RSC | Advancing the Chemical Sciences

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RSC response to the Innovation, Universities, Science and Skills Select Committee inquiry into Putting Science and Engineering at the Heart of Government Policy

Executive Summary

1. The RSC would like to highlight the following points to the Select Committee:

- The RSC believes that the formation of a Department for Science could unintentionally damage attempts to implement the use of scientific evidence in all Government departments. The RSC encourages increased embedding of science throughout departments in order to support evidence-based policy-making.

- The RSC is concerned that there is insufficient scientific capacity within Government departments to ensure that policies are developed on the basis of sound evidence. This could be improved by the recruitment of more scientifically-trained civil servants.

- There is a lack of transparency in the use of evidence in policy formulation. A summary produced for each consultation describing how the evidence was used would make departments more accountable for their use of evidence in policy-making.

- The RSC is concerned by recent wavers of the Haldane principle and believes that the Haldane principle must be preserved.

- The RSC believes that regional issues must be served with relevant regional policy, but this must be monitored centrally to ensure consistency and quality control.

- Mechanisms of engagement should be implemented to ensure that public opinion is proactively sought and that informed public opinion is gauged. Increasing transparency within the policy-making process should make it clearer that advice from scientists is independent from Government. This will allow Government to capitalise on the fact that scientists are trusted by the public and raise public confidence in policy-making.

- Evidence-based policy-making requires a regular review of the evidence that contributed to policy formation.

- The RSC is concerned that the current structure of House of Commons Select Committees marginalises the scrutiny of science.

Introduction

2. The RSC is the UK Professional Body for chemical scientists and an international Learned Society for advancing the chemical sciences. Supported by a network of over 46,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public.

3. This document represents the views of the RSC. The RSC's Royal Charter obliges it to serve the public interest by acting in an independent advisory capacity, and we are happy for this submission to be put into the public domain.

4. The document has been written from the perspective of the Royal Society of Chemistry.

Whether the Cabinet Sub-Committee on Science and Innovation and the Council for Science and Technology put science and engineering at the heart of policy-making and whether there should be a Department for Science

5. Policy-making should be based on sound evidence and science and engineering play a vital role in contributing evidence. Although infrastructure such as the Cabinet Sub-Committee on Science and Innovation and the Council for Science and Technology exist to enable the use of science in policy-making, there are cases where policy-making is still based on opinion rather than on scientific evidence. This suggests that the current infrastructure is not effective at integrating science and engineering into policy making. It is difficult to gauge what weight an advisory board such as the Council for Science and Technology actually has on policy-making, but the RSC believes that the influence of the Council for Science and Technology and other advisory bodies may be restricted by the limited scientific capacity of Government departments.

6. The RSC believes that an unintended consequence of the formation of a Department for Science could be to damage attempts to integrate the use of scientific evidence in all Government departments. Formation of such a department risks marginalising science such that other departments do not feel that it is necessary to consider science when making policy decisions. The RSC encourages the further embedding of science throughout departments in order to support policy-making. DIUS already has sufficient remit to support policy-making relating to scientific research.

How Government formulates science and engineering policy (strengths and weaknesses of the current system)

7. With a view to the use of science in the formulation of policy, the RSC commends the appointment of Chief Scientific Advisers to some departments that use science-based policy-making and we would like to see the embedding of science extended to all Government departments. The appointment of Chief Scientific Advisers is one example that suggests that the Government does recognise the value of science and engineering in policy-making. However, evidence-based policy-making is not always implemented in practice. The RSC is concerned that there is insufficient scientific capacity within Government departments to ensure that relevant policies are developed on the basis of sound scientific evidence. Although advice may often be gathered from external sources it is necessary to have sufficient expertise within departments to act as an 'intelligent customer'[1]. Whilst the RSC supports training to raise the scientific literacy of civil servants and MPs, we believe that this is no replacement for the recruitment of more scientifically-trained civil servants. This would raise the scientific capacity of departments to integrate scientific knowledge in support of evidence-based policy-making.

8. With regard to the formulation of policy to support research in science and engineering there is a concern that Government is influencing research by applying pressure through the directed distribution of the research budget. This point will be discussed further in relation to the Haldane principle.

Whether the views of the science and engineering community are, or should be, central to the formulation of government policy, and how the success of any consultation is assessed

9. Science and engineering should be central to evidence-based policy-making and although there are structures in place to gather evidence it is not always clear whether evidence is used appropriately. Evidence gathering for consultations is transparent, but it is not always clear how this evidence is used in policy formulation. This makes it difficult

[1] Royal Society of Chemistry submission to the House of Commons Science and Technology Committee on *Scientific Advice, Risk and Evidence: How Government handles them*. Paragraphs 7&8. Available from http://www.rsc.org/ScienceAndTechnology/Policy/Documents/2006/ScientificAdviceHandled.asp

to assess the effectiveness of the consultation process. The approach adopted by some Environment Agency consultations is to produce a document that outlines the responses received, including arguments as to why some comments are being rejected. We would like to see this model adopted across departments to make the decision making process more transparent. This would make departments more accountable for their use of evidence in policy-making.

The case for a regional science policy (versus national science policy) and whether the Haldane principle needs updating

10. The Government necessarily directs research at an overarching level by setting the research budget. However, the RSC agrees with the conclusion of the IUSS inquiry into the Science Budget Allocations in April 2008 that the Haldane principle has recently been compromised, for example the establishment of numerous cross research council initiatives that dictate how the budget is spent. The RSC is concerned by these breaches and believes that the Haldane principle, that scientists should determine how research funds are spent, must be preserved. In the case of fundamental research, scientists remain in the best position to determine the detailed research agenda through the established method of peer review.

11. The Haldane Principle is important to protect areas of research that are viewed to be of low strategic or economic value at a given time. Insulating research from these pressures will ensure that the UK retains a robust science base, which is important when prevailing scientific priorities change. The RSC is also aware that scientific activity is well served by diversity throughout the 'supply chain' from fundamental research through to applied technologies. Maintaining this diversity will ensure a continued flow of scientific knowledge that benefits the economy. Applied areas of research must necessarily be driven by economic factors in addition to policy. This type of research therefore requires a different approach to fundamental research in order to promote diversity in science, but need not compromise the Haldane principle.

12. Evidence-based policy-making should be applied in all cases, throughout central Government, the devolved authorities and the Regional Development Agencies (RDAs).

13. There needs to be a balance struck between national and regional policy, in order to utilise regional strengths and promote development. The RSC believes that regional issues must be served with relevant regional policy, for example to support the needs of specific industry sectors, which tend to be regionally focussed. The RDAs have improved the implementation of regional policy. However, RDAs must be accountable for their policies and regional policy should be monitored centrally to ensure consistency and quality control. For example, currently in the South East of England chemical-based companies are not supported by explicit RDA science strategy, despite the fact that many of the UK's chemical-based companies are based in this region. This contrasts strongly with other regions, for example the Northwest, where initiatives such as Chemicals Northwest are in place to support these companies. Issues previously raised about scientific expertise in the civil service are also applicable to the RDAs and we are concerned that within the unelected RDAs there is no requirement to reach a basic level of scientific capacity. The RSC would like to see measures introduced to ensure a consistently high level of scientific literacy within RDAs, for example, with the introduction of Senior Scientific Advisers to mirror those in Government departments.

Engaging the public and increasing public confidence in science and engineering policy

14. A balance must be achieved between the use of evidence in policy-making and public opinion. Public opinion must be sought, especially regarding ethical issues, but policy-making should never be based on public opinion alone. Mechanisms of engagement should be implemented to ensure that public opinion is proactively sought and that

informed public opinion is gauged, for example using citizen's juries. The role of public engagement in policy making is discussed further in the RSC response to the DIUS *A Vision for Science and Society* consultation[2].

15. A recent DIUS/RCUK report suggested that scientists are generally trusted by the public[3]. However, this trust is compromised if scientists are perceived as being dependent on Government. The RSC suggests that increasing transparency within the decision making process should make it clearer that scientists who advise Government are acting with integrity and remain independent of Government. This should allow Government to capitalise on the fact that scientists are trusted by the public, thus raising public confidence in policy-making that involves science.

The role of GO-Science, DIUS and other Government departments, charities, learned societies, Regional Development Agencies, industry and other stakeholders in determining UK science and engineering policy

16. The way in which decisions are made is not transparent and it is difficult to establish the role of these different stakeholders in science policy-making. It often appears that policy-making attempts to reconcile extreme viewpoints, whilst neglecting the more moderate ground upheld by some stakeholders, including learned societies. The scientific capability of learned societies should be tapped and the contacts and honest broker status of learned societies such as the RSC should be capitalised upon by Government, for example by reference to their publications and for direction to experts in particular fields.

17. Improving both transparency in the decision making process and the scientific literacy of Government departments should enhance the contributions that various stakeholders are able to make in advising on science and engineering policy.

How government science and engineering policy should be scrutinised

18. Evidence-based policy-making requires a regular review of the evidence that contributed to policy formulation. This acknowledges the fact that scientific evidence changes over time, for example as techniques and understanding improve, and that policy must keep up-to-date with changes in the evidence base. The RSC is not aware of much, if any, *post hoc* examination of decisions taken. It is not practical for policy to be under continual review, but we recommend procedures are put in place for the regular review of all evidence-based policies, a point discussed further in the RSC submission on *Scientific Advice, Risk and Evidence*[1]*.* This should not exclude the possibility that horizon scanning activities may identify policy areas that need to be reviewed, for example due to a rapid change in scientific opinion.

19. The RSC is most concerned that the current structure of House of Commons Select Committees marginalises the scrutiny of science. By incorporating science into the remit of the IUSS Select Committee there is a risk that scrutiny will only be applied to policy made by DIUS. For science to be effectively integrated throughout Government it is essential that a mechanism exists to scrutinise all science-based policy decisions, whatever their home department. We would prefer to see a more inclusive scrutiny mechanism that clearly applies to all departments, for example through the reinstatement of the House of Commons Science and Technology Select Committee, with a remit to scrutinise science and science-based policy across Government. This solution is probably easier and more efficient to implement than the alternative of scrutinising science-based policy by each of the separate committees, since it will allow a concentration of expertise supporting the committee. Whatever the mechanism in place for scrutiny it is important that this task is taken seriously and with commitment.

[2] Royal Society of Chemistry submission to DIUS on *A vision for Science and Society: a consultation on developing a new strategy for the UK*. Question 2: A society excited by and valuing science
[3] *Public Attitudes to Science 2008*. Sections 3.84 - 3.91