



The Save British Science Society

SUPPORTING SCIENCE & THE APPLICATIONS OF SCIENCE

29-30 Tavistock Square, London, WC1H 9EZ

Tel: (020) 7679 4995 • Fax: (020) 7916 8528 • E-mail: sbs@dial.pipex.com

SBS 02/20

Clarity of purpose in assessing research

SBS submission to the Joint Funding Councils' Review of Research Assessment

1. SBS is pleased to submit this response to the Joint Funding Councils' Review of Research Assessment. SBS is a voluntary organisation campaigning for the health of science and technology throughout UK society, and is supported by 1,500 individual members, and some 70 institutional members, including universities, learned societies, venture capitalists, financiers, industrial companies and publishers.

2. SBS has not answered the majority of the rather narrow, leading questions set out in the consultation document, which attempt to force respondents into various assumptions, and which presuppose a common set of attitudes about a variety of fundamental points. As the **Appendix** to this document shows, it would be wrong to assume that there is entirely coherent agreement about such basics as the purpose of the money that is distributed using the results of the current RAE, even among different Government departments and agencies.

3. We have rather chosen to address some basic principles against which any new system of research assessment should be judged.

What is the money actually for?

4. Many of the most fundamental problems with the RAE spring from the lack of clarity concerning the purpose of the QR funds that are distributed using its results.

5. The **Appendix** to this document sets out some recently-published definitions of the role of the Funding Councils' investment in the dual support system of funding university research.

6. Although this round-up of different definitions is at first sight confusing, it is of considerable help in defining how research assessment should take place.

Executive Committee

R W Joyner FRSC (Chr)
D Braben
J Cannon
F E Close OBE
R Dowler
M Freeman
L Georgiou
H Griffiths FREng

J F Lamb FRSE
J McGlade
J C McLachlan
U Martin CEng
D Noble CBE FRS
S J Robinson OBE FRS FREng
P T Saunders
V Stone
M Trevan

Advisory Council

Sir George Alberti PRCP
Sir Geoffrey Allen FRS FREng
Prof S Arnott CBE FRS
Sir Eric Ash CBE FRS FREng
Professor V Bruce OBE FRSE
Dr Simon Campbell FRS FRSC
Sir David Cox FRS
Prof A Cullen OBE FRS FREng
Sir Richard Doll CH FRS
Sir Brian Follett FRS
Dr Ian Gibson MP
Prof A Hewish FRS

Sir R Hoffenberg KBE FRCP
Prof Colin Humphreys FREng
Dr Tom Inch FRSC
Sir Hans Kornberg FRS
Sir Harold Kroto FRS
Lord Lewis of Newnham FRS
Sir Paul Nurse FRS
Sir C Llewellyn Smith FRS
Sir Ian Lloyd
Sir John Maddox
Prof A R Michell MRCVS
Dame Bridget Ogilvie

Prof H Pennington FRCPATH FRSE
Sir Martin Rees FRS
Sir Derek Roberts FRS FREng
Baroness Sharp of Guildford
Sir David Smith FRS
Sir Richard Southwood FRS
Sir Richard Sykes FRS
Ian Taylor MBE MP
Sir John Vane FRS
Prof Maurice Wilkins CBE FRS
Dr Ivan Yates CBE FREng

7. There is an underlying unity of meaning about the following points:

- the investment that is distributed on the basis of the RAE has more than one purpose
- most of the money is supposed to generate a base of infrastructure on which other activities can be built, and this infrastructure encompasses human resources, including the training of the next generation of researchers
- the remainder of the money is intended to be used for a set of activities that are difficult to define precisely, but which are described in such words and phrases as “flexibility,” “freedom,” “blue skies research,” “curiosity-driven research,” “research carried out at institutions’ discretion,” “develop[ment of] new areas” and “research which is directed from within institutions”. For the sake of simplicity, we will refer to this element of the Funding Council’s role as providing “discretionary funds”.

The root cause of problems with the existing RAE

8. SBS believes that most of the problems of the existing RAE spring from two basic facts, namely

i) that the RAE, and discussions about its reformation or replacement, have focused too strongly on the basic infrastructure element of funding, and have failed to give proper consideration to the near-impossibility of assessing work funded by the “discretionary funds” on anything other than a very long timescale.

ii) that the need for basic infrastructure has grown (for example, with the growth in Research Council budgets) faster than the Funding Councils’ budgets, squeezing out the second element, of “discretionary funding,” almost completely.

Assessing basic infrastructure and discretionary funds

9. The RAE has focused mostly on assessing the basic infrastructural role of QR funding. This is evident from the fact that Research Council grants, and other competitively-won awards and contracts (which the infrastructure element of QR funding is designed to underpin), are treated essentially as **outputs** in the exercise, rather than as additional inputs.

10. The novel, entirely blue skies, flexible, long-term, freely defined, curiosity-driven research, directed from within institutions does not fit neatly into this sort of process.

11. It is for this reason that, although the **average** quality of research may have risen in universities partly as a result of the RAE, the **peak** quality appears not to have done. Of the last five UK-based Nobel Laureates in the sciences, none has been based in a university. All have been based either in Research Council laboratories, or in the

charity sector. Given the relative sizes of the research populations in universities, institutes and charities, these figures suggest that work of the most brilliant kind has been largely squeezed out of the universities.

12. Assessing the kind of outputs on which the RAE has focused could be accomplished with a much lighter touch than is currently achieved, because *the research has already been assessed* by, among others, the peer review panels of the Research Councils and the editors and peer reviewers of scientific journals.

13. Assessing the kind of research that is intended to be supported by “discretionary funds” is much more difficult, partly because, by its nature it is risky, and much of it will “fail”. It can only be assessed on a very long timescale, and it cannot be assessed on the simple basis of the number or short-term impact of individual papers.

The balance between the two parts of the “dual support” system

14. Although not strictly part of the current review’s remit, the issue of the balance between the two parts of the dual support system cannot be ignored.

15. In 1986, for every £1.00 of investment in directed projects via the Research Councils, the universities received £1.27 from the Funding Councils to cover the various costs encompassed by this part of the dual support system. Now they receive 79p.

16. A small part of this shift was a deliberate change in the 1990s, when responsibility for some of the relevant costs was explicitly transferred from the Funding Councils to the Research Councils.

17. The majority of the difference, however, is attributable to an ill-considered policy, on the part of successive Governments, of channeling an increasing amount of the nation’s research investment through what is no doubt perceived (incorrectly) in as a more accountable route. The knock-on effects have never properly been considered, but in essence, exceptionable “value for money” has been achieved in the short-term by jeopardizing the longer-term health of the university research infrastructure.

18. SBS has welcomed the injections of money provided by the Joint Infrastructure Fund, the Science Research Investment Fund, and by the 2002 Spending Review, but in the long-term, a serious rebalancing of the dual support system is essential to the future vitality of the science and engineering research base.

19. For all practical purposes, all of the Funding Council investment in research is now used for the role of providing a basic underpinning, and the resources are not really adequate even to this single task. The role of “discretionary funds,” in fostering entirely new ideas directed from within individual institutions, has been lost almost entirely.

The way ahead

20. For the next ten years, funds should be allocated on the basis of the 2001 RAE results.

21. Allocations of the main section of Funding Council investment – for basic infrastructural support (including human infrastructure) – could conceivably be adjusted on a rolling basis of metrics. Since part of its purpose is to underpin Research Council grants, it would not be entirely unreasonable to use data on Research Council investment to determine its precise level.

22. At the end of the ten-year period, a very light touch version of the current RAE might be used to assess the achievements of this tranche of the Funding Councils' allocations.

23. In addition to the extra £240 million allocated in the Spending Review to fund those results fully, there should be extra money to reinstate the traditional role of what we have termed “discretionary funds” – flexible investment, used at the universities' own discretion, for novel “blue skies” research. As time progresses, this element should build up to perhaps 20% of the total Funding Councils' research investment.

24. Assessing this “discretionary funds” element of research investment would be much more difficult than assessing the basic underpinning element. Even a ten-year period is too short for a proper assessment of its value. Truly outstanding science, of the kind that wins Nobel Prizes (as opposed to that which is merely very good and makes modest difference to the nation's citation count) is so unpredictable, and can take so long to gestate, that it is almost impossible to envisage an assessment process that would work.

25. However, it would not certainly be based on simple metrics, and would have to allow for a greater element of *judgement* on the part of scientific peers.

Some principles of the assessment

26. The following paragraphs address some general points about research assessment, including some of the more relevant questions specified in the consultation document.

Uses to which the results might be put

27. The consultation document asks how the results of any assessment should or could be used, and by whom. It takes it as read that the results will be used to “calculate funding levels,” and of course, because the four Councils have separate policies, the method of calculation is not being considered by this joint review.

28. SBS presumes that all four Councils will have further rounds of consultation on how to use the results of any future assessment in

calculating funding levels, and we will contribute to those consultations.

29. Beyond this use, it is naïve to suppose that the Funding Councils can control how the results should be used and by whom. If the results of research assessment are published, as they must be, then anyone who wants to can use them however they like. Of course, it is the responsibility of others to be open about what they are doing if they choose to use ratings for other purposes. But if, for example, a newspaper chooses to produce a league table (which many people inside the system consider to be an inappropriate use of the ratings), it would be facile to pretend that anyone can do anything stop it.

Rewarding track record

30. It is a fundamental feature of the dual support system that while one tranche of money, channeled through the Office of Science & Technology, is given on the basis of prospective proposals, the other tranche, awarded by the Funding Councils, is given on the base of a proven track record.

31. This is such a basic part of the system that it must not be placed in jeopardy. Track record is important, and should be major element of any Funding Council research assessment.

32. SBS vehemently disagrees with the suggestion floated in the scientific press that, while the bulk of the Funding Council's Research Investment might be allocated via a light-touch assessment, the remainder could have a "prognostic dimension".ⁱ The other side of dual support, grant income from the Research Councils, is allocated prospectively, and the Funding Council side is supposed to be awarded differently.

33. Moreover, as the latest Cross-cutting review acknowledges, part of the value of the "discretionary funds" allocated by the Funding Councils is that they allow universities to respond to "rapid reaction to advances in a given field".ⁱⁱ This requires funds that have not been allocated on the basis of future plans, but which are, in the various words of the definitions listed in the **Appendix** to this document "flexible," "free," available at "institutions' discretion," and "directed from within institutions". As the Treasury put it in 2000, "there is a need to maintain balance...to minimize the risk of over-determining" the use of research funds.ⁱⁱⁱ

34. We are in danger of losing sight of this crucial element of the funding system that gave rise to the UK's impressive scientific record in the post-war decades.

November 2002

Appendix – Some published definitions of the role of Funding Council investment in the Dual Support System of funding university research.

- The White Paper, *Realising Our Potential*, which reaffirmed the dual support system of research funding in 1993, somewhat vaguely described “general funds provided by the Higher Education Funding Councils and available for use at the institutions’ discretion” in contrast to “specific funds, provided by the Research Councils and tied to specific projects”.^{iv}

- The White Paper published in 2000, *Excellence and Opportunity*, gives a very limited definition of the dual support system, using the form of words, “infrastructure money [is] provided by the Higher Education Funding Councils, and project grants awarded by the Research Councils”.^v

- The first Cross-cutting Review of Science, published with the 2000 Spending Review, reported that Funding Council investment “gives universities the capacity to undertake research, and in particular the flexibility to pursue “blue skies” research and develop new areas of excellence”.^{vi}

- The *Forward Look 2001* says that “the Higher Education Funding Councils...support the research infrastructure in universities” and elaborates on this to say that they “fund the general research infrastructure and long-term research strategies of the higher education institutions; support basic research (curiosity-driven research carried out at institutions’ discretion) and certain costs of Research Council-supported projects...and contribute to the cost of training researchers”.^{vii}

- HEFCE believes that it “provides funding to support the research infrastructure... [including] the cost of the salaries of permanent academic staff, premises, libraries and central computing costs,” that “general funds provided by the HEFCE also support basic research in institutions and contribute to the cost of training new researchers” and that “this basic research is the foundation of strategic and applied work, much of which is later supported by Research Councils, charities, industry and commerce.”^{viii}

- HEFCW defines its investment differently, stating that it “supports the basic infrastructure which institutions require in order to undertake research – staff, equipment and facilities.”^{ix}

- SHEFC says “we provide the fundamental resources towards the salaries of core academic staff, their overheads, research accommodation and equipment and materials to support staff. This provides researchers with a stable environment in which to carry out their research.”^x

- The website of the Department of Employment & Learning in Northern Ireland does not appear to offer any explanation or definition of the role of its resources in the dual support system.

- The Cross-cutting Review of Science & Research, completed in advance of the 2002 Spending Review, speaks of QR providing three things, namely “the freedom to pursue a certain amount of blue skies research, the base from which...academics can make credible proposals [to Research Councils or elsewhere], [and] the costs of training new researchers”. It further defines the need for “research which is directed from within institutions which may be purely curiosity-driven or may be in rapid reaction to advances in a given field,” and attributes this role to the QR funding universities receive from the Funding Councils.^{xi}

- The Government’s recent strategy for science and innovation explains that the Funding Councils provide “an underpinning research capability for universities,” and then uses the same form of words of the latest Cross-Cutting Review, but adds a fourth element to QR funding, namely “the resources to build research capabilities”.^{xii}

- The current consultation document does not appear to offer any comment on the purpose of Funding Council block grants to universities.

ⁱ *Research Fortnight*, 27 November 2002, p.20.

ⁱⁱ *Cross Cutting Review of Science & Research: Final Report March 2002*, HM Treasury, DfES, DTI and OST, 2002.

ⁱⁱⁱ *Cross-Cutting Study of Science Research Funding: Analysis, Arguments and Proposals*, HM Treasury, 2000.

^{iv} *Realising Our Potential*, Department of Trade & Industry, 1993 [Cm 2250].

^v *Excellence and Opportunity: A science & innovation policy for the 21st century*, Department of Trade & Industry, 2000 [Cm 4814].

^{vi} *Cross-Cutting Study of Science Research Funding: Analysis, Arguments and Proposals*, HM Treasury, 2000.

^{vii} *The Forward Look 2001: Government-funded science, engineering & technology*, Office of Science & Technology/Department of Trade & Industry, 2001 [Cm 5338].

^{viii} *Funding higher education in England: How the HEFCE allocates its funds*, HEFCE, 2002 [HEFCE Guide 02/18].

^{ix} *The Council’s Research Funding Method*, ELWA/HEFCW.

^x *SHEFC Annual Report*.

^{xi} *Cross Cutting Review of Science & Research: Final Report March 2002*, HM Treasury, DfES, DTI and OST, 2002.

^{xiii} *Investing in Innovation: A strategy for science, engineering and technology*, Department of Trade & Industry, H M Treasury & Department of Education & Skills, 2002.