Evaluation of NERC's Responsive Mode

Management Response

Background

1. NERC commissioned an evaluation of the quality and impact of NERC's Responsive Mode (RM) research, focusing on two aspects:

    a. the extent to which RM funding delivers excellent research and research outputs through assessing the quality of research and outputs in a sample of RM standard grants; and

    b. an assessment of how RM research has influenced the development of NERC's strategy.

2. This document provides the management response to the evaluation report, taking into account SISB and Council discussions of it, from NERC's Director, Science Delivery, who is the customer for the evaluation.

MANAGEMENT RESPONSE

3. The evaluation report provides valuable evidence on how well RM achieves NERC's strategic aims for this funding stream. In addition, the report concludes that RM plays a crucial role in:

    a. laying the foundations for environmental research,

    b. early career development,

    c. maintaining expertise in fields of study while they are not central to NERC's strategic focus, and

    d. the generation and development of novel scientific ideas.

4. NERC welcomes the overall findings that research funded through NERC's RM is of good quality "on a par with, and in many cases at the forefront of, research funded by competitors in the UK and internationally", and that there are strong examples of impact from the period that pre-dates the increased emphasis of recent years on delivering impact.

5. We are pleased to learn that the consortium grant scheme is viewed as highly successful, with numerous examples of outstanding research achievement, strong publication outputs, and evidence of influence on international agendas as well as NERC strategy. This view is being considered as part of the ongoing RM Action Plan action on balance of funding between RM schemes.

6. The report provides a degree of evidential support for the widespread assertion that RM plays a significant role in the development of NERC strategy, a conclusion supported by SISB's discussions. We acknowledge that compelling evidence is inherently difficult to substantiate beyond a small number of examples, given that NERC RM research is a small fraction of the overall effort in a given challenge area; a simple direct or linear correspondence between strategy development and a given grant (or group of grants) will rarely be observed.

7. The key issues and proposals identified by the report can be summarised as:

    a. expansion of monitoring and evaluation activities to improve the grant awarding process;

    b. expansion of funding and training opportunities, including (grants) management skills, particularly for early career researchers;

    c. increasing communication and user/public engagement;

    d. improving feed-through to strategy.

Out-of-scope issues

8. The Biodiversity report noted that some RM-generated, long-term data sets that are viewed as 'National Treasures' should be sustained/maintained. This issue is considered as part of NERC prioritisation of National Capability.

ACTION PLAN

9. This section addresses the specific proposals made in the evaluation report, which themselves are drawn together from the two separate panel reports, incorporating the advice and conclusions from SISB's October 2010 discussions. To streamline the management response, the proposals have been grouped into three categories:

    - strengthening the quality of RM;

    - strengthening the outputs and impact of RM, and;

    - strengthening the strategic influence of RM.

<u>Strengthening the quality of responsive mode</u>

<u>Proposal</u>: NERC should consider providing management skills training for inexperienced PIs and/or all New Investigators, to be undertaken as a condition of the award.

<u>Proposal</u>: NERC should use its influence to [encourage universities to] try to improve the recognition, credit and sense of responsibility for post-doctoral researchers, to improve their retention and commitment to projects.

<u>Management response</u>: Proposals accepted, actions to reinforce existing measures.

10. NERC, along with its sister Research Councils, has been a keen advocate of the 'Roberts Agenda', which has, amongst other things, provided financial support for PhD students and PDRAs to undertake development training. This funding started in late 2005, and so will not have affected training in most of the grants considered in this evaluation. But through Roberts funding, we believe that we have been playing an increasing role in providing these early-career researchers with the necessary grounding to take on the management of their own research projects. Beyond 2011, explicit Roberts funding will cease, compensated by studentship top-ups and Research Organisations being instructed to include the support as part of indirect costs.

11. Those who are eligible to apply for research grants in their own right are not eligible for 'Roberts' funding, as it is the responsibility of the employing organisation to provide personal development training for their own staff. A commitment to provide such training is captured within the 2008 Research Concordat to Support the Career Development of Researchers (http://www.researchconcordat.ac.uk), which all major research organisations have signed up to.

12. As an employer of research staff, NERC has its own commitment to provide the necessary training to ensure its staff are fully equipped to manage research projects, teams and budgets.

13. NERC encourages Research Organisations to improve the recognition, credit and sense of responsibility for its PDRAs and other staff. However, beyond this encouragement supported by concordats, it is for the employing organisation to manage. Proper recognition of staff is a requirement of the Research Concordat.

14. We will strengthen the guidance to Research Organisations on these issues in the NERC Research Grants Handbook.

15. In summary, measures are in place aimed at addressing these proposals. The new action will be to reinforce these measures with Research Organisations.

16. SISB discussions led to the conclusion that if NERC is to systematically identify researchers or groups responsible for persistent poor research performance, for more targeted remediation than discussed above, then some form of objective outcome-related track record data would be required. Such data are not currently collected, and would be expensive to collect – across RCUK the cessation of their collection was recommended by the RCUK Cost of Peer Review project.

Action 1	Update grants handbook to highlight the responsibilities of Research Organisations for management and training through the Research Concordat
Responsibility	Research Grants Manager
Deliverables	Grants Handbook refresh
Due	May 2011

Proposal: In order to help inform and guide the grant-awarding process in future, NERC should consider conducting regular systematic comparisons of pre-award and post-reporting alpha gradings

Management response: Proposal partly accepted.

17. The comparison of pre-award and post-reporting alpha gradings has been a useful means of measuring the performance of RM, although the extent of comparability does have limitations. Future evaluations will use refined methodologies. The comparative grading evidence here will be provided to Peer Review College members, along with SISB and Council reflections, as a means of engaging

assessors in discussions on improving the relationship between assessment of proposals and research performance.

Action 2	Incorporate information from the RM evaluation into the College Training Process
Responsibility	Peer Review College Manager
Deliverables	Inclusion of information into College Training
Due	June 2011 (training), January 2011 (communication)

18. In addition, NERC Council has recommended that a more systematic review of how NERC funds Responsive Mode research be undertaken, to ensure that this funding stream continues to be fit for purpose going forward. We will initiate a more thorough review of this as part of the next Responsive Mode Action Plan (RMAP).

Action 3	Review approaches to RM funding as part of next RMAP
Responsibility	Science Delivery Funding and Business Manager
Deliverables	Report to SISB and Council
Due	2013

Proposal: *NERC should carefully consider contingency plans for grant holders in the event that NERC facilities fail to deliver as agreed.*

Management response: *No additional action required.*

19. In general, contingency plans should be built into any grant proposal, and should be taken into account by the assessment process. All NERC's facilities are already required to maintain a Management and Operational Risk Assessment and have in place an appropriate and approved Business Continuity Plan. Unfortunately, in some extreme cases there is no viable alternative and a disruption to service cannot always be resolved within the lifetime of a research grant. We look at these situations on a case by case basis and have supplemented some awards to take account of these unexpected situations, where justified.

Proposal: *NERC may wish to investigate the performances of Standard and Consortium grants, and if so should consider undertaking a comparative analysis of the two schemes*

Management response: *Proposal accepted.*

20. NERC is currently undertaking a project, as part of the Responsive Mode Action Plan, to consider whether the balance of funding between RM schemes (Standard, Consortium, New Investigator, Small, Urgency Applications and Fellowships)

should be adjusted. This will require some level of consideration of the relative performance of Standard and Consortium schemes which, depending on the outcome, may trigger a fuller evaluation.

Action 4	Undertake a comparison of standard and consortium schemes as part of the Balance of Funding project.
Responsibility	Balance of Funding Project Team
Deliverables	Revised balance of funding between RM schemes
Due	June 2011

Strengthening the outputs and impact of RM

Proposal: *NERC should consider ways to improve their collection of performance metrics about RM grants, including:*

    a. *requiring PIs to complete evaluation questionnaires as a condition of the grant;*

    b. *asking for additional information through ROD;*

    c. *encouraging PIs to cite supporting grant numbers in publications, to improve accountability*

    d. *asking PIs to provide brief supporting statements when ascribing publications to grants.*

Management response: Proposal accepted.

21. It is already a NERC requirement that Principal Investigators complete an annual on-line questionnaire on the specific outputs from their research grants. Information requested includes: short summaries, in plain English, of scientific achievements or advances during the previous year; publications; new or improved products; services or equipment developed; knowledge exchange and possible beneficiaries; external co-funding; patents and public understanding of science initiatives. Failure to submit the questionnaire could lead to the application of sanctions in the form of withdrawal of eligibility to apply for NERC research grants for a period of 12 months (see the Research Grants handbook:
http://www.nerc.ac.uk/funding/application/researchgrants/grantshandbook.doc).

22. NERC requests that PIs cite grant numbers in publications (see http://www.nerc.ac.uk/funding/next/publicationofwork.asp), but this is difficult to enforce and we are aware that some journals (e.g. Nature) do not allow this type of citation. We will, however, strengthen the guidance in the NERC Research Grants Handbook.

23. We recognise that these grant citations coupled with supporting statements to substantiate ascribing publications to grants would strengthen the outputs data.

We are not however in favour of making supporting statements an absolute requirement from PIs, given that this would be difficult to police for thousands of publications each year, requiring greater administrative resource within Swindon Office, which would be counter to the challenging current government targets for administrative efficiencies. It would then be a question of weighing the benefits to accurate attribution of asking PIs to apply more rigour, against the additional reporting burden on PIs. However, we will consider business benefits to providing an additional section for this in the Research Outputs Database (ROD) as part of the current review of this system.

Action 5	Consider business case for adding an additional section to ROD to capture supporting statements against publications
Responsibility	Performance Measurement Manager
Deliverables	Include within the current ROD development project
Due	May 2011

Action 6	Update grants handbook to strengthen text on requirement to cite grant numbers in publications
Responsibility	Research Grants Manager
Deliverables	Grants Handbook refresh
Due	May 2011

Proposal: *To improve [NERC's] awareness of researchers' international collaborations, NERC should request details of such [international collaboration] activities as part of its reporting requirements*

Management response: *Proposal accepted.*

24. We accept that this proposal would provide clearer evidence of actual collaborations and would be an improvement to the information currently collected through ROD. Current changes being made to the grants system should allow us to have a greater ability to report on any overseas project partners identified at the application stage. We will also consider providing an additional section for this in ROD as part of the current review of this system

Action 7	Amend ROD to specifically request information from researchers on international collaborations as part of their projects
Responsibility	Performance Measurement Manager
Deliverables	Include within the current ROD development project
Due	Completed

Proposal: NERC should consider short-period, end-of award, funding as a mechanism to allow post-doctoral staff time to prepare manuscripts for publication.

Management response: Proposal not accepted.

25. While NERC expects publication of results that arise from the research that it funds, it is expected that projects are designed from the outset to include sufficient time for this to occur within the funded project.

26. Allocation of small sums of money can incur large overheads of assessment and associated administration. Increasing this sort of effort ought to be in exceptional circumstances only, given government requirements for increased administrative efficiencies from Research Councils. It is difficult to envisage how proposals for such funding could be rigorously assessed in terms of actual need. A formulaic addition of funds would avoid this overhead, but the global grant cost of this would need to be balanced against the potential research and publication benefits.

Action 8	Update grants handbook to highlight the responsibility of PIs to incorporate time for manuscript preparation in project design
Responsibility	Research Grants Manager
Deliverables	Grants Handbook refresh
Due	May 2011

Proposal: NERC should consider ways to improve the communication of RM research outputs to research users. This should include ways to encourage the use of open access publishing, and events, meetings and other means of dissemination.

Management response: Proposal accepted, reinforce existing measures as below.

27. Changes have been made to our requirements since the award of the grants that were included in this evaluation. NERC now actively encourages investigators to consider their research in the context of the broader society (including communication of research outputs to end-users) through the development of plans for Pathways to Impact: (www.nerc.ac.uk/funding/application/pathwaystoimpact.asp). In addition to Pathways to Impact, NERC also provides access to funding to encourage engagement with research-users through several of its grant schemes (KE Call, KE Fellows, Knowledge Transfer Partnerships, CASE studentships, Policy Placements, Partnership Research Grants and Connect A).

28. NERC has recently launched SID (Science Impacts Database - http://sid.nerc.ac.uk), which is a database of research outputs (derived primarily from ROD, but also from word of mouth). This database provides public access to case studies showing the policy, economic, social and practical impacts of

NERC's science investments, thereby facilitating the communication of research outputs to users of research.

29. Key NERC research highlights are showcased through press releases and through our website (with *Planet Earth Online* being a key dissemination tool). However, we recognise that those people who want to read a full journal article may have to pay a subscription charge to access the relevant journal. NERC has issued a statement on open access which can be found at www.nerc.ac.uk/about/access/statement.asp . The core of the statement is that "From 1 October 2006 NERC requires that, for new funding awards, an electronic copy of any published peer-reviewed paper, supported in whole or in part by NERC-funding, is deposited at the earliest opportunity in an e-print repository. NERC also encourages award-holders to deposit published peer-reviewed papers arising from awards made before October 2006." The cost of publications is a legitimate expense within a research grant under FEC, although this can only be for publications during the lifetime of the award.

30. RCUK is keen to improve access to research outputs and is, therefore, promoting greater use of open access journals for the publication of the research funded by research councils. NERC is actively part of this RCUK-level work. The two main areas of activity are (i) to find ways of improving access to open access publication funds, and (ii) engaging with the research community to encourage them to make the outputs of their research as widely and freely accessible as possible, particularly through the use of open access publishing.

Proposal: *NERC should do more to ensure that Theme Leaders are rapidly provided with details of research outcomes.*

Management response: *Proposal accepted.*

31. Theme leaders are provided — along with outputs data — with portfolio mapping information, including on larger RM awards. This forms part of the landscape which informs their gap analyses. Theme Leaders also engage with the research community via focused meetings to develop TAP actions, and in so doing will be made aware of research outcomes and latest developments in particular areas of research. Showcasing draft TAP actions at community events has also proved a useful way for theme leaders to engage with researchers on outcomes.

32. The NERC Peer Review College Chairs provide feedback to NERC on the RM panels they chair. One component of this feedback is to include comment on any new and exciting areas of science that are emerging. We will make this information available to NERC Programme Managers and Theme Leaders. We are also aware that EPSRC takes steps to associate some RM grants with specific strategic challenges, and this is something that NERC has started to implement.

Action 9	Provide NERC Programme Managers and Theme Leaders with synthesis of Panel Chairs' reports
Responsibility	Peer Review College Manager

Deliverables	Synthesis reports
Due	After RM moderating panel meetings

Action 10	Consider business case for mapping more of RM grants onto strategic challenge areas
Responsibility	Portfolio Planning Manager
Deliverables	More extensive systematic mapping of RM grants
Due	To be decided (resource dependent)

Proposal: NERC could consider offering post docs and/or graduate students the opportunity to get involved in outreach from a related group of projects

Management response: Proposal accepted.

33. NERC has a "Public Engagement with Research" strategy that specifically encourages NERC funded researchers to undertake 'outreach' activities; RCUK provides similar guidance on the expectations for RC-funded researchers to engage in outreach activities: (http://www.nerc.ac.uk/about/work/policy/society/policy-aim3.asp and http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/innovation/expectationssei.pdf).

34. NERC schemes support many such activities, but we also support a number of activities through RCUK (e.g. Researchers in Residence, Nuffield foundation, festivals).

35. Specifically with regard to PDRAs and graduates, NERC already provides the following opportunities for involvement in outreach: Pathways to Impact, Science to Policy training workshops, Policy Internships and Knowledge Transfer Partnerships. In addition, NERC is considering the development of further opportunities for PDRAs and graduates through, for example, a business internship scheme, which is akin to that currently run by EPSRC.

36. Clustering of RM grants around themes and programmes, as discussed under Action 10, will also provide additional opportunities for PDRAs and PhD students to be part of outreach opportunities within their own, and related, research projects.

Action 11	Develop policy placements, internships and KE fellowships to support the engagement of early career researchers with users of their science and provide the infrastructure to facilitate broader engagement with business, policy and third sector organisations.
Responsibility	Head of Knowledge Exchange
Deliverables	Business internship scheme, new KE programmes.
Due	Oct 2010 (internship scheme), May 2011 (first KE

	programmes).

Proposal: *NERC should investigate means by which researchers can be encouraged to consider and make suggestions concerning how their work fits into the bigger picture of policy development and private sector uptake.*

Management response: *Proposal accepted, actions underway.*

37. NERC now provides opportunities for researchers to consider policy and private sector uptake of research through Pathways to Impact and the various funding / training schemes mentioned previously. In addition, NERC also supports these interactions through its 'Science to Policy' brochure, the KE Fellows and through information feeds such as the KE list-server and 'Using NERC Science'. The projects considered as part of the review were awarded prior to the introduction of a number of these schemes into responsive mode, e.g. impact plans/Pathways-to-Impact. We feel that introduction of these schemes is driving a step change in this area. NERC will continue to support this area through a number of schemes.

Proposal: *NERC should consider a specific funding stream to support database archiving and monitoring (not hypothesis testing) of long term projects which have a proven track record of producing very high quality science [maintaining time series].*

Management response: *Proposal accepted.*

38. NERC's new Data Policy (live from January 2011) will require all new funding applications to include an outline data management plan which, amongst other things, will identify which data sets of long-term value the project will generate, and the resources necessary to manage these. If an award is made, there is a requirement to develop a full data-management plan in conjunction with the relevant NERC Data Centre.

39. In general, database archiving is done via NERC's designated Data Centres. Where a PI has a database that they consider has a long-term value, they should discuss this with the relevant NERC data centre. If the database is an output of a NERC-funded project, and if it has long-term value, it is the role of the data centre to manage and make this available for the long-term. If it is not the output of a NERC-funded project, but is still of value to the NERC community, the data centres will still consider taking on the long-term management of it.

40. No additional action proposed.

41. Long-term monitoring itself is an issue for how NERC prioritises and manages National Capability, and is out of scope here.

Strengthening the strategic influence of RM.

42. Objective 1 work gave rise to the following proposals.

Proposal: *The means by which information flows from RM research into the NERC strategy-development process could be improved. NERC should consider how it can better communicate and explain the method(s) by which it develops strategy. Researchers could be encouraged to propose how their work might be significant for strategy development, either as part of their final reporting, and/or through engaging more proactively with the appropriate Theme Leaders*

Management response: Proposal accepted.

43. NERC's strategy development processes now cater for a dynamic, rolling strategy that allows NERC to look beyond a fixed point in time so that, in effect, the planning horizon is always five years ahead. The process for strategy refresh is now explained on the NERC website (http://www.nerc.ac.uk/about/strategy/strategy-refresh.asp). The next round of refreshing the strategy will commence in 2011.

44. As part of the on-going portfolio planning process, emerging issues are checked against RM awards to see if anything has been funded in these areas.

45. Mechanisms for informing Theme Leaders of RM awards and RM-associated issues are described under Actions 9 & 10, and will be extended to other players in the strategy-development process. No additional action is proposed.

Proposal: *If NERC wishes to increase the influence of RM research on its future strategy, it could consider means by which it could increase the number of Consortium grants it awards (without reducing support for other RM research streams)*

Management response: Proposal not accepted.

46. NERC Council has set a 10-year target for the proportion of total NERC funding spent on responsive mode to remain fixed. Unless the NERC budget increases in real terms, it is therefore not possible to increase the number of Consortium Grants and keep the amount invested in other RM research streams the same.

47. NERC will be considering the balance of funding across schemes as part of the project on Demand Management and Balance of Funding across schemes. The project is scheduled to deliver by June 2011. See Action 4.

Objective 2 work did not give rise to specific proposals.

47. The report provides a degree of evidential support for the widespread assertion that RM plays a significant role the development of NERC strategy. Discussions at the October 2010 SISB meeting supported this finding. We acknowledge that compelling evidence is inherently difficult to substantiate beyond a small number of examples, given that NERC RM research is a small fraction of the overall effort in a given challenge area; a simple direct or linear correspondence between strategy development and a given grant (or group of grants) will rarely be observed.

Action 12	Use the Objective 2 Evaluation report and the outcomes of SISB and Council discussions to inform the way responsive mode is captured in the next NERC strategy refresh.
Responsibility	Head of Strategic Management
Deliverables	Revisited articulation of the purpose of Responsive Mode in refreshed NERC strategy.
Due	2011/12

Director, Science Delivery.