

Royal Society submission to the House of Commons Science and Technology Committee inquiry on the International Policies and Activities of the Research Councils

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 (i.e. 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 (e.g. 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 (i.e. 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.

Please send any comments or enquiries about this response to:

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