

Evaluation of progress with delivering NERC's Environment, Pollution, and Human Health Theme

MANAGEMENT RESPONSE

Background

1. NERC commissioned this evaluation in order to meet the need for evidence on progress with implementing the science themes set out in NERC's strategy.
2. This document provides the management response to the evaluation report, from the NERC Director, Science Delivery (DSD), who is the customer for the evaluation. The evaluation report has been discussed by NERC's Science & Innovation Strategy Board (SISB) and, alongside this management response, reported to Council.

Management Response

3. The evaluation report provides valuable evidence on progress with delivering the Environment, Pollution, and Human Health (EPHH) theme. I welcome the overall positive conclusions of the Evaluation Panel, including the findings that:
 - a. the EPHH theme has *“made well-targeted investments and is on track to deliver against each challenge”* and that there are *“no major risks to delivery at this stage”*;
 - b. the theme has *‘impressive co-funding achievements’*, which are *‘testament to the ability of the Theme Leader (TL) and Science & Innovation Manager (SIM) to bring in partners and demonstrate a widespread recognition of the importance of collaborations in successful delivery of the research.’*;
 - c. the EPHH theme has *“provided NERC with the opportunity to continue to help drive the field’s research agenda”*;
4. The report raised a number of issues and concerns, and has made proposals to tackle them. These proposals are considered, in the light of SISB discussions, in the action plan below.
5. This section addresses the eight proposals made on pages 4-8 of the evaluation report. The words in italics are taken from the report.

ACTION PLAN

Proposal 1: *To enable TLs to track the development and exploitation of novel technologies, grant applicants to EPHH programmes could be required to state how they will make use of technologies to address their projects’ scientific challenges. A good example of how to integrate technology into a RP was set by the Macronutrient Cycles programme.*

Management Response: Proposal partially accepted.

6. This proposal seeks to address the perception that researchers are missing opportunities to develop and exploit new technologies in EPHH programmes.
7. To date, NERC has explicitly encouraged the uptake and use of new technologies in EPHH programmes where appropriate (for example, it was specifically mentioned in the AO for both Urban Atmospheric Science & Environmental Exposure and Health Initiative programmes), but it has not been a requirement of funding for some/all individual projects within an EPHH programme. This contrasts with the Macronutrient Cycle research programme, in which technology objectives were specified and financially supported.
8. The Theme Leader will be specifically encouraged to consider technology opportunities in defining future actions, and in such cases these will be specified in announcements of opportunity (AOs).

Action 1	Relevant AOs request appropriate levels of detail on how technologies will be used to address project (and programme-level) scientific challenges
Responsibility	Head of Research
Deliverables	AOs include technology considerations, where appropriate
Due	Implemented with next relevant EPHH call

***Proposal 2:** In order to focus delivery of technology for the direct benefit of the EPHH theme and EPHH Challenge 1, the EPHH Theme Leader should consider the benefits of pursuing a joint technology development action with the Technologies theme.*

Management Response: Proposal accepted.

9. Both of the proposed actions for TAP4 have a potential technology component, which will be discussed between the two theme leaders.

Action 2	Consider the benefits of a joint EPHH and Technologies action
Responsibility	EPHH Theme Leader
Deliverables	Joint action will have been considered for prioritisation in TAP4
Due	TAP4

***Proposal 3:** In order to ensure that the balance of emphasis between pollutant-, particle- and pathogen-related work of relevance to the theme is appropriate, to the TL's judgement, NERC should consider conducting a light-touch review of the levels of investment across these areas, including initiatives led by other funders.*

Management Response: Proposal partially accepted.

10. The EPHH Theme Leader has considered this issue, and concluded that pathogen-related research requires additional investment. An action focusing on microbiology of aquatic pathogens and bioaerosols is being developed for TAP4.

Proposal 4: *To encourage better integration with the human health research community, NERC should consider asking grant applicants submitting to EPHH programmes to illustrate how their research would be relevant to the human health aspects, and to give evidence of collaboration or consultation with human health researchers.*

Management Response: Proposal accepted.

11. Where MRC is a partner, the Panel’s proposal has already been implemented, and will be again in the future where appropriate.

12. For some actions where MRC is not a partner, it is more difficult to attract health researchers to collaborate. NERC cannot support significant elements of research outside NERC remit, and it would be inappropriate to require an unsupported collaboration as a condition of funding.

13. Nevertheless, there may be opportunities for NERC-funded work to link with health research elsewhere, and NERC will encourage this. NERC will endeavour to ensure that any research designed to inform risks to human health is informed by user requirements, potentially including academic users as part of the pathway to impact. In part, this is currently done through the pre-award assessment, where users and their means of engagement are identified in the proposal.

14. NERC will word calls to ensure that the human health aspects are more strongly drawn out and will encourage collaborations and consultation where this is appropriate to the programme’s objectives.

Action 3	AOs will specify human health aspects more strongly and encourage collaborations and consultation where appropriate
Responsibility	Head of Research
Deliverables	Calls include stronger consideration of human health aspects
Due	Implement with next relevant EPHH call

Proposal 5: *There is an ongoing gap, and collaboration opportunity, in EPHH: investment in ‘omics to address gene-environment interactions and health-related exposure-response relationships. NERC should consider a means to address this, for example through an ‘EHH phase two’.*

Management Response: Proposal accepted.

15. NERC will engage with MRC to discuss potential collaboration. NERC attended an MRC Strategy Board workshop in February 2012 that had a focus on external exposure measurement, early biological responses and population health. This identified where cutting-edge sensor technologies, ‘omics platforms, and

innovative mechanistic studies can improve personal monitoring and biomarkers for population studies of chronic diseases. MRC is considering how to move forward in this area, and currently their preferred mechanism is to encourage proposals through existing channels rather than developing a new initiative.

Action 4	Consider options for filling the theme gap in the area of gene-environment interactions and health-related exposure-response relationships for a future research investment
Responsibility	EPHH Theme Leader
Deliverables	Action considered for prioritisation in a future TAP
Due	TAP5

Proposal 6: *Environment and human health issues related to both existing and new waste management practices require better definition and gaps such as the health related concerns on incineration, landfill and illegal waste, should be considered.*

Management Response: Proposal accepted.

16. As noted by the Panel, the Resource Recovery from Waste research programme, will be future-facing and provide an opportunity to identify and address the environmental and human health issues of new waste management practices.

17. A proposed TAP4 action will have the potential to address waste management issues around commercial composting and water treatment facilities.

Action 5	Consider need for research in broader aspects of waste management
Responsibility	EPHH Theme Leader
Deliverables	Potential for action will have been considered in future TAP.
Due	TAP4

Proposal 7: *NERC should recognise the vulnerability of the community and need for commitment from the research councils, if capability and capacity are to be sustained, including a commitment to train the next generation of researchers.*

Management Response: Proposal accepted.

18. The NERC EPHH community is relatively newly formed and hence vulnerable compared to other more established areas of NERC research. Collaboration with the medical research community is difficult to foster.

19. In the short term, the opportunity for tied studentships has been taken up through the majority of the EPHH investments, including the MRC-managed ESEI programme, where NERC and ESRC persuaded MRC to offer tied studentships, when it is normally not their policy to do so.

20. The need to support the next generation of interdisciplinary researchers, including the environment and health community, is an outcome of NERC's reviews of

skills needs. Whilst decisions on priority areas of support have yet to be made, PhD training in selected strategically important areas will in the medium to longer term be through focused Doctoral Training Centres.

Action 6	The NERC Training Advisory Group to consider the specific training needs of the environment and health community
Responsibility	NERC Head of Skills and Careers
Deliverables	TAG prioritisation decision on focused support for training the next generation of environment and health researchers
Due	12/13

Proposal 8: *Commitments to fund long-term monitoring programmes need more cross-council and cross-Government consideration if they are to be sustained.*

Management Response: Proposal accepted, but no new action required.

21. Prioritisation and support of long-term observations is a challenge across NERC more generally, and work has recently commenced on better engagement between Research Programmes and National Capability as part of the development of a more integrated NERC.
22. At a cross-Council and cross-Government level, greater efficiency in long-term observations is being pursued by the major funders of environmental research, including NERC, through the Environmental Observations Framework (UK-EOF). The specific needs in the multidisciplinary EPPH area are being considered through the LWEC Health Challenge.