Nurse Review of Research Councils: Call for Evidence

Response Form

Please state whether you are responding as an individual, or on behalf of an organisation:

Responding on behalf of an organisation: The James Hutton Institute

Please write here your name/ the name of your organisation and contact details. This would help us to contact you if we have further questions.

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The James Hutton Institute is an international research centre based in Scotland, which combines strengths in crops, soils, land use and environmental research. The work we do tackles some of the world's most challenging problems including the impact of climate change and threats to food, water and environmental security.

Please provide evidence and views in relation to the following themes:

1. Strategic decision-making

Whilst fostering cross-council integration and communication, the Research Councils must retain definition and not merge towards a single RCUK. The seven research councils (AHRC, BBSRC, EPSRC, ESRC, MRC, NERC, STFC) have very distinct strategic areas to deal with and this is the optimum method of delivery to those sectors. The priority setting for these sectors is already well developed, with a programme of consultations, engagements, workshops, sandpits etc. all used to develop the individual research council strategies. Importantly, these strategies are not developed in isolation and involve wide sector (and cross RCUK) engagement across the full stakeholder space.

The development of strategies for BBSRC, EPSRC and NERC are significantly informed by the success (or otherwise) of the projects funded. Furthermore, these projects inform the breadth, depth and ultimately the direction of the science (or that to be developed) to deliver on priorities of the current strategy, whilst identifying the innovation and demand that will help formulate subsequent strategies. Importantly, in the latter respect, there is a need for a portfolio approach to science development and delivery. For the Research Councils above, this takes the form of response mode (investigator led), thematic calls, specific initiatives and joint programmes of research. All of these bring better value and a strategic review to the individual research council and a better ability to capture and exploit innovation. The Research Councils are also experimenting with slightly different approaches (e.g. NERC) which is potentially useful to refine and develop new ways of developing science.

- *How should the Research Councils take account of wider national interests including regional balance and the local and national economic impact of applied research?*

  A) Over recent years, changes in responsibility for government to devolved administrations mean that for many researchers the pathways to impact are increasingly directly relating to public policy formed by those administrations and their agencies.

  Clearer and more prominent evidence of the engagement of RCUK with the devolved administrations (not just cross UK Government departments) would help communicate the actions which underpin the statement in the RCUK Delivery Plan 2015/16 of: "Although we work closely with BIS, as our sponsor department, the research, people and infrastructure that we fund underpins cross-government policy and therefore we continue to foster productive relationships with all government departments."

  The evolving governance structures of the United Kingdom offer unique opportunities to produce more sensitive and tailored approaches to developing evidence-based solutions to local, national and global scientific challenges. Greater evidence of effective engagement with these administrations would reaffirm that scope for maximising research efforts at international and European levels is being achieved. It would also contribute to achieving the overall aim of RCUK of "the Research Councils to be recognised as the benchmark around the world in terms of the impact they have and the ways they work."

  Increased involvement of bodies with devolved responsibilities in advisory or strategy groups of the Research Councils would help account to be taken of regional balance and the local and national economic impacts of applied research. The Research Councils could consider a 'Committee of the Nations' with a remit to consider strategic aims of the UK and devolved administrations, to inform the priorities for funding of the RCUK.

  B) UK science and UK Plc will benefit by addressing global issues at a national / sub-national scale - using the UK as a global laboratory / test-bed. Within this, however, it should be specified that key UK issues need to be addressed, as: (1) scientific credibility needs to be maintained; (2) scientific excellence and globally relevant science attracts funds from wider sources (i.e. non-UK) to support UK science base; (3) investment from non-UK sources will be attracted to the UK if its science base is delivering solutions that are relevant to more than just the UK. Ultimately, Government should look for value from RCUK funding in a broader sense – so that we attract funding and finance and commerce into UK from elsewhere.

• *Is the balance between investigator-led and strategically-focused funding appropriate, and do the right mechanisms exist for making strategic choices?*

It could be argued that there is now less of a difference between investigator-led and strategically-focused funding, as there is a wide obligation to ensure the impact of research.

Regarding mechanisms for strategic choices: modern research is a global venture and we highlight the importance of ensuring sufficiently wide-ranging consultation and advisory input. Whilst strategic advisory mechanisms (such as NERC's SPAG) exist and internationally focussed strategies (such as RCUK's International Strategy, 2010) are in place, there is a need for additional international input and components to be considered: for example, links with CGIAR or UN organisations.

- *Within each Research Council is the balance of funding well-judged between support of individual investigators, support of teams and support of equipment and infrastructure?*

The RCUK's strategic framework for Capital Investment 'Investing for Growth: Capital Infrastructure for the 21st Century' highlights that "*Investment in capital infrastructure has a major role to play both to enhance research capabilities that underpin research and to drive advances in sectors critical to the economy*", and that "*Investment in research capital is essential to ensure that the UK has the best available resources to stimulate growth and support the wellbeing of the nation*". The importance of capital investment in research infrastructure is further emphasised in reports such as The Department for Business Innovation & Skills (BIS) 'Creating the future: a 2020 vision for science and research - government response to consultation on proposals for long-term capital investment in science and research'.

We endorse this view, but strongly reiterate calls for a widening of the capital funding portfolio and eligibility to include internationally recognised UK research facilities, such as those of the James Hutton Institute, that are currently excluded from such RCUK funding.

Consideration of the quantity and relative numbers of graduate and post-graduate funding is also required as this is increasingly seen as a problem with under-supply of long term jobs in science (see for example www.nature.com/news/the-future-of-the-postdoc-1.17253).

2. Collaborations and partnerships

Cross-research council collaboration is evident in targeted initiatives not embedded across the general activities, but the separation of RCUK organisations can still hamper interdisciplinarity and there are areas where improvement can be delivered. For example, in terms of interdisciplinary science, there is the difficulty of getting natural and physical scientists to engage fruitfully with socioeconomic scientists. One way to achieve this is that used by Genome Canada and their GE^3Ls (Genomics, Ethical, Environment, Economic, Legal and Social): their approach to this requirement, within often fundamental hard science projects, has worked very successfully and delivered significant translational impact for Canadian science.

Similarly, we are aware that peer review committees in one of Sweden's Research Councils (FORMAS) have started ensuring that social scientists are represented on grant review panels, and indeed are often the Chair of the moderating panel.

With regard to broader partnerships, RCUK has been very visible and successful: ERA-NET, JPI (FACCE (MACSUR), OCEANS, Societal Transformation in the Face of Climate Change) etc. However, within the UK there could be better linkages to organisations such as FSA and DEFRA. Despite there being (often common) targets from different perspectives, e.g. animal and crop disease, food safety, human nutrition, animal welfare etc., there is perceived to be a poor link between these groups and RCUK component organisations which is potentially to the detriment of UK science and UK Plc.

- *Do they adequately support interdisciplinary research?*

The Research Councils have progressively supported different approaches to interdisciplinary working. There has been significant effort made with joint calls between funding bodies, including cross-Council programmes which address specific science challenges, such as the Rural Economy and Land Use Programme (RELU; ESRC, NERC, BBSRC), Living With Environmental Change (LWEC), Soil Security Programme (NERC, BBSRC), and those within Councils such as the NERC

Biodiversity & Ecosystem Service Sustainability (BESS), and NERC Valuing Nature Networks (VNN; and now Programme).

To an extent, there is a dependency upon such signature programmes for supporting interdisciplinary working, whereas the value of bringing together different disciplinary perspectives could be enhanced across Research Council activities. This could also offer benefits of improving alignment with other significant science funders such as the European Union (through its Horizon 2020 Programme) for those areas of science which operate across disciplinary boundaries.

Perceptions exist of difficulties in getting a truly multi/inter-disciplinary application funded, although trans-disciplinary applications with industry appear to fare very well due to uplifts in marking. Reviewing inter-disciplinary applications is a complex issue with few people capable of spanning the disciplines. A suggestion to consider is the allocation of reviewers from different disciplines to appropriate sections of a proposal.

- *How can the RCs catalyse collaboration between institutions?*

  Research Programmes should be developed with the full involvement of stakehodlers to get buy-in at an early stage.

  The Scottish Government Strategic Research Programme facilitates collaboration across scientific disciplines and between Main Research Providers, and through partnership working with other UK research funders: emphasising institutions working together to deliver a coordinated programme. In the current Scottish Government Strategic Research Programme (2011 – 2016) specific funding mechanisms are in place to enable its Main Research Providers to work with the HEI sector in Scotland on themes of policy importance on Climate Change (www.climatexchange.org.uk), Waters (www.crew.ac.uk) and Animal Disease Outbreaks (epicscotland.org). The new programme (2016 – 2021) extends the number of such centres to include Ecosystems Services and Plant Health, and a new Innovation route to enable University participation in the Research Programme itself. These total £4.45m per annum for the five year period.

  These activities require collaboration between the Research Institutes and HEIs, and are generally interdisciplinary in nature. The Research Councils could consider how to complement such policy-focused initiatives of Scottish Government to aid shared aims of achieving scientific, societal and economic impacts of research. Examples include equivalent Centres of Expertise for other science / policy challenges, a programme of studentships which specifically align to such Centres, etc.

  In the context of collaboration, the recent move to restrict the number of applications that eligible organisations submit is a retrograde step. Eligible institutions may move to reduce participation of other research organisations, as sub-contractors or collaborators, to maximise their income from a smaller pool of potential awards. In addition, collaboration through RCUK funded projects is constrained by current funding arrangements for sub-contractors; RCUK needs to address the requirement for sub-contractors to include VAT, thus adding a cost that is not imposed on eligible organisations.

  Further, RCUK needs to seek clarity with Scottish Government on how the involvement of Scottish Institutes in funding rounds will be supported in future. A lack of clarity for these Institutes makes it more difficult to be effective partners for RCUK under existing arrangements.

- *Should the funding of research councils be directed almost exclusively to the university sector, with organisations such as the Meteorological Office, the Health and Safety Laboratories and the National Physical Laboratory out of scope?*

  At a time when RCUK is being pressed for relevance and impact, research institutes such as the James Hutton Institute, and organisations mentioned above, understand stakeholders' needs and have a history of focus on impact and where the uptake of new science can really make a different in the long-term. Indeed the non-university sectors such as the research institutes have, through their strategic positioning, often delivered better to the dual aims of international leading science and translation to impact in additional audiences such as the societal, economic (development) and policy sectors than have universities. UK science through RCUK is missing opportunities that are available from currently non-eligible institutions which have core capabilities and facilities directly relevant to supporting RCUK. The James Hutton Institute has demonstrated that when eligible for research council funding (in RCUK partnerships, or when able to apply as full collaborators), it is very competitive and highly successful, and engaged in high quality science of the nature that RCUK is aiming to support.

  There is, thus, a need to remove barriers and provide equality in eligibility from all councils, with funding allocated on excellence and fit to call. There is real growth in 'Open Science' and widening participation in research: high quality science, publications and policy impacts are increasingly derived from outwith the university sector and RCUK funding should acknowledge and support this. The collaborations of the James Hutton Institute with private industry shows that private companies are increasingly embracing academic style research with open publishing of findings, which is changing where science is being conducted as high calibre scientists start to seek positions in such progressive companies.

  The Royal Charter permits the Research Councils to support research by 'any means' and Recommendation 1.3 of the 'Triennial review of Research Councils' not only highlights that Research Councils should consider greater partnership working but that this should include a review of grant eligibility criteria.

  Further, UKRC resources are an important aspect of facilitating close working between universities and other parties in the research sector. Sharing infrastructure and co-location of staff can significantly engender scientific enterprise. Evidence from the recent REF exercise (e.g. University of Dundee recorded the highest level of 4-star research in the biological sciences in the UK, the Department of Plant Sciences of which is co-located at the James Hutton Institute Dundee site) shows how benefits can be achieved in scientific excellence through closer collaboration between the HEI and Research Institutes, both key parts of the research sector.

  To achieve further such benefits, it would be beneficial to the entire research sector if funding of the Research Councils were broadened, such that eligibility for funding was extended to include the Scottish Government Main Research Providers and other organisations for which scientific research, on the topics within the remits of the UKRC, is the principal remit and business.

- *How should the work of the research councils integrate most effectively with the work of agencies funding innovation, such as Innovate UK, and with the work funded by Departmental research and development budgets?*

  There is a need to widen opportunities for joint funding with agencies and departments, with open eligibility driven by an inclusive approach: facilitating greater integration and participation. In this context, the James Hutton Institute has experience of successfully bidding for BBSRC/NERC/DfID/Innovate UK funding and highlights the potential of further such integration.

3. Balance of funding portfolio

The general allocations across the Research Councils are probably correct and broadly are representative of the effort needed. However the greying of the lines between BBSRC and EPSRC should be recognised: the distinction between chemistry and biochemistry, especially in the field of industrial biotechnology has become meaningless. There needs to be a balance between fundamental and applied research, but the best research should be funded whatever its origins.

There will be a need for better cohesion and integration across disciplines for optimised, effective delivery, which will require facilitated (funded), possibly with a distinct funding source (e.g. top sliced from individual Research Council budgets).

With regard to targets for science and research, these need to be appropriate for the times we live in and the future. Topics such as the circular economy could be a new cross RCUK thematic area to be targeted. This example could involve the majority of Research Councils since it will require research into new physical, chemical and biological processes for optimum delivery, socioeconomics, behavioural change, supply chain analysis, life cycle analysis and environmental assessments.

Adopting a new cross RCUK theme would deliver to local, national and global interests and allow for development of science at an international level, with significant potential for technology transfer from one region/country to the benefit of others.

4. Effective ways of working

The RCs have their own approaches to translating impact and working with the wider science and innovation community. Perhaps an RCUKwide (as opposed to individual RC) approach is merited to provide a balanced view on outputs and outcomes for each sector. This requires an engagement and knowledge exchange strategy to be developed and deployed at the RCUK level and with a figurehead to lead its implementation.

Finally, there is a perception that it is relatively difficult for academics to interact with other non-eligible groups, with the exception of industrial partners through RCUK or Innovate UK for example – this should be addressed.

5. Any other comments?

The closing date for responses to this call for evidence is **Friday 17 April 2015 at 23:45**.

Please provide your response in Microsoft Word format. In order to be considered, submissions should be no longer than 3000 words.

Please email or post the completed response form to:

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