheme provides funding for the costs of workshops, conferences and symposia which are can be used to initiate and develop international links and act as a springboard for sustained collaboration. The scheme is targeted at building research capacity and relationships in countries and regions which are not well serviced by existing funding mechanisms. Increased funding is available for Networks and Workshops with those regions identified in the international strategy (see below). The scheme also draws in matching funding from counterpart agencies overseas to foster and enhance collaboration. In the past 6 months, AHRC has signed agreements with the National Science Council of Taiwan and the Korean Research Foundation which allow for joint funding of networks in the arts and humanities.

— Improving operational effectiveness and evaluation through cooperation and sharing of best practice.
   AHRC is committed to improving its peer review processes by learning from best practice and drawing on expertise from across the globe. The agreements with the National Science Council and Korean Research Foundation include provisions for sharing expertise in evaluation and peer review. HERA projects on best practice in European peer review have informed AHRC policy at a national level, for example in its participation in the Research Councils Review of Peer Review.

2. To maximise the benefit and impact of the Council’s activities, the strategy focuses initially on 4 geographical regions: Europe, US, China Region and South Asia.

3. The location-specific nature of much arts and humanities research means that it may be as beneficial for sections of its research community to engage with areas such as Brazil or Tibet as much as Japan or Switzerland, for example. The breadth of its community’s research interests, as well as its continuous evolution, demands a flexible framework for international engagement.

4. Nonetheless, where clear overlapping interests with other Research Councils have been identified, AHRC has found the framework provided by the RCUK umbrella to be very beneficial. This is true of individual collaboration—such as the AHRC/ESRC Anglo-French workshops co-funded by the CNRS—and collective collaboration, such as the RCUK office in Beijing.

STRENGTHS AND WEAKNESSES OF EXISTING AHRC MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION

5. The current portfolio of activities, and their relation to AHRC Strategic Plan, is shown in the table below.

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<thead>
<tr>
<th>Strategic Plan Aim</th>
<th>Activity</th>
<th>Country /region</th>
<th>Mechanism</th>
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<tr>
<td>1: To promote and support the production of world-class research in the arts and humanities</td>
<td>Networking</td>
<td>US</td>
<td>Research Networks and Workshops (RNW) scheme</td>
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<td>China</td>
<td>RNW, RCUK Beijing Office</td>
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<td>South Asia</td>
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<td>Europe</td>
<td>European Science Foundation (ESF)</td>
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<td>France</td>
<td>Bilateral Workshops series (w/ ESRC)</td>
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<td>Brazil</td>
<td>FCO SIN Year of Science</td>
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<td>Strategic Plan Aim</td>
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<td>1: To promote and support the production of world-class research in the arts and humanities</td>
<td>Co-funding</td>
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<td>Europe</td>
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<td>ERA-NET (HERA)</td>
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<td>1: To promote and support the production of world-class research in the arts and humanities</td>
<td>Exchange of Expertise</td>
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<td>South Korea</td>
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<td>Europe</td>
<td>ERA-NET (HERA)</td>
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<td>2. To promote and support world-class postgraduate training designed to equip graduates for research or other professional careers.</td>
<td>Researcher Mobility</td>
<td>US</td>
<td>Library of Congress placements</td>
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<tr>
<td>4. To raise the profile of arts and humanities research and to be an effective advocate for its social, cultural and economic significance.</td>
<td>Policy &amp; Influence</td>
<td>Europe</td>
<td>Framework Programme Committee</td>
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<td>ESF Standing Committee</td>
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<td>ERA-NET</td>
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**Strengths of AHRC approach**

6. The strategy aims to facilitate international links by removing obstacles to collaboration and identifying strategic partners, while allowing the arts and humanities community to define its own research priorities and determine who they should collaborate with.

7. This approach to international collaboration avoids double jeopardy by seeking to establish a single application, peer review and decision-making process.

8. The strategy avoids ring-fencing funds for international activity. This approach (a) maximises the quality of funded international collaboration by ensuring that proposals compete with the best research nationally, and (b) places no limits on international activity other than normal budgetary constraints. The Council has reviewed existing international funding commitments (eg its participation in ESF EUROCORES scheme) to ensure this principle is enshrined in all international engagement.

9. In designating priority geographical areas to devote efforts and resources, AHRC has acknowledged the work carried out by the Global Science and Innovation Forum in identifying those countries where it serves UK strategic interests to develop closer research links. Consequently, the priority areas highlighted in the international strategy are closely aligned with GSIF priorities under the “Research Excellence” category.

**Weaknesses of AHRC approach**

10. Only signing agreements which avoid double jeopardy potentially constrains the range of potential partners available to the organisation.

11. The structure of S&T funding system in other countries means that there is often no clear counterpart funding agency in the humanities with whom the Council can enter into co-funding agreements. This, again, can constrain both the range and level of international engagement.

**International collaboration through the EU Framework Programme (including ERC and ERA-NET)**

**Framework Programmes**

12. AHRC believes that the European Commission has been slow to recognise the contribution humanities research can make to economic growth and policy. FP4 (1994–98) provided limited scope for social science research for the first time. Since then the political evolution of the European Union and the prospect of major enlargement has meant a greater role for social sciences and humanities. In FP6 (2002–2006) the co-operation programme featured a theme on “Citizens and Governance in a Knowledge-based Society”.

13. The Commission does not break down its official statistics by discipline and so there are no separate figures for the performance of UK arts and humanities researchers. Nonetheless, UK participation in “Citizens and Governance in a Knowledge-based Society” (FP6) was very strong in relation to other countries. There were 226 individual participants from the UK in 108 contracts valued at 35 million Euro. The entire budget for this theme in FP6 was 230m Euro.
14. In both these programmes, there were limited opportunities for humanities researchers. However, AHRB/C has worked with the UK Research Office in Brussels (UKRO—supported by the Research Councils) to ensure these opportunities are highlighted to the UK community, through its website and cycle of HEI visits.

15. AHRC is delighted that in FP7, the humanities are explicitly included in the co-operation programme for the first time. With calls on topics such as migration and religions, attitudes and values, the programme will support pan-European collaborative research in priority areas which AHRC is also supporting collaborative research. The culture of collaborative project-based work which AHRC promotes should ensure a positive response to the calls which have been issued this year. It will continue to actively work with UKRO to ensure maximum take-up of the funding available, and has invited UKRO representatives to talk to early careers researchers at AHRC events about opportunities both in the Framework Programme and in the European Research Council (ERC).

16. AHRC is represented on the FP7 Social Sciences and Humanities Programme Committee (the Member States body that oversees the relevant cooperation theme). Through this forum, AHRC has been successful in pressing for a more humanities-friendly programme specification, and it will continue to press for an enlarged role for the humanities in future rounds of funding.

**European Research Council**

17. AHRC enjoys good relations with members of the ERC Scientific Council. In January 2006, Senior Officers from AHRC and ESRC met with SSH representatives of the Scientific Council of the ERC (including Vice-President Helga Nowotny) to discuss how humanities research might be best supported and how top UK researchers could be encouraged to reply.

18. AHRC welcomes this new and significant source of funding for the humanities at European level, as well as the focus on basic research. It believes that the best way for the Council to evolve so as to provide added value to the efforts of national research councils is to focus on funding teams of transnational researchers. The Council should avoid schemes which duplicate efforts at national level, such as those designed to help early careers researchers.

**ERA-NET**

19. AHRC welcomes the ERA-NET initiative as a method of allowing national research agencies to manage and fund transnational research that complements and adds value to their strategies domestically. Through the ERA-NET Plus scheme, the initiative has the additional advantage of attracting EU research funds to priorities that have been set by national research councils. The opportunity for sustained and structured exchange of information and best practice is also valued as a way of improving operational effectiveness and avoiding wasteful duplication of effort.

20. AHRC is currently a member of one ERA-NET funded through FP6: Humanities in the European Research Area (HERA). It is partnered by 14 other European agencies and ministries. The members of HERA have agreed to jointly fund 2 transnational funding programmes in 2009 on the following themes:

   — The Humanities as a Source of Innovation and Creativity
   — The Dynamics of Culture

21. These programmes will operate a single peer review mechanism and will fund research on a “common pot” basis ie the funding of successful transnational teams will not be based on the principle of juste retour.

22. This is a major advance in the funding of collaborative research in Europe and removes a number of bureaucratic impediments to joint funding. It will represent a significant improvement on existing multilateral mechanisms for the joint funding of collaborative research in the humanities, such as the ESF EUROCORES programme.

23. The HERA platform is also valuable in allowing humanities funding agencies to develop a common and coherent approach to European-wide challenges. Examples include the place of arts and humanities infrastructure projects in the EU ESFRI roadmap and the development of tools for the assessment of arts and humanities research outputs, beginning with the creation of a European Reference Index for the Humanities in partnership with ESF.

24. As the largest humanities funding agency in Europe, the AHRC has a played an important role in forums such as HERA and ESF in ensuring that the voice of UK humanities researchers are heard in key European research debates.
ROLE AND SUCCESS OF AHRC IN FACILITATING UK PARTICIPATION IN PREVIOUS AND CURRENT INTERNATIONAL PROGRAMMES

25. The agreement signed with NSF in 2006 allows for UK participants in the Human and Social Dynamics programme to be funded by AHRC. NSF also agrees to formally incorporate the comments of one UK-based peer reviewer nominated by AHRC. The agreement extends to all other NSF programmes which overlap with AHRC remit.

26. AHRC is a member of the European Science Foundation (ESF). It supports the UK component of transnational collaborative research (EUROCORES) and networking programmes (RNPs) on an a la carte basis. EUROCORES programmes to be funded include Origins of Man and Language (2002: 2 UK participants) and Consciousness in a Natural and Cultural Context (2006: 5 UK participants). RNPs with UK components to be funded include Associated Chronologies of the Ancient Near East (ARCANE) and From Natural Philosophy to Science (NPTS).

THE EFFECTIVENESS OF COLLABORATION BETWEEN AHRC AND GOVERNMENT DEPARTMENTS INVOLVED IN INTERNATIONAL SCIENTIFIC ACTIVITIES

27. As previously mentioned, AHRC international strategy takes into consideration GSIF priorities in designating certain countries and regions a priority. In doing so it broadly aligns itself with the international strategies of the Government departments and agencies represented on that forum.

28. There is also direct collaboration with the Foreign and Commonwealth Office. AHRC is providing financial and intellectual support to the FCO Year of Science in Brazil (launched March 2007). The aim of that initiative is to promote the UK as the partner of choice for UK researchers, and AHRC is sponsoring an event on creativity, focussing on such issues as art and design, media and intellectual property.

29. An enduring problem in establishing closer links with the FCO and utilising its Science and Innovation Network more effectively is the lack of coverage of arts and humanities issues and researchers by science attaches. The examples of constructive liaison, for example with the South China post in Guangzhou on the theme of Heritage Science and the Sao Paulo post on Creativity, have sadly been rare.

IMPACT OF AHRC POLICY ON THE INTERNATIONAL MOBILITY OF RESEARCHERS

30. AHRC, in collaboration with ESRC, makes Library of Congress (LoC) Scholarships available to UK doctoral students, postdoctoral fellows and research assistants who wish to pursue a course of study for a short period in the US. The scheme was initiated in 2005 as a result of the recommendations made by Sir Gareth Roberts on UK-US links. The scheme gives extensive access to the LoC’s world-class facilities in Washington D.C. 16 placements have been made to date.

31. Mobility is also encouraged through AHRC’s Research and Networks scheme and other networking schemes such as 5 Anglo-French bilateral workshop series supported in collaboration with ESRC. These series were focused on topics of strategic interest such as consciousness and cognition, migration and security.

AHRC
April 2007

ANNEX B

Evidence from the Biology and Biotechnology Sciences Research Council (BBSRC)

INTRODUCTION

1. BBSRC’s Strategic Plan (2003–2008, updated in 2005) has a specific objective on partnerships—to “Seek new and stronger partnerships with a range of other funders and stakeholders, national and international, where there is benefit to the science base.”

2. A refreshed international strategy was considered by BBSRC Strategy Board and endorsed by Council in January 2007, and is available on the BBSRC website at: www.bbsrc.ac.uk/international. Our stated aim is to ensure that the UK remains a world leader in the biosciences, and that academic research, industrial R&D and the UK economy benefit from the increasing scientific activity across the globe.

3. BBSRC aims to deliver its international strategy through four interrelated areas of activity:

Promoting the movement of people

BBSRC supports a range of schemes to encourage mobility such as David Phillips Fellowships, Dorothy Hodgkin Awards, and financial contribution to international programmes such as the Human Frontiers Science Program (HFSP) and the European Molecular Biology Organisation (EMBO).
Enabling international research and collaboration

BBSRC supports research collaborations through international visits, workshops and research grants to foster and deepen links between researchers and between countries. “Partnership Awards” provide support for up to four years for specific interactions with researchers in Japan, China or India. Some research support is made through partnership with counterpart funders in other countries, eg through the EU “ERA-Net” scheme. In addition, the EU Framework Programmes offer a wide range of opportunities for joint research and associated activity. BBSRC is the managing partner of the UK Research Office in Brussels (UKRO) which is the leading source of information and guidance on EU funding to the UK research community (www.ukro.ac.uk). For the life sciences, HFSP is also a key source of support for joint research (www.hfsp.org).

Ensuring access to world-class infrastructure and information

Within the EU, BBSRC plays a key role with STFC within the European Strategy Forum on Research Infrastructures (ESFRI) prioritising future infrastructure needs of Europe. We also take forward issues through RCUK and with other stakeholders (eg OSI).

Discharging our global responsibilities

Much of the research funded by BBSRC has considerable potential in addressing Millennium Development Goals, and BBSRC has co-funded research programmes with DFID in specific areas. BBSRC is also a co-founder of the UK Collaborative for Development Science to achieve closer coordination between DFID, the Research Councils and other stakeholders (eg the Wellcome Trust).

BBSRC funding to promote collaborative activities

4. Visits (£110k pa): BBSRC grant holders can apply at any time to visit (or send research staff to) any other country to:

- Initiate, scope and develop collaborative activity
- Access or share research data, facilities, skills
- Write joint applications to international programmes

In the last five years, we have funded 356 visits to 44 countries at a total BBSRC contribution of over £500k.

5. Partnering Awards (£300k pa): BBSRC focuses strategically on promoting collaborations with countries that are rapidly expanding their scientific capability. Partnering Awards enable leading UK laboratories to link respectively with collaborators in Japan, China and India. They provide support (£20k–50k) over four years to BBSRC grant holders for activities including the short-term exchange of postgraduate students, postdoctoral researchers or established scientists plus workshops. In the last five years, we have funded 68 awards at a BBSRC contribution of over £2 million. A scheme with the USA is in early stages of preparation. Access to facilities, training and data are a key feature of successful Partnering Awards.

6. Workshops (100k pa): awards of around £10k to enable grant holders to initiate activity through a workshop with UK and overseas researchers. In the last five years BBSRC has funded 40 workshops at a contribution of over £300k.

7. Fellowships: BBSRC’s five-year postdoctoral fellowships (David Phillips Fellowships) are available to the very best scientists whatever their country of origin. In the past five years 43% have been awarded to non-UK nationals to be taken up in UK Institutions. Similarly, RCUK Academic Fellowships and Dorothy Hodgkin Awards continue to provide significant opportunity for researchers to establish themselves in the UK.

8. Joint funding: BBSRC contributes to large projects with other funders (eg genome sequencing), or enters funding schemes with partners such as ERA-Nets or EUROCOREs—see below. On a bilateral basis, BBSRC has co-funded specific calls for research proposals with DFID (£2M from BBSRC) in the UK and with ANR (BBSRC up to £5 million) and INRA (BBSRC £1.7 million so far) in France. A small number of responsive mode-funded grants involve related activities funded in another country.

9. International Programmes: BBSRC (together with MRC) pays the UK subscription to HFSP and to EMBO. As with other Councils, BBSRC is a member of ESF and participates in EuroHORCs such as their Money Follows Researcher Scheme.

10. BBSRC signs formal Memoranda of Understanding with counterpart Agencies overseas where doing so reduces barriers for UK researchers to collaborate with partners, or where there is strategic benefit. No specific budgets are allocated to such agreements, but activities are covered by the range of schemes detailed above, or through workshops to instigate collaborations (especially with China). BBSRC has signed agreements with the following organisations:
— Canada: Agriculture and Agri-Food Canada (AAFC)
— China: Chinese Academy of Sciences (CAS), China National Centre for Biotechnology Development (CNCCBD), National Natural Science Foundation Centre (NNSFC);
— France: Institut National de la Recherche Agronomique (INRA);
— India: Council for Scientific and Industrial Research (CSIR), Department for Biotechnology (DBT)
— Japan: Ministry of Education, Science and Culture and Agriculture, Food and Fisheries Research Council (AFFRC) of the Japanese Ministry of Agriculture;
— Korea: Korean Science and Engineering Foundation (KOSEF);
— Netherlands: Wageningen University Research Centre
— USA: US Department of Agriculture (USDA).

11. International opportunities are identified through Council interactions with partner organisations, through subject-specific reviews undertaken to input to policy development, and in responding to higher-level strategy development eg at RCUK or GSIF level.

EU FRAMEWORK PROGRAMMES

12. BBSRC is the managing partner of UKRO on behalf of the Research Council sponsors. For FP6, BBSRC, together with the Food Standards Agency and Defra, provided the UK National Contact Point for the FP6 thematic programme Food Quality and Safety, co-funding a launch event for the theme in London, and advising on scientific issues in the programme. BBSRC made effective input to Defra and FSA representation on the Programme Management Committee, on issues such as topics to be covered in calls for proposals, drawing on input from BBSRC-sponsored Institutes and the wider community. In the first call for proposals in FP6 Food Quality and Safety programme, 12 large-scale projects were selected for funding. Of these 11 had UK participants, and eight had participation of BBSRC-sponsored Institutes.

13. BBSRC is a lead in ERA-Net schemes in plant genomics (11 partner countries, BBSRC £5.2 million) and systems biology (14 partner countries, BBSRC £6 million), publishing joint calls for proposals with EU partners. Commission support to these schemes allows for staff in Swindon to lead on negotiations and programme management. BBSRC now enjoys closer relations with and greater understanding of its European counterparts, and we have also embarked on bilateral calls in specific areas with French agencies in crop science and in systems biology outside of the ERA-Net scheme. Similar bilateral activity is planned with Switzerland. The benefits to the community include accessing support for collaborative research within well understood national programmes, and the focus of resource on key challenges. BBSRC involved the research community in planning ERA-Nets through town meetings.

14. BBSRC has been closely involved in developing and strongly supports the RCUK lines on the ERC and EIT, and appreciates the strategic input from UKRO on these issues. BBSRC is raising awareness of early ERC opportunities to young scientists eg through its Next Generation seminars. The ERC will only fund the best in Europe if the best apply.

15. In addition to UKRO, BBSRC raises awareness of EU and other opportunities at meetings of researchers through grant workshops, town meetings, and other BBSRC events such as Next Generation seminars for young researchers.

16. BBSRC relations with EU partners such as INRA (France), WUR (Netherlands) and others (eg through the European Agricultural Research Initiative) ensure effective joint approaches can be made to the European Commission (eg BBSRC/INRA/WUR meeting with Commissioner Potocnik in run up to FP7).

17. BBSRC is the lead UK representative on the Life Sciences Working Group of ESFRI, prioritising the first calls for proposals in the FP7 infrastructures programmes. The work programme for this first call includes the following life science priorities from the ESFRI Roadmap:
   — European Advanced Translational Research Infrastructure for Medicine (EATRIS)
   — European Bio-Banking and Biomolecular Resources
   — Infrastructure for Phenomefrontier and Archivefrontier (INFRAFRONTIER)
   — Infrastructure for Clinical Trials and Biotherapy
   — Integrated Structural Biology Infrastructure
   — Upgrade of European Bio-Informatics Infrastructure
Role and Success of RCs in Facilitating UK Participation in Previous and Current International Programmes

18. BBSRC and MRC pay the UK subscription to the Human Frontiers Science Program, which funds collaborative research grants and fellowships across many countries. (BBSRC contribution £175k 2006–07). See MRC annex for UK statistics.

19. BBSRC and MRC pay the UK subscription to the European Molecular Biology Organisation which operates fellowship schemes for young researchers and associated activity (BBSRC contribution £180k for 2006–07). See MRC annex for statistics.

20. BBSRC is a member organisation of the European Science Foundation with the other Research Councils (BBSRC Contribution £100k 2006–07). Benefits range from participation in joint funding (EUROCOREs) programmes, forward looks in nanomedicine and systems biology and funding to the community eg in research networking (eg Frontiers in Functional Genomics involving Babraham Institute).

Effectiveness of Collaboration between RCs and Government Departments

21. Formal collaboration is undertaken through the Global Science and Innovation Forum (GSIF, RC representation via EPSRC, and via BBSRC on the GSIF Core Officials Group). BBSRC ensures its international strategy complements GSIF priorities (eg Partnering Awards with Japan, China and India). Examples of specific interactions are below.

22. OSI—BBSRC works with OSI on a number of levels, particularly with the OSI International Directorate. BBSRC joined the UK delegations to OSI-led bilaterals with priority countries eg Ministerial-level meetings with China (October 2001, Beijing; November 2003, London; April 2006, Beijing), India (June 2006, London) and Japan (February 2004, Tokyo; June 2006, London). Attendance has helped further BBSRC Corporate links with counterpart agencies. BBSRC also inputs to all OSI requests for briefings for Ministerial visits, activities (eg G8 agendas, bilateral meetings). BBSRC is also a member of the OSI Framework Programme Network.

23. Defra—at policy level, BBSRC supports Defra in the annual Tetrapartite meetings, the annual agri-food research and policy forum involving USA, Canada, France and the UK. BBSRC also supports Defra in its lead on representing the UK in the EU’s Standing Committee for Agricultural Research (SCAR), which was particularly effective in ensuring appropriate coverage of agricultural and related research in FP7. BBSRC has also joined Defra in activities of the European Agricultural Research Initiative (EURAGRI), which has played a key role in integrating new Member States to EU networks. Defra takes the UK lead on the Agriculture and Biotechnology committees in the COST Programme.

24. Food Standards Agency—joint approaches to Framework Programme management and defining the structure and calls for proposals (with Defra), to ensure FP7 opportunities are appropriate for the UK community.

25. DTI—again joint work on defining FP7 priorities, and also in specific activity eg the DTI UK-Texas bioscience collaboration programme (BBSRC represented on Steering Committee).

26. FCO—BBSRC has led on Research Council interactions with the FCO recently through involvement in FCO SIN Business Planning meetings; SIN regional Conferences (Ottawa September 2006 ; Singapore December 2006; Berlin March 2007). Specific activity with SIN Posts includes FCO funding of collaborations with British Embassy Tokyo (structural genomics) and British High Commission New Delhi (biotechnology). BBSRC also benefits from SIN expertise in planning Corporate Missions eg to China, Singapore, Japan, USA, and India. BBSRC also hosts FCO-sponsored delegations to the UK where appropriate.

27. British Council—BBSRC undertakes review of applications to several British Council schemes such as networking of young researchers, and serves on the committees of British Councils schemes such as Alliance (UK-France programme).

28. DFID—good relations in recent years culminating in a £6 million joint call for proposals (£2 million BBSRC to date) to translate UK research on crop science into practical solutions and benefits in the developing world. BBSRC also provides input to DFID lead on CIGAR (International Agri-Food Research Institutes in the developing world) and BBSRC provides human resource services underpinning our involvement in the new UK Collaborative for Development Research.

BBSRC

April 2007
Annex C

Evidence from the Council for the Central Laboratory of the Research Councils (CCLRC)

INTRODUCTION

1. On 1 April 2007, the Council for the Central Laboratory of the Research Councils (CCLRC) combined with the Particle Physics and Astronomy Research Council to form The Science & Technology Facilities Council.

2. The CCLRC provided UK academics with access to advanced research facilities such as Synchrotrons and Neutron Sources, as operated at CCLRC's Daresbury Laboratory, Rutherford Appleton Laboratory. The CCLRC also provided expertise in many scientific disciplines and particularly in technology (instrumentation), engineering and IT.

3. The CCLRC also managed the UK subscriptions to the ESRF and the ILL which provided a further range of experimental facilities to UK academics.

4. Unlike its sister Research Councils, CCLRC did not provide grant funding to academics, apart from a very small scheme connected with the development of UK based national facilities.

5. While CCLRC has always been involved in international activities, the development of the next generation of current facilities, e.g., 4th Generation Light Sources and the need for the UK to be able to access new types of Facility, e.g., European X-Ray Free Electron Lasers, pose additional challenges. The ever-increasing costs of these new facilities and potential human resource shortages, ensured that the internationalisation of facilities has become a more important consideration for strategic development planning.

STRENGTHS & WEAKNESSES OF EXISTING RC AND OSI MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION

6. There has been some lack of clarity in the partitioning of responsibility between OSI and CCLRC in promoting international collaboration, particularly at a strategic level in Europe, but also with other countries. An example of this has been the UK position with regard to the European Spallation Source.

7. There is no clearly identified central diary of visits abroad by senior staff or Ministers nor of incoming visitors. This reduces the capacity to capitalise on such visits by planning complementary activities or suggesting people or locations to visit.

8. CCLRC has a great many scientific contacts internationally through its staff, typically on a person-to-person basis, both at researcher-to-researcher level, and at Director to Director level. However, this did not naturally extend to relationships at an organisational/Funding Agency/Ministry level and CCLRC has worked at developing these. Much of the improved international esteem of CCLRC in recent years can be attributed to the development of these relationships which have been enabled by CCLRC's membership of ESFRI, the establishment of the ERF and targeted visits to overseas agencies.

9. CCLRC's three major facilities (ISIS, SRS and CLF) operate a Free-at-the-Point-of-Access Policy. Applications to use the Facilities are subject to Peer Review and if successful all the costs of using the Facility (including travel and subsistence for a defined number of researchers) are paid for by the Facility. Some of the time on each Facility is reserved for "World Class Science" which enabled international researchers to have access whilst further time was reserved for European Users under the EC's Transnational Access programmes.

INTERNATIONAL COLLABORATION THROUGH THE EU FP, INCLUDING RESOURCES FOR ENHANCING PARTNERSHIP BETWEEN RCs AND EU AGENCIES IN THE NEW FP7 INITIATIVE. THE PROVISION OF RESOURCES TO STIMULATE UK PARTICIPATION IN INTERNATIONAL PROGRAMMES. BENEFITS AND DRAWBACKS OF RC PARTICIPATION IN PREVIOUS AND CURRENT FPs

10. CCLRC staff have been involved in the development of EU framework programmes as expert advisors to the EU in particular areas. In some cases this was done in cooperation with colleagues in other European countries via a "not for profit" organisation, for example in the area of IT, ERCIM (www.ercim.org). In general there was no funding provision for this, but the activity was considered an investment to improve success in subsequent project proposals.

11. There have been great benefits to CCLRC participating in FPs for several reasons: (a) provision of part of the necessary R&D funding for development, (b) development of trained staff, (c) awareness of scientific competence in other countries, (d) exchange of experience and techniques. In many cases FP projects have led to the production of new equipment or services to support researchers using CCLRC and also to stimulate knowledge and technology transfer to UK industry.
ESFRI

12. The European Strategy Forum on Research Infrastructures (ESFRI) was founded in 2002 and supports a coherent approach to policy-making on research infrastructures in Europe, and acts as an incubator for international negotiations about specific projects. The Research Councils represent UK interests on ESFRI. CCLRC has provided the two UK delegates; Professor John Wood who was the Chief Executive of CCLRC and a senior Director. Professor Wood is currently its independent Chairman and has recently had his term extend until the end of March 2008, in this role he has been instrumental in identifying the need for a European Roadmap and put forward proposals for how to go about this.

13. The UK representation on ESFRI is being reviewed in light of the establishment of the Science and Technology Facilities Council. It is likely that another Research Council will take the second delegate place.

14. The ESFRI roadmap (the first) was published in October 2006. It describes the scientific need for a range of research infrastructures for the European Research Area over the next 10–20 years (excluding infrastructure projects in the field of high energy physics which appear in the CERN and ESA roadmaps). Many other international countries have shown great interest in the process and result.

15. The Research Councils, in consultation with OSI have identified potential UK interest in specific projects listed in the Roadmap, and are developing a coordinated approach to engagement, including determining which, of the projects the UK might want to host.

Benefits:

16. Membership of ESFRI has allowed CCLRC to meet and establish relationships with similar organisations from all the Member States plus the Associated Countries. As ESFRI delegates are personally appointed by Research Ministers this means that these contacts are particularly knowledgeable and influential.

17. The ESFRI Roadmap has allowed CCLRC to identify potential partners, potential rivals, and potential opportunities. In particular, it has allowed CCLRC to identify countries whose interests in hosting a project are largely based on EC Structural Funding being available as opposed to being based on National Funding and/or an established scientific base being available.

Drawbacks:

18. The ESFRI Roadmap has attracted the enthusiastic support of the European Commission but unfortunately there has been some downside to this. However, linking eligibility for EC FP7 funding to being on the Roadmap and the Commission’s unfamiliarity with capital scientific project life cycles has also raised some issues. An example is that while the EC is willing to contribute to the capital costs of new Research Infrastructures, (through FP7) there is no programme to support the development of the technologies that will be needed e.g detector, instrumentation and IT technologies.

ERF

19. CCLRC initiated the formation of ERF (European Association of National Research Facilities open to International Access). This association aims to coordinate development of leading facilities for European research to improve best practice, to act as expert opinion for national and international policy making and to facilitate the availability and use of facility resources for cooperation and specific joint initiatives. Membership of ERF gives CCLRC excellent oversight of the strategy of other national facilities and potential opportunities for UK researchers. Of course ERF is linked tightly with ESFRI and triangulates with the provision of EC funding. Furthermore, ERF has been discussed as a possible pilot Knowledge Innovation Community for EIT.

EIT

20. CCLRC staff have been active in discussions on the EIT both from a CCLRC and ERF point of view and representation. This has included discussions with UKRO, briefing appropriate UK representatives, briefing the local MEP and discussing with members of the task group set up by the European Parliament to report on EIT. CCLRC has expressed the concerns outlined in the RCUK section of this document and additionally, jointly with university groups, has raised questions about EIT degree-awarding.

21. In the field of IT, ERCIM (with CCLRC as the UK member) has been funded by the EU to produce strategic documents on the future of IT in Europe over the next 20 years.

22. CCLRC was disadvantaged by the imposition of the “Treasury Cap”: a Treasury imposed financial regime whereby Treasury reclaimed funds from CCLRC once CCLRC’s EC receipts exceeded a certain level. This Regime has been abolished for FP7 but undoubtedly caused huge strategic damage to CCLRC
as it was unable to lead on projects. CCLRC led the NMI3 project, the largest of the EC’s I3 projects but this single project brought CCLRC very close to the threshold at which the Treasury Cap would kick in, ruling out CCLRC leading on further projects.

THE ROLE & SUCCESS OF RCs IN FACILITATING UK PARTICIPATION IN PREVIOUS AND CURRENT INTERNATIONAL PROGRAMMES.

23. CCLRC, because of the nature of the organisation, can not claim to have facilitated UK participation in such programmes through funding. Many organisations (both in academia and industry) benefited from CCLRC’s involvement in such programmes, either directly as project partners or indirectly through technology transfer from CCLRC. Because CCLRC participates as the or a UK member in various European and International research groupings, this beneficial effect is leveraged strongly.

24. International programmes involving advanced science and/or the development of advanced technology around research facilities are a particular CCLRC interest where CCLRC involvement provides a gateway for UK researchers. Current projected programmes around facilities include XFEL, FAIR and HIPER.

THE EFFECTIVENESS OF COLLABORATION BETWEEN THE RCs, OSI AND OTHER GOVERNMENT DEPARTMENTS INVOLVED IN INTERNATIONAL SCIENTIFIC ACTIVITIES, INCLUDING, DEFRA, THE FCO’S SCIENCE AND INNOVATION NETWORK AND DIID

25. CCLRC’s principal interactions are with OSI and FCO and while CCLRC “knows” the other Departments, it does not generally get directly involved with their activities.

26. CCLRC work closely with FCO SIN staff who provide an excellent level of support for CCLRC staff. This is particularly true where the FCO staff have a science rather than language background. Such support is particularly useful when dealing with unfamiliar cultures.

27. However, CCLRC makes less use of the European SIN Network as CCLRC already has a well established network of contacts in the national funding agencies and the Ministries through its involvement with ESFRI. Whilst we recognise that the SIN Network has other objectives beyond just science and innovation, we understand FCO is already reviewing the placement of SIN Officers.

IMPACT OF RC POLICIES ON THE INTERNATIONAL MOBILITY OF RESEARCHERS

28. CCLRC’s Facility Access policies enable mobility in the sense that they allow researchers to bring their research to the facilities.

29. Some of the international groupings to which CCLRC belongs encourage mobility and in the past some have been supported with EU funding. This has increased the number of non-UK young researchers coming to the UK, some of whom remain to make their career in the UK.

30. CCLRC had approximately 1800 staff and a significant proportion are of non-UK origin. CCLRC has always been keen to welcome employees from overseas and to maintain contact with them once they have left; this has paid off in the longer term as many of these ex-staff are now in senior positions in other organisations or other laboratories which provides for a very personal level of interaction.

STFC
April 2007

Evidence from the Engineering and Physical Sciences Research Council (EPSRC)

INTRODUCTION

1. The EPSRC international strategy aims to provide the means to encourage international collaboration. EPSRC’s role is to provide its community of individual researchers with the means to pursue international collaboration in a flexible manner with their chosen partners wherever they are in the world, but with a particular focus on USA, Europe, China, India and Japan.

2. Within the EPSRC Strategic Plan are five strategies, developed to inform our actions and operations to enable us successfully to address the challenges of the Science and Innovation Investment Framework 2004–2014 and subsequent Next Steps paper.
3. EPSRC has a long history of facilitating and taking advantage of opportunities for international partnership. However, in order to grow the strength of the UK research base within an evolving global context, and to maximise its influence on the direction and exploitation of world science, technology and engineering, EPSRC must evolve its policy and target investment decisions so that the community can take full advantage of global opportunities.

4. Ideas do not respect national boundaries: science is international and opportunities will be developed within a global context. We work to give emphasis to fostering and enabling “best with best” science-driven international interactions. To this end, we will seek to stimulate global partnerships, overseas collaborations, alliances with multinational companies and international funding agencies and leading international people. This will benchmark UK research and promote global recognition of the best UK research and researchers. Figure 1 below gives data on recent international collaborations with companies, while Figure 2 shows the number of Visiting Fellowships by country supported by EPSRC.

5. Also from the Strategic Plan, in the context of research, we will particularly encourage collaboration with researchers in the USA, Europe, China, India and Japan at peer to peer as well as the strategic level, forming alliances with international bodies and agencies with the aim of lowering the barriers to collaboration. EPSRC will also continue to work in concert with the other Research Councils and through RCUK in promoting the strength of UK research internationally to ensure we provide a clear and unified voice. Figure 3 shows the value of EPSRC grants which contain an international element for the period of the previous five years.
5.1 Strengths and weaknesses of existing Research Council and activities to maintain and promote international collaboration.

EPSRC continues to provide a huge community of individual researchers with the means to pursue international collaboration with their chosen partners. These mechanisms include: Visiting Fellowships, Overseas Travel Grants, N + N meetings and networks, together with the appointment where appropriate of Research Assistants employed on EPSRC grants, overseas postgraduate students, etc.

Data showing the breadth of EPSRC activities is grouped by region in the following Annex. EPSRC operates to enable the entire range of the UK research community within its remit to benefit from flexible mechanisms and responsive funding schemes. The issues of double jeopardy are being addressed through specific experiments with NSF and DFG as highlighted below.

EPSRC recognises the complexity of the international research landscape and is therefore addressing priorities through the development of its international strategy.

5.2 International collaboration through the EU Framework Programme

EPSRC’s activities in ERA-NETS are described below. EPSRC also provides travel funds to enable UK researchers to travel to Europe and build partnerships with a view to submitting a bid to the Framework programmes. EPSRC welcomes the establishment of the ERC and will monitor its portfolio to respond to the changes in the funding landscape as a consequence of this new player in Europe.

EPSRC has encountered difficulties in gaining a true picture of the extent of UK involvement in Framework programmes and would benefit from clearer information exchange for influencing the European research agenda.

5.3 Role and success of Research Council support for facilitation of UK participation in previous and current international programmes.

EPSRC enables its community of researchers to participate in international programmes through the provision of funds and representation on international bodies. As well as close links to the European Science Foundation, it assists with peer review on British Council and FCO operated programmes. Further details are provided in the following annex.
5.4 Effectiveness of collaboration between Research Councils and Government Departments

Through its individual programmes, EPSRC has interactions with a number of Government departments including DfID and DoH as well as UKTI for knowledge transfer activities.

Such activities are operated at Programme level where individual working relationships are established between EPSRC and departments. This lower level of organisation is considered to be effective for matching the structure of EPSRC programmes.

5.5 Impact of the Research Councils’ policies on the international mobility of scientists

EPSRC’s Fellowship and Visiting Researcher schemes are designed to offer flexible solutions to enabling mobility. In addition, individual Programmes offer specific ring-fenced initiatives to build capacity within a particular discipline.

Within EPSRC’s strategy is the objective to build ‘best-with-best’ relationships between researchers in the UK and overseas.

International Activities

6. UK researchers already collaborate strongly internationally. The world map in Figure 4 shows the extent of collaboration within the current research grants portfolio. It excludes involvement in, eg, Framework programmes, which builds on UK expertise funded at the core level by EPSRC. Both corporately, and through programmes, EPSRC seeks to influence research opportunities.

Figure 4

7. EPSRC’s previous strategic focus on Japan, China and India has led to the funding of INTERACT, which recently completed a fourth funding round, to support networks and travel grants to initiate research collaborations. To date, the INTERACT portfolio has made 30 awards worth a total of £1.2 million.

8. A number of focused activities are planned or have been completed in the energy area, for example a recent workshop has been held in Xiamen between the DTI, EPSRC, members of the UK and Chinese research communities and MOST.
9. Where there is a strategic need, EPSRC has Memoranda of Understanding with agencies around the world to promote international collaboration. Memoranda of Understanding with the Chinese Academy of Sciences (CAS), the Ministry of Science and Technology (MOST), National Natural Science Foundation of China (NNSFC), National Science Council (Taiwan) and the Chinese Academy of Medical Sciences (CAMS).

10. In August 2005, Arup was contracted to design and masterplan the world’s first sustainable city, Dongtan in Shanghai, China. EPSRC has supported 4 network proposals which will enable UK and international researchers to undertake further visits and workshops to discuss research challenges associated with the construction of Dongtan in more detail.

USA

11. The SUPERGEN initiative has supported US/UK Scholarships in hydrogen technologies with Sandia National Laboratories, exchanging PhD students between the UK and US laboratories.

12. EPSRC is actively promoting collaboration between universities in the UK and the USA. In addition to providing funding opportunities, EPSRC will build relationships with appropriate agencies in the USA to underpin this. For example, EPSRC has successfully initiated joint funding opportunities with the National Science Foundation and is now moving forward to establish a single process for Peer Review between EPSRC and NSF.

13. In September 2005, we issued a call to support participation in the 2005 National Science Foundation (NSF) ‘Materials World Network: Cooperative Activity in Materials Research’ between UK and US researchers. EPSRC has funded 17 grants, £3.8 million over the past 4 years to 2005–06. The calls have succeeded in their aim of attracting and funding internationally leading groups. Highlights from funded projects include a publication opening up prospects of including computational functionality within optical communications fibres themselves which featured on the front page of Science by the Southampton Optoelectronics Centre jointly with Pennsylvania State University.

Europe

14. Current activities in Europe focus largely in involvement in Eranets, for example in e-health, nanoscience, complexity and bioenergy. The mathematical science Programme Manager meets with counterparts in a European network “heads of maths programmes”, and the ICT Programme Manager is similarly involved with European networks. The Mathematics Programme supports the Institute Hautes Etude Scientifique.

15. The Isaac Newton Institute for Mathematical Sciences (INI) at Cambridge is a research institute which attracts leading mathematical scientists from the UK and overseas to interact in research over extended periods (typically 6 months). The INI runs research programmes on selected themes in the mathematical sciences, with applications to a wide range of science and technology. Between 2002 and 2005 the EPSRC funded the Institute to the value of just over £1.3 million.

16. EPSRC also supports the Research Councils’ UK Brussels Office (UKRO) which has close links with most UK universities and provides detailed advice and guidance on EU funding opportunities and is working with RCUK on the establishment of the RCUK Beijing China Office and planning for an RCUK Washington, USA office.

17. A Memorandum of Understanding (MoU) is being drawn up between 14 interested European countries (with EPSRC representing the UK) to cover the preparatory work required to establish a formal European research infrastructure for the provision of high end computing facilities. As part of the work in the MoU, EPSRC is part of a consortium that is preparing a proposal to the European Commission, through its first call in e-infrastructures in FP7, to fund the preparatory phase for developing such a research infrastructure.

18. EPSRC has supported its own staff in secondments to other funding agencies in order to share experience and best practice in science funding. In November 2005 an Associate Programme Manager from EPSRC’s Life Sciences Interface programme spent six weeks at the German funding agency DFG (Deutsche Forschungsgemeinschaft). This followed a successful visit to EPSRC by a DFG staff member.

19. The EPSRC welcomes the establishment of the European Research Council. The interests of engineering and physical sciences are represented on the Scientific Council by Professor Wendy Hall of the School of Electronics and Computer Science at the University of Southampton.

20. EPSRC has active participation in European programmes, particularly ERANETS and EUROCORES. The EUROCORES portfolio is worth about £3 million.

21. As part of our ongoing involvement in ERA Net Bioenergy, a small pilot call for joint collaborative proposals in small scale combustion of biomass was launched. This call has been developed jointly with partner funding bodies in Austria, Finland, Germany and Sweden. Eight of the eighteen proposals submitted were recommended for funding, including one from the UK (ranked top of the list) from the University of Nottingham on a small scale biomass-fired CHP system.
Rest of the World

22. The Energy Programme is strongly engaged internationally including the role of the Energy Senior Research Fellow, Professor Nigel Brandon, who is focussing, amongst other things, on strengthening the UK's links with research communities and industry with Europe, USA, India, China and Japan.

23. The Life Sciences Interface programme runs an annual Overseas Post Doctoral Fellowships Exercise, this year being the third time the exercise was run. A key aim of the scheme is to allow physical sciences or engineering researchers, who wish to work at the life sciences interface, time in leading international research laboratories. Currently up to half of the three year fellowship should be spent in one or more such laboratories.

24. EPSRC is looking to support research in energy that will promote links between UK universities and developing country universities and facilitate the transfer of technologies that will help alleviate developing country poverty and contribute to meeting the Government’s millennium development goals. A recent call for proposals resulted in two funded proposals totalling £2.5 million. The leading proposals at the panel involves collaboration with African Universities and user communities, and with Los Alamos labs the US and involves the adaptation and transfer of NASA technology that uses heat to generate both electricity and clean water. In a related activity EPSRC have contributed to a DFID panel on energy and development, strengthening the working relationship between our organisations.

25. EPSRC is happy to share its experience in peer review and systems with other agencies. It assists with review of schemes for the British Council, FCO and national funding agencies.

International facilities

26. Through its programme activities, EPSRC researchers are able to access the best international facilities across the globe, from working on the ITER project to using advanced light sources in the US to probe the nature of matter. In Europe, EPSRC funded researchers are using international facilities at ILL (Institut Laue-Langevin) in Grenoble to understand fracture mechanisms in metals.

27. Fusion: Fusion research thrives on international collaboration. EPSRC has the stewardship of the £46 million, two-year UK Fusion Programme, carried out by UKAEA at the Culham Science Centre and activities through Framework programmes in EURATOM. The UK contributes to fusion research in two ways: through the UK’s own programme focused on the spherical tokamak experiment MAST; by contributing to the Joint European Torus (JET) programme. The MAST and JET facilities are situated at Culham Science Centre.

28. The UK fusion programme also contributes to the International Tokamak Experimental Reactor (ITER). ITER is to be built at Cadarache, France, and is an international collaboration between the European Union, USA, Japan, the Russian Federation, China, South Korea, and India.

EPSRC

April 2007

Annex E

Evidence from the Economic and Social Research Council (ESRC)

INTRODUCTION

1. The ESRC has set itself the goal of becoming, by 2010, one of the global champions of international social and economic science. It is pursuing a vigorous strategy to become a truly open and internationalist research funding agency and a world-leading social science funding body. To this end it is working to:

   — remove barriers to international research collaboration;
   — achieve a leading status for the UK in European collaboration;
   — establish the UK as the partner of choice for US social and economic researchers, and as a key partner for newly-emerging regions of research strength;
   — become a world leader in social science data issues; and
   — work productively with relevant UK Government departments in procuring the best possible research evidence for public policy.

2. Achieving these ambitious goals requires sustained and committed engagement with a wide range of counterpart organisations within and beyond the UK. The ESRC’s international office team, advised by Council’s International Advisory Committee, develops strategies for such engagement and undertakes initial discussions and negotiations with partner agencies. But Council aims to embed international engagement in every aspect of ESRC’s activities, so all Boards and Committees are required to develop explicit international strategies for their remit areas, including training, capacity development and mobility;
research resources and infrastructures; major research investments such as centres and programmes; responsive grant schemes; knowledge transfer and impact activities; and the international benchmarking of UK social science.

Strengths and Weaknesses of Current Mechanisms and Activities to Maintain and Promote International Collaboration

3. There are many strengths. The UK is a major player in the social sciences as in other sciences, second only to the United States, and in some areas second to none. This means that there are many international researchers who seek to collaborate with the UK, and who are open to UK approaches.

4. Key strengths are:

   — The openness of UK research grants schemes to cross-border collaborations, including supporting fieldwork carried out in partnership with overseas researchers, and associating international researchers with UK projects.
   — Openness to funding projects on any subject irrespective of their national focus, and involving researchers from those countries in relevant work.
   — Transferability of research grants in appropriate cases to other countries when researchers move there.
   — Full participation in EU and other European (eg ESF) programmes and networks.
   — International bilateral agreements to foster co-funded collaborative work across national boundaries (ESRC currently has eleven of these).
   — Fellowships, travel and collaborative grants so that researchers in parallel areas can be attached to related groups and centres in other countries or in the UK to foster collaboration.
   — International scientific associations and their work to foster collaboration between associated researchers.
   — International infra-structural developments like the European Social Survey which bring together researchers from different backgrounds and allow international comparative work.
   — Participation in international organisations such as the European Science Foundation and the International Social Science Council to promote stronger collaboration across national boundaries.
   — Provision on PhD studentships to spend up to three months in a foreign institution and longer on international fieldwork as part of postgraduate training.
   — Openness of UK PhD studentships to all EU residents and nationals.
   — Participation in European Research Area networks, including co-funding of collaborative research.
   — The use of English as the international scientific language.

5. There are some notable weaknesses across the research base that remain to be addressed. The ESRC is actively addressing each of these from a social science perspective; collectively they present major challenges over the next five years.

   — Different processes and cultures of decision-making which mean that related research projects in different countries may find it difficult to obtain co-funding in separate countries simultaneously. Our bilateral partnership agreements provide a mechanism for aligning processes and understanding cultures.
   — The absence of parallel bodies to those in the UK in many countries, or the presence of bodies with much more limited resources
   — The inability to accept and co-fund leading international researchers based in other countries as Co-Investigators on UK grants. Research Council Directors have recently agreed jointly to address this issue.
   — Inadequate provision in the UK to provide logistical and administrative support for UK teams willing to lead on European projects, leading to their being in a disadvantageous position to for example French, Dutch, Scandinavian or other teams.
   — The logistical challenges of providing access to significant comparative resources (data and information sources) to facilitate high level international comparative research. The ESRC’s International Data Strategy provides a basis on which stakeholders can make progress with this agenda.
   — Language skills of UK researchers, especially where English will not be the lead language. With AHRC and HEFCE, the ESRC has commissioned five new Language Based Area Studies Centres that will enable young researchers to develop language skills.
6. The UK has been reasonably strong in obtaining Framework funding in the social sciences, but has been less strong under FP6 than earlier programmes, and there is a worry that this will be weaker again under FP7. This is partly of course because there are now more competitors, but also for two other reasons. Firstly, there are many bureaucratic hurdles to obtaining and then administering FP funds. UK researchers, especially those based in Universities, do not always have the support necessary to minimise the effort in overcoming these hurdles. Greater funding available for this from UK sources might help overcome this issue. Secondly, there is not full cost recovery from EU, related as well to the first point. In the context of full economic cost awards, this can act as a disincentive to participation by UK researchers. The Committee might wish to investigate with leading research teams what they perceive as the major obstacles to taking the lead in major FP projects.

7. The emergence of the European Research Council (ERC) may help overcome some of the problems identified above, though much will depend on how their schemes develop. There are some concerns about how this will operate in the social sciences, where conditions may be somewhat different from those in the natural sciences. Senior ESRC and AHRC officers have held a valuable meeting with relevant members of the Scientific Council of the ERC (Professors Castells, Dewatripont, Nowotny and Peyraube) to discuss relevant issues. However, more detailed discussions held with EU officials jointly with social science counterparts from France, Germany and the Netherlands have not fully resolved continuing concerns over structure.

8. There is concern that current schemes for ERC Advanced grants (up to €500,000 per annum for up to 5 years) and Starter Investigators (up to €400,000 per annum for up to 5 years for those within 9 years of their PhD) simply parallel those in member states. There are no (as yet) obvious distinct reasons for an applicant to go to their national Council or the ERC. The enterprising or indeed just active researcher might therefore go to both, merely duplicating bureaucratic and peer review processes, with no added value. We believe there needs to be closer co-ordination between the ERC and the national councils to clarify their respective roles. To this end there will be further meetings in June with European counterparts and ERC members. We believe that the establishment of the ERC will be a major step in re-enforcing the European Research Area. Although the current schemes themselves do not require any element of cross-national collaboration, they have the potential to enhance research excellence.

9. The ESRC currently participates in two major ERA-Nets—that on New Opportunities for Research Funding Agency Collaboration in Europe (Norface) and that on Social Aspects of Genomics (Erasage). These both operate well and have provided excellent opportunities to learn about different approaches to research, to foster closer collaborative working, and in appropriate cases to co-fund collaborative work. ESRC is concerned that there may be limited funding for ERA-Nets in the social sciences under FP7, and less provision than expected for ERA-Net Plus arrangements, which include EU parallel funding for joint programmes.

10. The system of National Contact Points appears to have worked reasonably well as a means of collecting and channelling relevant information to UK researchers. In some countries National Contact Points play a more active role, advising and promoting those who wish to and can compete strongly for EU funds. There is a genuine question as to whether the UK should be more active and directive in this area. On the one hand researchers need to be left to decide their own priorities on whether or not they wish to bid for certain types of funds. On the other, the absence of pro-active mechanisms may put UK researchers in a weaker position to lead European projects than those in other EU countries.
ROLES AND SUCCESS IN FACILITATING UK PARTICIPATION IN INTERNATIONAL PROGRAMMES

11. It follows from the comments above that there may be a need to review activities in these areas. There is relatively little problem with UK participation in European and wider international programmes, as British researchers are always seen as valuable contributors, and the use of English as the major language of communication removes one possible difficulty in that area. There is however the issue in the social sciences as to how far UK teams are logistically well placed to lead such collaborations, even where scientifically they are well placed to do this. This is not a simple question. There are cases where ESRC has not funded joint programmes where the UK might be in the overall lead because it is not satisfied of the overall quality and strength of the programme. We do not believe we should sacrifice quality standards merely to lead in particular projects. Equally there are cases where the UK has clearly not taken the lead for logistical reasons where it might have been best placed to do so.

EFFECTIVENESS OF COLLABORATION WITH GOVERNMENT DEPARTMENTS

12. ESRC has strong relations with both the Department for International Development and the Foreign & Commonwealth Office for developing relevant work of common concern. In the case of DfID the joint ESRC-DfID £13 million programme on Alleviating Poverty has been seen as a trail-blazing collaboration in several other leading countries. As well as supporting critical areas of research it has opened up UK research funding to collaborations which can be led from other countries. It has also provided the basis for attracting other funding such as the Hewlett Foundation £2 million funding with ESRC on population dynamics and reproductive health.

13. The ESRC also works well with the FCO and has recently launched a joint research call on understanding radicalisation. It also works closely with the FCO and / or the British Council when seeking to establish stronger links with research in particular countries. The FCO and British Council have been particularly helpful to ESRC in its current initiative to strengthen working links with appropriate social science research in India. ESRC would hope to work closely in this initiative with the FCO/DTI UK-India Education Research Initiative (UKIERI).

IMPACT OF RC POLICIES ON INTERNATIONAL MOBILITY OF RESEARCHERS

14. In the social sciences the UK is a net attractor of overseas researchers, with some outward movement, significantly to the US especially in subjects such as economics, but also to other countries. Our postgraduate systems, open to all EU residents, encourage significant inward migration of PhD students, and non-UK residents have accounted for up to 17% of the total number of studentships in recent years. The ESRC Post-Doctoral Fellowship scheme has also attracted significant take-up from non-UK researchers. In addition, at the postgraduate / post-doctoral level approximately 10% of researchers spend reasonable periods abroad each year in the pursuit of their research.

15. Other schemes which ESRC uses include:

(a) Visiting Fellowships, particularly to link researchers in leading centres in the UK with those in the Americas;

(b) The ESRC-British Academy China Exchange scheme, which we are currently in the process of reviewing and expanding, to promote closer collaboration there;

(c) the launch in the past year of training and centres addressing links with Japan, China, Eastern Europe and the Arabic speaking worlds, which will develop and train a significant number of research staff in these areas over the next 5-10 years, including placements in relevant overseas countries; and

(d) the scheme introduced this year with the British Academy to offer post-doctoral fellowships for 3–4 month exchanges in leading centres in the UK for innovative younger researchers from South Asia and the Middle East.

16. “Money follows researchers” is not a major issue for ESRC but provides an enabling mechanism should researchers wish to take their grants to other countries. ESRC’s bi-lateral agreements with various European countries and Australia do however also allow joint grants to be held in some countries. The agreement with Germany, the Netherlands and one or two other countries also permit (with reciprocal arrangements from DFG and NWO) up to 30% of ESRC grants to be expended on collaborative researchers in those countries. These collaborative agreements were only made 18 months ago, but are now beginning to come into operation. ESRC is also actively reviewing with our sister organisations how to make the schemes more user friendly.

17. We hope this addresses the questions posed by the Committee. Greater detail about ESRC’s approach and operations are attached as an appendix.
Evidence from ESRC

INTRODUCTION

1. ESRC’s international strategy page is at:
   http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/opportunities/international/index2.aspx

ESRC’S INTERNATIONAL POLICY GOALS

2. The ESRC has always facilitated international engagement by UK social and economic researchers, for example by funding fieldwork anywhere in the world, allowing costs of collaboration with research partners outside the UK, and subscribing to international agencies such as the European Science Foundation. But by the turn of the century it became clear to Council that a more targeted strategy was needed, both to enable the UK’s strengths in social and economic research to play a suitably influential role in a world where many major research issues transcend national borders, and to ensure that UK researchers are continually challenged to match themselves against the best in the world. Council has set ESRC the goal of becoming, by 2010, a truly open and internationalist funding agency, recognised as a world leader in championing excellent social science research and the systems that underpin it.

3. Given the complexities of engaging with counterpart agencies that have different agendas, priorities, constraints and ways of working, achieving this goal requires sustained strategic action on several fronts. These can be grouped under three headings: removing barriers; strengthening the UK’s leadership role; and embedding international working in all aspects of ESRC’s business.

ESRC’S INTERNATIONAL STRATEGY—REMOVING BARRIERS

4. The ESRC believes that, just as free trade in goods and services has by and large brought benefits to populations around the world, so a “free trade in research brains” is both desirable and necessary. Barriers arise mainly from the different national structures and traditions of research funding. Although some supranational funding opportunities (such as the EU Framework Programmes) have been developed in recent decades, these supplement rather than substitute for national funding. The ESRC is therefore working to remove barriers between national research funding regimes.

5. As a first step, the ESRC has developed bilateral agreements with 11 overseas partner agencies covering responsive-mode collaborations between UK researchers and partners in other countries. Early experience in implementing these agreements has revealed several challenges to overcome before barriers can be fully removed.

6. Firstly, common understandings must be negotiated on issues such as: What constitutes “excellent” social research? What counts as social science, especially when it is pursued in interaction with other sciences (as now happens with many important cross-Council initiatives in the UK)? What counts as acceptable peer review processes and standards? At present each national agency has its own assumptions about such matters, which require open discussion before alignment around a common view is possible.

7. Secondly, since national research funding comes from national taxpayers, there are often legal—or simply attitudinal—restrictions on applying funds to activities beyond the national territory. In the UK, the research funding system seeks to balance wider national interests and the sectoral interests of research communities, so the benefits to the UK of international engagement, including where appropriate spending national research funds overseas, can quite easily be argued. This is not always the case in other countries.

8. Thirdly, the systems for processing research applications and awards differ from agency to agency. Aligning systems to allow for common cases for support, common peer review processes and common decision processes is normally not a trivial matter, even when the agencies concerned share goodwill and a determination to succeed.

9. In December 2006 the ESRC organised a workshop to explore with its bilateral partners the prospects for making national borders invisible to researchers, in ways which could benefit researchers (enhanced user-friendliness), funding agencies (improved administration of applications), and national science systems (enhanced quality of applications and awards). As a result, several partner agencies (including those in Germany, the Netherlands and Sweden) are now seeking endorsement of their governing Boards for actions to remove barriers to cross-border research.

10. Agreements with agencies who operate responsive-mode funding schemes are, in a sense, the easy challenge. Many agencies fund research through other means, such as permanent institutes or directed programmes, with little or no scope for competitive bottom-up funding requests. Finding ways to work productively with such agencies requires sustained effort on both sides. The ESRC is working with agencies 31

31 Countries covered by ESRC bilateral agreements are Australia, Austria, Finland, Germany, Iceland, Ireland, the Netherlands, Quebec Province, South Korea, Sweden, the United States.
Six strands of activity have been identified as priorities. The ESRC is leading the International Data Forum co-funded by ESRC and the NSF, and managed by the Social Science Research Council in New York. Agencies from all continents to explore ways to enhance co-working in social and economic research. It has led to a further co-funded programme with the US William & Flora Hewlett Foundation to enhance institutions, communities and societies where they will operate. The successful launch of this programme underpins the ESRC's Data Strategies. Collaborative International Research Networks; Promote development-oriented research by building bridges between development agencies and research funding agencies; Develop models for co-funded summer schools/training institutes; Develop models for collaborative international research networks; Promote development-oriented research by building bridges between development agencies and research funding agencies.

ESRC's International Strategy—Strengthening The UK's Leadership Role

11. The ESRC is engaging actively with agencies in Europe, North America, Asia and other world regions to develop more effective ways of working across borders.

12. Within Europe, the ESRC has worked with the European Science Foundation to improve the operation of the European Collaborative Research projects (ECRP) scheme (which requires at least three countries to collaborate on a research project); and to enable UK researchers to participate in Eurocores programmes. An ESRC officer, having been elected Chair of the 35-country COST committee which covers social science, played a leading role in implementing the first COST open call in 2006, and in a working group set up to improve guidance and procedures for future open calls. The ESRC helped to develop, and now plays a leading role in, the 12-nation NORFACE ERA-net (New Opportunities for Research Funding Agency Collaboration in Europe). NORFACE is developing possible themes for a major trans-national research programme to start in 2008. We are also partners in a Dutch-led ERA-net on social aspects of Genomics. We have sought to engage with the Scientific Council of the European Research Council, to explore ways to avoid duplication and ensure that this new agency can add maximum value to European research funding. We also participate in the informal forum bringing together heads of social science funding agencies in Germany, the Netherlands, France, UK, Canada and the US to discuss common concerns and strategic developments.

13. In the wider world, three significant current initiatives are: the ESRC-DfID co-funded programme on Poverty Alleviation, which funds high-quality projects led by researchers anywhere in the world; "Fostering Collaboration in the Social Sciences", co-funded by ESRC and the US National Science Foundation; and the ESRC’s Data Strategies.

14. The £13 million ESRC-DfID programme launched in 2005 is funding high-quality basic research to underpin efforts to alleviate poverty: a multi-dimensional problem requiring inputs from across the full range of social sciences and beyond. It provides the basis for a new strategic framework for development research based on raising human and technical capacity with developing countries, and joining up development and research agendas linked to wider issues such as climate change, security, migration and trade liberalisation. The programme is innovative in being open to researchers based outside as well as in the UK. It provides maximum flexibility for researchers to define issues and methodologies for delivering new insights for academic and non-academic stakeholders. Underpinning the scheme, and all projects funded through it, is mutual respect and understanding for different cultural, ethnic, social and economic beliefs and practices in the belief that solutions to poverty must be rooted in, and acceptable to, the institutions, communities and societies where they will operate. The successful launch of this programme has led to a further co-funded programme with the US William & Flora Hewlett Foundation to enhance the quality and impact of social science research addressing the key international development issue of how population dynamics and reproductive health outcomes impact economic growth and poverty reduction.

15. The “Fostering Collaboration” initiative brings together around 40 national and multi-national agencies from all continents to explore ways to enhance co-working in social and economic research. It has been co-funded by ESRC and the NSF, and managed by the Social Science Research Council in New York. Six strands of activity have been identified as priorities. The ESRC is leading the International Data Forum strand, which will be launched at a workshop in Beijing in June 2007. This will be a tangible sign of global UK leadership.

16. The quality, comparability and accessibility of social and economic data from various sources within and beyond the UK is a key challenge for researchers. The ESRC’s Research Resources Board has developed National and International Data Strategies, as a framework for key stakeholders to discuss the usability of data for research, and the practical, ethical and attitudinal hurdles that must be overcome. Advances in computing make it possible for social science researchers to investigate datasets on a larger scale than has previously been possible, and the ESRC is making substantial investments in e-social science resources and methodologies. The ESRC, through its joint programme with DfID and its participation in the Fostering Collaboration initiative, is seeking ways to enable social researchers in poorer countries to undertake data collection and analysis of a kind needed to make international development policies more context-aware.

17. ESRC strongly supports the European Social Survey (ESS), and has committed funds to cover UK data collection up to 2008. Professor Roger Jowell, the co-founder of the ESS, won the 2006 Descartes Prize, the most prestigious European award for science. We closely monitored the progress of the ESFRI exercise

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32 Initiate an International Forum for Funding Agencies; Develop models for co-funded summer schools/training institutes; Develop collaboration in cyber-infrastructures for global social research; Initiate an International Data Forum; Develop models for collaborative international research networks; Promote development-oriented research by building bridges between development agencies and research funding agencies.
which has proposed priorities for European investment in research infrastructures, and are pleased that core
funding for the ESS is one such priority, along with the proposed Survey on Health, Ageing and retirement
(SHARE), and the Collaboration of European Social Science Data Archives (CESSDA).

18. In 2006 five new Centres were commissioned to boost the UK’s capacity to conduct social, economic
and cultural research requiring skills in the languages of East Asia, the Middle East and Eastern Europe.33
These are co-funded by ESRC, AHRC and HEFCE. Over the next five years they will collectively produce
a large number of Masters and Doctoral degree holders, and will provide a focus for value-added research
activities in these regions.

19. The International Advisory Committee has launched a programme of international benchmarking
reviews to assess the comparative performance of academic disciplines in the UK. The first review provided
a very positive assessment of UK Social Anthropology. The review of Political Science and International
Studies will be completed shortly, and the Committee has recently started a review of Economics in
partnership with the Royal Economic Society and the Conference of Heads of University Departments in
Economics. The learning from the international work of exceptional quality addressed in these reviews will
enable UK social scientists to consolidate their world-leading position.

ESRC, THE EU FRAMEWORK PROGRAMME, AND STIMULATING UK PARTICIPATION IN INTERNATIONAL
PROGRAMMES

20. The ESRC offers support to UK researchers aiming to lead a major European research proposal.
Modest seed-money is awarded through competition to facilitate planning workshops and proposal
preparation. Because the budget for this is limited, and to keep administration simple, only current ESRC
award holders are eligible for the seed-money competition. In FP6 we made some seed funds available to
existing award holders. One successful project, led by researchers at an ESRC-funded Centre, then requested
substantial additional funding from ESRC to cover project management overheads. To safeguard its large
investment in the Centre, ESRC acceded to this request, although conscious that this raised questions of
equity vis-à-vis other UK institutions faced with meeting the overhead costs of hosting a major FP project.
For FP7, after an invitation to all major award-holders we have made 13 seed-money awards.

21. The ESRC believes strongly that research projects with international collaborators should be selected
on a basis which is no less (but also no more) competitive than that which applies to single-country projects.
We therefore do not favour ring-fenced funding, but seek to enable UK researchers to collaborate in
overseas-managed research programmes by submitting UK partner projects to our responsive-mode
Research Grants Scheme. Current examples include ESF Eurocores programmes, and a Finnish/Swedish
programme on Work and Wellbeing. Any project funded in this way is by definition of very high quality.
Through relationships built up in the NORFACE Eranet, we are exploring opportunities to link up in other
productive ways with overseas-managed research programmes, for example by collaborating on
methodological, data-sharing and capacity-building activities. Agreement on decision processes (eg to avoid
double jeopardy) is an important aspect of such discussions.

22. The ESRC believes that a wide spectrum of international research funding opportunities must
continue to be available to European researchers. These include:

(i) schemes positioned at various points on the directive—responsive scale. More directive schemes,
where broad topics are specified in advance by the funders, are exemplified by the Capacities strand
of Framework Programmes. More responsive schemes, where researchers are invited to submit
proposals on their own topics, are exemplified by the new European Research Council and the
ESRC research grants scheme;

(ii) schemes positioned at various points on the applied—basic science scale. The main aim of
Framework Programmes is research to inform policy or boost European competitiveness.
National responsive-mode grant schemes, and the European Research Council, aim mainly to
support “blue skies” research.

(iii) schemes which fund individual researchers, and those which fund coordinated groups of
researchers. The European Research Council aims to fund only individual researchers. The
Eurocores programmes run by the ESF invite coordinated research projects from multi-national
teams. The major instruments offered by the Framework Programmes require (or are perceived to
require) very large international teams that present real management challenges.

(iv) Schemes which fund research, and schemes supporting networking among researchers. In
Europe’s fragmented research funding landscape, networking opportunities such as COST and
ESF Networking Programmes are essential.

33 British Inter-university China Centre (BICC—Oxford/Manchester/Bristol); Centre for Advanced Study of the Arab World
(CASAW—Edinburgh/Manchester/Durham); Centre for East European Language-based Area Studies (CEELBAS—
London/Oxford/Birmingham); Centre for Russian, Central & East European Studies (CRCEES—Glasgow/St Andrews/
Nottingham); White Rose East Asia Centre (WREAC—Leeds/Sheffield).
ESRC AND INTERNATIONAL MOBILITY OF RESEARCHERS

23. “International mobility” covers a range of activities, from education and/or postgraduate training in another country, or permanent relocation to another country for career purposes, to short-term collaborations with researchers from other countries on scholarly visits or specific research projects. The ESRC seeks to promote international mobility of researchers in several ways: by facilitating UK/overseas collaborations on ESRC-funded research awards; by encouraging UK postgraduate students to gain experience outside the UK; and by offering support for visits aimed at developing ideas for collaborative research projects.

24. Under current cross-Council eligibility rules, all applicants and co-applicants on a research proposal must be located at a UK institution. Since the UK is an attractive destination for many overseas academics, many such applicants originate from outside the UK. Once UK researchers move overseas, however, they are normally no longer eligible to apply for UK research funding. The ESRC is in discussion with its RCUK partners to relax the requirement for co-applicants to be located in the UK, firstly because there are no legal implications, and secondly because it hampers the ability of UK-based researchers to collaborate with colleagues based overseas (including those originating from the UK) other than on a paid-consultancy basis. The ESRC-DFID programme already enables researchers (including lead researchers) based anywhere in the world to apply for funding, and this is providing valuable practical experience in managing such mobility-friendly schemes.

25. The ESRC’s Training and Development Board offers all its postgraduate studentship awardees a three-month paid extension to undertake an overseas visit relevant to the studentship. Since its introduction over 150 awardees made use of this facility. In March 2007 the Board began to develop a strategy to internationalise its process for “recognising” excellent post-graduate training locations. This will facilitate the development of postgraduate training courses involving collaboration between UK and overseas institutions.

26. For many years the ESRC has co-funded with the British Academy and several Chinese Academies a small-scale programme of visits between the UK and China. We envisage that the opening of the RCUK Office in China in 2007 will provide a basis for expanding ESRC activities with China.

27. Since 2004 we have funded a Transatlantic Visiting Fellows programme, enabling Directors of ESRC major investments (centres, programmes etc) to nominate either an inward or an outward visitor, with the aim of developing ideas for new international collaborative research projects. About 15 awards have been made each year. In 2007 the programme is being extended to cover all the Americas.

28. In 2006 the ESRC in partnership with the British Academy launched two new visits programmes, one focusing on South Asia, the other on the Middle East. Twelve inward visitors to the UK from the Middle East, and seven from South Asia, were funded in the first round of the competition. Again, there is a strong expectation that the visits will lead to substantive collaborative research proposals.

29. If visits schemes are to lead to solid research activity, it is essential that ways be found for agencies in different countries to work together so that co-resourcing models can be devised even where funding systems operate in very different ways (eg agency in country A has a responsive grants scheme, while the agency in country B works through institutes with fixed budgets and programmes).

ESRC

April 2007

Annex F

Evidence from the Medical Research Council (MRC)

INTRODUCTION

1. MRC’s international strategy addresses two main themes:
   — Global health research where the outcomes will benefit health in the UK and developing countries; and
   — International research that enhances the competitiveness of the UK knowledge and health base.

Global health research

2. MRC’s strategy for global health research is primarily addressed through long term investments in our overseas research units. MRC has managed a unit in The Gambia for nearly 60 years and currently employs around 750 local and international staff at the main campus in Fajara and in four field stations across the country. The Gambia Unit is the UK’s single largest investment in medical research in a developing country. The Unit’s research focuses on infectious diseases of immediate concern to The Gambia and the continent of Africa, with the aim of reducing the burden of illness and death in the country and the developing world as a whole.
3. The MRC/UVRI Research Unit on AIDS in Uganda is based at the Uganda Virus Research Institute (UVRI). It was established following a request in 1988 from the Ugandan Government to the British Government for assistance regarding research on and the control of HIV/AIDS. The Unit is situated on the shores of Lake Victoria in Entebbe, and has three field stations in Masaka and Jinja District. It is multidisciplinary, reflecting the wide-ranging nature of the problems caused by HIV and today employs over 200 staff. Together the investment in the two overseas units is around £10 million per annum.

4. MRC provides grant support to UK based researchers working on global health issues, including research programmes wholly based in developing countries. MRC also supports the strengthening of research capacity in developing countries for example through support for the European and Developing Countries Clinical Trials Partnerships (EDCTP), through investment in an interventions trial facility in Mwanza, Tanzania and through MRC’s concordat with the Department for International Development (DfID).

5. MRC looks for opportunities to fund large collaborative projects in developing countries through partnership with national and international organisations. We jointly fund clinical trials in Africa with funding from agencies such as the Rockefeller Foundation, NIH and DfID, and from drug companies, including GSK and Boehringer Mannheim.

**International research strategy**

6. MRC’s strategy for international research more generally is:

   — To influence and shape the international research agenda.

   — To encourage international collaboration in biomedical research.

   — To encourage the movement of researchers and promote the UK as the partner of choice.

7. By having an input into what global research gets done, the MRC tries to add value to what can be achieved in the UK alone. The MRC is well-placed for worldwide scientific leadership—its researchers publish their work in widely-read and highly-respected international journals. This is reflected in the MRC’s reputation as a funder of high-quality, high-impact science.

8. We carry out our role as a leader in worldwide science by holding international meetings, exchanges, infrastructure development and research collaborations. The MRC specifically encourages informal as well as formal collaborations.

9. The MRC aims to influence international research strategies, policies, ethical and governance frameworks, and legislation in ways that will enhance UK research and encourage collaborations between scientists in the UK and overseas. This involves interactions with many bodies, especially agencies of the UK Government; in particular the Office of Science and Innovation (OSI), DfID, the Foreign and Commonwealth Office, the NHS and regional health departments, but also governments in other countries, usually through the UK Government.

10. MRC’s international strategy is captured within the publication “MRC Strategic plan 2004–07”

    http://www.mrc.ac.uk/AboutUs/CorporatePublications/StrategicPlan/index.htm

**MRC MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION**

11. International collaboration in medical research is facilitated by MRC Grant Terms and Conditions, which permit co-applicants and collaborators on Research Grants to be based overseas. Researchers in developing countries are particularly encouraged to be co-applicants and are eligible to receive a contribution towards both their direct and indirect costs. Some MRC grant-funded research is carried out fully overseas, for example in India (on diet and diabetes) and Tanzania (HIV intervention studies) although the awards are made through UK based HEIs. MRC Grants can include significant allocations for travel, and for this reason we do not offer specific, additional international travel awards.

12. To evaluate the international collaborations arising from MRC research grants we have been developing better mechanisms to capture this information from our electronic grant submissions. Of around 950 currently active research grants to University-based researchers, about one third report international co-applicants or collaborators. The most common partner country is the USA (33%) followed by Germany (10%) France (7%) Netherlands and Canada (5% each). 8% of international partners are from developing countries.

13. The MRC has 27 units and three institutes in the UK, in addition to the two units in Africa. This intramural programme covers research across the biomedical research spectrum, from fundamental science at the molecular level to large-scale epidemiological studies. All of the units and institutes actively pursue international collaboration. For example the Human Genetics Unit has a joint research programme on complex human genetics with Croatia. As well as engaging with international bodies such as WHO, OECD, the Global Fund and the Gates Foundation, and with national Governments, the two overseas units host a number of international researchers from around the world. The former MRC Sickle Cell Unit is now a research centre within the Tropical Medicine Research Institute of the University of the West Indies and continues to receive MRC funding.
14. Data from across all MRC units and institutes show that around one third of papers published in 2005 were co-authored with researchers from overseas. One fifth of these involved co-authors from more than one country. The USA was the most frequent country of co-authorship (18%) followed by France (9%), Germany (9%), Netherlands (7%), Italy (5%) and Japan (5%). 14% of papers included authors from developing countries.

15. To facilitate relations with other countries MRC regularly receives delegations from overseas funding organisations and policymakers. In 2006 we received 20 international delegations in London. These may have been organised by the FCO, British Council or directly by the visiting delegation.

16. MRC has signed Memoranda of Understanding to facilitate international collaboration and specific research projects with organisations and countries including the National Natural Science Foundation of China, Chinese Academy of Science, Chinese Academy of Medical Science, Beijing Municipal Science & Technology Commission, A*STAR, Singapore and Max-Planck Gesellschaft, Germany.

17. MRC has supported opportunities to ensure UK researchers have appropriate access to large facilities. In biomedical research this has mostly been facilities associated with high-resolution structure determination for proteins and nucleic acids. MRC led the UK bid to acquire Beamline 14 at the ESRF Synchrotron in Grenoble to support UK crystallography efforts. In 2005 BM-14 had 132 users. UK researchers have benefited from access to European crystallography facilities. MRC will be the lead Research Council on five out of the six biomedical research facilities proposed under the European Strategy Forum on Research Infrastructures (ESFRI).

(a) Integrated Structural Biology Infrastructure.
(b) Infrastructure for Phenomefrontier and Archivefrontier (INFRAFRONTIER).
(c) European Bio-Banking and Biomolecular Resources.
(d) European Advanced Translational Research Infrastructure for Medicine (EATRIS).
(e) Infrastructure for Clinical Trials and Biotherapy.

BBSRC will lead on the upgrade of European Bio-Informatics Infrastructure (ELIXIR).

18. MRC has led on the project to establish an RCUK research office in Beijing. The office will be located on the Tsinghua Science Park close to Tsinghua and Beijing Universities and the offices of leading Chinese science academies and foundations. The office will develop information resources about high-quality research in China and provide a mechanism, in partnership with FCO SIN and the British Council, for showcasing the work of the Research Councils to the Chinese. The office will develop small grant schemes to help promote collaborations between China and UK through workshops and exchange visits. MRC is currently engaged in a collaborative project with China to describe the frameworks of ethics as applied to medical research.

19. To date the MRC has committed over £7.5 million to support research that will strengthen the international medical response to the challenges of pandemic influenza. Awards made through the call include Chinese partnerships with University of Hong Kong, China CDC, Beijing You-An Hospital, and Nanfang Medical University, Harbin Veterinary Research Institute, and Institute for Viral Disease Control & Prevent. These collaborations have been supported through four awards totaling £735k.

20. The European Bioinformatics Institute, Cambridge is an outstation of the European Molecular Biology Laboratory. It hosts the world’s largest collection of expertise on genomics and bioinformatics. EBI facilitates international exchange of information on genomics, proteomics, and bioinformatics, and provides tools for analysis and evaluation. EBI is particularly important in providing access to data internationally so that it can be used more easily (and rapidly) thus pushing back the frontiers and accelerating translation. 45% of the funding comes from EMBL (for which the MRC pays the UK’s subscription), 25% of funding comes from the EU. MRC and BBSRC provide significant additional funding. EPSRC and BBSRC support the development of grid-based projects. This is an extremely valuable resource for the biomedical research community and is an example of effective international cooperation.

21. MRC launched the International Stem Cell Forum (ISCF) in 2003 along with eight other international funding agencies with similar scientific principles. These agencies share concerns about the need to create standardised global criteria for creating, storing and maintaining stem cell lines. Today, the ISCF has a total of 21 members from 19 countries. There are a number of collaborative initiatives currently being undertaken by the Forum, on stem cell characterisation, stem cell banking, ethics and IPR. The MRC successfully brokered significant co-funding from all the member organisations (a total of nearly £1.5 million) for the work of the International Stem Cell Initiative—a collaborative international project, led by Professor Peter Andrews of Sheffield University, aimed at producing internationally agreed criteria for characterising stem cell lines. In 2004, MRC worked with the BBSRC to set up the UK Stem Cell Bank at NIBSC—an important facility for stem cell scientists in the UK and around the world.

22. MRC works with other European research organisations and the EU to support the European Mouse Mutant Archive and MRC has an agreement to collaborate on post-genome research with the Riken Genomic Sciences Centre in Japan.
INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK PROGRAMME

23. MRC plays an active role in EU framework programmes. For both FP6 and FP7, MRC represents the UK on the Programme Management Committee for health and provides the National Contact Point for academics in the health theme. Of the contracts signed with the EU by June 2006 the UK received 15.7% of the EC budget for life sciences (thematic priority 1) under FP6 and also receives significant funding under Marie Curie actions. MRC Units and Institutes are encouraged to participate in Framework programmes and resources are made available from Head Office to assist in the preparation and coordination of proposals. Over the last few years, income received by MRC establishments under framework programmes has averaged £3.25 million per annum. Professor Colin Blakemore is participating in a personal capacity on the advisory group for the Health theme in FP7.

24. MRC has had some engagement with ERA-NET activities and is a partner in the current EUROCAN+ plus study to carry out a feasibility study for coordination of national cancer research activities. We are also observers on the NEURON Era-NET and are one of the funders of the New Dynamic of Ageing Programme, who are partners in the Era-AGE network. ERA-NETs are often resource intensive and only a small proportion of the funding feeds into new research knowledge. There are advantages to this scheme where there is a strong need to establish best practice in relation to key resources across Europe (eg establishing brain banks via NEURON). ERA-NETs are particularly welcomed by those member states whose funding ministries operate a top-down allocation approach to funding themes. There is a risk that ERA-NETs established at the time of a perceived research need do not become sufficiently established quickly enough to influence funding of that need. It is clearly in the area of long-term coordination of policies, harmonisation of practices and collaboration on infrastructures that ERA-NETs offer the greatest strengths.

25. MRC welcomes the creation of a European Research Council (ERC) through FP7 as the first step to providing a European agency similar to the US National Science Foundation. Before it has funded a single grant, ERC is already perceived as the most influential body for research at a European level, and that position is likely to strengthen once it is fully operational. We are concerned to ensure that the organization has adequate resources to manage and administer the funding schemes and that there is an appropriate governance arrangements to establish a sustainable funding council. There is discussion amongst the European Heads of Research Councils (EuroHORCS) about the provision of a strategic or policy-driven activity for ERC and the relation with the European Science Foundation. It is important that UK Research Council’s international activities and partnerships are not compromised by top-slicing of the UK Science budget to fund a future expansion of ERC as demand and influence grows.

26. MRC acknowledges the need to maintain European competitiveness and endorses the Commission’s support for innovation. However, MRC shares the concerns of UK Government about the proposed use of EU budget reserves to fund a proposed EIT and the lack of clarity around the governance arrangements. MRC is also concerned that the various proposals for Knowledge Innovation Communities do not appear to address the opportunities for knowledge and innovation in the biomedical sciences.

27. MRC represents the UK on, and currently chairs, the general assembly of the first European Programme established in FP6 under the terms of Article 169—the European and Developing Countries Clinical Trials Partnership (EDCTP). The aims of this initiative are to accelerate the development of effective affordable and sustainable interventions against infectious diseases related to poverty, specifically HIV/AIDS, TB and malaria by improving co-ordination and co-operation between European public sector and private sector research organisations and research institutions in Africa. 14 member States plus Norway and Switzerland support this activity. This is an area that requires coordinated activity to provide clinical trials in a sustainable research environment in Africa. The complexity of the task of coordinating European funding agencies research and capacity building programmes in Africa as the first exemplar of an activity funded under Article 169 inevitable led to the programme developing competence more slowly than would have been desirable. However, all parties to EDCTP believe that the programme is on track and that it is necessary to secure funding for continuation of the programme through FP7 to build on the investments and achievements to date. The EU is currently reviewing EDCTP and lessons learnt from this first programme will benefit the future development of other article 169 proposals.

28. In the early stages of FP6 the UK Government’s restrictions under the EU departmental expenditure limit rules for FP6 created additional bureaucracy for the MRC in monitoring applications from researchers within our Units. MRC was pleased that a decision was made to withdraw this at the end of FP6 and not to set a limit for FP7.

29. Marie Curie actions remain popular with researchers and are an important aspect of the integrated EU policy on personal career development, mobility and cooperation. The UK received 24% of the awards available under Marie Curie by June 2006.

30. MRC is one of the few Research Councils that provide a national contact point facility for Framework programmes. This activity is supported by training organized by the EC and benefits from the overall cross-cutting role that OSI plays for the UK. We have found the activities of OSI International on the coordination and networking activities related to the UK’s response to FP7 to be well organized and of value.
31. MRC represents the UK on the member countries contact group for the Joint Technology Initiative in Innovative Medicines. The UK has been very supportive of the Innovative Medicines Initiative (IMI) and there has been close working between DTI, OSI international, MRC DH, MHRA and UK Pharma in the development of a UK position.

MRC SUPPORT FOR FACILITATION OF UK PARTICIPATION IN PREVIOUS AND CURRENT INTERNATIONAL PROGRAMMES

32. MRC chairs the meeting of Heads of International (biomedical) Research Organisations (HIROs) which includes NIH, NSF, CIHR, and has representatives from organisations in 13 countries as well as the European Commission and EMBL. This provides a useful informal forum and discusses a wide range of issues—from international mobility and open access publishing through diseases of poverty and emerging infections.

33. MRC is represented on a wide range of international bodies. Through representation on Governing councils or boards of trustees MRC can ensure good governance of these agencies and help set strategic objectives. MRC provides UK subscriptions to the following organisations.

European Molecular Biology Laboratory

34. The European Molecular Biology Laboratory (EMBL) carries out fundamental research and promotes co-operation between European countries in the field of molecular biology. It also provides essential services to scientists in EU member states, provides high-level training for staff, students and visitors, and develops new instruments for biological research. The EMBL has a main laboratory in Heidelberg and four outstations at:

- Grenoble, France—the European synchrotron.
- Hamburg, Germany—facilities to study protein structures.
- Hinxton, UK—the European Bioinformatics Institute.
- Monterotondo, Italy—mouse genetics resources.

These EMBL facilities offer important research opportunities for UK scientists and EMBL is often regarded as a model for a coordinated European research strategy. MRC’s contribution to EMBL in 2007 is £8.3 million and at 18% of total is the second largest contribution after Germany.

The European Molecular Biology Conference (EMBC) and European Molecular Biology Organisation (EMBO)

35. The European Molecular Biology Conference (EMBC) is a partnership of European member states established in 1969. It funds the European Molecular Biology Organisation’s general programme, which includes visiting postdoctoral fellowships, short-term fellowships, workshops and short courses. Some EMBC member states are also involved in EMBO special projects, such as the young investigator award scheme. MRC currently contributes £123k to EMBO and £1.6 million to EMBC.

36. Over the last five years the UK produced 22% of the EMBO Young Investigators (23 of 102 recipients) and is the most successful of the 25 eligible countries in receiving these awards. UK researchers are less inclined to apply for long-term fellowships and in 2005 only 6 of 198 fellows came from the UK. However, the UK remains the most popular destination for fellows with 64 of the 198 moving to the UK, compared with 47 who took their fellowship to the USA, 19 to France and 16 to Germany. Similarly there were 12 recipients of short-term fellowship in the UK (out of 201) with 46 fellows choosing to move to the UK.

Human Frontiers Science Program (HFSP)

37. The Human Frontiers Science Program (HFSP) supports basic research, into the complex mechanisms of living organisms, in Europe and many other countries throughout the world. The scientific areas range from molecular and cellular approaches to biological functions, to systems and cognitive neuroscience, with a focus on multidisciplinary research. To encourage new approaches to understanding complex biological systems, the HFSP brings biologists together with scientists from physics, mathematics, chemistry, computer science, bioinformatics, nanoscience and engineering. Many EU member states are involved together with Japan, Australia, Canada and the USA. More recently South Korea and New Zealand joined the Program and in 2006 MRC successfully presented the case to the Board of Trustees for India to become a member.

38. The UK contributes about 3.5% of the HFSP budget. In 2006 the UK received nine. 5% of the Research grants awarded and 6% of the long-term fellowships, and thus remains a net beneficiary of the programme.
39. The European Science Foundation (ESF) is an association of 75 member organisations supporting scientific research across all disciplines in 30 European countries, including research councils, academies and other scientific institutions. Its principal function is to co-ordinate co-operative research in Europe. MRC’s contribution to ESF is currently £160k per annum.

40. The MRC represents the UK on the ESF’s Standing Committee for European Medical Research Councils, and provides information on ESF activities within the UK and its funding opportunities for biomedical researchers. We also nominate UK scientific experts to take part in the development of ESF research funding programmes, including the EUROCORES schemes for national basic research funding bodies, Forward Look calls for proposals, and exploratory workshops. MRC currently supports 8 projects under three separate EuroCORE activities and has agreed to support up to 3 projects in a new EuroCORE on stress and mental health.

41. Professor Colin Blakemore represents RCUK executive group on the Governing Council of ESF and on EuroHORCS (European Heads of Research Councils).

42. The International Agency for Research on Cancer (IARC) coordinates and conducts research on the causes of human cancer, the mechanisms of carcinogenesis, and develops scientific strategies for cancer control. The IARC is involved in both epidemiological and laboratory research, and disseminates scientific information through publications, meetings, courses, and fellowships. MRC contribution is £680k per annum. Since 1966 there have been 547 fellowships awarded to researchers from 66 countries. The UK has received 25 IARC fellowships.

43. MRC has developed a programme of collaboration with the US Veterans Administration and the Canadian Institutes of Health Research to fund international clinical trials that address health care questions of common concern. The tri-national partnership is currently supporting the OPTIMA trial to determine the optimum management strategy for patients who have failed antiretroviral therapy for HIV/AIDS.

44. The Autism Genome project combines clinical and scientific expertise from 13 sites in North America and Europe to identify genetic risk factors for autism. The total budget for this initiative is £7.44 million of which MRC contributes £711k. MRC hosted the international review process that led to the funding of the project and has been charged with exploring options within Europe for DNA banking for the project.

45. MRC has initiated visits to South-East Asia to develop the potential for collaborative research into avian flu and other emerging (and re-emerging) infections. This international endeavour builds on the MRC’s pioneering work with Chinese scientists in 2003 to investigate the immune system’s response to the SARS (Severe Acute Respiratory Syndrome) virus. The visit was greatly facilitated by interaction with FCO-SIN who played a major role in establishing appropriate contacts and ensuring that the visit ran smoothly. This recently resulted in the signing of an MOU with Beijing Municipal Science & Technology Commission to cooperate on research in the area of emerging infections.

46. In order maximally to leverage MRC/MRCT’s limited resources in early-stage drug discovery, we are actively seeking collaborations both within the UK and internationally. As a direct consequence of a government-sponsored mission to China at the end of 2005, a collaboration agreement was signed with the Chinese National Drug Screening Centre in March 2006. NDSC will screen a potential malaria drug target (PfSub-1) discovered at the National Institute for Medical Research against their 100,000 compound collection; this collection includes a large number of extracts from traditional Chinese herbs.

47. MRC established a Funders’ Forum with DfID, The Wellcome Trust and ESRC to address issues of health research in developing countries. The Forum enables UK funders to work together and position themselves in relation to new international initiatives.

48. MRC has a concordat with DfID to facilitate development research in Africa. In addition to research activities supported under this concordat, MRC and DfID have jointly collaborated in funding a number of important studies in Africa. This includes studies on the best methods for distributing antiretroviral drugs to adults and children with AIDS in Africa (DART and ARROW trials). DfID and MRC jointly fund the Microbicides Development programme to accelerate the evaluation and development of vaginal microbicides for the prevention of HIV transmission. The central goal of the partnership is to complete a phase III effectiveness trial of candidate microbicides in multiple sites in sub-Saharan Africa.
49. MRC works closely with the Department of Health and has a concordat that ensures our research activities are complementary and cover the UK’s health needs without duplication. Following the Cooksey report we are further developing our joint position within the single health research fund. On international issues the concordat with DH further clarifies that MRC will take the lead on behalf of the Department and DTI on EU framework programmes for health and that we will work together to promote mutual international research interests including global health.

**IMPACT OF THE MRC’S POLICIES ON THE INTERNATIONAL MOBILITY OF SCIENTISTS**

50. MRC fellowship schemes not only encourage international research but provide opportunities for UK fellows to work overseas. MRC intermediate and senior fellowships are open to applicants of any nationality. MRC studentships and junior fellowships are subject to residential eligibility requirements and a relevant connection to the UK/EAA is required. MRC fellowship schemes allow both clinical and non-clinical fellows to work for 1–2 years overseas (depending on the particular fellowship scheme). Fellowships can be held full time in one of MRC’s overseas Units. Currently about 12% of awardees take up the opportunity to work overseas. We also have an agreement with the Wellcome Trust over Fellows wishing to work in their overseas Units and vice-versa. These are considered on a case-by-case basis.

51. MRC runs a “Strategic appointments” scheme to encourage high-quality scientists to return or come to the UK from overseas. The scheme, which employs fast-track peer review, aims to assist Universities in attracting scientists to senior university positions by providing significant financial support without them having to submit a full grant application.

52. MRC recently signed an MOU with A*STAR Singapore to enable Singapore PhD students to work in MRC Units in the UK. A*STAR is expecting to send around half of its overseas PhD students to the UK—a significant shift from the present situation, in which the vast majority study in the United States.

53. MRC was a founding partner of the Anglo-French alliance to facilitate interactions between tropical medicine research in Anglophone and Francophone countries in Africa. This alliance has successfully managed two African based training workshops in bioinformatics and clinical trials and is negotiating a new visiting scientist scheme to further facilitate interactions between Anglophone and Francophone African scientists.

54. The agencies to which MRC pays subscriptions such as HFSP, EMBO and IARC all support fellowships that facilitate international movement.

55. The Dorothy Hodgkin Postgraduate scheme bring outstanding students from India, China, Hong Kong, South Africa, Brazil, Russia and the developing world to come and study for PhDs in top-rated UK research facilities. This scheme is seen as a success, and HEIs like it, but the main difficulty is finding industrial partners (in particular for the biomedical field) to match funding available from the Research Councils. There is always more Research Council funding available than can be matched by industrial funding.

MRC

*April 2007*

Annex G

**Evidence from the Natural Environment Research Council (NERC)**

**INTRODUCTION**

1. NERC trains the next generation of independent environmental scientists. Its three strategic research priority areas are: Earth’s life-support systems, climate change, and sustainable economies. Details of NERC’s Research and Collaborative Centres (RCCs) can be found at www.nerc.ac.uk.

2. NERC’s comments are based on input from the Centre for Population Biology (CPB), the National Oceanography Centre, Southampton (NOCS), the Proudman Oceanographic Laboratory (POL) and Swindon Office staff.34

3. NERC’s International Strategy statement, which recognises the benefits of conducting high-quality research jointly with international partners, is available at: www.nerc.ac.uk/research/international/strategy.asp. It recognises that NERC science addresses the global needs and challenges of sustainable development by providing fundamental understanding of our planet and its resources. NERC’s community collaborates internationally to generate knowledge, stimulate technological development and innovation, and provide training. These activities contribute to enhanced economic growth and poverty alleviation.

34 Some centres, including the British Antarctic Survey, the Centre for Ecology and Hydrology, and the Proudman Oceanographic Laboratory are (also) submitting separate individual responses to the inquiry.
4. Environmental science is, by its nature, often undertaken in an international context and provides many opportunities to work on bilateral and multinational projects and programmes. NERC’s investments support science that:
   — goes beyond the UK in its scope and application (e.g., Global Change, Earth Observation);
   — involves collaboration with non-UK scientists;
   — is carried out in overseas countries or territories, or in international waters.

5. Approximately 38% of ISI publications arising from NERC funding in 2005 had one or more overseas co-authors. This gives an indication of NERC’s investment in international activities.

6. NERC integrates international considerations into research management. Directed, responsive and core-strategic schemes all allow funds for international collaboration and overseas working. We develop our research programmes in an international context and applicants for responsive funding are encouraged to collaborate with scientists overseas when formulating proposals. Our pre-award assessment criteria emphasise science that is world class; most Programme Committees have international membership; and a large proportion of our reviewers at the full review stage are from overseas. The governing councils of our various Centres/Surveys also have international membership.

7. NERC also:
   — engages with the EU Framework (Research and Technological Development, RTD) Programmes (FPs) and other EU programmes and agencies;
   — sponsors the UK Research Office (UKRO) in Brussels;
   — works with the European Science Foundation (ESF) through subscription, participation in appropriate ESF science activities, and by supporting representation on the Life and Environmental Sciences Committee, the Earth Observation Panel and the Marine and Polar Boards; works collectively with other Councils to influence and maximise benefit from ESF activities;
   — participates in the European Space Agency’s (ESA) Earth Observation Envelope Programme (EOEP) and other ESA environmental science programmes, and in the joint EC/ESA Global Monitoring for Environment and Security (GMES) initiative.
   — contributes to large international programmes and fora such as the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP), the Integrated Ocean Drilling Program (IODP) and the European Platform for Biodiversity Research Strategy; and funds and hosts a number of International Project Offices (IPOs);
   — develops bilateral relationships, e.g., with the USA, Japan, India and China;
   — responds to strategic collaboration opportunities, e.g., the collaboration with Japanese scientists on the Earth Simulator;
   — invests in large infrastructure (e.g., satellite technology, research ships) and benefits from others’ (e.g., EU and ESA) investments through time barter or other exchanges (e.g., Ocean Facilities Exchange Group—OFEG);
   — works with other Research Councils, OSI, FCO, DFID, British Council, Defra and other UK partners to maximise UK potential for international science collaboration and contribute to wider UK goals;
   — funds subscriptions to multilateral science partnerships such as InterRidge, ANDRILL, and InterMargins.

8. More detail and examples of NERC’s international activities are given in later sections and in the appendices, and in NERC’s recent memoranda to the Committee in response to the inquiries into “UK Space Policy” and “Investigating the Oceans”.

9. Many NERC RCC activities have an international dimension. For example some core strategic programmes of NERC’s British Antarctic Survey (BAS), NOCS, and Plymouth Marine Laboratory (PML) were designed as national contributions to IGBP or WCRP programmes. The Centres also participate in EU FP and NERC directed programmes or consortia with international collaborators, and some RCCs host IPOs.

STRENGTHS & WEAKNESSES OF EXISTING RC AND OSI MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION

10. By supporting excellent science, NERC ensures that its scientific community is welcomed in international collaborations.

11. By developing our research programmes within an international context we are able to properly address our strategic priorities, identify how UK-supported science can complement, without duplication, science supported by other countries and by international organisations, involve potential international partners (increasing leverage of non-UK funding sources and involving other skills) and provide
opportunities for the UK to develop or enhance its leadership. This approach also allows us to support the UK Government’s international agenda, eg through the joint NERC-DFID-ESRC Ecosystems Services and Poverty Alleviation (ESPA) programme.

12. Many NERC-funded scientists sit as experts on international scientific committees, which allows them to influence the international scientific research agenda. Many NERC-funded scientists who are world-leading authorities on scientific aspects of climate change contribute to the work of the Intergovernmental Panel on Climate Change (IPCC) to produce the IPCC’s comprehensive summary of the state of climate science. More than 50 UK scientists were evaluators for the EU FP6. NERC-funded scientists act as reviewers for proposals to ESA.

13. Effective international interaction generally stems from the scientific community developing “researcher-to-researcher” links through workshops, conference participation etc. NERC is successful at encouraging international collaboration by allowing grant-holders to involve overseas project partners and supporting visits by senior researchers. Around 50% of NERC-funded PhD students receive additional funding to carry out collaborative research overseas.

14. The long-term nature of funding to NERC RCCs particularly enables international collaboration. EC studies have shown the effectiveness of long-lasting collaborations in delivering multilateral research programmes such as FPs. RCCs are also able to establish collaboration at the institution-to-institution level.

15. The knowledge arising from NERC-funded science is transferred internationally through collaboration on international programmes, by inputting to EU and other international policy development, by hosting and participating in international meetings, by developing products accessible through international markets, through the availability of data from its data centres, and through publication in the international literature. In common with other UK Research Councils NERC is establishing a repository for open access to peer-reviewed papers arising from Council-funded work.

16. Other strengths are covered in the sections on EU and other international collaboration.

17. NERC enjoys extensive international collaboration, but recognises there are inherent challenges.

— Opportunities may arise which have short planning horizons. For example to collaborate with Japanese scientists using the Earth Simulator NERC had to find money at short notice. NERC is developing improved systems for handling short-notice strategic opportunities.

— Investigators seeking funds to work with overseas partners have to synchronise applications to NERC with partners’ application deadlines. Similarly, collaborative projects often face the “double jeopardy” of two peer review systems. Setting up cross-funding schemes, reciprocated by other countries, would help, but significantly more support might flow in one direction than in the other.

— NERC provides funding for travel within its research grants. NERC recognises this favours established collaborative relationships over more speculative interaction but there are many other excellent travel grant schemes available to UK researchers.

— International collaboration often requires a large proportion of “glue money”, ie money for administering projects, workshops, conferences, synthesis, subscriptions etc. However, since peer review focuses on the quality of science, “glue money” is likely to be cut first when funding is tight. The priority of such activities can be hard to “tension” against other funding requests if funding is sought outside a standard grants call or programme.

— Many smaller countries are highly dependent on multilateral programmes (eg EU and ESF programmes) to generate a critical mass of funding. The UK, with its relatively large scientific community and funding pool, is less dependent on funding from other countries, and NERC funding may be less easily diverted to facilitate participation in multilateral programmes; this can frustrate UK partners and partner countries.

18. Other issues can also be identified within wider UK approaches to international collaboration. For example, NERC and the other Research Councils work alongside FCO and OSI in developing valuable research partnerships. However often FCO and OSI for good reasons focus on country-specific activities eg through Joint Commissions. This often results in a culture of “priority countries” for collaboration. This does not always fit with NERC’s focus on excellent science. Targeted workshops and exchanges may encourage initial contacts and exchanges of information between the UK and “priority country” researchers, but a lack of accessible research funding can thwart continued partnerships.

35 Including Intergovernmental Oceanographic Commission; International Council for Science (ICSU); Scientific Committee for Antarctic Research; Scientific Committee for Oceanic Research.
INTERNATIONAL COLLABORATION THROUGH THE EU FRAMEWORK PROGRAMME

ERC

19. NERC welcomes the establishment of the ERC which recognises the importance of supporting excellent research in the European Research Area. The ERC aims to highlight hotspots of talent within Europe to the rest of the world. NERC hopes that the UK environmental sciences community will respond to ERC calls and be successful. With this in mind NERC has publicised the first ERC call widely. Problems may occur if: (i) the best UK scientists decide not to apply, being already well positioned to gain funding from NERC, and (ii) if the first call is hugely oversubscribed and only a few UK projects are funded, deterring the UK community from applying in future.

EU Framework Programmes

20. EU FPs have generally been an important source of collaboration and income for NERC. Participating in FPs, as in other international programmes, generally provides benefits as listed in NERC’s International Strategy statement, with particular benefits being funding leverage; shared access to facilities, data and knowledge; and shared networking, communication and science advocacy.

FP6

21. For EU FP6, NERC operated an incentive fund to stimulate leadership from within its RCCs. NERC Centres have enjoyed considerable success, participating in 15% of funded projects in the Global Change and Ecosystems Theme under FP6 and leading 3%. More widely the UK research community participates in 70% of FP projects within the Global Change and Ecosystems Theme.

22. European Research Area Networks (ERA-NETS) are a FP6 funding instrument designed to promote cooperation and co-planning between funders of national research programmes, ie for the UK, government departments, agencies and/or Research Councils. Environmental topics account for approximately 20%—the largest sector—of all ERA-NETS funded under FP6. NERC currently participates in six ERA-nets, detailed at Appendix 2.

23. NERC is a partner in the European Fleet for Airborne Research network (EUFAR)\(^{36}\). EUFAR is an Integrated Infrastructure Initiative in EC FP5/FP6 and through its partnership, NERC helps to coordinate the operations of and access to the European fleet of instrumented aircraft in the field of environmental research.

24. However, in the context of infrastructure funding, there seems to have been a shift in emphasis from enabling access to existing large-scale infrastructure (large equipment, ships etc) in FP5 to developing “new, often smaller pieces infrastructure such as databases” in FP6. This has made large-scale facilities more difficult to provide and access.

FP7

25. NERC worked closely with environmental scientists in its RCCs and beyond, with OSI and specifically with Defra (the UK policy lead on FP Environment Programme negotiations) to influence the content of FP7’s Environment (including Climate Change) Theme. UK comments were passed to the EC in 2006 in response to an invitation at working committee level.

26. The priorities and content of FP7’s Environment (including Climate Change) Theme correspond well with the science priorities in NERC’s planned new strategy, suggesting considerable potential for NERC to leverage funding from FP7.

27. NERC helped to engage the UK environmental sciences community in information events to launch FP7. In collaboration with Defra and the EC Environment Directorate General, NERC co-funded a joint FP7 Energy and Environment Themes launch in London in 2006, timed to immediately precede FP7.

28. In FP7 there may be support for existing ERA-NETS, eg by extending partnership, or aiding them to mutually open their programmes. In the Environment Theme the Commission anticipates high demand as many environmental sciences ERA-NETS move towards common actions, but it concedes that it may be difficult to accommodate this within the available budget.

\(^{36}\)www.eufar.net/
**NCPs**

29. UKRO provides an excellent information service to the academic and research centre community and is often the preferred source of specific FP advice. Defra and Beta Technology Ltd provide the NCP for the FP6 Environment Theme. Since UKRO’s services are not widely used by the non-academic community, eg SMEs, with whom collaboration is expected, delays in making NCP arrangements can have knock-on effects on the NERC community.

**COST**

30. Networking activities under COST (European Cooperation in the field of Scientific and Technical Research) are funded through EC Framework Programmes and implemented by ESF. There is UK involvement in 22 out of 24 current COST Actions in the Earth System Science and Environmental Management domain (which has a UK Vice Chair), many other COST Actions are also NERC-relevant.

**NEST**

31. POL reports positive experience of a project under the NEST “Adventure” programme, which funds projects of high risk with potentially high reward (see Appendix 3).

**The role & success of RCs in facilitating UK participation in previous and current international programmes**

32. NERC and its RCCs have a strong track record of hosting, and participating in, international environmental science initiatives involving world-class scientists.

**International Programmes and Project Offices**

33. NERC provides international scientific leadership, influence and partnership within international environmental science programmes, notably the IGBP, the WCRP and DIVERSITAS. These major programmes operate under the auspices of the International Council for Science (ICSU), the World Meteorological Organisation (WMO), the International Oceanographic Commission (IOC) and other inter-Governmental agencies. NERC involvement in the IOC is detailed in Appendix 3.

34. Several major NERC directed programmes contribute to international programmes, eg the UK Surface Ocean-Lower Atmosphere Study (UKSOLAS) contributes to the IGBP SOLAS programme; the Rapid Climate Change Programme (RAPID) contributes to the WCRP CLIVAR programme; and the Quantifying and Understanding the Earth System (QUEST) programme contributes to IGBP, WCRP, IHDP, and DIVERSITAS Earth System Science Partnership (ESSP) programmes. Further details of these directed programmes are in Appendix 1.

35. NERC supports or co-supports six International Project Offices (IPOs) in the UK, located in NERC RCCs or in universities:

   - Climate Variability & Predictability (CLIVAR at NOCS)
   - Surface Ocean-Lower Atmosphere Study (SOLAS, at University of East Anglia)
   - Global Ocean Ecosystem Dynamics (GLOBEC, at PML)
   - Global Environmental Change & Food Systems (GECAFS, at University of Oxford)
   - bioSUSTAINABILITY International Project Office (part of DIVERSITAS, University of York)
   - International Polar Year (IPY) 2007–09 (at BAS)

36. The coordinating function of IPOs is vital for the efficient conduct of large multilateral collaborative research programmes. They ensure efficient planning, management, networking and advocacy; and facilitate data-sharing and the dissemination and uptake of the programmes’ research results. IPOs also add value by conducting synthesis activities and providing first-hand advice to relevant policy makers, eg information from CLIVAR has fed into the IPCC assessment reports. UK-based IPOs increase the UK’s visibility and influence internationally, help to leverage research funding and expertise from other countries participating in the programmes; give NERC an international leadership role in the environmental sciences; provide a forum to expose NERC’s objectives and activities internationally; raise the profile of the host institutions; and increase UK awareness of research happening elsewhere.

**NERC’s International Opportunities Fund**

37. NERC’s International Opportunities Fund has invested £1.64 million in ten projects (of up to three years in duration, in the period 2005–09) addressing a variety of international collaborative activities aligned with NERC’s RCC and directed programmes. The fund was established to stimulate high-profile, high-impact international activities. It does not directly fund research but supports international collaboration.
and leadership, encourages and facilitates planning of international activities and supports new international partnerships. NERC will evaluate the outcome and overall success of the first call before proceeding with any subsequent investment.

**Other international collaboration**

38. Since 2003, NERC and the Defra-funded Met Office Hadley Centre for Climate Change have each invested £850k in a climate modelling partnership with Japan. UK scientists will have access to the Japanese Earth Simulator supercomputer for the purpose of running state-of-the-art UK climate models. Further details are at Appendix 3.

39. A strategic opportunity for UK climate change scientists to work with India has arisen following a bilateral workshop, led by a NERC scientist in 2006 at India’s Institute of Tropical Meteorology. Details of the planned UK/India collaboration to address monsoon process, simulation, operational prediction and impact assessment are in Appendix 3.

40. NERC represents the UK at IGFA: the International Group of Funding Agencies (for Global Change Research). This forum identifies issues of mutual interest and ways to address these through national and, when appropriate, coordinated international actions.

**International collaboration through investment in infrastructure and facilities**

41. NERC provides high-technology research facilities including: three ocean-going research vessels with associated specialist oceanographic equipment; comprehensive airborne research capability operating around the globe on major international projects; access to a range of facilities in support of Earth Observation including design/collaboration in ESA satellite missions; year-round research bases in Antarctica and a seasonal base in the Arctic; a High-Performance Computing facility; a new observatory in the Cape Verde islands (see Appendix 1); a range of world-respected specialist analytical facilities; and national data centres.

42. Over the past five years, 50% of NERC’s research cruises have involved collaboration with international scientists, from 49 institutions and 17 countries. NERC is also involved in ship-time bartering, which has grown markedly since 2000 to a point where NERC now exchanges approximately 200 barter days per year. NERC has a ship/marine facilities barter agreement with France, Germany, the Netherlands, Norway, Spain, and the NSF (USA).

43. NERC is committed to the long-term management of data and funds a range of national data centres, many of internationally excellent repute. NERC’s Proudman Oceanographic Laboratory (POL) hosts the Permanent Service for Mean Sea Level, which is a member of the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) and was established by the International Council of Scientific Unions (ICSU) in 1933. The PSMSL is the global data set for mean sea level; the data are used throughout oceanography, climate change, geology and geodesy; especially as the basis for all estimates of “sea level rise”.

**Earth Observation research and involvement in ESA programmes**

44. NERC exerts influence on the content and management of the ESA Earth Observation science programmes in its capacity as UK EO lead in the British National Space Centre (BNSC) partnership.

45. NERC provides the UK’s subscription (~ £34 million per annum) to ESA’s environmental sciences programmes, EOEP, and Envisat/ERS operations, and a share of the UK’s subscription to the general budget (around £7 million per annum). NERC also contributes, with Defra, DTI and the MoD, to phase one of the Global Monitoring for Environment and Security Space Component Programme (GMES SCP, £2.2 million over three years). NERC’s primary interest with regard to its ESA contribution lies in assuring scientific excellence in the mission selection and thus maximising scientific benefits for the UK’s environmental sciences community, whilst recognising that ESA’s modus operandi is based on geo-return.

46. ESA’s EOEP represents NERC’s primary means of procuring new satellite missions. EOEP mainly funds the development and operation of innovative Earth Explorer science missions, providing EO data in support of environmental science covering a broad range of scientific subjects. Details of UK involvement in the missions are at Appendix 3. The scientific objectives of EOEP, as identified in the ESA’s Strategy for

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37 www.nerc.ac.uk/research/sites/facilities/
38 www.nerc.ac.uk/research/sites/facilities/marine/ofeg.asp
39 www.pol.ac.uk/psmsl/
40 http://www2.kms.dk/fags/index.html
41 See www.esa.int/esaLP/ASEWGWNW9SC_LPearthexp_0.html and www.esa.int/esaLP/ESADQ0UHN6D_LPfuturermis_0.html for further details on the approved and candidate Explorer missions respectively.
EO\textsuperscript{42}, are substantially similar to those of NERC. NERC also supports the operations of ERS-2 and Envisat, both carrying a wide range of instruments monitoring various components of the Earth’s environment.

47. GMES is recognised as the major European contribution to the international Global Earth Observation System of Systems (GEOSS). GEOSS is being led by the Group on Earth Observations (GEO), an international partnership comprising 62 member countries, including the UK, the EC and 43 participating organisations. NERC is a member of the UK delegation to the GEO Plenary process, alongside the Met Office and Defra. Effective engagement by NERC in GEOSS over the next 10 years is likely to deliver significant benefits through the provision of access to important global data sets, across a wide range of relevant disciplines and themes. GEOSS is structured around delivering to nine key societal benefit areas, all of which are relevant to NERC’s scientific agenda, including in the areas of natural disasters, climate change, water resources, ecosystems, desertification and biodiversity.

48. NERC invests approximately £10 million annually in EO activities at a national level (including direct EO Programme spend, responsive-mode grants, and facilities), the majority of which is spent on the exploitation of EO data. This complements NERC’s contribution to a “global observing system” through its membership of ESA.

49. Examples of other collaboration with international space agencies are provided in NERC’s memorandum to the UK Space Policy inquiry.

EFFECTIVENESS OF COLLABORATION BETWEEN RESEARCH COUNCILS AND GOVERNMENT DEPARTMENTS

50. NERC works with other UK stakeholders (including other Research Councils, Government Departments, the British Council, the Royal Society) to ensure that the UK’s approach to international research activities is joined up. We participate in collaborative fora such as the Environment Research Funders’ Forum (ERFF), the Global Environmental Change Committee (GECC), UKESF and the Inter-Agency Committee for Marine Science and Technology (IACMST, for which NERC funds the secretariat).

51. As a key funder of space activities, NERC is a member of the UK Space Board, along with the Science and Technology Facilities Council (STFC), DTI, Met Office and MoD. NERC is also one of the partners of BNSC\textsuperscript{43} and works through this partnership to ensure coordination of efforts and to maximize the benefits for the UK from its investments in civil space activities. This enables the partners to drive international developments and programmes. Particular areas for collaboration, eg on establishing the Centre for Earth Observation Instrumentation, were listed in our memorandum to the UK Space Policy inquiry; some are addressed above.

52. NERC has a long history of working closely with DfID, which, prior to the formation of Defra, was the largest single external funder of commissioned research. Income from DfID has declined significantly since then, however, with much less emphasis given to natural science research, or to collaborating with NERC. We were therefore delighted that in 2006 DfID approached NERC to develop the new multi-disciplinary ESPA research programme—see Appendix 3. ESPA also fits under the NERC-led new Living With Environmental Change (LWEC) initiative, currently being developed through RCUK and with other funders, including Defra and DfID.

53. Both NERC and DfID, as well as Defra, are core members of ERFF, which facilitates interaction between different funders of environmental research, and helps to maximise the coherence and effectiveness of UK environmental sciences funding. Co-operation between NERC and DfID on the EUWI ERA-NET (see Appendix 2) is also positive.

54. NERC has good links with the FCO, including the Science and Innovation Network (SIN). NERC is represented at the SIN annual round-table events, provides induction training for new SIN staff and hosts visitors at FCO request. Increasingly, NERC/BAS work closely and positively with the Polar Research Unit (PRU) through the BAS Review Group, the Cross-government meeting on Arctic Issues and PRU representation on the Antarctic Funding Initiative (AFI) peer review panel. Because there are many interactions between different parts of NERC and different parts of the FCO, in 2004–2006 NERC and the FCO held high-level bilateral meetings with relevant representatives from both sides. We are currently exploring holding more focussed meetings in science areas of particular interest to the FCO.

\textsuperscript{42} See http://esamultimedia.esa.int/docs/SP-1234.pdf for ESA’s Strategy for EO. A follow-up document—“The Changing Earth—New Scientific Challenges for ESA’s Living Planet Programme”—is available at http://esamultimedia.esa.int/docs/SP-1304.pdf

\textsuperscript{43} For further details on the BNSC partnership see http://www.bnsco.uk/default.aspx?nid = 3193.
IMPACT OF RC POLICIES ON THE INTERNATIONAL MOBILITY OF RESEARCHERS

Employment policy

55. Recruitment of staff to NERC Centres, and by HEIs to NERC grants, is subject to EU Employment Law requiring suitably qualified EU applicants to be preferred over non-EU applicants. For selected non-EU applicants NERC must seek a work-permit citing special essential skills, (eg NERC currently employs several Chinese nationals in areas of skill shortages).

56. NERC Swindon Office seconds existing employees (mainly science administrators) to European/international institutions on a case-by-case basis. Recent examples include NSF, ESF and UKRO. NERC does not operate any specific institutional exchange schemes.

57. NERC Research Centres second existing staff (mainly scientists) overseas to fulfill contractual obligations, eg with DfID, the World Bank, or the EU, generally on research to underpin sustainable natural resource development, technology transfer or capacity building. The British Geological Survey (BGS) and the Centre for Ecology and Hydrology (CEH) often have several tens of staff working overseas. Secondment typically involves co-operation with overseas institutions, universities, Governments etc. BAS has an all-year-round presence in the Antarctic—about 250 staff during the summer and 50 in winter.

Fellowships and grant awards

58. NERC fellowships are open to all nationalities, to be taken up at an eligible UK academic institution where they will be based and employed. We allow/encourage our fellows to spend up to one year (in a three-year fellowship) or two years (in a five-year fellowship) at an overseas institution. NERC is a signatory to the EUROHORCs “Money follows Researcher” transfer of grants scheme. NERC RCCs host EU Marie Curie award holders.

59. NERC’s current approach, similar to many other Councils, is to build costs for international collaborations into normal grant applications. Project partners do not normally receive direct funding from the award, but play an integral role in the research project through direct and/or indirect means. Visiting researchers can be supported financially to come to the UK for up to 12 months to provide advice and assistance to a research project. Additionally, researchers funded directly on a grant may be supported to visit colleagues abroad. Indeed, this is actively encouraged in the case of a fellowship award. Finally, support for travel to relevant international meetings is important for the development of scientific ideas so that researchers are able to disseminate their results and hear of advances elsewhere.

Postgraduate training

60. NERC encourages PhD students on NERC awards to undertake collaborative fieldwork overseas, and provides an extra £600k per year funding for this purpose. NERC is subject to the same funding eligibility restrictions as other Research Councils, such that we can only support UK and EU students (although EU students can get only their fees paid, unless they have lived in the UK for the previous three years, in which case they are entitled to a full award).

61. Dorothy Hodgkin Postgraduate awards do allow international students to undertake a PhD in the UK. They are administered by the Engineering and Physical Sciences Research Council (EPSRC) on behalf of all the Research Councils. NERC provided awards to students starting their studies in 2004 and 2005. International (including non-EU) students can also be funded on EU projects because contractually the partner institutions are responsible and the EU does not need information about the individual personnel.

Natural Environment Research Council

April 2007

Appendix 1

NERC Directed Programmes with a Strong Element of International Collaboration—Additional Information

1. NERC endeavours to include the international context in planning its directed programmes. Examples of effective international engagement include:

2. The Rapid Climate Change (RAPID) Programme: Since 2000, NERC has invested £20 million in RAPID, bringing together a community of researchers involved in observation, modelling and the problems associated with rapid climate change. The original programme, which ends in 2008, has grown into an international activity and an important example of where the UK and NERC play a leadership role in climate change science. The USA, Germany, The Netherlands and Norway are collaborating. The US National Science Foundation (NSF) has contributed about £5 million for a prototype system to continuously monitor the strength and structure of the North Atlantic meridional overturning circulation,
and is involved in planning and evaluation. NERC and NSF together developed a common system of calling for proposals and conducting peer review for RAPID. The National Oceanographic and Atmospheric Administration (NOAA) is also contributing in kind, in terms of observations and ship time. The Netherlands Organisation for Scientific Research (NWO) has contributed €1.5m, and the Research Council of Norway (RCN) €1 million towards a joint €4 million funding round with NERC, delegating the administration to NERC. RAPID has also resulted in links with the Max Planck Institute for Meteorology, Hamburg. RAPID’s UK Steering Committee includes experts from Germany and Norway and is chaired by a scientist at Wood’s Hole Oceanographic Institution.

3. The Integrated Ocean Drilling Program (IODP): Participation in IODP allows UK scientists to influence the science planning and benefit directly from more than $1.5 billion investment in drilling platforms and their operation. UK scientific engagement in the IODP is enabled through membership of the European Consortium for Ocean Research Drilling (ECORD) comprising 16 European nations plus Canada. ECORD is a partner in IODP alongside the US National Science Foundation (NSF) and the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). NERC plays a leading role in ECORD. Since 2004, ECORD has mounted two highly successful scientific and technical drilling missions, co-ordinated and managed by NERC’s BGS, the ECORD science operator. The first, an Arctic Coring Expedition (ACEX) in 2004, has allowed UK and European scientists to describe (in four Nature articles less than two years later) an Arctic climate history over the past 50–55 million years, including a near-tropical Arctic warming event known as the Palaeocene/Eocene Thermal Maximum, due to natural climate change. The second, a Tahiti sea-level expedition in 2005 aimed to reconstruct events at the end of the last ice age in an area remote from the effects of earthquakes and past ice-sheets. This knowledge should aid scientists’ prediction of what may happen in the future as the Greenland and Antarctic ice-sheets melt. A third IODP drilling mission, taking place March/April 2007, is designed to answer some of the uncertainties over how the Earth’s oceanic crust forms in an atypical area of the Mid-Atlantic Ridge where the Earth’s mantle is, uniquely, extensively exposed. NERC’s RRS James Cook has been adapted with a drilling rig for her maiden voyage in service as ECORD/IODP mission-specific drilling platform. NERC is investing £12.5 million in IODP, which will run until 2013, on behalf of the UK science community.

4. The Quantifying and Understanding the Earth System (QUEST) Programme: Through this programme, NERC and the Institut National des Sciences de l’Univers (INSU, France) jointly planned and assessed a bi-national funding opportunity in order to draw together a critical mass of researchers on a key topic, where both countries have a major interest.

5. The UK Surface Ocean-Lower Atmosphere Study (UKSOLAS) is well integrated with international SOLAS activities. Examples include non-UK participation in the programme’s research cruises; collaborative research flights (including calibration flight with NASA); and the establishment, with Germany and Cape Verdean research institutes, of an Ocean-Atmosphere Observatory on Cape Verde44.

EU FP6 ERA-NETS WITH NERC INVOLVEMENT

1. INNER: (INNovative Energy Research) aims to improve co-operation between national research Programmes that seek to nurture emerging energy technologies. The INNER ERA-NET brings together energy research programme managers from ten European countries to create a platform for co-ordination and collaboration. The project will include analysis of innovative energy research programmes in countries such as the USA, Japan, China and Korea as well as European initiatives.

2. EUROPOLAR: unites all twenty-five of Europe’s major funding agencies in polar research to improve co-operation and co-ordination of activities, share facilities and optimise a combined annual budget of around €500 million. The project aims to provide strategic oversight and will work to improve the use of research infrastructures and human, technological and financial resources. The project is designed to assess how to overcome barriers and implement a European-wide polar research framework with increased operational capacity and the development of transnational programmes.

3. BiodivERsA: Funding agencies from fifteen EU countries have established this ERA-NET to develop coordination of biodiversity research programmes in Europe and to establish a durable co-operation between the national funding agencies. The 18 partners currently allocate more than €110m annually to projects and programmes and aim to co-ordinate policies and practice between the network members to agree common strategies and maximise overall output across national boundaries. Co-operation between the partners will culminate in a common call for research proposals (including collaboration with developing countries) and a formalised structure, through which biodiversity research funding can be coordinated from a European perspective.

44 www.york.ac.uk/capeverde/
4. ECORD-NET: Fifteen European research funding organisations have formed The European Consortium for Ocean Research Drilling (ECORD), representing and funding European Ocean drilling studies at an international level and enabling Europe to achieve critical mass and economies of scale in its progress towards equal partnership with the USA and Japan (currently considered the world leaders in marine geosciences). This ERA-NET is designed to help implement Europe-wide strategic planning, funding and research in the field of ocean drilling. In particular it provides a structure through which joint drilling programmes can be managed and co-ordinated and results disseminated to the marine science community.

5. MarinERA is designed to co-ordinate national and regional marine RTD programmes in Europe and the fourteen partners include most of Europe’s maritime nations. The Main Board of ESF is a core member of the MarinERA consortium together with fourteen research funding bodies and seven observers from existing marine research networks. The overall aim is for better use of existing research mechanisms, co-ordination of research infrastructure, improved cooperation and dissemination and the integration of marine science in Europe.

6. EUWI (European Union Water Initiative): The objective of the EUWI ERA-NET is to improve linkages, co-ordination and information sharing between member state research programmes in water science and technology and the developing world. The fourteen partners (which include DFID and NERC for the UK) seek to establish a framework of long term communication, collaboration and co-ordination of member state research programmes, focused on water issues in developing countries. The overall aim is to contribute to the achievement of the Millennium Development Goals through better communication and co-ordination of research activities.

Appendix 3

Other International Collaboration—Additional Information

EC FP6

1. UK scientists from NERC’s CEH lead NitroEurope, the largest Integrated Project (IP), and ALTERNet, one of the largest Networks of Excellence (NoE), funded under the FP6 Global Change and Ecosystems sub-programme (2002–06). NitroEurope involves approximately 65 contributing partner institutes from 23 countries. It won €16.6 million in additional funding, and addresses the effect of reactive nitrogen (Nr) supply on net greenhouse gas budgets for Europe. ALTERNet involves 24 contributing partner institutions from 17 countries. It won €10 million additional EU funding, and integrates capacity across Europe to assess and forecast changes in biodiversity, structure, functions and dynamics of ecosystems and their services.

2. Scientists at the National Oceanography Centre, Southampton (NOCS) (one of NERC’s Collaborative Centres) lead another of the largest FP6 IPs. HERMES (Hotspot Ecosystem Research on the Margins of European Shelves) won €15m of EU funding which gears national contributions from 45 research institutes (including other UK partners) and small businesses from 14 European countries. As project coordinators the team has developed engagement with the Commission and other policy makers, ensuring routes for the successful transfer of science to policy making as well as other networking and leverage benefits.

3. However the administrative burden for the lead organisation coordinating such large EU FP integrative projects (IP or NoE) should not be underestimated. The Commission recognises this, and such large projects will be the exception rather than the rule at the start of the FP7 Environment (including Climate Change) sub-programme (2007–2013).

4. NEST Programme

“Geophysical Oceanography (GO)” is a project in NEST “Adventure”. It is led by Richard Hobbs (NERC Advanced Fellow, Durham) and aims to find out if the detailed seismic images of structure in the ocean can really tell us about the ocean: the project has an uncertain but potentially very beneficial outcome because of the unparalleled combination of resolution and coverage. There was already considerable interaction with allied US work before GO was proposed, but this has been strengthened by NEST’s funding of the project.

45 www.eu-hermes.net/
5. **INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO (IOC/UNESCO)**

NERC is the designated lead for the UK; the IOC Office is hosted by NOCS, the same personnel also run IACMST which helps to promote greater cohesion with national activities in marine science. The IOC is a co-sponsor of WCRP. The UK has played a strong role in ensuring that the IOC continues its financial contribution to the WCRP. The Joint IOC/WMO Commission on Oceanography and Marine Meteorology (JCOMM) coordinates, regulates and manages a fully integrated marine observing, data management and services system. One of its roles is implementing the open-ocean part of GOOS. NERC and the Met Office have developed a close working relationship to represent the oceanographic and marine meteorological communities in this Commission. Because NERC isn’t a Government department it isn’t automatically included in departmental briefing meetings on intergovernmental issues. Some ad hoc arrangements are in place whereby NERC’s voice gets heard. The UK IOC Office is assisting FCO to develop plans for improving overarching aspects of coordination of UK inputs to international bodies.

6. **JAPAN CLIMATE SCIENCE COLLABORATION**

The opportunity for NERC and Hadley Centre scientists to collaborate with Japanese scientists in using the Japanese Earth Simulator has allowed the UK and Japan jointly to make world-leading advances in global climate change modelling. After developing a range of high-resolution model versions that were successfully “ported” to the Earth Simulator, UK and Japanese scientists have performed climate simulations with unprecedented detail, enabling new insights into important processes, and of climate extremes such as cyclones, typhoons, and hurricanes.

7. **INDIA MONSOON COLLABORATION**

The planned UK/India collaboration to address monsoon process, simulation, operational prediction and impact assessment gained Ministerial support at the UK/India Council in June 2006. Subsequently the UK proposers submitted successful bids to the UK India Education and Research Initiative (UKIERI) fund sponsored by DTI, FCO, DfES, the British Council and industrial champions, winning some £700k in science networking and training funds. Support from Defra for the Hadley Centre scientists’ participation is also understood to be in place. NERC will invest £300k over the next four years to fund a project manager to co-ordinate the UK component of the multi-agency, multi-disciplinary consortium. India’s Department for Science and Technology (DST) has promised matched funding.

8. **ESA—EARTH OBSERVATION ENVELOPE PROGRAMME EARTH EXPLORER SCIENCE MISSIONS**

Of the six selected missions in the pipeline, the UK leads the science on two—Cryosat, led by the Director of the Centre for Polar Observation and Modelling (CPOM—a NERC Collaborative Centre), Duncan Wingham (Principal Investigator); and EarthCARE, led by Antony Illingworth of Reading University (Co-Principal Investigator). All six selected missions directly address a range of NERC’s key science priorities. Of the six shortlisted proposals for the next mission in the series, two have UK “science leads”—BIOMASS, led by Shaun Quegan, Director of the Centre for Terrestrial Carbon Dynamics (CTCD, another NERC Collaborative Centre) and PREMIER, led by Brian Kerridge of the Rutherford Appleton Laboratory.

9. **ECOSYSTEMS SERVICES AND POVERTY ALLEVIATION (ESPA)**

The first funding opportunity of this joint research programme with DFID and the ESRC was announced in January 2007. The programme will address how to achieve sustainably managed ecosystems, with the aim of contributing to reducing poverty and improving well-being in developing countries. It is currently focussing on four regions: Amazonia/Andes, semi-arid Africa, India and the Hindu Khush and China.

10. **CPB WORKSHOPS**

The NERC Centre for Population Biology (CPB) and the Institute of Zoology, London (IoZ) were awarded funds from NERC’s Medium-sized Initiatives Fund to run a series of working groups in the UK based on the highly successful “NCEAS model”. (NCEAS, the US National Center for Ecological Analysis and Synthesis, is a National Science Foundation (NSF) funded unit that was set up in 1995 to foster cross-disciplinary work in pure and applied ecology. A major part of their activities is working groups devoted to a particular problem or issue in pure and applied ecology.) CPB would have welcomed more resources for these workshops, especially to enable postdocs to speedily synthesise the workshop outcomes. At NCEAS (US National Center for Ecological Analysis and Synthesis), postdocs analyse and synthesise the data brought together by the working group.

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46 See www.esa.int/esaLP/ASEWGWNW9SC_LPearthexp_0.html and www.esa.int/esaLP/ESADQ0UHN6D_LPfuturemis 0.html for further details on the approved and candidate Explorer missions respectively.
47 www.nerc.ac.uk/research/programmes/espa/
**Evidence from the Particle Physics and Astronomy Research Council (PPARC)**

**Introduction**

1. The Particle Physics and Astronomy Research Council (PPARC) was an independent organisation (a non-Departmental Public Body) established in 1994 by Royal Charter following the Government’s 1993 White Paper Realising our potential—A Strategy for Science, Engineering and Technology.

2. PPARC’s strategy always had an international focus mainly because of the characteristics of the research it supported. The frontiers of scientific understanding are increasingly being pushed backwards, but pushing the frontiers increasingly requires technologies and efforts on an international (or even global) scale. No one country has the resources to undertake a wide-range of high-level research in basic science on their own so international collaborations are the norm in fundamental physics, planetary science and astronomy.

3. PPARC never had a need to devise a separate international strategy because it always had an international focus and a commitment to giving UK researchers access to the best facilities and opportunities in the world.

4. PPARC operated three scientific sites: the UK Astronomy Technology Centre\(^48\) (UKATC) in Edinburgh, the Isaac Newton Group\(^49\) (ING) in La Palma and the Joint Astronomy Centre\(^50\) (JAC) in Hawaii. All enjoy good reputations internationally.

5. PPARC also funded the UK membership of international bodies such as the European Organisation for Nuclear Research\(^51\) (CERN), the European Space Agency\(^52\) (ESA) and the European Southern Observatory\(^53\) (ESO).

6. Because of PPARC’s international focus the UK is involved in many more major international projects in fundamental physics planetary science and astronomy than it otherwise would be.

**Strengths & weaknesses of existing RC and OSI mechanisms and activities to maintain and promote international collaboration**

7. The principle mechanisms by which PPARC promoted international collaborations were:

   (i) via subscriptions to international research organisations such as CERN, ESA and ESO. This allows UK researchers access to world-class facilities.

   (ii) Project grants for the construction of instrumentation through international partnerships, eg for an ESA mission or the CERN detectors (see below).

   (iii) Rolling grants. The rolling grant mechanism was a considerable enabler of international collaboration as it allowed flexibility—making long-term planning easier and enabling strategic partnerships to be built up.

8. Rolling grants enable researchers to have some flexibility. For instance they enable researchers to use some of the funding they receive to travel abroad and form partnerships without having to submit a separate application for funding to travel. PPARC also maintained a modest budget for researchers to undertake fact-finding missions to develop new links and partnerships—notably with China.

9. The rolling grant approach was endorsed by researchers and institutions and has been adopted by STFC.

10. A key aspect of the PPARC approach to international collaborations was to develop and nurture expertise. This promoted international collaborations as it resulted in the UK having a set of researchers with underlying science understanding or technical skills which other nations wanted or needed to make projects a success. This approach made the UK partners of choice in many international collaborations.

11. A key advantage of taking part in international collaborations is that it gives partners access to data, sometimes even full data rights, thus even a small involvement in a collaboration can prove very cost-effective. This is something which PPARC was acutely aware of and whilst no collaboration was entered into unless it aligned with PPARC’s overall strategy the Council’s approach was to ensure that maximum benefits were received from every collaboration the UK became involved in.

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\(^{48}\) http://www.roe.ac.uk/ukatc/

\(^{49}\) http://www.ing.iac.es/

\(^{50}\) http://www.jach.hawaii.edu/

\(^{51}\) http://public.web.cern.ch/Public/Welcome.html

\(^{52}\) http://www.esa.int/esacP/index.html

\(^{53}\) http://www.eso.org/
12. PPARC also established mechanisms to enable knowledge transfer from the major international organisations the UK participates in including CERN, ESA, ESO. This was supported by grants from the OSI Public Sector Research Exploitation Fund (PSRE) which promotes the exploitation of research in publicly funded laboratories for the benefit of the UK economy. PPARC made the case to OSI and Treasury that these international laboratories qualify for PSRE funding because they are where the UK conducts its research in these subjects.

13. Other activities undertaken by PPARC included trade promotions in collaboration with UKTI for UK companies wishing to undertake work for CERN and other organisations. This proved useful in enabling UK companies to get contracts from CERN and similar organisations. This activity will be re-launched under STFC to cover the full spectrum of facilities and activities and will also be extended to ITER the international project to prove the feasibility of a full-scale fusion reactor.

14. PPARC employed a contractor to identify opportunities for UK companies to bid for contracts at the major facilities PPARC subscribed to. And in addition to this activity PPARC also joined ERIDWATCH (European Research Infrastructure Development Watch), an EU funded policy study led by CEA54 the French Atomic Energy Commission and with Germany, Czech Republic, Sweden and the UK. This will quantify the commercial opportunity which will be created for European industry if the projects proposed on the ESFRI roadmap are constructed.

15. For programmes which are at the planning stage such as ESA’s Aurora55 programme—a long-term plan for the exploration of the solar system—the PPARC strategy was to work with UK industry from the start, so UK companies could be well positioned to win contracts from the start.

16. No major OSI mechanisms for promoting international collaborations existed in PPARC’s areas of science.

17. International collaboration through the EU FP, including resources for enhancing partnership between RCs and EU agencies in the new FP7 initiative. The provision of resources to stimulate UK participation in international programmes. Benefits and drawbacks of RC participation in previous and current FPs.

The principle benefits of the EU FP programme to PPARC were mainly in research infrastructure and mobility activities.

*PPARC’s active involvement*

All PPARC major facilities were involved in I3s—Opticon56 and RadioNet57.

18. Major projects also benefited from FP6 principally through co-funding of design studies for:

SKA—the Square Kilometre Array.

ELT—The extremely Large Telescope.

ILC—The International Linear Collider.

In each of the above instances PPARC matched funding.

19. **Benefits**

From a PPARC perspective the major drawback of working with the European Commission was the level of control and the “one size fits all model”. Whilst this is suitable if enough cash is made available it is less suitable if insufficient cash is made available—meaning that the drawbacks could outweigh any benefits.

20. **PPARC involvement in other initiatives and schemes**

The former PPARC Chief Executive, Professor Ian Halliday, was an active member of the EU Commissioner’s advisory board (EURAB) and an active promoter of the European Research Council model. PPARC welcomed the formation of the European Research Council.

21. PPARC was involved in two ERANETS—Astronet58 & ASPERA59. Both were beneficial in helping organisations such as PPARC to coordinate activities and develop roadmaps of future facilities. PPARC found the focus of ERANETS on grant schemes to be less relevant to research infrastructures than the roadmap aspects. PPARC found that the amount of reporting required for the level of the funding awards was disproportionate and hence bureaucratic.

54 http://www.cea.fr/english_portal/cea/identity
55 http://www.esa.int/SPECIALS/Aurora/
56 http://www.astro-opticon.org/
57 http://www.radionet-eu.org/
58 http://www.astronet-eu.org/
59 http://www.aspera-3.org/
22. **National Contact Points**

PPARC provided a member of staff as the national contact point for Research Infrastructures in FP3, 4, 5 & 6. However for FP7 OSI decided that a fuller service was required. Negotiations are taking place on how to provide more resources to provide a fuller service in future, which may involve RCUK working on behalf of all the Councils.

23. **The role & success of RCs in facilitating UK participation in previous and current international programmes.**

24. In recent years PPARC was successful in both securing and facilitating UK participation in international programmes across its science areas. Notable successes included:
- Negotiating UK entry into ESO (see below).
- Participation in the LHC (see below).
- Securing UK participation in ESA’s Aurora programme. The UK will play a leading role in the first stage of the programme driving the Aurora agenda.

25. It was PPARC’s role to make these long-term decisions. The science projects undertaken by PPARC and its successor the STFC are, by any measure, long term. Decisions have to be taken far in advance of when the scientific output from projects is expected to be realised (for instance the Cassini-Huygens mission to Jupiter and its moon Titan was launched in 1997 after several years of planning and decision making yet the spacecraft did not arrive and start producing most of its science until eight years later).

26. Decisions made by PPARC in recent years will benefit the UK scientific community in several years time including its investment in the LHC and ESA’s Aurora programme.

27. **CERN and the LHC**

The European Organisation for Nuclear Research (CERN) is the world’s leading centre for particle physics research. CERN employs almost 3,000 people and some 6,500 visiting scientists, half of the world’s particle physicists, come to CERN for their research. Through STFC and formerly PPARC the UK is an important partner in CERN and membership ensures UK particle physics researchers have access to the best facilities and opportunities possible.

28. The highest priority in particle physics in the next two years will be the completion of the construction, and the commissioning of the Large Hadron Collider (LHC) and its detectors at CERN. UK groups are playing leading roles in all four detectors for the LHC.

29. **European Southern Observatory (ESO)**

In July 2002 the UK became a member of the European Southern Observatory (ESO). Membership has enabled UK astronomers to have full access to the four 8-metre-class telescopes that comprise ESO’s Very Large Telescope. The UK’s membership of ESO will also enable it to play a major role in the Atacama Large Millimetre Array (ALMA) project—an array of 64, 12-metre radio telescopes.

30. Membership of ESO helps enable the UK to remain one of the leading nations in astronomical research and in addition to having access to some of the world’s most advanced telescopes it will help enable UK researchers to play a major role in future developments.

31. The effectiveness of collaboration between the RCs and the Government Departments involved in international scientific activities, including OSI, DEFRA, the FCO’s Science and Innovation Network and DfID.

Opportunities for PPARC to collaborate with Government Departments were somewhat limited largely due to a lack of synergy between the types of science covered by PPARC’s remit and the nature of the activities undertaken by Government Departments. Consequently PPARC did not have any significant involvement with either DfID or DEFRA.

32. PPARC did not get involved in any significant collaborations with OSI. The principal involvement came via OSI’s career and India initiatives. But here the capacity for collaboration was somewhat limited as the initiatives were mainly targeted at individual researchers rather than at partnerships—which was what PPARC principally focussed on.

33. Another factor which inhibited collaborations between PPARC and OSI in recent years was the gradual reduction in the amount of notice given of future opportunities for collaboration. Increasing demands on Ministers’ and officials’ time has undoubtedly been the principal reason for this.

34. PPARC found the Foreign and Commonwealth Office’s Science & Innovation Network foreign attaches to be particularly important when liaising with countries in the Far-East such as Japan and China. This was mainly due to cultural differences and because relationships with these countries are less well established than they are with other countries in Europe and elsewhere in the world.

35. Impact of RC policies on the international mobility of researchers.
The PPARC research community was always mobile and PPARC actively encouraged mobility indeed international mobility is fundamental in many areas of research funded by PPARC.

36. The majority of PPARC PhD students spend a significant period (up to two years) of their studentship overseas. PPARC fellowship schemes were open to applicants from around the world and around 50% of fellowships awarded between 2001 and 2005 went to non-UK nationals.

37. Under PPARC’s postdoctoral fellowship scheme, fellows were funded to spend an extended period of the fellowship at a university overseas. And indeed during the course of their fellowship, many fellows spent a significant period of time on research at overseas facilities.

38. In 2004 PPARC signed up to participate in the “money follows researcher” initiative. This agreement gave UK researchers the ability to negotiate to have his or her grant transferred to the DFG (Deutsche Forschungsgemeinschaft) and vice versa. No researchers opted to participate in this scheme.

STFC

April 2007

Evidence from the Science and Technology Facilities Council (STFC)

INTRODUCTION

1. The Science & Technology Facilities Council (STFC) came into being on 1 April 2007. The new Research Council’s purpose is to ensure the UK will be in a much stronger position to help shape (and exert greater leadership and leverage over) the development of strategies for large research facilities, enabling the UK research community to have access to the best facilities in the world.

2. STFC took over responsibility for running the scientific facilities previously operated by PPARC and CCLRC.

3. STFC will also assume responsibility for funding the UK membership of international bodies such as the European Organisation for Nuclear Research, (CERN), the European Space Agency (ESA) and the European Southern Observatory (ESO).

4. STFC is still in the process of formulating its policies and strategies but its initial priorities will include maintaining and increasing the influence inherited from PPARC and CCLRC in respect of the European and global research agendas through its membership of co-ordinating organisations such as European Commission Research Programme Committees, ESFRI, EUROHORCS, ESF, OECD and through its membership of Scientific Organisations such as CERN, ESO, ESA and the European “I3” projects.

5. STFC will establish a strategy for nuclear physics which will fully address the international collaborations and priorities of the nuclear physics community in the international context.

6. The Council will explore the opportunities to collaborate with new partners in countries which are rapidly increasing their scientific prowess and presence on the world stage whilst maintaining and developing strong links with established partners. STFC’s commitment to the RCUK China Office and its support for the UK-Brazil Year of Science are examples of new activities that will be undertaken.

7. A series of Scientific Workshops in India have been proposed by India which STFC will deliver with the assistance of the British High Commission, Delhi and also with the assistance of OSI International and the Indian High Commission in London.

8. A proposed Workshop on High Energy Density Plasma Physics using high power lasers, organised by the British Embassy in Tokyo, is one of many scientific or technical workshops that STFC will be participating in. It will also be represented at all the major conferences including events such as ECR1200760 (the German EU Presidency’s conference) which have a strategic planning focus.

9. STFC will be exploring with OSI the project opportunities offered by the European Strategy Forum on Research Infrastructures61 (ESFRI) Roadmap in the context of updating the UK’s own Large Facilities Roadmap.

10. In particular STFC will be keen to drive through the commencement of those ESFRI projects in which it is a likely partner—and, in particular, those projects which the Council has decided to lead on.

11. The availability of EC funding in 2007 to kick start these projects provides a window of opportunity for STFC and further EC funding for other types of strategically important projects will become available in 2008; STFC will be using the interim period to influence the EC’s project requirements to ensure strategic fit whilst shaping its own projects to meet the EC’s requirements.

12. STFC will also be keeping a “watching brief” on the development of the European Commission’s proposals for a European Institute of Technology and Joint Technology Initiatives.

60 http://www.ecri2007.de/
61 http://cordis.europa.eu/esfri/
13. The Council’s Knowledge Exchange activities already have an international dimension to them and we will continue to seek similar opportunities, particularly for inward investment in respect of both scientific exploitation and facilities development.

14. Strengths & weaknesses of existing RC and OSI mechanisms and activities to maintain and promote international collaboration

15. The principle mechanisms by which STFC will promote international collaborations will be no different from what they were for PPARC and CCLRC ie:

(i) Via subscriptions to international research organisations such as ILL, ESRF, CERN, ESA and ESO allowing UK researchers access to world-class facilities.

(ii) Project grants to UK institutions for the construction of instrumentation through international partnerships, eg for an ESA mission or the CERN detectors.

(iii) Rolling grants. The rolling grant mechanism to support groups in UK institutions is a considerable enabler of international collaboration as it allows flexibility—making long-term planning easier and enabling strategic partnerships to be built up.

16. Rolling grants enable researchers to have some flexibility. For instance researchers can use some of the funding they receive to travel abroad and form partnerships without having to submit a separate application for funding to travel. A modest budget will also be maintained for researchers to undertake fact-finding missions to develop new links and partnerships—notably with China.

17. The rolling grant approach is endorsed by researchers and institutions.

The three major facilities operated by CCLRC all had a “Free-at-the-Point-of-Access Policy” and on each facility time was reserved for “World Class Science” which enabled international researchers to have access. This arrangement will continue under STFC.

18. In addition each facility also reserved time for European users under the EC’s Trans-national Access programmes. This arrangement will also be continued by STFC.

A key aspect of STFC’s approach to international collaborations will be to develop and nurture expertise. This will promote international collaborations as it results in the UK having a set of researchers with underlying science understanding or technical skills which other nations want or need to make projects a success. This approach makes the UK partners of choice in many international collaborations.

19. A key advantage of taking part in international collaborations is that it give partners access to data, sometimes even full data rights, thus even a small involvement in a collaboration can prove very cost-effective. This is something that STFC is acutely aware of and whilst no collaboration will be entered into unless it aligns with overall strategy, STFC’s approach will be to ensure that maximum benefits are received from every collaboration the UK becomes involved in.

The mechanisms that PPARC established to enable knowledge transfer from the major international organisations the UK participates in, including CERN, ESA and ESO will remain.

20. The activities undertaken by PPARC such as trade promotions in collaboration with UKTI for UK companies wishing to undertake work for CERN and other organisations will be re-launched to cover the full spectrum of facilities and activities undertaken by STFC and will also be extended to ITER.62

21. PPARC employed a contractor to identify opportunities for UK companies to bid for contracts at the major facilities PPARC subscribed to. This arrangement will continue under STFC and will include centres such as ILL and ESRF.

STFC’s approach will also be to work with UK industry when projects are at the planning stage so UK companies will be well positioned to win contracts.

22. The Council will collaborate with OSI in any relevant major mechanisms devised to promote international collaborations.

23. CCLRC operated its own very successful technology transfer company CLIK Knowledge Transfer Ltd. CLIK is supported in its activities through various Government funded schemes to encourage technology transfer from HEI’s and the public sector research institutes, such as the Rainbow Seed Fund. These activities will continue under STFC.

24. International collaboration through the EU FP, including resources for enhancing partnership between RCs and EU agencies in the new FP7 initiative. The provision of resources to stimulate UK participation in international programmes. Benefits and drawbacks of RC participation in previous and current FPs

25. STFC welcomes the formation of the European Research Council (ERC) and expects that members of its community will be successful in winning awards, but the Council will have no formal links with the ERC.

26. STFC is not yet in a position to identify what, if any, FP7 projects it will participate in however STFC’s laboratories are currently preparing submissions for the first Calls under FP7.

62 http://www.iter.org/
27. STFC will participate in the EC’s Trans-national Access programmes and STFC facilities will participate in the partnerships in the EU funded network with their equivalents across Europe.

28. CCLRC and PPARC provided UK representation to the European Strategy Forum for Researeh Infrastructures (ESFRI) and it is envisaged that STFC will continue to provide at least one of the two delegates.

29. ESFRI provides a tremendous opportunity to engage with other funding agencies particularly with respect to formulating partnerships to build new Research Infrastructures as envisaged under the EC FP7 Programme.

30. CCLRC offered its lecture room facilities to UKRO at no cost to run training courses for the UK academic community and STFC will continue to offer its facilities to UKRO.

31. The role & success of RCs in facilitating UK participation in previous and current international programmes.

STFC will seek to build on the successful relationships it has inherited and will actively seek to form new relationships which will benefit the UK research community.

32. The effectiveness of collaboration between the RCs and the Government Departments involved in international scientific activities, including OSI, DEFRA, the FCO’s Science and Innovation Network and DiD.

STFC will seek to collaborate with Government Departments whenever possible. The Council will work closely with FCO SIN staff and welcomes the support they can provide—particularly in the Far-East.

33. Impact of RC policies on the international mobility of researchers.

The facility access policies adopted by CCLRC enabled international mobility by encouraging researchers from abroad to bring their research to CCLRC’s facilities. These access policies will continue under STFC. A significant proportion of the research staff employed by STFC are not originally from the UK and STFC will continue to welcome employees from abroad.

34. The research community inherited by STFC is mobile. The Council will actively encourage international mobility as such mobility is fundamental in many areas of research it is responsible for.

STFC will explore with EPSRC options for development of a joint studentships training programme to ensure a supply of trained people for major facilities.

35. STFC will maintain the current level of investment made in PPARC’s postdoctoral and advanced fellowship programme, which attracts high-calibre researchers from around the world—50% of applicants are from outside the UK.

STFC will continue to encourage and fund postdoctoral research fellowships to spend an extended period of time at an overseas university.

36. STFC will participate in the development of an RCUK strategy for fellowship alumni that will raise the international profile of UK fellowships. STFC will also participate in the new co-funding fellowships scheme proposed under Marie Curie actions.

37. STFC’s postdoctoral and advanced fellowships programme, which was inherited from PPARC and which currently supports 100 researchers, will be a key feature of Council’s strategy for ensuring the health of disciplines that fall within STFC’s remit. These schemes attract high calibre researchers from the UK and overseas to undertake a period of independent research in key and emerging areas of our science programme.

The Science and Technology Facilities Council

April 2007

Annex J

UK RESEARCH OFFICE (UKRO)

BACKGROUND

1. The UK Research Office (UKRO), established in 1984 and based in Brussels, promotes effective UK participation in EU-funded research programmes, higher education programmes, and other related activities. See http://www.ukro.ac.uk/about/index.htm. UKRO is sponsored by all seven UK Research Councils. BBSRC acts as managing partner, on behalf of all Councils, employing all 12 UKRO staff: one Director, eight European Advisors, an Information Systems Manager, an Office Administrative Manager, and an Administrative and Publications Assistant.
2. There are 140 subscribing members of UKRO. Any UK HEI, charity or public sector research organisation can subscribe; associate membership (with restricted services) is also available to companies and non-UK research organisations. Defra, the Food Standards Agency and the Health and Safety Laboratory of the HSE also have subscriptions to UKRO, as do Universities UK, the British Council, HEFCE and the Scottish Funding Council.

3. UKRO’s strategy is overseen by a Steering Committee, which includes representatives of each Research Council, as well as Universities UK and two elected subscriber representatives. A smaller Management Committee, a sub-group of the Steering Committee, monitors UKRO’s activities and budgets.

4. UKRO’s Strategic Plan for the period 2005–2010 and the Research Council Agreement establishing the Office can both be accessed from the UKRO website at: http://www.ukro.ac.uk/ukro_strat_plan_and_agreement/index.htm.

SERVICES

5. UKRO provides support for its sponsors and subscribers through a number of services. These include: a comprehensive website; web and email-based Information Service (with over 4000 registered users); a full enquiry service staffed by the team of European Advisors; briefing visits, tailored to the needs of each organisation; and meeting room facilities in Brussels. The Office also organises an annual conference, usually attracting around 200 participants from HEIs, Research Councils, Government Departments and industry, as well as a programme of information and training events on a range of topics. Full details of UKRO services are provide in UKRO’s Annual Report, available on the UKRO website at: http://www.ukro.ac.uk/about/06_ukro_annual_report.pdf.

POLICY

6. UKRO provides policy support to Research Councils on EU research issues. Recent examples of policy support include: leading on the Research Councils’ input to the Commission’s proposed European Institute of Technology (EIT); detailed briefings on the European Research Council (ERC) and the implementation of the Bologna process; updates for RCUK on the development of FP7. This is in addition to following up individual policy-related questions raised by Research Councils. Other examples of UKRO’s work with the Research Councils include: support to Councils who carry out National Contact Point (NCP) work, where appropriate; speaking at events on European research issues organised by Councils; working with the Research Councils’ Internal Audit Service (RCIAS) on FP audit issues; and close co-operation with the RCUK Careers and Diversity Group.

LINKS WITH OSI

7. To date, the majority of collaboration has been with OSI’s International Directorate. UKRO enjoys close working relationships with OSI, for example in contributing to the development of FP7, through participating in the Member States expert working group on the development of the FP7 Model Grant Agreement, along with OSI.

8. OSI, as policy lead for ERC and Marie Curie aspects of FP7, has contracted UKRO to provide the UK FP7 National Contact Point (NCP) services for these areas, open across the UK regardless of UKRO subscription status. The Marie Curie NCP has been run since 2001. The ERC service was launched in January 2007. OSI contracts pay for a staff member to each NCP.

9. As well as delivery of support services, both NCPs involve working with OSI, and key stakeholders, on policy aspects of these areas. An example of this would be actively contributing to the development of, and UK line on, the FP7 Marie Curie Work Programme, including running a focus group to gain feedback from practitioners. A member of UKRO staff sits on the European Commission’s Programme Management Committee (PMC) for Marie Curie, and UKRO also attends the ERC PMC.

10. UKRO is a member of OSI’s Framework Programme Network, in addition to the Research Councils.

OTHER LINKS

11. British Council: The Office produces a publication on behalf of the British Council: European RTD Insight, which provides an overview of European research news that month. Insight has a wide readership worldwide, and is read by many staff within the European Institutions. It is available on-line (accessible from the UKRO website at http://www.ukro.ac.uk/insight/index.htm) and is also emailed directly to well over 900 individuals each month.

12. EU Institutions: UKRO’s location in Brussels activities allows for close working with the European Institutions, particularly the European Commission and the European Parliament. Office staff have developed excellent relationships with officials, and interact with them regularly through both formal and informal mechanisms. Specific examples of work with the European Institutions include: assisting MEPs on the research committee (ITRE) with the drafting of amendments to Framework Programme and Rules of
Participation, in line with UK interests; speaking at a Parliament hearing on the implementation on FP6; being invited by the Commission to speak to the FP6 monitoring panel, an independent expert group tasked with reporting on FP6; and providing early feedback on FP7 guidance documentation.

13. Other Brussels-based organisations: other Brussels liaison includes the Informal Group of Brussels-based R&D Liaison Offices (IGLO), in which UKRO plays an active role, often acting as an example of best practice to new offices, or those seeking to set up offices. It also includes UK regional offices.

14. Universities UK: the Office has played a key role over the past two and a half years looking at the move to Full Economic Costing (FEC) in the UK and its implications on participation in EU programme. Together with Universities UK, UKRO conducted an initial case study project and was then a member of the steering committee in two subsequent projects carried out by JM Consulting on behalf of Universities UK, OSI and the Funding Councils. The projects have resulted in guidance for UK HEIs on adapting their costing systems for use in European projects. UKRO played a particularly crucial role in acting as a contact point between the UK and the European Commission. Beyond this, the Office works closely with Universities UK and the Europe Unit on a range of research and HE-related issues.

April 2007

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MEMORANDUM 25

Submission from Universities UK

Universities UK are pleased to submit a Memorandum to this inquiry. The ability of the UK to maintain and strengthen international research collaboration is crucial to the country’s future competitiveness.

The Committee will be well aware of the UK’s international research standing and the significant role that universities play in delivering this. Recent figures produced on behalf of the OSI show that the UK has increased its share of the world’s most influential scientific papers and its research base is second only to the United States. The UK produces nine per cent of the world’s scientific papers and has a citation share of 12 per cent.

This does not mean to say we should be complacent. A recent report by the think tank DEMOS suggests that China, India and Korea are now significant players in global networks of innovation that channel flows of people, ideas and technologies and that US and European pre-eminence in science and innovation can no longer be taken for granted. In December 2006, the OECD announced that China had moved ahead of Japan for the first time to become the world’s second largest investor in R&D after the US, spending £4.7 billion. South Korea’s spending increased 15% over 2005 to 3% of GDP, 75% of it coming from private industry. In India, R&D spending rose by 24% to £2.3 billion.

The UK’s universities have been, and continue to be, international organisations with a diverse staff and student body. They have links, partnership and collaborations with universities, business and other organisations around the world. This is supported in a number of different ways through the Research Councils and other government departments and agencies.

It is crucial, however, that we can increase the attraction of the UK for inward investors and potential partners, and capitalise further on international collaborations. This has been recognised in the UK Government’s 10-year Science and Innovation Framework, though continued and increased investment to support and build upon work to date should be a priority for the current spending review. A report by Technopolis, for the OSI, suggests that financial constraints act as a significant barrier to R&D collaboration.

This is not always simply a funding issue and additional investment needs to be combined with good coordination and strategic planning. The Global Science & Innovation Forum (GISF) and the development of a strategic approach to improve the UK efforts in international science and innovation collaboration is therefore a positive development. However, better cross government coordination of policies is still needed, particularly in those departments which may not have a direct responsibility for R&D collaboration, but are making policy decisions that could have a significant impact. For example, work by the member organisations of GISF to enhance the attractiveness of the UK may be hindered by the development of over stringent visa and vetting requirements from other parts of Whitehall.

We welcome the increased focus the Research Councils, both individually and collectively through RCUK, have given to supporting international collaboration. Plans to enhance Research Council presence in China and the US are very welcome. Initiatives such as these will help to facilitate a more strategic and coordinated approach to collaboration between the UK research community and these countries.

There is still, however, scope for improved cooperation at a strategic level between UK’s national funding bodies and their counterparts abroad. More international bilateral agreements and understandings are needed to overcome barriers to collaboration, such as the double jeopardy problem.
We would welcome the development of a RCUK international strategy. This would be particularly useful in helping to identify cross Council issues and ensuring a consistent approach. RCUK could also have a key role in developing new evidence on factors that drive or inhibit collaboration, which can then inform individual Councils' policy making and strategic planning.

In relation to Europe, the UK’s performance in past Framework Programmes has been strong. UK organisations were involved in and coordinated more Framework Programme 4 and Framework Programme 5 projects than any other Member State. The performance of the UK HEI sector has been exceptional in the past. Under Framework Programme 5 the UK received 25 per cent of all funding that went to universities throughout Europe. Early data from Framework Programme 6 shows that this is a continuing trend.

Research for Universities UK showed that the benefits of universities’ participation in the Framework Programme are significant. It ensures strong collaboration across Europe, with the free exchange of ideas that enables UK academics to experience and benefit from a broader perspective on their research. EU-funded research adds considerably to the research standing of many universities. It also promotes research across disciplines and can lead to enhanced capability in key areas that may not be possible at a national level.

The UK Research Office (UKRO), which is the Brussels office for the Research Councils, plays a vital role in promoting awareness of opportunities in the Framework Programme. This facility is of great value to UK HEI sector and universities are very well catered for through the provision of advice and training. It is clear that UKRO will play a crucial role in enhancing the UK’s involvement in Framework Programme 7. Universities UK also welcome UKRO’s stakeholder focus, including subscribers in all aspects of their work.

As part of the Framework Programme the ERA-Net scheme offers a good solution towards co-ordinating programmes run in the Member States and we are pleased to see the UK Research Councils continued and enhanced involvement in this. EU legal provisions, such as Article 169, allow support for Member State collaboration. Support for these collaborations has been more widely applied in Framework Programme 7 and further Research Council involvement in these areas is to be encouraged to maximise the EU's research efforts.

April 2007

MEMORANDUM 26

Submission from the Office of Science and Innovation

1. This paper outlines the activities of the Office of Science and Innovation (OSI) to support and encourage international collaboration in science. OSI oversight of the Research Councils, cross-government activity, bilateral relationships with non-EU countries and work on the EU Framework Programme are outlined and the important linkages with the Research Councils across these broad agenda are set out.

CONTEXT

2. International collaboration has always been a major feature of scientific activity; however the last two decades have seen significant changes in the scale and nature of this activity. Some indicators of these changes are outlined below.

3. The level of international co-authorship of scientific publications has seen significant increases, in the UK such publications accounted for 20.5% of the total in 1992 increasing to 39.2% in 2003. Funding mechanisms such as the European Union (EU) Framework Programmes provide significant opportunities requiring international collaboration and the seventh Framework Programme, launched in December 2006, aims to mainstream international cooperation with countries outside the EU. Students are becoming increasingly globally mobile and in the UK some 40% of the PhD student population is from overseas. Business research and development also takes place in a global context, with 45% of the total research and development expenditure performed in the UK business sector was undertaken by foreign owned companies.

4. The emergence of new players, such as China and India, and an increasing focus on international collaboration from the UK’s established competitors provide the context for the activities of the OSI—working across government (and more widely)—to ensure the UK can take advantage of emerging opportunities and respond to challenges.

The international interactions of the BNSC with the Research Councils are not covered in detail in this paper as they were the subject of the BNSC memorandum to the Committee in relation to the Space Inquiry.
5. The strength of the UK research base is a major asset in positioning the UK in the increasingly competitive international environment of science and innovation. The Science and Innovation Investment Framework 2004–14\(^69\) set out a clear policy framework for science and innovation going forward. It recognised the importance of international collaboration by establishing the Global Science and Innovation Forum (GSIF) and calling for an overarching national strategy for international engagement in research and development.

OSI OVERSIGHT OF RESEARCH COUNCILS

Existing mechanisms

6. The Department of Trade and Industry (DTI), through the OSI, provides funding to Research Councils to support the whole range of their activities. OSI allocates the budget to each Research Council. It is up to each Research Council to set its priorities, including any international activities, which are then delivered, as set out in their Delivery Plans.

7. The relevant PSA Target 2004 is “Improve the relative international performance of the UK research base and improve the overall innovation performance of the UK economy”.

8. The OSI monitors the activities of the Research Councils and RCUK through a performance management system. All the Research Councils and RCUK have agreed annual delivery plans, which set out targets and milestones, monitored and reviewed every quarter by OSI and fed into the DTI business planning cycle.

The Performance Management System (PMS)

9. This system was designed by OSI to ensure that the Department correctly identified the contribution of each organisation it funds out of the Science Budget, including the Research Councils to the overall Science PSA target.

10. The Performance Management System aims to deliver a robust system to translate the overall strategic priorities for the Science Budget into specific aims and objectives for the Research Councils and other delivery agents, and to ensure accountability for delivering these. OSI has worked with the Research Councils to set up a framework that clearly defines the outputs to be achieved, whether directly through investment of the Science Budget, or indirectly through influencing others and working with partners.

11. OSI monitors and publishes a range of input, output and outcome data. This reporting informs policy development within the public sector and provides the basis for a continuing dialogue with business, the science base and other stakeholders about the impact of collective investment in UK science and innovation.

12. There are three levels of outputs cascading from the PSA target, to the Science Budget and then to individual Research Councils and Research Council Budgets.

13. The Performance Management System contains three elements:

   — The output (1) framework which has the principal outputs such as publications, citations and PhD students and for each of these a number of characteristics of interest eg scale, quality, sustainability, agility, productivity and user focus;

   — The output (2) framework contains principal outputs such as collaborative research and cooperative training, again aligned with scale and quality; and

   — The Delivery Plans for each Research Council setting out the key deliverables in the next three years and a scorecard recording the deliverables, targets and milestones to be achieved.

CROSS-GOVERNMENT COORDINATION OF INTERNATIONAL SCIENCE AND TECHNOLOGY ACTIVITY

14. The OSI International Directorate works in a trans-departmental mode with partners across government and more widely to support and encourage activities to promote international collaboration in science and technology. This includes provision of the secretariat to GSIF.

15. The establishment of GSIF brought together the main players involved in the promotion and delivery of international research and development in the UK to coordinate a more evidence-based approach to international engagement and ensure UK interventions in this area adapt to the evolving international economic and research environment.

16. GSIF is chaired by the Government Chief Scientific Adviser, Sir David King, and its current membership includes: OSI DTI (including the trans-departmental, research base and innovation areas), UK Trade and Investment, Foreign and Commonwealth Office, Department for Environment, Food and Rural

 Affairs, Department for International Development, British Council, Royal Society, Research Councils UK, Department for Education and Skills, HM Treasury, Department of Health and the Home Office. Support is provided by an officials’ group from the member organisations and a dedicated secretariat team in the OSI International Directorate.

17. The GSIF Strategy for International Engagement in Research and Development was published in October 2006. It set out a framework of objectives to prioritise and coordinate the UK’s international engagement in R&D across the following areas:

— Research excellence—collaborating with the highest quality research internationally and attracting the best scientists to work in, and collaborate with, the UK;

— Excellence in innovation—encouraging UK companies to engage in international research and international companies to invest in UK research;

— Influence—using science and technology to underpin international policy making and as a tool to foster bilateral partnerships; and

— Development—using research and innovation in support of international development goals.

18. The strategy set out seven recommendations for further improvements in the following areas:

— Ensuring UK researchers and businesses engage with the best research internationally, through simplified access to public support schemes and consolidating the UK presence in key partner countries;

— Developing strategic partnerships, through new schemes to link world class UK universities with counterparts in China and India and to attract the best researchers to the UK and managing alumni effectively in the long term;

— Improving coordination to create synergies across government and key non-governmental bodies—in bilateral relationships with priority countries, in marketing and communicating UK strengths, and in promoting scientific advice in international policy making; and

— Supporting activities to increase the innovative nature of UK business—ensuring it has the capacity to internationalise and access to the best science, engineering and technology opportunities worldwide; and increasing the research intensity of the UK by encouraging R&D investment in the UK by innovative multinational enterprises.

19. In addition work will continue to strengthen and develop the evidence base which underpins the strategy and to ensure that it remains robust for the future.

20. GSIF members are now in the process of implementing the strategy recommendations working across the forum and its officials’ group. The Research Councils are responsible for the delivery of one of the strategy recommendations (details below) and have been actively involved in a number of the others, in particular in the provision of strategic advice to the FCO Science and Innovation Network as part of a new exercise to inform business planning of the network.

OSI BILATERAL SCIENCE AND TECHNOLOGY ACTIVITY

21. The OSI manages a number of bilateral relationships to maintain strong links in science and technology with a wide range of partner countries throughout the world.

22. Activity in this area includes organising and overseeing high-level bilateral visits and meetings. These seek to maintain established relationships with countries such as Japan and the USA, or to build new relationships with emerging nations such as China, India, South Africa and Brazil. Formal Joint Commissions take place between the UK and China, India, Japan, Russia and South Korea. Further initiatives to promote research collaboration are also funded, which include matched-funding networking schemes with China, India, South Africa and South Korea.

23. These activities involve OSI working across government and more widely, including with the Research Councils, to ensure that the full range of science, technology and innovation is covered and that all appropriate stakeholders are engaged. Research Councils were active in the 2005 UK/China Partners in Science initiative and the 2007 British Year of Science in Brazil.

RESEARCH COUNCIL ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION

24. The Research Councils contribute collectively to the development of the UK’s international science and innovation strategy and RCUK is an active member of GSIF. The Research Councils are responsible for the implementation of Recommendation One of the GSIF strategy which calls for the streamlining and simplifying of the interface between publicly funded schemes to encourage collaboration and the user community; the greater presence of the RCUK brand; and establishment of overseas offices. Delivery responsibility lies with the Research Councils with support from OSI, FCO, British Council and DfES.

25. RCUK is establishing its first overseas office the “RCUK Office in China” in Beijing during 2007 to assist collaborative research programmes. The office is funded by all Research Councils and is to be headed by a Director from the ESRC. Consideration is also being given to offices in other selected countries.

26. RCUK is developing a joint Council approach for engaging with China and inputs into broader initiatives that may arise from the 2005 “UK/China Partners in Science” initiative. For instance the EPSRC was instrumental in a recent e-Science UK/China Memorandum of Understanding which the DTI signed on behalf of the UK Government.

27. The Research Councils are considering developing a common approach to the collection of information regarding the international dimension of funded research. There is a perceived need for this type of data collation.

28. The Research Councils maintain effective engagement and influence on the development of the European Research Council (ERC) which is now being established (further information on the ERC is provided at paragraph 36).

29. The Councils are in active liaison with DFID on the potential use of UK research outputs in “development science”. The ESRC played an important role, working closely with OSI, DFID and the Wellcome Trust, in the development of plans for the UK Collaborative on Development Sciences (UK-CDS) a response to a report from the Science and Technology Committee. It is anticipated that UK-CDS will formally convene during 2007. BBSRC, MRC, ESRC and NERC will be members of the Steering Board and have agreed to take a cross-Council approach to ensure the views of all Councils are represented.

30. Individual Research Councils operate various Fellowship schemes which are open to and successful in attracting overseas researchers to the UK and enabling UK researchers to travel and study overseas.

31. The Research Councils deal with the European Space Agency and coordinate this through the cross-governmental British National Space Centre (BNSC). BNSC recently submitted a memorandum to the Committee on its contacts with third countries.

OSI ACTIVITIES RELATED TO THE EUROPEAN UNION FRAMEWORK PROGRAMME

32. The European Union’s Framework Programme (FP) is the main mechanism for supporting collaborative, trans-national Research and Technological Development in the EU. It has three overall aims:

— Strengthen the EU’s science and technology base;
— Improve the EU’s competitiveness; and
— Support EU policy development.

33. The programme represents the third largest item in the EU budget, is open to European public and private entities of all sizes and incorporates provision for the participation of non-EU countries. Participation is on an internationally collaborative basis and there are no national quotas; the programme operates on a competitive basis with proposals being evaluated by panels of independent experts against set criteria.

34. The Seventh Framework Programme (FP7) was launched on 22 December 2006 it has a budget of €53 billion and will cover the period 2006-2013. The programme is made up of four main elements: Co-operation, Ideas, People and Capacities. In addition nuclear related research is covered under Euratom.

35. The Co-operation element will fund research activities involving trans-national cooperation in 10 thematic areas with the aim of gaining or consolidating European leadership in key scientific and technology areas. A major new instrument is the Joint Technology Initiative (JTI); long-term, public-private partnerships in key technological areas requiring significant cooperation and investment. Negotiations on the first of the JTIs will take place throughout 2007.

36. The Ideas element is a new component in FP7. The newly-formed European Research Council will fund investigator-driven research across all fields of science with evaluation based on the sole criterion of excellence, judged by peer review. For the first time funding will be granted to individual European scientists or teams with no requirement for trans-national collaboration. The UK’s Research Councils provided a model for the ERC and will play a role in its implementation of this programme.

72 Recruitment of the Secretariat is ongoing, interviews for the post of Secretariat Director are expected to take place in May 2007.
74 Further detailed information on FP7 can be found at: http://cordis.europa.eu/fp7/home_en.html
75 Food, Agriculture and Biotechnology; Information and Communication Technologies; Nanosciences, Nanotechnologies, Materials and new Production Technologies; Energy; Environment; Transport; Socio-Economic Sciences and the Humanities; Space; and Security.
37. The People element is a well-established part of FP and is more commonly known under the “Marie Curie” banner. It facilitates the mobility and training of researchers to improve the quality and number of people working in the research sector. For FP7 the budget is greater than previous programmes and more emphasis is being given to industry-academic interactions.

38. The Capacities element of FP7 consists of five individual programmes aimed at enhancing key aspects of Europe’s research and innovation capacity and ensuring their optimal use. The programmes cover: infrastructures; SME-specific activities; science and society; regions of knowledge, research potential, international cooperation; and the co-ordination of national programmes.

39. FP7 includes the funding of nuclear research and training activities under the Euratom Treaty, which addresses the major issues and challenges in nuclear research and will contribute to the further consolidation of European research in the nuclear energy sector. Funding for fusion research, including the European contribution toward the ITER project is included in the Euratom programme.

40. The UK performed well in FP6, the previous four-year programme, (2002–06), which had a budget of €19 billion. The latest data show that approximately 5,000 UK participants were supported in FP6, receiving around 14.5% of the funding available, about €1.74 billion. In this respect the UK is second only to Germany, due, in no small part, to the exceptional performance of UK academia responsible for 58% of the UK’s participation.

**Research Council interaction on FP**

41. The Research Councils, and many of their institutes, have been actively involved in FP projects since its inception in 1984. In FP6, they were involved in more than 200 projects across all areas of the programme. This resulted in the Research Councils being awarded funding of just over €100 million from the FP.

42. FP6 also saw the introduction of a new scheme (known as ERA-NET) aimed at enhancing coordination of research activities carried out in Member States. It brings together national programme managers in specific research areas to network and explore the mutual opening of national research programmes and other joint activities. The Research Councils, as major funders of research in the UK, are involved in over 20 ERA-NET projects across a wide range of research areas including: research; plant genomics; nanoscience; astronomy; medicines for children; and ageing.

**Programme implementation**

43. The European Commission faces a major challenge in delivering FP as it is an inherently complex programme not least due to the fact that it involves creating a legal relationship between the Commission and trans-national consortia. Nonetheless, the programme has a reputation of having burdensome and slow processes and evidence shows that these can be a major disincentive for organisations looking to participate.

44. Feedback from UK participants indicated that the situation worsened during the early years of FP6. Following considerable lobbying by Member States and participants, the Commission took a number of steps to try to improve the situation in FP6 which had a positive impact. In preparing FP7, the Commission undertook a major exercise to improve matters further and as a result of this introduced a number of innovations. These included a simpler set of funding schemes, a single registration procedure and reduced reporting and audit requirements. The UK Government welcomes these moves to reduce bureaucracy and speed-up processes and will monitor whether they are having the desired impact.

**Support infrastructure**

45. The UK Government funds a number of promotion and support services aimed at raising awareness of FP and helping UK organisations to participate in the programme. The UK promotion and support system is made up of the elements detailed below.

46. Each Member State has a network of National Contact Points (NCPs) that provide information and advice on specific areas of the FP to all types of organisations in their respective countries. The European Commission sets out guidance on the services the NCPs could provide, but it is for each Member State to decide what level and types of services their NCPs will provide. In the UK, NCPs undertake a wide range of activities such as awareness raising, advice and assistance, and signposting organisations to other funding programmes, if FP is not suitable.

47. Most of the English Regions and all of the Devolved Administrations provide some level of support to FP participants at the local level. In some cases, this involves advice and assistance and in others funding is available to help participants develop proposals.

76 Of the contracts signed to July 2006.
48. Since 1984, the Research Councils have jointly funded a Brussels-based office (the UK Research Office—UKRO) that provides information and advice on EU research and higher education programmes to around 150 subscribing UK research organisations. The services that the office provides are extremely well regarded both in the UK and throughout Europe as previously noted by the Committee.77

49. In addition, many UK universities have in-house European Liaison Offices that provide advice and assistance to researchers looking to apply for EU funding, including the Framework Programme. There are also a number of companies that offer help and advice on a commercial basis.

April 2007

MEMORANDUM 27

Submission from the British Computer Society

The British Computer Society (BCS) is pleased to support the UKCRC’s response to the House of Commons Science and Technology Committee’s Inquiry into the International Policies and Activities of the Research Councils.

The British Computer Society is the leading professional body for the IT industry. With almost 60,000 members, the BCS is the leading professional and learned society in the fields of IT and computing.

BCS is also responsible for setting standards for the IT profession. It is spearheading the IT in Professionalism programme and is also leading the change in the public perception and appreciation of the economic and social importance of professionally managed IT projects and programmes. In this capacity, the Society advises, informs and persuades industry and government on successful IT implementation.

BCS, as a Learned Society, also has direct responsibility for leading, encouraging, promoting, supporting and developing all aspects of teaching, research and technology transfer in the disciplines of, and relating to, computing, computer science and information systems.

BCS is determined to promote IT as the profession of the 21st century especially as IT is affecting every part of our lives. Therefore, BCS is pleased to take this opportunity to comment on such an important issue and endorse the views expressed by the UKCRC—an Expert Panel of the British Computer Society, the Council of Professors and Heads of Computing and the Institution of Engineering & Technology.

April 2007

MEMORANDUM 28

Submission from the British Council

SUMMARY

1.1. The Government’s UK Science and Innovation Investment Framework (2004–14) sets the objective of enhancing the UK as a prime location for research and development, while strengthening the internationally-competitive nature of the UK’s science base.

1.2. The British Council and the UK Research Councils are both members of the Global Science and Innovation Forum (GSIF), a cross-Whitehall group coordinated by the Office of Science and Innovation (OSI).

1.3. The strategy for international engagement in research and development published by GSIF establishes an overarching strategic framework through which international collaborative science and innovation should be co-ordinated and prioritised.

1.4. The British Council, in building long-term relationships overseas for the UK, supports the recommendations contained in this strategy; recognising that international cooperation in science and innovation helps achieve our own corporate outcomes by:

— strengthening the interest of young people in science and technology both as a study and a career choice;
— improving international research co-operation through collaborative awards schemes such as the new Researcher Exchange Programme and the established International Networking for Young Scientists programme, especially in prime emerging economies such as China and India;

— helping to promote the UK Research Councils overseas and the development of alumni relationships in targeted markets;
— supporting UKTI in marketing UK excellence in science and innovation by seeking opportunities to work in partnership with multinational organisations;
— contributing to a strategic, coordinated approach by UK governmental agencies to achieve the optimum deployment of the scientific evidence base in support of policy-making and wider opinion forming on the international stage;
— supporting the development of communication tools that portray the UK’s strengths and its approach to international collaboration in science and innovation.

1.5. We build long-term sustainable partnerships through scientific links that promote innovation and economic development. Prime emerging economies (principally China, India, Brazil and Russia) are a priority for supporting mutual scientific, technological and economic interests. Science also assists in building long-term partnerships in difficult operating environments such as the Middle East and Iran, and this is a high priority.

1.6. The British Council uses a number of delivery mechanisms to increase awareness of the UK’s achievements in science and creative thinking. We would welcome more interaction with the Research Councils, who have a wealth of experts, resources and materials, to ensure greater impact is achieved through greater co-ordination and more effective use of these assets.

**Collaboration with UK Research Councils**

2.1. Research Council staff and contacts have been involved in a number of British Council awareness-raising projects and initiatives concerning, for example, UK innovation, women in science, the 50th anniversary of the discovery of DNA’s structure, and climate change. They have always been supportive of British Council initiatives, but there been no major joint activities. This may reflect an earlier “wealth creation in UK” stance, or the different audience segments that the Research Councils and British Council individually seek to reach.

2.2. The Research Councils support British Council activity in a range of other ways, by providing advice on British Council programmes, participating in meetings in UK and overseas to represent and explain UK research programmes and priorities. They support much of the research work that takes place at the UK end of the research links we deliver.

2.3. At any given time, the British Council supports a number of bilateral exchange visits and workshops (see Annexe) that provide opportunities for research teams in other countries to initiate new partnerships with counterparts in the UK. The UK Research Councils co-operate with the British Council in the focus and quality of these links and this, with the input from overseas partners, helps ensure that our programmes meet current research priorities, including those of the UK and EU. We look to the Research Councils continuing to offer in-kind support to these schemes in the future.

**Proposals**

3.1. Scientific endeavour is international in nature and UK research sponsors and institutions have good international relationships, especially with their counterparts and around major international research projects and facilities. For good reasons these relationships concentrate on the countries with major scientific research programmes of their own, for example, OECD countries and, increasingly, emerging economies. There is a case for developing stronger relationships with other countries, to help develop capacity and maintain links with returned researchers. Activities that promote the UK’s science base and that complement the British Council’s activities and programmes overseas would help secure the UK’s standing and in some cases meet specific UK interests, such as climate security.

3.2. The British Council’s global science policy would be greatly assisted by the UK Research Councils formulating and publishing a consistent and coherent international policy that would be sustainable in the longer term. The arguments that the Research Councils are “concerned only with wealth creation in the UK” and “seeking excellence wherever it might be” do not facilitate a joined-up approach to international collaboration, and make it difficult for the British Council to see where it can best add value to the efforts of others.
3.3. The British Council, with OSI and EC funding under a Framework Six Specific Support Action, has developed a mobility portal for researchers at the national level called Network UK (www.britishcouncil.org/eumobility). Network UK acts as a gateway to the many, varied sources of practical advice and information about living and working in the UK. In providing a comprehensive one stop shop for foreign researchers, it reduces the barriers to inward mobility and gives the UK a competitive advantage over other countries in attracting talented people into the UK research base. The Research Councils have chosen not to undertake active promotion, or to utilise the mobility portal; actions that have been left to the HE sector. While it is true that the UK is the preferred destination for the majority of mobile researchers in Europe, this position may change and the UK needs to ensure the barriers are minimal.

May 2007

Annex

**BRITISH COUNCIL SCIENCE**

The British Council runs science programmes in 70 countries around the world, with an annual expenditure of £8 million, divided approximately into £5 million for operational costs and £3 million for staff costs.

There are two programme areas within the British Council’s global science strategy. The first programme area, “Excellence in international science”, which aims to link scientific communities, has four main instruments:

**INTERNATIONAL NETWORKING FOR YOUNG SCIENTISTS (INYS)**

The mobility of, and direct contact between early stage researchers in the UK and other countries is encouraged and facilitated through the funding of N+N workshops, for the exchange of knowledge and ideas, and the building of international connections.

**RESEARCHER EXCHANGE PROGRAMME (RXP)**

Early stage researchers are provided with the opportunity to travel and build important international contacts for their future careers, through individual mobility awards. For the UK, the resulting exchange of information, knowledge and ideas helps to enhance our position as a hub of the global knowledge economy.

**RESEARCH NETWORKS AND BILATERAL PARTNERSHIP PROGRAMMES**

Overseas scientific professionals are encouraged to view UK as a scientific partner of choice, awareness of UK scientific excellence is raised, and the potential for co-operation through joint research is enhanced through the funding of research links.

**NETWORK UK (WWW.BRITISHCOUNCIL.ORG/EUMOBILITY)**

The obstacles to mobility encountered by researchers and their families are reduced through the provision of comprehensive information and advice, in order to better assist research professionals planning a move to the UK; and thereby promote trans-national mobility and an improved research system across the European Research Area.

The second programme area, “Understanding science in society” seeks to raise awareness and appreciation of the UK’s scientific achievements and strengths with wider international audiences. The British Council uses a number of delivery mechanisms in support of this, including:

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- Visits by scientists and science communicators (inward & outward), including evening speaker events and mini lecture series.
- Meetings, seminars and workshops.
- Conferences (both physical & electronic).
- Publications (both physical & electronic), including web news bulletin services, posters, videos and photo libraries.
- Web sites, portals and e-networks.
- Festivals & exhibitions (both physical & electronic).
- Competitions and prizes (such as summer placements in UK laboratories).
— Video-linked public discussions.
— PR and media communications.
— Other events, such as popular articles in the press and on radio and TV; public lectures and debates; talks linked to exhibitions.

OTHER BRITISH COUNCIL INITIATIVES:

— The Prime Minister launched the UK-India Education and Research Initiative in India in September 2005. This major initiative to strengthen bilateral links between India and the UK is sponsored in part by the FCO, DfES, OSI (DTI), the Welsh Assembly, the Scottish Executive, the Department for Employment and Learning—Northern Ireland and British Council, with financial support from BAE Systems, BP, GSL and Shell. The initiative supports a range of bilateral research and education activities including institution to institution links in the sciences, and social science. UKIERI currently supports 30 research links, of which all but four are in the sciences. The research projects are funded for up to four years and new links are considered each year. UKIERI also sponsors Indian research students to study in the UK and enables some graduates to have corporate attachments in the UK.

— The British Council administers the England Africa Programme (EAP) on behalf of the DfES. This series of higher education links was launched last year between African countries and the UK and is intended to strengthen links between HE institutions in Africa and the UK and contribute to capacity development. The programmes include the possibility for joint university research. These programmes run for a maximum of two years.

— On behalf of DFID, the Council manages the Development Partnerships in Higher Education (DELPHE), also launched last year, to succeed from the successful former HE Links programme. The new programme links universities in the developing world with UK institutions around development themes, and favours multi-centre links involving two or more institutions overseas. There is some scope for the funding of consumables and equipment, but like all the other programmes the main support is for the mobility of the participants.

MEMORANDUM 29

Submission from the Royal Society of Edinburgh

EXECUTIVE SUMMARY

1. Current Research Council initiatives to facilitate international research collaborations and future international facilities strategies should be supported. More could be done to simplify travel grant applications and to facilitate universities being able to recruit the best research students world-wide into studentships sponsored by the Research Councils.

INTRODUCTION

2. The Royal Society of Edinburgh (RSE) is pleased to respond to the House of Commons Science and Technology Inquiry into the international policies and activities of the Research Councils. These comments have been compiled with the assistance of a number of expert Fellows of the RSE, under the direction of the Vice-President, Professor John Mavor.

3. The different issues of consideration by the Committee are addresses below:

THE STRENGTHS AND WEAKNESSES OF EXISTING RESEARCH COUNCIL AND OSI MECHANISMS AND ACTIVITIES TO MAINTAIN AND PROMOTE INTERNATIONAL COLLABORATION

International facilities

4. In the past, the UK has been hindered by a lack of strategic direction by the Office of Science and Innovation on a future strategy for domestic and overseas facilities. The new Science and Technology Facilities Council will now be able to address this issue and should be given a clear mandate to progress the UK position.
Multinational research collaborations

5. More could be done to support international collaborations with multinational agency funding. We support the EPSRC’s current efforts to establish arrangements with funding bodies in other countries to facilitate substantial research collaborations, by requiring approval only once, rather than multiple times, for such projects. The EPSRC has also been flexible when research programme initiatives have required industrial collaboration involving non-UK owned companies.

Travel grants

6. There would be merit in simpler and quicker methods for providing UK Research Council funds for travel grants, workshops and visiting researchers. At present they need to be applied for in a form similar to larger responsive mode grants, which is disproportionate to the value of the grant.

The effectiveness of the Research Councils’ and OSI’s international policies in respect of International collaboration through the EU Framework Programme

7. There is a role for the various minor funding schemes that support the costs of trying to set up Framework Programme (FP) collaborations. However, the geo-political and budgetary aspects of EU research funding decisions (to date) would be cause for concern, were the Research Councils to jointly fund FP-type projects. Nevertheless, we welcome the creation of the European Research Council (ERC) and are pleased that it will fund the highest quality work in basic or “frontier” research. The ERC has the potential to be major influence in strengthening fundamental research capacity in the universities, provided that it is sufficiently well funded. It should be exclusively concerned with funding “bottom up” proposals, with excellence as the only criterion, and with the allocation of long term fellowships designed to attract the best research talents and as a means to develop a stream of researchers who will generate the foundation of European research in the 21st century.

8. There are also concerns about how EU Framework funding models can be reconciled with the full economic costing models with which UK universities must work, and how such models will be able to cover the full costs of research carried out under their auspices. The level of overheads provided on European projects, (even after the present costing transparency exercise,) will not cover these full costs. Consideration could be given to the Research Councils providing funds to support the home share of costs of successful FP grant applicants. This would be a strong incentive to institutions to back bids for FP funds and would increase the probability of the UK obtaining its “juste retour”, or more, from available EU funds.

The effectiveness of collaboration between the Research Councils and the Government Departments involved in international scientific activities

9. There are tensions between Government Departments and Research Councils in international scientific activities. The research required by the Department for International Development in addressing Third World problems is often more strategic or applied, whereas the agendas and metrics driving the Research Councils are more focused on basic high-quality research.

10. When considering such collaboration, it will also be important to involve the Scottish Executive, and the Scottish Executive’s new Chief Scientific Advisor, in informing Research Council international scientific activities.

The impact of the Research Councils’ policies on the international mobility of scientists and engineers

11. A major mobility mechanism is the provision of research studentships for graduates from overseas (eg for PhD study). At present, however, it is not possible to offer full RC support (fees plus stipend) to research students coming from outside of the UK. The UK would benefit significantly from universities being able to recruit the best research students world-wide into studentships sponsored by the Research Councils.

Additional Information

12. The Royal Society of Edinburgh offers a range of international travel grants and has established a Committee on International links. The objectives of the Society’s international policy include the provision of international exchange programmes that enable increased international contact and collaboration between Scottish and overseas researchers and scholars. Bilateral Programmes have been established with:
   — the Chinese Academy of Sciences
   — the Academy of Sciences of the Czech Republic
   — the Hungarian Academy of Sciences
   — the Polish Academy of Sciences
— the Slovak Academy of Sciences
— the Slovenian Academy of Sciences and Arts
— the National Science Council of Taiwan

There is also an Open Programme of exchanges that allow researchers to further collaborations with research groups in countries (non-UK) or institutes not covered by the bilateral programme.

April 2007

MEMORANDUM 30

Submission from the BioIndustry Association (BIA)

1. The BioIndustry Association (BIA) welcomes the Science and Technology Select Committee’s Inquiry into the International policies and activities of the Research Councils.

2. The BIA is the trade association for Innovative enterprises in the UK bioscience sector, representing over 300 members, the majority of which are involved in making the human health benefits that bioscience promises. The BIA seeks to represent the interests of these Innovative companies to all parties to present positive, evidence-based suggestions for policy change that will sustain a healthy UK bioscience sector.

3. The BIA’s interaction with the Research Councils comes primarily via the activities of our member companies, many of whom are active at the cutting edge of bioscience research, both in the UK and beyond.

4. We have responded to those questions posed by the Committee that we feel best placed to answer. Unfortunately due to the large number of Inquiries and Consultations currently being undertaken, we have not been able to respond as fully as we would have liked.

The strengths and weaknesses of existing Research Council and 081 mechanisms and activities to maintain and promote International collaboration

5. The BIA is aware of positive examples such as Edinburgh University’s collaboration with Stanford in the USA, the partnership between the University of Cambridge and the MIT in Massachusetts plus various FP6 projects.

6. In the bioscience field, it is the BIA’s experience that much International collaboration takes place in a fluid and an unmapped manner. Key academic and clinical investigators will often have relationships and contracts with key global players in the bioscience and pharmaceutical industry. Because this is driven by the private sector, much of it is not catalogued.

7. There is much to be positive about. For example, the BBSRC runs a number of exchange programmes where individuals from either industry or academia can get involved. Including undertaking secondments and we would state unreservedly that we have been Impressed with how the work of the BBSRC’s International Relations Unit has promoted International collaboration. It attempts to promote International links at the policy level and between Individual scientists to make the most of new scientific opportunities, and to explore ways of sharing knowledge and technology for mutual benefit. It inks to do this by:

— Promoting contacts within the International science community;
— Providing advice on opportunities and funding sources for collaboration;
— Supporting International visits to foster links between countries;
— Contributing to International science policy; and
— Identifying sources of scientific expertise in BBSRC-funded Institutes and universities.

8. The BIA supports what has been achieved to date and we would welcome any way in which opportunities could be shared more effectively and promoted to the private sector. We believe that more could be done to ensure that Information on and dissemination of opportunities and successes to the private sector take place more effectively. Engaging with industry is key; we believe there is willingness to do this, but the right people need to be in place to ensure this happens.

Source BBSRC.
International collaboration through the EU Framework Programmes including resources enhancing partnership between the Research Councils and European agencies in the new Framework 7 Initiative and the provision of resources to stimulate UK participation in international programmes

9. The BIA would wish to draw the Committee’s attention to the regrettable fact that the amount of financial input to support the national contact point has been decreased such that the incumbents (Beta Technology) are now reliant on leveraging support with companies including our Members. The amount of available finance to support the Framework 7 nations contact points has in effect been decreased, such that the incumbents (of which there are a number representing key sectors interests for the UK) are now reliant on leveraging support from other stakeholders including trade associations in order to engage directly with the private sector. We view this as a hindrance to improving UK SME performance within Framework programmes (current statistics available from Framework 6 indicate that there was only circa 18% UK SME representation, compared to circa 52% from the academic community).

10. We would wish to stress that it is the view of the BIA that the Innovation Relay Centre network provides very valuable and high quality support and resource to companies seeking partners for programmes under the Framework 7 initiative.

11. One of the most important points that the BIA would wish to stress to the Committee is that there are mal challenges to be dealt with in terms how Small to Medium Sized Enterprises (SMEs) access EU sponsored research funding opportunities. In particular with regard to making it easier for application forms to be completed, reducing bureaucracy and increasing the rewards by speeding up and increasing the size of payments to encourage participation. This is an area where we feel Research Councils may be able to focus on in more depth in coming months.

12. The BIA would draw the Committee’s attention to the recent comments by Malcolm Wicks MP, Minister for Science and Innovation, on accessing research funding:

“Getting involved in the Framework Programme is not, I know this, a straightforward undertaking. Unfortunately the programme does have a reputation for being bureaucratic and each programme brings with it a host of new challenges, as well as increased competition for funding.”

13. The BIA hopes that this is an area in which the Research Councils will be able to focus on and show leadership over the coming period, particular with how it affects SMEs.

The impact of the Research Councils’ policies on the International mobility of scientists and engineers

14. We have seen some successes, for example through the Framework 7 initiative BIA Members have received support via the welcome “people” platform where funding has been provided to investigator driven research projects across all fields, carried out by Individual teams in European competition and managed by a European Research Council (ERC).

15. BIA Members have benefited from so called “Marie Curie” actions aimed at promoting the mobility of researchers and we have been grateful for the emphasis given to Industry-academic transfers. More could be done and the BIA would happily play its part in increasing uptake.

April 2007

MEMORANDUM 31

Submission from Professor John Wood, ex Chief Executive of the former Council for the Central Laboratories of the Research Councils (CCLRC)

Personal Evidence to the Science and Technology Select Committee’s Inquiry into the International Policies and Activities of the Research Council

CCLRC was merged with PPARC from April 2007 and so I am not able to give a corporate response to the inquiry. This response is an entirely personal one based on my time as chief executive of CCLRC over the past six years. It does not necessarily represent the view of the new STFC.

CCLRC had responsibility for the provision of light sources (synchrotrons and lasers) and neutrons for UK researchers and overseas users. In addition, it had major programmes funded by third parties (mainly other research councils) in the areas of particle physics, space science and technology, high performance computing. It had three main centres in the UK: Daresbury Laboratory, Rutherford Appleton Laboratory and Chilbolton. In addition, it held the UK shareholding in the Diamond Light Source (86%), and in ILL and ESRF both sited in Grenoble. Through its programmes and facilities CCLRC had extensive international interactions and the researchers were engaged in undertaking joint research with other similar
laboratories around the world. In some cases staff may be located at such facilities overseas for several years when critical experiments were in progress. In addition, many of the staff acted as advisers to international facilities during construction and subsequent operation.

A number of bi-lateral arrangements had been made with international bodies to provide specific facilities. An example of this is the long term collaboration with Riken in Japan for muon research on the ISIS facility. Other examples include the provision of specific pieces of equipment to the CCLRC in exchange for general access to facilities. Also there is much loaning of key equipment between collaborating laboratories (eg key components of the Energy Recovery Linac Project currently under construction at Daresbury laboratory have been provided by the Jefferson Laboratory in the USA. They have also provided invaluable technical advice).

A key aspect of the CCLRC’s mission was to develop strategic advice for government on the potential for further investments in facilities within its remit whether built in the UK or elsewhere. It is generally recognised that all new major facilities will have to be built with international partners in the future because of their high cost. This involves negotiations that take a number of years to complete in order to allow all the various interested countries to finally make a commitment. This is a special problem for European facilities and does put us at a disadvantage compared with large countries such as the USA and China who can take unilateral decisions. It is vital that the UK maintains a constant position with a professional negotiating team that does not continually change direction or looses international expertise due to the movement of critical personnel. It is also clear that such people need scientific credibility if they are to be taken seriously elsewhere.

**Strengths and Weaknesses of Existing RC and OSI Mechanisms.**

A key strength is the provision of the large facilities capital fund that can support a number of projects over several years. Currently this stands at about £100 million per year and has remained constant for most of the past six years. While this fund is very welcome it is not sufficient for the wide range of activities the UK wishes to be involved in. Some thought ought to be taken whether this sum should now be increased in line with the general increase in the Research Council funding. Capital projects often take several years to arrive at the point where the full financial commitment becomes clear. Until this point is reached preliminary research and design studies are necessary to find technical solutions and to confirm the final design. Groups from several countries accept to undertake specific work-packages as part of their commitment. CCLRC did not have any significant unallocated funds to participate in these or to lead them in the past. Hence the UK has not attracted any international science facility to the UK since JET. Early participation can “win” the high ground.

The NAO report on investment in large scientific facilities draws attention to the problems of estimating the running costs at the start of construction. This is a problem for all countries and early commitment from any country to funding its share is unrealistic. The approach taken by the ESRF in Grenoble which allowed countries to make indicative contributions at the start with a mechanism for paying more if the usage by one country increases is probably the most appropriate mechanism. The current issue with the European X-Ray Free Electron Laser (X-FEL) in Germany is a case where no country is willing to give even an indicative operating contribution since the full range of its potential when it is built is unclear and will not become clear until the first phase is up and running. We know that an increase in light intensity by nine orders of magnitude beyond existing synchrotron sources coupled with very short time resolutions is likely to realise dramatic results in many areas of science. Just which will prove most fruitful at the start is not possible to predict accurately.

There is also ambiguity as to where key decisions are made. Ultimately funding for a new large international facility will come from the financial ministries in the partner countries. The recent example of the XFEL is an example of the difficulties faced. Germany originally offered to contribute 60% of the original capital costs and 50% of the running costs. After two years of planning based on the original design, no other country has yet made a firm commitment due to internal procedural problems. The UK was the first to signify its intention to commit around 12 months ago but no binding commitment has actually been made to date.

A more concerning example is that of the next generation spallation neutron source for Europe. Some 18 months ago I submitted the CCLRC’s strategic advice to the minister on this subject with a private communication of what was needed in practice for the UK to maintain its leading position in this area. This was the result of 18 months consultation with the user community and taking advice from a number of international experts. Subsequently I kept the minister informed of the international activity especially with respect to the position of other countries that were beginning to firm up their offers to host such a facility. It was widely expected that the UK would declare its position to offer to host the next facility and considerable support was received in private discussions from a number of the key countries in Europe. Now that no statement has been officially made by the UK two other countries have made offers to host it. One, Spain, has stated that it will put up 50% of the capital costs taken from its EU structural funds. Given this situation, any offer from the UK will have to be attractive enough to other countries. This will now be
difficult to achieve. The key question is how such an offer can be made in a timely way within the UK system. CCLRC at a meeting of its Council did declare that it would like to host the facility at the Rutherford-Appleton Laboratory. However, it could not make any statement that the funds would be available.

The key issue concerns projects in which the UK wishes to lead and host. Since it is so long since such a decision has been made, it is not clear how the inertia can be overcome. There is considerable frustration from our potential partners that we have this problem. Of course, the UK can always let other countries take the lead. Given the overwhelming evidence of the socio-economic advantages of hosting such facilities this seems to fly in the face of the current innovation agenda.

The recent publication of the European Strategy Forum for Research Infrastructures (ESFRI) had highlighted 35 potential European facilities needed by researchers. All the member states are now assessing their positions on these. If the current decision making system remains in place then there is a good chance the UK will be left behind and reduced to managing some of the smaller projects that are effectively mega-networks. RCUK is, I understand, looking at the 35 projects at the moment and intends to signify its priorities soon. It is critical that decisions based on these recommendations are acted on quickly. CCLRC has already been collaborating for many years on some of the projects and it would be unfortunate if we had to withdraw at this stage. There is a great danger that our international credibility will be jeopardised if this is not handled in a sensitive and diplomatic manner. The repercussions of the decision by the UK to reduce its contribution to ILL in Grenoble to 25% many years ago is still held against us although it was restored to 33% under the CCLRC. This is not to say that projects should not be reviewed, but that random changes in thinking and a lack of continuity of personnel with little knowledge of the history of a project can lead to significant consequences.

EU AGENCIES AND THE FP7 PROGRAMME

Under previous FP programmes the CCLRC ability to attract projects was effectively restricted by the Euro-DEL cap. At one time the CCLRC management board had to spend a considerable time checking each project proposal to assure itself that subsequent “lines” were not to be levied against us. Projects that the CCLRC was the obvious lead partner had to be handed to minor partners for fear of significant financial claw back. This significantly affected our credibility. While this cap is no longer a problem, it has caused some difficulties in taking the lead on projects under FP7 since there remains a belief among partners that we will not lead. A key test case currently under consideration is with the EU’s programme to support “preparatory design studies” for large scale infrastructure under FP7.

CCLRC supported the creation of the ERC from the beginning since it believed that excellent research should be undertaken on its facilities wherever the researcher is based. I was disappointed that the funding for trans-national access under FP6 for funding researchers from all parts of the EU to use ISIS was insufficient for the demand.

The CCLRC could not see the original rationale behind the suggestion of an EIT. In order to offset the original proposal for a distinct institute, I suggested to a number of similar large scale laboratories that we formed a grouping to show that at least part of what the EIT was meant to achieve already existed. Over a year ago we formed the European Large Research Facilities association (ERF). This is currently chaired by the Director General of DESY in Germany and CCLRC provide the secretariat. A coupling has been made with the “Ideas League” (a group of top university engineering faculties across Europe) and I have been asked to submit an outline “call for proposals” to the EU for some preliminary pilot Knowledge and Innovation Centres (KICs). The Commission is fully conversant on all these activities and encouraged us to take them forward.

OSI International have had several meetings with CCLRC on the European and wider international scene. These have not been systematic and there have been times when we have not always known what the official UK position has been. It is my contention that far more effort needs to be put into providing a joined up position on a number of international research issues.

OTHER INTERNATIONAL PROGRAMMES.

CCLRC is actively involved in projects around the world. It took on the coordination role for acting as the UK centre for energy, nanotechnology and space science between the UK and Korea following the Minister’s lead. More recently several meetings have been held in China specifically on lasers, neutrons and space and ongoing programmes are in place. CCLRC used to regularly brief the FCO science attaches on the international links and now there is a good rapport with the FCO Science and Innovation Network team. CCLRC, from the start, were very supportive of an office in China. We were encouraged in this by Prof Zang who was the deputy director of basic science at the Chinese Academy of Sciences. Prof Zang had worked previously at RAL for a number of years and was entirely conversant with our position.

CCLRC staff have excellent personal links with international partners at both laboratory and government levels. The most obvious of these is the partnership on a number of programmes with the DoE national laboratories in the US and with Dr Ray Orbach. A similar situation exists with Riken in Japan. Much more advantage could be taken by the UK Government in exploiting these links. Apart from the DTI and FCO there are relatively few links with other ministries with respect to international activities.
Mobility of Researchers

The concerns about the EU funding for trans-national access have already been stated. CCLRC had virtually no funds to pay for other international partners to come to its facilities unless these were covered by the home nation. The absence of free funds was frustrating in this respect.

Summary

CCLRC as an overarching body was not generally recognised by international scientists. RAL, Daresbury, ISIS etc on the other hand were well known and respected. However, CCLRC was seen by other government agencies as a way of bringing large facilities together and this was looked at enviously by many others in Europe where each facility is fighting others in the same country. It was a unique advantage that there was one voice for this area.

May 2007

MEMORANDUM 32

Supplementary evidence from the Natural Environment Research Council (NERC) Centre for Ecology and Hydrology following the oral evidence session on 6 June 2007

Q132: The CEH written evidence states:

5.1 Within the DTI, research capacity is not adequately prioritized as an asset to international trade, essential if the UK is to be seen as a country of innovation.

Explain / provide examples to support this statement.

Item 5.1 of the CEH written evidence refers to both general issues, and to specific matters closely linked to CEH’s areas of science.

1. General Issues

The DTI does not recognize research, education and training as a Business Sector in its own right with particular challenges and promotional needs. (http://www.dti.gov.uk/sectors/index.html) In part, international science and innovation is addressed on a sector by sector basis—but with each sector initiating its own largely independent activities. This is despite the fact that the knowledge generation and transfer industry attracts significant inflow of funds.

Under its remit to promote UK trade the DTI has invested heavily in promoting “innovation”—enabling UK businesses to better exploit new ideas in the global economy. http://www.dti.gov.uk/innovation/index.html. The generation of new knowledge is the responsibility of OSI.

Through the OSI, the international science responsibilities of DTI are characterised by:

— Delegation of responsibility for driving international initiatives, along with the bulk of the OSI funds, to the research councils.

— Dependence upon the EU Framework Programme to deliver the UK government’s international science collaboration http://www.dti.gov.uk/science/uk-intl-engagement/page8386.html

— Reducing OSI engagement and support for international research to the creation of high level bilateral collaboration agreements, usually with a trade promotion emphasis, and often lacking the specific financial resources to ensure effective implementation.


In a knowledge based economy, there is a need to recognize the knowledge generation sector (HEI’s, PSRE’s and private research entities) is a business sector in its own right.

2. Specific CEH Interests

There is very little within the DTI international science strategy, structures and resources to address quality of life issues or apply the UK science base as an instrument of foreign policy. There are many areas of UK foreign policy, development policy and international environmental policy where the UK research base could make a significant contribution. In general, the current policies, organizational structures, and funding allocations do not allow for UK science to be adequately applied for these purposes.
Selected recent examples where CEH science has, or could have, been used in support of wider UK policy interests include:

— Deforestation, climate change and biodiversity conservation in the Amazonian Basin,
— Climate change impacts upon water resources in Iran,
— Water resource estimation and management in Palestine Territories,
— Improving water use efficiency in Syrian irrigated agriculture,
— Minimal acceptable environmental flows in Vietnamese rivers affected by new hydropower dam construction in southern China,
— Data sharing, standardization, standardization of water resource estimation methodologies in the Nile Basin—a basic requirement to viable transboundary water sharing agreements,
— Similar water science based collaborative network (under UNESCO-IHP) in the SADC region of Africa,
— Climate Change, water resources and food security in the Indian sub-continent.

All of these examples are long term regional issues, of considerable political importance and involve a capacity building component. Scientific collaboration can be a powerful tool.

Q177: Provide examples of the litigious business environment (and unlimited liability) being a barrier to CEH international research.

Examples of how legal issues affect CEH international research collaboration are:

A2.1: DFID : The DFID standard contract requires organizations undertaking research for DFID to accept unlimited liability for potential future claims. NERC was not prepared to accept these terms and hence NERC-DFID collaboration has had to be developed using different legal instruments.

This situation has been driven by the recent legal action by a City of London law firm to bring a class action on behalf of Bangladeshi villages for damages related to the alleged failure of BGS scientists to foresee the potential presence of elevated levels of arsenic in groundwater in that region. While the case was thrown out by the Courts, both DFID and NERC incurred considerable costs in defending themselves. NERC has sought to improve its management of contractual risk, while DFID has moved to shift risk to organizations undertaking research on its behalf.

A2.2 Collaborative research in North America : NERC has a policy to not enter into contracts with US or Canadian organizations where those contracts are subject to US or Canadian law. This includes the World Bank and other major international funders.

June 2007

MEMORANDUM 33

Supplementary evidence from Sir Keith O’Nions following oral evidence session on 20 June 2007

COMMONS S&T SELECT COMMITTEE INQUIRY: “INTERNATIONAL POLICIES & ACTIVITIES OF THE RESEARCH COUNCILS”

Thank you for your letter of 29 June, asking for clarification of a comment I made during my appearance in front of the Committee on 20 June.

I made my comment so as to draw the Committee’s attention to the fact that international collaboration is extremely widespread in the UK research base, and is effectively supported by existing Research Council funding. There is extensive evidence that UK research base is highly active internationally—and the indications are that it is becoming increasingly so. For example 39.2% of UK scientific papers were internationally co-authored in 2003; a figure which had risen from 20.5% in 1992. In addition, Research Councils spend over £250 million each year on subscriptions to international scientific organisations.

Research Councils do not, however at the present time systematically collect data on international collaboration that is funded by them. As outlined in the written evidence submitted by the then Office of Science and Innovation (OSI) the Research Councils are considering developing a common approach to the collection of information regarding the international dimension of funded research. The Department for Innovation, Universities and Skills, will continue to work with the Council in developing such an approach.

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