

An International Plan for NERC

Context and overview

1. NERC science addresses global needs by providing fundamental understanding of our planet and its resources. In doing this NERC scientists collaborate with scientists in other countries and international organisations, undertake work overseas, and draw on other countries' data, infrastructure and knowledge.
2. NERC's Strategy [*Next Generation Science for Planet Earth \(2007-2012\)*](#) was published in November 2007. It sets out NERC's ambition to deliver world-leading environmental research at the frontiers of knowledge; it confirms NERC's commitment to UK leadership in environmental sciences; and it commits NERC to working internationally to find solutions to global problems. Environmental research is a UK strength with UK Scientists authoring 10% of the world's environmental research papers. But the majority of the world's best scientists, data and infrastructure are to be found in other countries. So to deliver its Strategy NERC needs strong international partnerships.
3. International collaboration brings many benefits. These can include greater science impact, higher quality science and the promotion of excellence through training, international comparison and knowledge exchange. In addition duplication of effort and expense can be avoided by shared science planning and management; shared funding of major infrastructure; joint access to facilities, data and knowledge; shared synthesis, reporting, dissemination and uptake activities; and shared networking, communication and science advocacy.
4. Science is increasingly globalised and the international context for NERC's work is changing faster than ever before. China's R&D spend has increased by more than 20% every year since 1999 and Chinese research outputs will soon overtake the UK's in volume and impact. India is investing in R&D at an unprecedented rate and Brazil is emerging as a strong scientific nation. Within Europe there is a strong drive to consolidate Europe's research resources into a *European Research Area*, providing a stronger identity for European science against this global backdrop.
5. To achieve its Strategic goal to deliver world-leading environmental research NERC must recognise and respond to these international drivers.
6. NERC recognises that multi-partner initiatives provide important vehicles for developing and delivering the NERC strategy. NERC has been involved in the development of a number of multi-partner programmes including Living with Environmental Change (LWEC) and in particular through Ecosystem Services for Poverty Alleviation (ESPA). These have been triggered by a science need, coupled with a timely opportunity to work with important partners or response

to a political stimulus. Such multi-partner initiatives will involve international partnerships.

7. NERC has a strong base to build from. The UK has an international reputation and record of excellence in the environmental sciences. We are the most efficient research nation¹ and second only to the USA in volume and impact of our publications. The UK is the leading partner for the USA in environmental sciences.
8. Compared to other UK research areas the environmental sciences have the highest rate of growth for international collaboration, including partnerships with China and India². In 2008 51% of NERC funded ISI publications had one or more overseas co-author³. The USA, France and Germany are currently the largest collaborators for UK environmental scientists.
9. The environmental sciences are served by an international network of intergovernmental organisations and observational and research programmes, including the International Council for Science's (ICSU's) global environmental change programmes⁴. Within the UN partnership on climate change alone there are 28 contributing UN partners. These global networks provide established routes for international collaboration and facilitate knowledge exchange, especially policy uptake.

NERC's International Approach

10. To deliver its strategy, NERC will:
 - support UK leadership and participation in international partnerships and programmes,
 - promote international collaboration across the breadth of its own investments,
 - encourage UK scientists to work with the best in the world and to establish international networks especially at early stages in their careers,
 - fund world-class scientists to work in the UK, and will exceptionally fund overseas scientists to work with the UK where there is a unique benefit to NERC,
 - strategically target partners and research topics that will provide a foundation for UK collaboration and leadership to 2012 and beyond.
11. NERC strategic [science themes](#) will provide the scientific priorities for NERC's international collaboration.
12. NERC will continue to choose its international partners on a case by case basis, recognising that excellence and opportunity may be found throughout

¹ G8 research productivity and efficiency measures

² As measured by internationally co-authored papers.

³ 2005- 38%, 2006 - 44%, 2007 - 47%

⁴ International Geosphere Biosphere Programme, World Climate Research Programme, Diversitas, International Human Dimensions Programme and the Earth Systems Science Partnership

the world. Reasons for targeting certain countries include: to partner with the best in the world, to address regional scientific features (for example polar or monsoon research), to address environmental change associated with rapid development, and to ensure the UK may be future partners of choice for countries making major science investments to build future excellence.

13. European partnerships, especially those built through Framework Programme collaborations, are of vital strategic importance to NERC and the UK environmental sciences community. EC funding provides a major UK income stream. By collaborating within the Framework Programme NERC scientists leverage not only EC funding, but also funding, knowledge, expertise and infrastructure from across Europe and beyond. European programmes are strategically important in influencing international environmental and science policy. For these reasons NERC will promote UK leadership within EC programmes and will influence EC and EU decision-making.
14. Science investments made by China, India and other emerging economies are creating new communities of excellent scientists. France, Germany and the USA are developing collaborations with China faster than the UK. NERC must act now to ensure the best UK scientists become the partners of choice for the best in the world in years to come.

NERC's Science Themes and National Capability

15. NERC's strategic science themes provide the focus for developing international partnerships and providing leadership. [Theme Action Plans](#) will where possible identify international context and opportunities for targeted collaboration. NERC will encourage researchers who are implementing theme action plans to develop international partnerships, especially within the EU's Framework Programme and with targeted countries, to maximise the benefits and leverage of NERC funding. NERC [Theme Leaders](#) will develop networks of contacts facilitating planning and mutual awareness, especially with the European Commission and ICSU programmes.
16. NERC recognises the important role of research infrastructure in developing international partnerships. The high costs of research infrastructure mean that international collaboration is often the best route to providing facilities and equipment. In addition much of NERC's best science relies on major infrastructure and international collaborations result from this.
17. NERC will continue to develop its bartering arrangements for its major facilities including marine and polar infrastructure. NERC will identify priorities for new infrastructure so it can successfully influence international planning mechanisms such as the European Strategy Forum for Research Infrastructures (ESFRI).
18. Observing environmental variability is at the heart of our science and monitoring is an international endeavour. NERC will articulate its global observational aims and promote these through its observational networks,

including via the ICSU programmes, showing leadership by ensuring monitoring and observations are made to a high standard and by promoting good ways of working.

19. Earth Observation is inherently an international activity. Over 95% of remote sensing data used by NERC scientists are of international origin. NERC's investments and relationships with ESA and NASA provide NERC scientists with data and allow them to play a leading role in new missions. The emerging economies of China, India and Brazil are embarking on significant EO programmes and demand significant commitments from potential partners. NERC will develop a strategy to enable UK scientists to benefit from the enormous opportunities becoming available, to retain a targeted leadership position and to collaborate with the best EO nations.
20. NERC Centres have a special role in sustaining international partnerships. They can build longer term institution-to-institution trusted partnerships and have national good functions that may be inherently international. Research Centres are strong in European competitions and many are members of institutional networks which influence international research agendas and provide valued moderated evidence to policy customers. Much of the Centres' commissioned research has an international dimension, including work supported by overseas funders and international organisations.
21. NERC will take advice from the [National Capability Advisory Group](#) and draw on the expertise in its Centres in identifying and prioritising the international opportunities that will strengthen NERC's [national capability](#). Funding enabling international working will be part of the NC portfolio.

Organisation

Knowledge

22. An important aspect of NERC's Knowledge Exchange activities is the uptake of science into policy-making. The great majority of environmental policy is formulated through international agreement. Scientists working through international research programmes such as the EU Framework Programme and committee structures such as IPCC have a stronger influence in promoting evidence based policy-making than those working through UK networks alone. NERC will support and promote such international science into policy activities.
23. Making sure that NERC science is contributing to the economic well-being and quality of life in the UK and around the world is an integral part of our business. NERC will review and remove barriers to international working from our Knowledge Exchange funding schemes to ensure that the societal and economic benefits from international partnership and international development are more fully realised.

People

24. NERC recognises that interactions at a personal level underpin all international partnerships and leadership. NERC will support UK researchers to work with the best in the world. NERC funded researchers have opportunities for secondments and sabbaticals overseas and can participate in international projects and programmes, committees, advisory panels and other policy-making and strategic science planning activities. NERC recognises that scientists who collaborate internationally may develop valuable networks having global influence over research agendas and environmental policy.
25. NERC will work to enable the free flow of researchers to and from the UK and to break down the barriers to PhD students coming to the UK from other EU countries. NERC will encourage researchers to be sensitive to local cultures and needs when working abroad.
26. NERC recognises that UK strength in environmental sciences is built on excellent researchers from the UK and overseas, currently working within UK institutions. NERC aims to ensure that the UK continues to attract and retain the best researchers.

Partnerships – UK

27. The UK has unique arrangements for research funding and delivery. There are no exact 'equivalent' organisations to NERC in other countries. Therefore to develop strategic partnerships with other countries NERC must join other UK organisations to present a coherent and joined-up picture of UK environmental research. NERC will work within its existing UK partnerships such as the Environmental Research Funders Forum, Research Councils UK, the *Living with environmental change* partnership and the UK Government's Global Science and Innovation Forum, and with individual Departments and public bodies, to influence international agendas and form partnerships with overseas organisations.
28. The RCUK partnership is increasingly active in pursuing strategic international collaboration. In 2007 it published an international Strategy articulating international aims shared by all Research Councils⁵. NERC will continue its support to the UK Research Office in Brussels and the RCUK offices in Beijing, Washington and New Delhi and will work in partnership with these offices to deliver NERC's strategic goals. In doing this NERC (in its role as a funding organisation) will work under the 'RCUK' banner, whilst preserving and promoting the branding of its research delivery organisations. NERC will work with other Councils to reduce barriers to international collaboration, including those arising from double jeopardy in international peer review.

⁵ <http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/publications/international.pdf>

29. Within the LWEC partnership NERC will develop partnerships with India, China and others, with initial effort focusing on the Ecosystems Services for Poverty Alleviation (ESPA) programme.
30. NERC will use research and innovation to support international development goals and will enable adaptation and exploitation of NERC funded research to improve the lives of the poorest. There are gaps in scientific data in developing countries. In delivering its research (including commissioned research) NERC will seek opportunities to fill such gaps and strengthen research capacity and local expertise in developing countries especially where this is a barrier to the progress of scientific knowledge. In doing this we will work with DFID and within the UK Collaborative on Development Sciences.
31. NERC recognises that, in addition to the scientific benefits of international collaboration, its activities can develop good relationships among countries, enhance mutual understanding, and improve wider collaboration and security across international borders. We will work with the Foreign and Commonwealth Office and the Government's Science and Innovation Network to optimise such benefits arising from NERC's scientific activities.

Partnerships – International

32. NERC will build on its existing European partnerships and influence EU and other European programmes and policies to complement NERC's strategic goals and maximise the opportunities for UK scientists. Specifically, NERC will identify its priorities for major European Research Infrastructure and will work with its partners to increase the proportion of Framework Programme funding spend on environmental research.
33. The ICSU Global Environmental Change programmes help to develop international consensus on the way science should develop, independent of funding and policy agencies, and provide an important research coordination function. NERC will work with ICSU as it reviews and refocuses its programmes and with other national and international funders to improve funding coordination. We will provide targeted funding for International Project Offices and support UK participation and leadership in global programmes where there is good fit to NERC strategy. We will work with UK partners to ensure wider representation of UK interests in and benefits from global programmes.
34. For multipartner collaborations a programme collaboration plan agreed between NERC and its international partners should identify shared programme objectives, the approach to assessment of research, the funding model, and the approach to monitoring and evaluation.

Delivery

Funding and decision making

35. Investments in international work are integral to all NERC funding and can be specified in grant applications and contracts. NERC will review how international collaboration can be supported through its existing funding routes and will provide clearer guidance to researchers on this. NERC will continue to plan targeted programmes in partnership with overseas funders, for example IODP and RAPID Watch.
36. NERC provides targeted funding for other international activities. This includes: subscriptions to international networking programmes on behalf of the UK community (for example those managed by the European Science Foundation); support for targeted International Project Offices providing science planning, management, synthesis, reporting, dissemination and uptake for the Global Environmental Change Programmes; funding for strategic international projects and support for RCUK overseas offices.
37. NERC recognises that opportunities for international working often fall outside of NERC planning timescales and that the types of funding needed to work internationally may not readily fit within NERC's portfolio of funding mechanisms. To overcome these barriers NERC will review its International Opportunities Fund, with a view to providing directed and responsive support for international activities, not fitting easily within usual NERC funding schemes.
38. In making decisions NERC will seek advice from its existing mechanisms as appropriate, including theme leaders, the National Capability Advisory Group and the Science and Innovation Strategy Board. The overarching decision making criterion for all NERC's international investments will be fit to NERC Strategy. NERC will target those partners and activities that optimise NERC's aim of funding world-leading science now and in the future.
39. Periodically opportunities to participate in 'common-pot' funded programmes with other Countries' funders arise. NERC may participate in such funding schemes where there is likely to be benefit to the NERC community and where it is clear how decision making, monitoring and evaluation criteria will be applied.
40. In its decisions NERC will balance the benefits of international working against disadvantages. As with all partnership processes these can include increased risk of compromising NERC objectives, time and cost investments and longer lead in times whilst partnerships develop.

Monitoring and evaluation

41. NERC's activities are inherently international and NERC seeks to fund world leading science. Therefore all peer review and evaluation will have an element of international benchmarking. In addition NERC will develop performance measures for its strategic management tool to monitor NERC's international partnerships, its leadership, and the benefits arising from international working.