

Confirmed minutes of the 4th meeting of NERC Council in UK Research and Innovation

NATURAL ENVIRONMENT RESEARCH COUNCIL

Fourth meeting of NERC Council in UK Research and Innovation, held in Conference Suite 6 (CS6), Polaris House, North Star Avenue, Swindon on Thursday 28 February 2019.

Members present:

Professor Ian Boyd, Mr Nick Folland (Senior Independent Member, joined by telephone), Professor Louise Heathwaite, Professor Stephen Holgate, Mr Imran Khan, Professor Karin Lochte, Mr Gordon McGregor, Professor Dame Julia Slingo, Lord Willis of Knaresborough, Professor Duncan Wingham (Executive Chair).

NERC Directors (Head Office): Mr Paul Fox (Chief Operating Officer), Dr Phil Heads (Interim Director, Research and Innovation), Mr Ian Kenyon (UKRI), Ms Alison Robinson (Director of Corporate Affairs, Futures and Change)

Apologies: Professor Gideon Henderson

Other attendees: Dr Hannah Collins (Associate Director Strategy, Futures and Evidence), for items 2, 4 and 7.

Secretariat: Ms Michelle Wickenden

Introductory items

1. Executive Chair's welcome and introductions (Oral)

- 1.1 Duncan Wingham welcomed members to the meeting. Apologies were noted from Gideon Henderson.
- 1.2 Duncan Wingham informed Council of his concerns regarding meetings almost not being quorate by the end of the meeting due to members leaving early. The register of attendance will now include what times members leave.
- 1.3 Duncan Wingham congratulated two NERC colleagues who were recognised for their services in the Queen's New Year Honours 2019:
 - Professor Alexander Halliday, lately professor of geochemistry at the University of Oxford, and former NERC Council member – received a Knighthood for services to science and innovation.
 - Professor Stephen Mobbs, Director of NCAS – received an MBE for services to atmospheric sciences.
- 1.4 In addition, Professor Karin Lochte has been awarded an Honorary Fellowship for services to Marine Biology from her alma mater, Bangor University and Professor Dame Julia Slingo opened the Slingo Lecture Theatre at University of Reading.
- 1.5 No new interests, or conflicts with the meeting's agenda items, were declared.
- 1.6 Duncan Wingham asked members for any amendments and matters arising from the minutes of the previous meeting. None were raised and the minutes of the third meeting were confirmed as a true and accurate record.

1.7 Duncan Wingham proposed that all actions were complete or covered elsewhere in the agenda, and all decisions and actions were accepted.

2. Discussion of Council retreat outcomes (Slides 02 Feb 2019)

2.1 Hannah Collins joined the meeting for this item and items 4 and 7.

2.2 Hannah Collins used detailed slides to summarise the key points from each of the four topics discussed at Council retreat the previous day, and invited Council to comment on each. The summary slides are attached (**Annex A**) with these minutes as a record of the day.

2.3 Council commented and discussed the summary of the Council retreat and agreed it was a useful day to build context and set the scene for future Council decisions. Paragraphs 2.4 – 2.7 below capture the key points of this discussion.

2.4 Institutional (HEI) Partnerships to deliver environmental solutions

- Need to consider how to build communities of researchers that do not normally work together, and the skills, tools and infrastructure required to build them.
- Building capacity to aspire to the collective funds could adopt a range of models and mechanisms, but will require a change of mind-set. NERC wants a more dynamic environmental science sector to interact with different people as a result of NERC's intervention.
- Focus on developing environmental science strength across the domain.
- There is a risk that HEIs break-up the funding and disperse it among multiple departments. Too many small partnerships and investments will be less effective in building communities.
- There are already good examples of hub and spoke models that NERC could learn from.
- Community building should involve regions and specialisms.
- For the funding to be successful the money needs to be focused on activities large enough to be effective.
- Partnerships need to be developed around the requirements NERC sets. The objective is not to create partnerships.
- A variety of models is required and must involve systems thinkers.
- Develop issues with industry and develop consortiums to bid in. International groups must be included.
- NERC Research Centres should not be excluded from being part of a cluster.
- Talent and leadership is also required for partnerships to be successful.
- The new Strategic Delivery Plan (SDP) sets NERC's direction of travel. NERC now needs to engage with the community to explain this new direction and the changes that will occur.

Duncan Wingham summarised that the key issue is focus and quantum. Partnerships need a strategic focus, be large, well-managed and long-term. It was decided that a paper on HEI partnerships to include a draft AO and assessment criteria was required for the June Council meeting. This needs to include intelligence gathering and analysis about what makes a successful community work. Council will need a discussion based on the evidence and funding levels.

Action

2.5 Strategic Business engagement

- Business is an international activity and developing an international presence is important.
- Need to understand business drivers. If we approach this in a reactive way then engagement will not be successful – this approach should be proactive.
- Business engagement is a sub-set of a bigger issue: How does NERC and its community interface effectively with major stakeholder groups? NERC needs to invest substantially, long-term and in a structured way in this area. NERC needs to decide how much it wants to invest in this area and recognise the trade-offs.
- Business is an important agent of societal change so business engagement needs to be a key

activity.

- There needs to be a more structured approach to engaging business and identifying priority areas.
- NERC should develop a forum to engage with business to identify common ground and build relationships.
- NERC could learn from the insurance sector and its relationship with researchers.
- Work with business to develop environmental solutions.
- NERC could work with groupings of businesses as well as 1:1.
- Need to develop the infrastructure to translate NERC science for business use.
- Engaging with business on the way we do science could bring down the costs.
- A possible direction of travel is to learn from how BBSRC and MRC have embraced technology as a part of their portfolio.
- NPIF is a major source of funding for this – need to consider how to bolster NERC's (currently limited) position to influence.
- NERC should identify the sectors it can best work with.

Duncan Wingham summarised that NERC needs to develop an understanding of which businesses are affected by environmental science and how they are affected. In addition, NERC has to be clear on what its offer to business is, identify what NERC requires from business and establish what business wants from NERC. It was decided that a paper on developing strategic business engagement should be submitted to a future Council meeting.

Action

2.6 How to generate strategic funding proposals

- There are two sources of strategic funding: NERC funding and UKRI collective funds (e.g. Strategic Priorities Fund (SPF)). This discussion focussed on the NERC strategic funding and associated processes.
- NERC strategy is high level and broad, so we need a process to identify and define focussed, tractable challenges or topics.
- The public should be involved, especially in assessment.
- Leadership is needed to collate and test a list of the major challenges. This could be undertaken by Learned Societies.
- The process has to be efficient as possible. Business may be able to advise how to streamline the process.
- Highlight Topics have worked well and can be turned around quickly, it is the larger programmes where NERC has difficulty. Proposals go through too many committees and the final proposal is too far removed from the original proposal.
- Could have Champions (similar to Defra 'Systems Leaders') for some of the strategic areas. Experts in the areas need to work together, across communities and with NERC teams and submit ideas to Council
- Funding for this will be in the region of £25M pa so the process needs to be proportionate to the size of funding.
- A forum approach to present ideas to Council could work. The forum will need a mix of early career researchers (ECRs) and more experienced researchers that cross-over disciplinary areas. NERC will need to support the development of programme ideas.
- Two steps in the process are emerging:
 - Establish a group of people (to include ECRs and more experienced researchers) to develop AOs. Selection would be difficult as will the rotation of groups. This approach may repeat the weaknesses and difficulties previously experienced in NERC processes.
 - Develop more detailed challenges within the SDP and bid against them. AOs will be developed on what NERC wants researchers to do.
- The processes need to be agile and light-touch.
- NERC must develop a detailed understanding of the community so the people who can develop the challenges are identified quickly.
- Short-term thinking groups could be developed to shape challenges and collate ideas around

the strategic themes.

- Science Committee could assess and recommend community proposals but NERC needs to establish who assesses and recommends Executive proposals.

Duncan Wingham summarised that it was essential to bridge the gap between the strategy and the funding call. It was agreed that a SPF process for the NERC community was required.

Decision

2.7 Responsive mode: Are we getting the best?

- The responsive mode process involves individuals at all stages in their career. ECRs cannot compete with experienced researchers, and could be supported through increased Fellowship funding. Funding researchers at different stages in their career is already in place for example, fellowships so changes in the level of investments could be implemented.
- Funding needs to support the best talent and leaders.
- Need to establish if NERC is funding the best and if not then why not.
- Concern that there is false precision around peer review for responsive mode funding decisions, and variation between panels, leading to uncertainty around the proposals that are ranked in the middle.
- In addition to considering the quality of the proposal, Council was supportive of the idea that NERC should also consider track record of the scientist making the proposal.

Duncan Wingham highlighted that the key issue is that track record is not considered as part of the funding decision so it is not known if NERC is funding the best scientists or science. It was decided that NERC should undertake an exercise to determine if NERC is funding the best and the evidence should be brought back to Council.

Decision

Items for discussion

3. **Executive Chair's update** (*Slides item 03 Feb 2019*)

3.1 Duncan Wingham gave an oral update on some of the key activities since the previous Council meeting.

i. Strategic Priority Funds (*Slides item 03 Feb 2019*)

Three NERC-led proposals totalling £65M were funded, to spend from FY2019/20. NERC's success rate was 75% compared to the 51% success rate across all Wave 2 proposals. The three programmes are:

- The Clean Air: Analysis & Solutions programme
- Greenhouse Gas Removal Demonstrators
- Sustainable Management of UK Marine Resources

Duncan Wingham thanked Gideon Henderson for his help with the Green House Gas Removal Demonstrators bid and Angela Hatton for her help with the Sustainable Management of UK Marine Resources bid.

ii. Industrial Strategy Challenge Fund (ISCF)

£219M co-funding from industry has been offered to match a proposed £60M ISCF allocation and generate a programme to reduce plastic waste in the UK. There is a clear need for an alternative to plastic that is not as damaging to the environment. The programme will build on Defra regulation. The level of co-funding achieved demonstrates that NERC can be successful in this area.

iii. GRO programme update

The Gateway 4 Review was passed and given a green/amber rating. All risks are being mitigated. The Ministerial submission is being finalised between NERC and BEIS and the

submission process will start week commencing 4 March 2019.

- iv. Appointment of a new BGS Director
John Ludden is retiring as the Director of BGS at the end of the summer, a post he has held for 13 years.
- v. AI Centre for Doctoral Training (CDT)
Two CDT's have been awarded in NERC's domain.
- vi. BAS rescue
A university researcher fell ill in South Georgia and was successfully evacuated to a hospital in Montevideo before eventually being returned home. NERC was grateful to the Ministry of Defence (MOD) for transferring the patient from the RRS James Clark Ross to Montevideo via the Falklands. NERC needs to ensure that the risks about working in isolated environments are made clear to people, for example, the lack of sophisticated hospital facilities.

4. New Strategic Delivery Plan for NERC in UKRI (NERC 19/03) (Slides item 04 Feb 2019)

- 4.1 Alison Robinson introduced this item and used slides to update on progress in developing the Strategic Delivery Plan (SDP) since the last Council meeting in December 2018. Progress included meeting with stakeholders from policy, business and the third sector, receiving feedback from the UKRI Board and Sir Mark Walport, and from NERC Council in parallel. The document submitted to Council had been revised based on feedback.
- 4.2 Hannah Collins summarised feedback from UKRI and the wider group of stakeholders that were consulted in developing the SDP. The changes made following this feedback had strengthened the clarity of purpose and structure of the SDP, with key changes being:
 - Restructuring of the document to be consistent across UKRI Councils;
 - Clear articulation of long term ambitions and clearly stating near term delivery actions, to allow a future emphasis on tracking performance and delivery;
 - Bringing out the role of NERC Research Centres more overtly;
 - Placing the section now entitled 'Environmental solutions' at the beginning and ensuring the focus and ambition in this section is clear.
- 4.3 A question was raised about the timeframe of the SDP. Duncan Wingham explained that in principle the ambitions are over a five year period and the delivery actions will be shorter-term and updated as necessary.
- 4.4 The timetable and next steps were explained and final comments were requested from Council members, to be sent to Alison Robinson and Hannah Collins by Monday 4 March 2019 prior to submission to the UKRI Board on 7 March 2019 for consideration at its meeting later in March. Publication is anticipated from April 2019.

Action

5. Transformation (Oral) (Slides item 05 Feb 2019)

- 5.1 Duncan Wingham updated Council on progress of the UKRI-NERC Transformation programme using summary slides and explained it is a fast-paced change. The UKRI transformation priorities are:
 - Build up effort to administer UKRI collective funds.
 - Provide a coherent framework for whole UKRI to work together.
 - Enable a single grants service across UKRI.
- 5.2 The NERC drivers were then explained:
 - Move to four directorates because the Research and Innovation team (R&I) is now too large for one director. NERC is recruiting two new directors.

- Organise directorates around: coherent set of activities and skills and new delivery needs emerging from UKRI-NERC strategy.
 - Innovation embedded across all directorates.
 - Build capacity and skills to deliver new UKRI and NERC activities and funds.
- 5.3 In Corporate Affairs, effort will increase around impact and outcomes including developing understanding of the NERC community and introducing rotators.
- 5.4 Duncan Wingham explained in more detail the proposed R&I structure. Council was informed that as part of transformation the reporting structure across the Councils and central UKRI will be flatter. This will mean that many reporting lines will change.
- 5.5 There is a need to map activities that are 'in flight' to the new structure before the structure is implemented.
- 5.6 Duncan Wingham invited Ian Kenyon to comment on the transformation programme. Ian Kenyon said he agreed with the comment that the change needed to be fast-paced and it should not slow down. The pressures and challenges that exist are recognised. Care needs to be taken that we do not drop the ball and remove key roles.
- 6. EU Exit: 'No deal' scenario (NERC 19/04)**
- 6.1 Phil Heads introduced the item. It was explained that the full implications of a no deal EU exit are not known. UKRI is undertaking detailed planning in connection with possible outcomes.
- 6.2 There is uncertainty regarding possible domestic alternatives to EU schemes in the event of a no deal exit.
- 6.3 Duncan Wingham informed Council the EU student and staff in NERC statistics are being monitored and there has been no significant changes in these to date.
- 6.4 The issue of access to Copernicus data was raised. Council was informed that this is on the NERC and UKRI risk registers and has been flagged to BEIS.
- 6.5 Stephen Holgate left the meeting at the end of the item.
- 7. Evaluation of NERC Centres 2020 (NERC 19/05) (Slides item 07 Feb 2019)**
- 7.1 Alison Robinson and Hannah Collins used slides to introduce the item and set-out NERC's plans to evaluate the excellence and impact of NERC Centres in 2020 using a modified REF methodology. The purpose of the exercise is to provide outcome and benchmarking evidence on the excellence and impact of NERC Centres. The evidence will be used by NERC to calculate Institutional Funding to Centres once the outcome of the upcoming Spending Review is known. Centres also use the evidence to demonstrate success, celebrate achievements and drive improvement. Council noted that the Centre evaluation did not include the British Geological Survey (BGS), and other arrangements were in place suitable to the BGS role as a national survey.
- 7.2 Council discussed the methodology and welcomed the mirroring of the REF process as this would allow benchmarking. Council endorsed the separate assessment of excellence and impact in the NERC approach noting this approach had worked well in the previous exercise and reflects the Centres broader roles and long-term nature of Centre work. Phil Heads explained the impact criteria of reach and significance, which is also the same as the REF. Council also noted that the outcomes of the 2013 evaluation had been used widely by both NERC and the Research Centres.
- 7.3 Ian Kenyon left the meeting at the end of the item.
- 8. Antarctic infrastructure modernisation programme (NERC 19/06) (Slides item 08 Feb**

2019)

- 8.1 Paul Fox presented a set of slides to explain the current and future plans for the modernisation of the UK's Antarctic research infrastructure. The UK's Antarctic research infrastructure is provided through the integration of ships, aircraft, buildings, field equipment and skilled people at the British Antarctic Survey (BAS).
- 8.2 The NERC-BAS programme to investigate the cost effectiveness and physical condition of the infrastructure identified the need for six projects that are currently underway and a further four that are being considered as part of the UKRI Capital Roadmap development.
- 8.3 The current projects are:
 - i. The RRS Sir David Attenborough that is due for completion in September 2019.
 - ii. Construction of the new Rothera wharf.
 - iii. New marine facilities at both Bird Island and King Edward Point (KEP) on South Georgia.
 - iv. The relocation of Halley VI station.
 - v. Rothera Modernisation phase I: new scientific operations, vehicle and estates infrastructure.
 - vi. Air2020 Capability – Airbridge Resilience (aims to extend the life of the existing aircraft).
- 8.4 The future projects are:
 - i. Developing the future deep field capability including runway provision at Rothera.
 - ii. Re-moving the Halley VI Research Station should it become inoperable.
 - iii. The second phase of the Rothera Modernisation programme.
 - iv. Replace facilities at the island stations.
- 8.5 Ian Boyd and Nick Folland left the meeting during this item.

9. NERC financial forecast 2018/19 – 2020/21 (NERC 19/07)

- 9.1 Paul Fox informed Council that the finance paper is in its usual format. Changes incorporated within Annex A and E were highlighted. Paul Fox explained that NERC is on track for year-end. It was explained that the pay remit has nearly been agreed. The total cost to NERC of ensuring that all staff are paid no lower than the relevant UKRI pay minima is approximately £1.4M per annum. It is expected that an element (£0.2M) of this will be addressed in the 2018 pay remit which is effective from July 2018.

10. Review of the NERC top risks at February 2019 (NERC 19/08)

- 10.1 Paul Fox explained that the format of the top risk register remained the same as in December, is updated monthly and changes reflect emerging risks. The top risks were highlighted, several of which had been discussed already within other agenda items. The only ones that had not been discussed during the meeting were UKGEOS, Cyber Security and overseas working and Council was assured that the risks are being managed.
- 10.2 Council was informed that the Health and Safety Executive (HSE) case against NERC regarding the Legionella case had been dropped.

11. Report of the Science Board meeting (NERC 19/09)

- 11.1 Angela Hatton updated Council on the Science Board meeting of 7 February 2019. Science Board reviewed two Strategic Programme Areas and requested that 'Securing UK forest form, function, and ecosystem services against 21st Century pressures' should be scoped for assessment by Science Committee in September 2019.
- 11.2 The role of the Science Committee in funding governance was discussed. Science Board requested clarity around what Council expect from the Science Committee and to make clear the

role of Science Committee in future strategic funding decisions (links to action in paragraph 2.7). This needs to be included within the Terms of Reference (ToR). The Science Committee will review the ToR at its first meeting in May 2019.

Action

11.3 The discussion round the Peer Review (PRC) Chair's Meeting Report focussed on the lack of technology-led projects through discovery science; developing and mentoring ECRs to enable them to become college members; diversity of members; and an update on collective funds (acknowledging the effort required and the additional income generated).

12. Rolling programme of business (NERC 19/10)

12.1 Duncan Wingham invited members to input to the rolling programme.

12.2 Lord Willis thanked all of the people who were involved in the retreat and said it was the best he had attended.

13. Any other business

13.1 Duncan recommended that an item to review the operation of Council following its first year is added to the June agenda.

Action

14. Meeting close

14.1 Duncan Wingham thanked Council for a productive Council retreat and the meeting was closed.



Council retreat discussion summary

Hannah Collins

NERC Council Meeting
28th February 2019



NERC is part of UK Research and Innovation (www.ukri.org)

Retreat themes

- Institutional (HEI) Partnerships to deliver environmental solutions
- Strategic Business engagement
- How to generate strategic funding proposals
- Responsive mode: are we funding the best?



Institutional (HEI) Partnerships to deliver environmental solutions (1)

Environmental solutions require a whole systems approach. In discussing how we could use NERC funding to better place our community to engage with collective funds, the retreat considered:

- The solution is the focus: need to draw in the full range of research expertise to deliver (draw together the best – might not all be in the same institution)
- This requires strong interdisciplinary leadership, and responsibility for a range of outcomes: research, networking and capacity building.
- Those with a stake in the solution need to be strongly engaged (policy, business, NGO, public) – could be delivered in partnership.
- The investment would have a facilitation role:
 - supported by strong management and professional services
 - Leveraging various forms of institutional buy-in
 - Convening power
 - Capacity building



Institutional (HEI) Partnerships to deliver environmental solutions (2)

- Investment gives time (5-10 years) , and space (incubators) required to build interdisciplinary communities.
- Investment has a strong capability-building remit:
 - Building interdisciplinary leadership skills
 - Flexible, short-term, placements, Masters, KE models
- Learning from examples e.g. Scotland, EPSRC, Wellcome...
- Requirement to signal change in NERC direction to seize new opportunities: Council and Science Committee can help

- Moving to an “environmental solutions community”



Strategic Business Engagement (1)

Proactive, future-focused business engagement is a key part of delivering the new NERC Strategy. At retreat, there was consensus that to do this requires:

- Positioning environment as positive contributor to the bottom line
 - Narrative shift from environment as a cost on business
 - Engagement to be led by business requirements (issues, sectors, sustainability, SMEs, regulation)
- NERC to act as a convener of business, academia, NGOs and regulators generating:
 - big conversations, including on contentious topics, aiming to generate pull for environmental solutions (with budget to stimulate engagement)
 - engaging with investors and venture capitalists to understand emerging business models to inform our approach
- Positive stories in language that markets our offer to business – to create customer and business ‘pull’ and demonstrate NERC relevance
- A risk based approach to engagement across the environment arena with no rule (but no guns or tobacco) on which businesses we do and don’t engage with and some sectors requiring more caution than others (e.g. extractive industries)



Strategic Business Engagement: (2)

- Better leveraging of existing wider network into business – from Council and committee members, Centres, HEIs, Knowledge Exchange etc.
- Collaboration with Innovate UK and other RCs to better bring environmental solutions and expertise to our shared (business) audience, co-ordinate across UKRI to avoid business confusion and be a strong partners within UKRI
- Champions and leaders, both within NERC and in our senior science community who have credibility with business and who are supported by people with relationship management and business development skills
- Agility to shifting business needs/ timescales and pull (quickly at times) the deeper science expertise to business engagement
- Avoiding developing an ISCF silo - applying learning and insight needs to be shared across NERC programmes and UKRI priorities



How to generate NERC strategic funding proposals (1)

Process step between the strategic aim and writing the proposal, to define the problems/challenges to solve.

- Top down from Council and Executive?
- And/or convened process involving stakeholders and research community?
- Could use learned societies to filter and shape ideas
- And/or could use open, transparent, crowdsourcing to shape ideas

Spectrum of 'strategic' programmes

- Discipline focus (enabling solutions): Bring environmental science up to the level to deliver solutions
- Interdisciplinary focus (delivering solutions): invest NERC money broadly to scale up to UKRI collective funds, and to crowd-in funds from other council delegated budgets



How to generate NERC strategic funding proposals (2)

Who should write proposals?

A variety of views, depends on who is making the decision, writer could be:

- Executive
- Community champion (bottom up)
- Rotator or Programme Director
- Combination of the above

Making the investment decision

- Council alone can't do it
- Need the right people to assess solutions (e.g. business, government) and to assess excellence of all disciplines necessary to deliver the solution
- Needs to understand challenges of interdisciplinarity in relation to excellence

Other points

- Pressure to show that strategic programmes deliver the strategy - this will drive how they are written to focus on realistic deliverables
- End to end process can be proportionate and efficient if challenges are well defined before proposals are written



Responsive mode: are we funding the best? (1)

- **Best needs to be clearly defined in the context of responsive mode**
 - Best for whom? Society? Academia?
 - Best changes as context evolves
 - Best is advancing the scientific frontier (breakthroughs, adventurous...)
- **Spotting “best”:** How can NERC distribute it's funding most effectively?
 - Responsive mode should enable advances across environmental science disciplines
 - Better analysis to: inform decision-making and prioritisation, research outcomes, inform NERC strategy-building



Responsive mode: are we funding the best? (2)

- **A new, innovative approach to assessment**
 - Parameters: assess people or science? Best individuals or best groups?
 - Increase use of track record (achievements) and accountability for outcomes, but not in isolation.
 - Mechanisms: Interviews vs moderating panels; Blind proposals...
 - Incentivising and supporting risk and innovation
 - Supporting individuals at all stages of their career through a suite of funding routes.
- **Encouraging diversity**
 - Valuing the role of diversity in generating high quality proposals and making good decisions.

