

Response to the House of Lords Science and Technology Select Committee inquiry on the role and function of departmental scientific advisers

1. The Royal Society has long supported the appointment of Chief Scientific Advisers (CSAs) in all departments of Government. As the House of Commons IUSS Select Committee noted in 2009, the appointment of these posts has strengthened Government's links with the scientific community and led to an improvement in the use of science across Whitehall.¹
2. The role of the CSA in the UK has parallels other parts of the world. Under President Barack Obama, the role of the US Office for Science and Technology Policy has been bolstered by the appointment John Holdren ForMemRS as Director. Similar posts exist in Australia, New Zealand and India, and this autumn we expect the appointment of a CSA for the European Commission.
3. The notion of the formal scientific adviser is well established in the UK government, with departmental CSAs predating the post of Government CSA. Lord Zuckerman, the first Government CSA appointed in 1964, took on the role in conjunction with his responsibilities at the Ministry of Defence, a post which had existed since the 1940s. Today there are 15 departmental CSAs (of which 3 posts are currently vacant), 3 agency CSAs and the Government CSA.
4. The 1971 Rothschild Report outlined the role of departments as intelligent customers of science; departmental CSAs ensure that this intelligence is up to date and applied across the full range of portfolios covered by government departments.
5. The architecture of science advice has since developed, both inside and outside of government. Today the role of scientific advice at departmental level is crucially important. Many of the issues dealt with by public policy – healthcare, environmental protection, energy sustainability, for example – have obvious scientific dimensions. Many others are driven by developments in technology, and others require input from a number of evidence bases. Robust, independent and expert scientific advice is essential to ensure well informed policy responses.

In response to the Committee's specific questions, the Royal Society welcomes the opportunity to comment on the range of roles and responsibilities of departmental Chief Scientific Advisers. This response has been approved by the Royal Society's Physical Secretary and Vice President on behalf of the Council of the Royal Society.

The ability of CSAs to provide independent advice to ministers and policy makers within their departments, and their role in providing independent challenge and ensuring that departmental policies are evidenced-based

6. The key role of the Chief Scientific Adviser is to ensure that the most up to date and reliable evidence is available and, where possible, applied to departmental policy making. Each departmental CSA requires a strong understanding of the main issues dealt with by the department, access to and ability to assimilate broad scientific expertise, and a sensitivity to the wider policy environment.
7. This will often require a CSA to act beyond the scope of their individual science and technology expertise, and to engage with a wider set of issues as required by the department. In such cases, the CSA is unlikely to be the sole source of advice to the department, but instead acts as a convenor of experts and a spokesperson for the information that is provided to the policymakers. The CSAs therefore draw significantly on national and international networks of experts in providing specific advice. This requires the CSA to command the respect and support of the domestic and global scientific communities.

¹ House of Commons Innovation, Universities, Science and Skills Committee (2009). *Putting Science and Engineering at the Heart of Government Policy, Eighth Report of Session 2008-09, Volume I*. The Stationary Office: London, UK.

8. To deliver the necessary scientific advice, a CSA requires adequate resources to ensure that they can cover all appropriate issues for that department.² This would include having a team of civil servants to help co-ordinate activities, and a budget to spend at their discretion.
9. It is essential that the CSA should hold a suitably senior position in a department to allow them proper access to senior civil servants, Ministers and Secretaries of State. This should include attendance (and preferably membership) of the department Board, to ensure that scientific evidence is fed in to the highest decision making processes.
10. The Royal Society's recommendations in its policy report, *The Scientific Century*, included a call for the appointment of a CSA to the Treasury.³ The appointment of Dr James Richardson, the Treasury's Director of Public Spending, and Chief Microeconomist, to the new post was announced in June 2011. The Royal Society welcomes the appointment of a Treasury CSA, and looks forward to working with Dr Richardson in this role.

The extent of CSA influence over research spend

11. The remit of the CSA, and the resources allocated, vary significantly between departments and agencies. Within the Ministry of Defence, the CSA is responsible for the research budget of over £400 million per annum, and also has access to a discretionary budget for CSA research activity; at the Treasury, the new CSA has explained to the House of Commons Science and Technology Select Committee that the Treasury will spend £500,000 on externally commissioned research over the whole spending review period.⁴
12. The GO Science introduction to CSAs, published in November 2010,⁵ indicates that the main activities of a typical CSA are to provide independent advice to Ministers and within the Ministry; to provide a challenge function ensuring the use of robust evidence to underpin policy; leading the department on science and engineering issues; and managing the development, delivery and implementation of the departmental science and engineering strategy.
13. There is currently no cross cutting objective for departmental CSAs to manage, influence or lobby for research spending, either in their individual department or across government.
14. Figures prepared by the GCSA, Sir John Beddington, show that in June 2011, only the CSAs in each of the Department of Health, the Ministry of Defence, the Department for International Development and the Department for Education were directly responsible for the research budgets in their department.
15. Given the diverse range of issues dealt with by individual departments, and the differing remits for research budgets, the Royal Society does not consider it to be a requirement that the CSA should control or manage the entire department research budget.
16. Much more important is their capacity to engage with senior civil servants and Ministers to ensure that research spend is well stewarded (for example, that it is subject to rigorous peer review).
17. However, it is crucial that a CSA is suitably resourced to carry out the tasks required of that role (see also point 7 above).⁶ This resourcing could usefully include a discretionary research budget for each CSA, ringfenced from the general departmental research spend. This would allow each CSA to commission research and activities in emerging areas, allowing consideration of longer range horizons. This flexibility would also allow

² The Royal Society (2010) *The Scientific Century*. The Royal Society: London, UK

³ The Royal Society (2010) *The Scientific Century*. The Royal Society: London, UK

⁴ Dr James Richardson evidence to the House of Commons Science and Technology Select Committee, Wednesday 7 September 2011: <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmsctech/uc1461-1/uc146101.htm>

⁵ Government Office for Science (2010). *Chief Scientific Advisers and Officials: an introduction*. Department for Business, Innovation and Skills: London, UK

⁶ The Royal Society (2010) *The Scientific Century*. The Royal Society: London, UK

for engagement with the wider scientific community, leveraging resources to address research and policy concerns.

The range of expertise provided by the network of CSAs

18. The Royal Society has commented previously on the successful work undertaken by the Government CSA in bringing together the departmental CSAs to address areas of cross-departmental and cross disciplinary concern.⁷
19. The current cohort of departmental CSAs covers a wide range of individual academic expertise, ranging from mathematics and nanotechnology, to atmospheric science, from epidemiology to quantum chemistry.
20. The CSAs have links with both academia and industry, bringing these experiences to bear on departmental issues, and on cross cutting areas of concern for public policy. The access to these different sectors of expertise, the exposure and connection to international networks, and the ability to assimilate these, are each essential in determining the CSA's capacity to deliver high quality scientific advice to government.
21. In many departments the CSAs have close relationships with Chief Economists, Heads of Analysis, and Heads of Profession. However, there is scope for enhancing this range of expertise by introducing more social science expertise amongst the CSA group where appropriate.⁸ It is essential that the CSAs are in a position to offer natural, social, and engineering scientific advice to their respective departments to ensure that policies are informed by the most up to date and relevant research and expertise.

The extent to which CSAs have authoritative standing within relevant academic, industrial or business communities, including whether they have effective networks within those communities

22. In the recent advertisement for the post of CSA at the Department for Business, Innovation and Skills, the candidate brief⁹ describes a successful applicant as one who has:

‘the knowledge, skills, networks and relationships to draw on the experience of the scientific, engineering and academic communities to make a real difference to BIS; this is likely to require a FRS or FREng, or equivalent standing in a commercial/industrial field, such as Chief Technology Officer or Chief Engineer.’
23. Of the 12 departmental CSAs currently in post, five are Fellows of the Royal Society, two are Fellows of the Academy of Medical Sciences, one is a Fellow of the Royal Academy of Engineering, and one a Fellow of the Royal Society for the encouragement of the Arts. As elected members of these national academies, these Fellows have each been recognised by their peers as being excellent practitioners in their careers.
24. In many countries, the national Academy is part of the formal advisory structure in government (the NRC in the USA and the Chinese Academy of Sciences are notable examples). Although this is not the case in the UK, the Academies are well placed to provide expertise for the CSAs and government to draw upon.
25. The Chief Scientific Advisers Committee (CSAC) has met periodically with the President of the Royal Society and other Academies and learned societies, to discuss areas where the Advisers require external evidence, and to contribute to their horizon scanning for forthcoming cross cutting issues.
26. There is, perhaps, scope for more interaction between the Academies, learned societies and other professional bodies with the CSAs both collectively and individually. The Royal Society would welcome an opportunity to engage with current and future departmental CSAs to discuss ways in which the Society might support their activities.

⁷ <http://royalsociety.org/submission-to-the-IUSS/> January 2009

⁸ Lords S&T Com Behaviour change report

⁹ <http://apply.odgers.com/Stream.aspx?doc=8C971BF6-2D34-4858-BADF-B5FFA9055AF8.pdf>

27. There is also a role for the Royal Society and other Academies to play in helping to identify and recruit future CSAs, by promoting awareness of opportunities for senior scientists to engage in public policy. In 2010 the Royal Society hosted a meeting with the Government Office for Science, chaired by the Government CSA to raise the awareness among senior academics of the work of departmental CSAs and the opportunities for working with Government.

The contribution of CSAs in promoting public trust in the independence and authority of science advice to government

28. That there is a CSA in each Government department, with a role to provide independent scientific advice to that department and in cross-cutting issues, should be recognised as a source of external expert contribution to policy making. However, the departmental CSAs, on the whole do not have a sufficiently significant public profile for this role to be acknowledged.
29. CSAs should, perhaps, seek to engage with the public more openly on individual issues, thereby not only increasing awareness of the role, but more importantly of some of the scientific issues which can impact on public policy. This is an example of an area where collaboration with other agencies might enhance the CSAs scope of activity.

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