



Government  
Office for

**Science**

***The Government Chief Scientific  
Adviser's Guidelines on the Use  
of Scientific and Engineering  
Advice in Policy Making***

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## Introduction by the Government Chief Scientific Adviser

Climate change, security, pressures on the supply of energy, food and water, health and migration pose unprecedented and inter-connected challenges to the world. Science and engineering are central to identifying, understanding and addressing these challenges. In fact it is difficult to think of a policy area, or a government department, where science cannot make an important contribution. While some of these are obvious such as climate change, others may be not so apparent, for example, the science of demography and ageing needed to inform the funding of future pensions and benefits or the volcanic eruption in Iceland which demonstrates the role science and engineering advice can play in civil contingency planning.

It is essential that policy-makers across government are able to draw on high quality, wide-ranging and robust evidence to enable informed decision-making. Together with an effective advisory process, this allows government to ensure that all opportunities are explored to their full potential and deal capably with emergencies.

A key element of my role as the Government's Chief Scientific Adviser is to work across government to embed an evidence-based approach to policy-making. These Guidelines support this process. The Guidelines were originally introduced in 1997 and were last revised in October 2005. It is important that they remain relevant. I have therefore decided to update them to reflect recent developments in policy making best practice.

While these guidelines are primarily targeted at those within government, I hope that they will also help reassure the wider scientific community that relevant science and engineering is considered seriously and methodically by policy makers.

## The guidelines

1. These guidelines address how scientific and engineering advice should be sought and applied to enhance the ability of government policy makers to make better informed decisions. The key messages are that departments, and policy makers within them, should:
  - **identify early** the issues which need scientific and engineering advice and where **public engagement** is appropriate;
  - draw on a **wide range of expert advice** sources, particularly when there is uncertainty;
  - adopt an **open and transparent approach** to the scientific advisory process and publish the evidence and analysis as soon as possible;
  - **explain publicly the reasons for policy decisions**, particularly when the decision appears to be inconsistent with scientific advice; and

- **work collectively** to ensure a joined-up approach throughout government to integrating scientific and engineering evidence and advice into policy making.
2. Departments should ensure that they have the capacity and capability to recognise where there is a need for scientific and engineering advice and to deliver that advice sustainably and effectively.
  3. This updated version of the Guidelines replaces the third edition issued in October 2005. It builds on policy making experience gained inside government and input from a wide range of partner organisations and individuals who responded to the public consultation held between November 2009 and February 2010.
  4. We encourage departments to ensure these Guidelines are woven into departmental guidance on better policy making. Chief Scientific Advisers should work in partnership with policy makers to ensure these Guidelines are fully embedded into departmental policy procedures and to ensure appropriate scientific input to policy decisions.

## **Which areas of evidence do the guidelines cover?**

5. The Guidelines focus on the use of scientific and engineering advice in government. They are complementary to that provided by the other analytical professions in government; economists, social researchers, statisticians, and operational researchers. Collectively, this guidance provides a framework to help departments deliver an integrated approach.



## The advisory process

*Identify early the issues which need scientific and engineering advice and where public engagement is appropriate, and draw on a wide range of expert advice sources, particularly when there is uncertainty.*

6. There are a number of stages within the policy making process that require scientific and engineering advice, from policy development through to implementation, monitoring and evaluation.
7. Departments should ensure their procedures for obtaining advice are consistent with the steps outlined below. The various stages in the process may have to be applied iteratively.

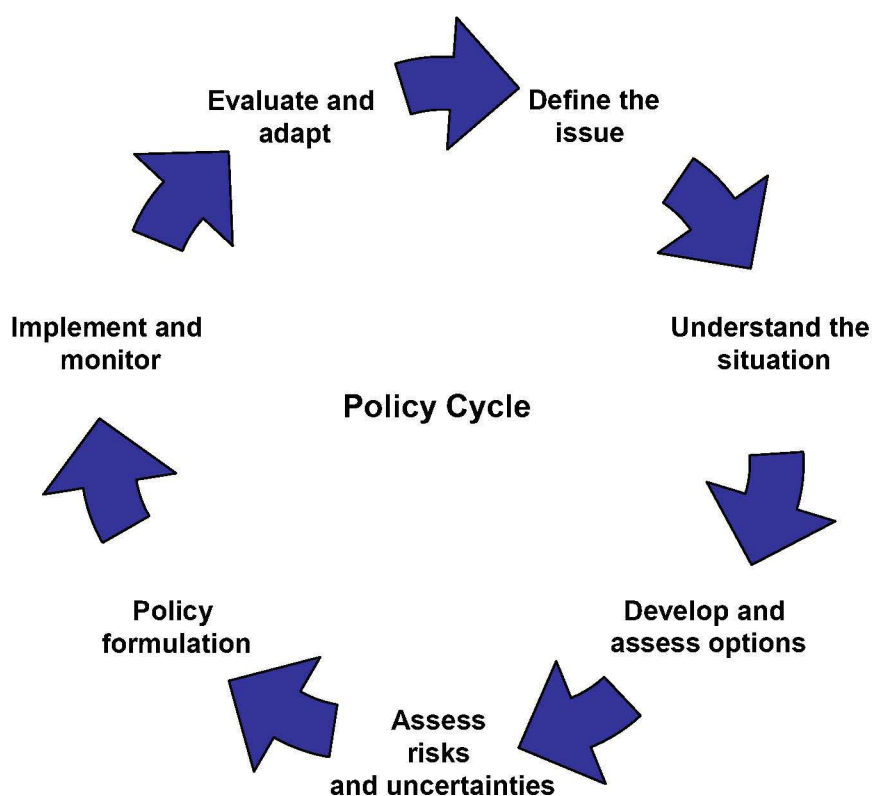


Figure 1: The policy cycle adapted from reference 1.<sup>1</sup>

### Identification of issues

8. In order to provide well informed advice and underpin policy it may be necessary to undertake or commission research. The need to anticipate future research and policy needs is as important as shorter term reactive

<sup>1</sup> Adapted from Defra E&I Strategy  
<http://www.defra.gov.uk/evidence/science/how/documents/eis-100126.pdf> and Clayton, H. and Culshaw, F. (2009) 'Science into policy: taking part in the process' Natural Environment Research Council: <http://www.nerc.ac.uk/publications/corporate/policy.asp>

research requirements. Individual departments should ensure that their procedures anticipate as early as possible issues that require scientific and engineering advice. Where research is needed to answer key questions important to policy formulation and/or its implementation a significant lead time may be necessary. Departments should regularly review their horizon scanning<sup>2</sup> procedures, ensuring that horizon scanning evidence is appropriately considered and, where necessary, acted upon. Horizon scanning should look broadly, beyond departments' current areas of interest, and should address opportunities as well as risks.

9. The Government Office for Science<sup>3</sup> houses Foresight<sup>4</sup> and its Horizon Scanning Centre.<sup>5</sup> Foresight conducts in-depth studies looking at strategic issues up to 50 years in the future, usually with a strong science focus. New projects can be proposed, and past projects contain a wealth of scientific analysis by leading experts. The Horizon Scanning Centre provides guidance and training on techniques and can be approached by government departments to undertake focused futures projects across the spectrum of public policy drawing on a broad evidence base.

### **Framing the question**

10. Early engagement with experts and partner organisations is key to framing appropriate and relevant questions on scientific and engineering issues. Departments must ensure that questions are framed to cover the interests and concerns of all relevant partners, including consumers and citizens. Where possible, there should be public involvement in framing the questions that experts and policy makers need to address. The proposed questions should also be discussed with the experts themselves. Effective public dialogue should begin as early as possible and key partners should be engaged throughout the policy cycle.
11. The role of public dialogue in the policy process will be specific to each department and each issue under consideration. Departments should consider their own consultative arrangements and working practices to ensure public engagement is effective.<sup>6</sup> Sciencewise-ERC<sup>7</sup> is the UK's national centre of expertise on public dialogue and engagement on science and technology issues. Sciencewise-ERC is currently working with government departments to provide advice and guidance to policy makers on the benefits and the implementation of public dialogue.

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<sup>2</sup> Horizon scanning is the systematic examination of potential threats, opportunities and likely developments including but not restricted to those at the margins of current thinking and planning. Horizon scanning may explore novel and unexpected issues as well as persistent problems or trends.

<sup>3</sup> <http://www.bis.gov.uk/go-science>

<sup>4</sup> <http://www.foresight.gov.uk/index.asp>

<sup>5</sup> <http://www.foresight.gov.uk/Horizon%20Scanning%20Centre/index.asp>

<sup>6</sup> <http://interactive.bis.gov.uk/scienceandsociety/site/trust/files/2010/03/BIS-R9201-URN10-699-WEB.pdf>

<sup>7</sup> <http://www.sciencewise-erc.org.uk/>

## Sources of research and advice

12. Departments should ensure they have sufficient in-house scientific and engineering capability to act as an intelligent customer of research and advice. While advice from external sources should be sought whenever necessary, departments should particularly ensure that such advice is sought when:
- the issue raises questions that are outside the expertise of in-house staff;
  - responsibility for a particular issue cuts across government departments;
  - a wide range of expert opinion exists and/or there is considerable uncertainty;
  - new findings are emerging rapidly;
  - there are potentially significant implications for areas of public policy; and/or
  - public confidence in scientific advice from government could be strengthened.
13. Departments should draw on a range of appropriate expert sources, both within and outside government. The selection of advisers should match the nature of the issue and should be sufficiently wide to reflect the diversity of opinion amongst experts in the appropriate field(s) in a balanced way.
14. A number of government departments have established Science Advisory Councils to provide independent overview and challenge of their management and use of science. Complementing the work of Science Advisory Councils, Scientific Advisory Committees provide scientific advice to one or more departments on a specific issue, for example, nutrition or air quality.
15. Science Advisory Councils and Scientific Advisory Committees provide an important resource, for example, to identify emerging issues, provide advice on how to frame the questions, and at the evaluation stage. Published in 2010, 'The Principles of Scientific Advice to Government'<sup>8</sup> provide a foundation on which independent scientific advisers and government departments should base their operations and interactions (Annex A). 'The Code of Practice for Scientific Advisory Committees'<sup>9</sup> offers more detailed advice focused on the working of these bodies.
16. When deciding which external sources to consult, departments should encourage those responsible for individual issues to establish new networks continually in order to capture the full diversity of good evidence-based advice.

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<sup>8</sup> <http://www.bis.gov.uk/go-science/principles-of-scientific-advice-to-government>

<sup>9</sup> <http://www.bis.gov.uk/goscience-copsac>



17. Sources of research and advice may include:

- departments' own experts and analysts, and programmes of internal and externally commissioned research;
- departments' existing expert advisory systems; such as Science Advisory Councils and Scientific Advisory Committees;
- other departments' research programmes;
- Research and Funding Councils;
- research from non-departmental-sources, including international bodies (for example, the European Commission and non-departmental public bodies such as the Council for Science and Technology);
- National Academies,<sup>10</sup> professional institutions and the other learned societies; and
- the broad science and engineering community. For example, universities, private and charity sector research and development funders.

### **An international perspective**

18. Where appropriate, consideration should also be given to consulting experts from outside the UK, for example those from European or international advisory mechanisms. International advice is particularly important in cases where the other countries have experience of, or are likely to be affected by, the issue under consideration. For example, the European Academies Science Advisory Council<sup>11</sup> (EASAC) enables the national academies of Europe to work together to provide high quality advice to European Union policy makers. The European Commission's Joint Research Centre functions as a reference centre of science and technology for the Union.<sup>12</sup>

19. The UK Government's Science and Innovation Network<sup>13</sup> of officials in key UK Embassies and Consulates undertake a wide variety of work (promoting scientific expertise, strengthening UK innovation, informing effective policy making and leadership and using science and innovation as an influencing tool) and can provide a useful network for identifying and making use of international expertise.

### **Roles and responsibilities**

20. There should be a clear understanding between scientists, advisers and policy makers on what advice is being sought, by whom and for what purpose. It should be made clear to the experts what role(s) they are being

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<sup>10</sup> The Royal Society, the Royal Academy of Engineering, the Academy of Medical Sciences and the British Academy

<sup>11</sup> <http://www.easac.eu/>

<sup>12</sup> <http://ec.europa.eu/dgs/jrc/index.cfm>

<sup>13</sup> <http://www.fco.gov.uk/en/about-us/publications-and-documents/publications1/annual-reports/science-and-innovation1>

asked to perform and the boundary of their role(s). Boundaries should be reasonable and agreed at the start with external advisers to avoid any misunderstanding later in the advisory process. These roles can include:

- review of existing data and research sources;
- collection and analysis of new scientific data;
- interpretation of research from different sources;
- application of expert judgement where data is lacking or inconclusive;
- identification of policy options based on data and research evidence; and
- providing expert scientific and engineering advice on policy options.

21. When asking experts to identify policy options or to comment on policy options prepared by others, those involved should respect the line between the responsibility of experts to provide advice, and the responsibility of departments for any subsequent policy decisions based on that advice. 'The Principles of Scientific Advice to Government' (Annex A) are a useful tool for ensuring the respective roles are clear.

22. Departmental guidance should consider how advice is provided in an emergency,<sup>14</sup> including clear designation of responsibility, the processes to be employed and the sources of advice.

## **Risks and uncertainties**

23. When assessing the levels of risk or establishing risk management strategies in relation to a specific policy, it is vital to take into account all known sources of uncertainty. The use of evidence is essential and scientists, engineers and policy makers must also ensure that they include evidence of any differing perspectives of risk as part of any decision making process.<sup>15</sup> Early public engagement is often vital to ensure this happens.

24. Evidence in public policy making contains varying levels of uncertainty that must be assessed, communicated and managed. Departments should not press experts to come to firm conclusions that cannot be justified by the evidence available. The levels of uncertainty should be explicitly identified and communicated directly in plain language to decision makers. There will inevitably be occasions where advice is required within a few days, or even within hours. Decision makers should therefore also be made aware

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<sup>14</sup> Cabinet Office advice on emergencies <http://www.cabinetoffice.gov.uk/ukresilience.aspx>, includes the Concept of Operations (CONOPS).

<sup>15</sup> HM Treasury's 'Managing risks to the public: appraisal guidance' for further details on risk management: [http://www.hm-treasury.gov.uk/d/managingrisks\\_appraisal220705.pdf](http://www.hm-treasury.gov.uk/d/managingrisks_appraisal220705.pdf) The Better Regulation Commission's report 'Public Risk – the Next Frontier for Better Regulation' [http://archive.cabinetoffice.gov.uk/brc/upload/assets/www.brc.gov.uk/public\\_risk\\_report\\_070108.pdf](http://archive.cabinetoffice.gov.uk/brc/upload/assets/www.brc.gov.uk/public_risk_report_070108.pdf) RRAC reports 'Response with Responsibility: Policy-making for Public Risk in the 21st Century' <http://www.berr.gov.uk/files/file51459.pdf> 'A Practical Guide to Public Risk and Communication' <http://www.berr.gov.uk/files/file51458.pdf>



of the period of notice which policy makers and specialists have had to prepare advice. The level of confidence and appropriate caveats should be stated where analysis and advice has been time limited.

## **Quality assurance and peer review**

25. Quality assurance provides confidence in the evidence gathering process whilst peer review provides expert evaluation of the evidence itself. Both are vital tools in ensuring that advice is as up-to-date and robust as possible. All evidence should be subject to critical evaluation; however, this can take different forms and needs to be proportionate to the nature of the evidence and its use. Departments should ensure appropriate quality assurance and peer review processes are carried out. Scientific Advisory Committees, learned societies, academics and other experts can assist in the peer review process.
26. When responding to public concerns over emerging findings, it is important that departments state clearly the level of quality assurance and peer review which has been carried out, whether they intend to subject the work to any further assessment or peer review and when the outcome of this is likely to be available. It is important that departments revisit issues and policy decisions in the light of new or changing evidence.

## **Openness and transparency**

***Adopt an open and transparent approach to the scientific advisory process, publish the evidence and analysis as soon as possible and explain publicly the reasons for policy decisions, particularly when the decision appears to be inconsistent with scientific advice.***

27. Scientific advice is only one consideration which may need to be taken into account by government decision makers. Others might include social, political, economic, or ethical concerns.
28. Openness of the scientific advisory process is vital to ensure that all relevant streams of evidence are considered, and that the process has the confidence of experts and the public.<sup>16</sup> The evidence for a particular policy should be published as early as possible, unless there are over-riding reasons for not doing so, for example, national security, or requirements to protect personal or commercial confidentiality. The evidence should be published in a way that is meaningful to the non-expert. The analysis and judgement that went into it, and any important omissions in the data, should be clearly identified.

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<sup>16</sup> This is covered in Section 35/6 of the Freedom of information Act. Full guidance on the Act can be found at: <http://www.dca.gov.uk/foi/guidance/index.htm>.

29. It is important to ensure that working practices are transparent. Departments should ask prospective experts to follow the seven principles of public life<sup>17</sup> as set out by the Committee on Standards in Public Life, which include the obligation to declare any private interests relating to their public duties. As called for in 'The Universal Ethical Code for Scientists'<sup>18</sup>, a declaration of conflicts of interest should be made available to anyone who might rely on that advice and made more widely available as appropriate. Departments should judge whether these interests could undermine the credibility or independence of the advice. It is important to recognise that advisers are rarely totally independent as, by the nature of their expertise they will often have an interest in the sector on which they advise. Gathering evidence from a range of experts or from an expert committee ensures a more independent view as, for example, lobbying will become apparent.

### **Communicating the advice**

30. The effective and efficient handling of scientific advice is essential. Those responsible for communication with the public should ensure that the evidence on which any decisions are based is included as part of any press release or communication strategy. The reasons for policy decisions should be explained publicly, particularly when the decision appears to be inconsistent with scientific advice.
31. In public presentations, departments should wherever possible consider giving experts (internal or external) a leading role in explaining their advice on a particular issue. Independent scientific advisory bodies should have the ability to communicate relevant advice freely, subject to normal confidentiality restrictions, including when it has not been accepted. Scientific advisers should make clear in what capacity they are communicating, for example as Committee Chair or in an academic capacity.<sup>19</sup> Further guidance can be found in the 'The Code of Practice for Scientific Advisory Committees'.<sup>20</sup>
32. Departments and committees should consider the potential benefits that consumer or lay representatives can bring to the clear communication and transparency of the scientific advice that is provided by committees. Policy makers should state clearly what precautionary approaches are being taken in response to uncertainties identified during the advisory process. Ministers or policy officials have the responsibility to describe how the government's policies have been informed by the advice received.
33. Consideration should also be given to early communication with key partners, including consumers and citizens, and to providing early warning of significant policy announcements to other government departments and

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<sup>17</sup> [http://www.public-standards.gov.uk/Library/Seven\\_principles.doc](http://www.public-standards.gov.uk/Library/Seven_principles.doc)

<sup>18</sup> <http://www.bis.gov.uk/goscience-code>

<sup>19</sup> <http://www.bis.gov.uk/go-science/principles-of-scientific-advice-to-government>

<sup>20</sup> <http://www.bis.gov.uk/goscience-copsac>



international organisations, where there are likely to be implications for other countries.<sup>21</sup>

## Capacity and capability

***It is important for departments and policy makers to work collectively to ensure a joined-up approach throughout government to integrating scientific and engineering evidence and advice into policy making.***

34. The Government Chief Scientific Adviser (GCSA) and the Government Office for Science exist to ensure that the UK Government has access to, and uses, high quality scientific and engineering advice.<sup>22</sup>
35. There is now a Chief Scientific Adviser (CSA) in every major science using department. Led by the GCSA, departmental CSAs work collectively, with other analytical disciplines and with departmental boards and Ministers, to ensure that robust, joined-up evidence is at the core of decisions within departments and across government. The Chief Scientific Advisers Committee (CSAC) works to ensure that scientific advice vital to multidisciplinary cross government issues such as climate change or counter terrorism is provided effectively.
36. It is also important that scientific and engineering advice is integrated with evidence from the other analytical professions. Across government, the heads of the analytical professions, including the GCSA in his capacity as Head of Science and Engineering Profession, are brought together in the Heads of Analysis (HoA) group.<sup>23</sup> HoA encourages good practice on cross-disciplinary working to deliver an integrated evidence base and on cross-government issues. All analytical professions in government have codes of practice or adhere to wider guidance, including the Civil Service Code, the seven principles of public life and the ESRC research ethics code.<sup>24</sup>

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<sup>21</sup> Please see [http://www.nationalschool.gov.uk/policyhub/better\\_policy\\_making/](http://www.nationalschool.gov.uk/policyhub/better_policy_making/) for further details.

<sup>22</sup> <http://www.bis.gov.uk/goscience-seg>

<sup>23</sup> The analytical streams represented in HoA are: economics, social research, statistics, operational research and science and engineering

<sup>24</sup> The GSR Code [http://www.gsr.gov.uk/professional\\_guidance/gsr\\_code/index.asp](http://www.gsr.gov.uk/professional_guidance/gsr_code/index.asp); The Code of practice for official Statistics <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf>; Nolan principles: [http://www.public-standards.gov.uk/Library/Seven\\_principles.doc](http://www.public-standards.gov.uk/Library/Seven_principles.doc); Civil service Code: [http://www.civilservice.gov.uk/Assets/cs\\_code\\_tcm6-2444.pdf](http://www.civilservice.gov.uk/Assets/cs_code_tcm6-2444.pdf); ESRC Research Ethics Code: [http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/Framework%20for%20Research%20Ethics%202010\\_tcm6-35811.pdf](http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/Framework%20for%20Research%20Ethics%202010_tcm6-35811.pdf)

## **Cross-cutting issues**

37. It is important that departments adopt a joined-up approach on cross-cutting research issues. The maintenance of a wide ranging knowledge base is vital to policy making and delivery and departments should adopt a proactive approach to identifying what existing research is available across government.

## **Scientific capacity**

38. Government departments and agencies need sufficient in-house scientific and engineering capacity to recognise the full spectrum of relevant evidence and to know how to access it. They may be assisted in this by individuals and organisations adept at working in the 'knowledge brokering'<sup>25</sup> capacity.
39. Government Science & Engineering (GSE)<sup>26</sup> is the cross-government community for scientists and engineers. GSE supports and promotes the science and engineering profession across the Civil Service, raising understanding of the skills, values and expertise of its members and building links between the different analytical streams and policy makers. The expertise of the GSE community is available to be drawn upon by government departments.

## **Reviewing the management and use of science and engineering by departments**

40. The Government Office for Science's 'Science and Engineering Assurance' Programme produces benchmarking reviews of how departments use and manage scientific and engineering evidence. Each department is being reviewed once and thereafter on-going scrutiny will be achieved through departmental self-assessment with external verification. The reviews assess the 'fitness for purpose' of departments' systems and approaches, taking a 'critical friend' approach. They provide both the Departmental Permanent Secretary and the GCSA with an assessment of the evidence used to develop and delivery policy is robust, relevant and of a high quality.
41. The Government has revised its analytical framework to monitor the management and use of science and engineering and now uses the following criteria:
- Strategy, policy making and delivery should be effectively informed by science and engineering.

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<sup>25</sup> <http://www.rcuk.ac.uk/innovation/ktportal/default.htm>

<sup>26</sup> <http://www.civilservice.gov.uk/my-civil-service/networks/professional/science-engineering/index2.aspx>

- Government as a whole, and individual government departments, should take a strategic approach to the prioritisation, accessing, resourcing and delivery of science and engineering.
  - All science and engineering used by government should be robust, relevant and high quality.
  - Science and engineering should be made publicly available unless there is a clear justification for not doing so.
  - The implications of science and engineering for society should be fully considered, engaging the public whenever appropriate, using good practice.
  - Government should ensure effective knowledge transfer, innovation and pull through of its research to the economic development of new technologies and services.
  - Departments should ensure that they have the science and engineering capacity and capability to manage and deliver the above sustainably and effectively.
42. Departments are encouraged to ensure 'the Guidelines on the Use of Scientific and Engineering Advice in Policy Making' are woven into departmental guidance on better policy making. The integration and use of these, and other guidelines on effective use of analytical evidence, will be addressed in both Science and Engineering Assurance reviews and subsequent self-assessment exercises.



## Useful information

### Professional Guidance

- Principles of Scientific Advice to Government  
<http://www.bis.gov.uk/go-science/principles-of-scientific-advice-to-government>
- Civil Service Code  
[http://www.civilservice.gov.uk/Assets/cs\\_code\\_tcm6-2444.pdf](http://www.civilservice.gov.uk/Assets/cs_code_tcm6-2444.pdf)
- The GSR Code  
[http://www.gsr.gov.uk/professional\\_guidance/gsr\\_code/index.asp](http://www.gsr.gov.uk/professional_guidance/gsr_code/index.asp)
- The Code of practice for official Statistics  
<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf>
- Research Councils UK: 'RCUK Policy and Code of Conduct on the Governance of good research conduct: Integrity, Clarity and Good Management'  
<http://www.rcuk.ac.uk/review/grc/default.htm>
- Cabinet Office's 1999 report 'Professional policy making for the twenty first century'  
<http://www.nationalschool.gov.uk/policyhub/docs/profpolicymaking.pdf>
- ESRC Research Ethics Code  
[http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/Framework%20for%20Research%20Ethics%202010\\_tcm6-35811.pdf](http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/Framework%20for%20Research%20Ethics%202010_tcm6-35811.pdf)

### Identification of issues

- The Government Office for Science – Foresight  
<http://www.foresight.gov.uk/index.asp>
- The Government Office for Science – Foresight Horizon Scanning Centre  
<http://www.foresight.gov.uk/Horizon%20Scanning%20Centre/index.asp>

### Framing the question

- Sciencewise ERC Guiding Principles  
<http://www.sciencewise-erc.org.uk/cms/knowledge-hub/>

### Sources of advice

- The Code of Practice for Scientific Advisory Committees  
<http://www.bis.gov.uk/goscience-copsac>

- The European Academies Science Advisory Council  
<http://www.easac.eu/>
- The European Research Council  
<http://erc.europa.eu/>
- The Science and Innovation Network  
<http://www.fco.gov.uk/en/about-us/publications-and-documents/publications1/annual-reports/science-and-innovation1>

### **Risks and uncertainties**

- HM Treasury's 'Managing risks to the public'  
[http://www.hm-treasury.gov.uk/d/managingrisks\\_appraisal220705.pdf](http://www.hm-treasury.gov.uk/d/managingrisks_appraisal220705.pdf)
- The Better Regulation Commission's report 'Public Risk – the Next Frontier for Better Regulation'  
[http://archive.cabinetoffice.gov.uk/brc/upload/assets/www.brc.gov.uk/public\\_risk\\_report\\_070108.pdf](http://archive.cabinetoffice.gov.uk/brc/upload/assets/www.brc.gov.uk/public_risk_report_070108.pdf)
- RRAC report 'Response with Responsibility: Policy-making for Public Risk in the 21st Century'  
<http://www.berr.gov.uk/files/file51459.pdf>
- RRAC report 'A Practical Guide to Public Risk and Communication'  
<http://www.berr.gov.uk/files/file51458.pdf>
- House of Commons Science and Technology Committee Report 'Scientific Advice, Risk and Evidence Based Policy Making' (Seventh Report of Session 2005–06) HC 900-I (2006)  
<http://www.publications.parliament.uk/pa/cm200506/cmselect/cmsctech/900/900-i.pdf>
- 'Taking European Knowledge Society Seriously' includes a chapter on Risk, Uncertainty and Precaution  
[http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/european-knowledge-society\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/european-knowledge-society_en.pdf)
- Cabinet Office advice on emergencies, includes the Concept of Operations (CONOPS)  
<http://www.cabinetoffice.gov.uk/ukresilience.aspx>

### **Openness and transparency**

- Freedom of Information Act  
<http://www.dca.gov.uk/foi/guidance/index.htm>
- Seven Principles of Public Life  
[http://www.public-standards.gov.uk/Library/Seven\\_principles.doc](http://www.public-standards.gov.uk/Library/Seven_principles.doc)
- 'Rigour, Respect, Responsibility, A Universal Ethical Code for Scientists'  
<http://www.bis.gov.uk/goscience-code>
- The National School of Government's Policy hub has a useful list of 'key documents' accessible from the following page  
[http://www.nationalschool.gov.uk/policyhub/better\\_policy\\_making/](http://www.nationalschool.gov.uk/policyhub/better_policy_making/)

- Science and Trust expert group report and action plan  
<http://interactive.bis.gov.uk/scienceandsociety/site/trust/files/2010/03/BIS-R9201-URN10-699-WEB.pdf>

### **Capacity and capability**

- Science and Engineering in Government  
<http://www.bis.gov.uk/goscience-seg>
- RCUK Knowledge transfer portal  
<http://www.rcuk.ac.uk/innovation/ktportal/default.htm>
- Government Science and Engineering – the professional science and engineering community across Government  
<http://www.civilservice.gov.uk/my-civil-service/networks/professional/science-engineering/index2.aspx>
- ‘Enhancing the Role of Science in the Decision-Making of the European Union’  
[http://www.epc.eu/TEWN/pdf/668109152\\_EPC%20Working%20Paper%2017%20Enhancing%20the%20role%20of%20science%20in%20EU%20decision%20making%20\(revised\).pdf](http://www.epc.eu/TEWN/pdf/668109152_EPC%20Working%20Paper%2017%20Enhancing%20the%20role%20of%20science%20in%20EU%20decision%20making%20(revised).pdf)
- From Science and Society to Science in Society: Towards a Framework For ‘co-operative research’  
[http://ec.europa.eu/research/science-society/pdf/goverscience\\_final\\_report\\_en.pdf](http://ec.europa.eu/research/science-society/pdf/goverscience_final_report_en.pdf)
- Government Office for Science: Annual Review 2009  
<http://www.dius.gov.uk/assets/biscore/goscience/g/10-p95-goscience-annual-review.pdf>

## **Annex A: Principles of Scientific Advice to Government**

The Principles of Scientific Advice set out the rules of engagement between Government and those who provide independent scientific and engineering advice. They provide a foundation on which independent scientific advisers and government departments should base their operations and interactions.

The Principles apply to Ministers and Government departments, all members of Scientific Advisory Committees and Councils (the membership of which often includes statisticians, social researchers and lay members) and other independent scientific and engineering advice to Government. They do not apply to employed advisers, departmental Chief Scientific Advisers or other civil servants who provide scientific or analytical advice, as other codes of professional conduct apply.

### **Clear roles and responsibilities**

- Government should respect and value the academic freedom, professional status and expertise of its independent scientific advisers.
- Scientific advisers should respect the democratic mandate of the Government to take decisions based on a wide range of factors and recognise that science is only part of the evidence that Government must consider in developing policy.
- Government and its scientific advisers should not act to undermine mutual trust.
- Chairs of Scientific Advisory Committees and Councils have a particular responsibility to maintain open lines of communication with their sponsor department and its Ministers.

### **Independence**

- Scientific advisers should be free from political interference with their work.
- Scientific advisers are free to publish and present their research.
- Scientific advisers are free to communicate publicly their advice to Government, subject to normal confidentiality restrictions, including when it appears to be inconsistent with Government policy.
- Scientific advisers have the right to engage with the media and public independently of the Government and should seek independent media advice on substantive pieces of work.
- Scientific advisers should make clear in what capacity they are communicating.

## Transparency and openness

- Scientific advice to Government should be made publicly available unless there are over-riding reasons, such as national security or the facilitation of a crime, for not doing so.
- Any requirement for independent advisers to sign non-disclosure agreements, for example for reasons of national security, should be publicly acknowledged and regularly reviewed.
- The timing of the publication of independent scientific advice is a matter for the advisory body but should be discussed with the Government beforehand.
- Government should not prejudge the advice of independent advisers, nor should it criticise advice or reject it before its publication.
- The timing of the Government's response to scientific advice should demonstrably allow for proper consideration of that advice.
- Government should publicly explain the reasons for policy decisions, particularly when the decision is not consistent with scientific advice and in doing so, should accurately represent the evidence.
- If Government is minded not to accept the advice of a Scientific Advisory Committee or Council the relevant minister should normally meet with the Chair to discuss the issue before a final decision is made, particularly on matters of significant public interest.

## Applying the Principles

Scientific Advisory Committees, Councils and government departments should consider the extent to which the Principles in this document are reflected in their operation and to make changes as necessary. Issues relating to the function and working of scientific advisory bodies that are not reflected in these high-level Principles are discussed in more detailed guidance such as the *Code of practice for Scientific Advisory Committees* or the *Guidelines on scientific analysis in policy-making*.

Government departments and their independent scientific advisers should raise issues of concern over the application of the Principles, or other guidance, with the relevant departmental Chief Scientific Adviser (CSA). If the matter of concern cannot be effectively resolved or is especially serious CSAs should approach the Government Chief Scientific Adviser (GCSA) and Ministers should approach the GCSA and the Minister for Science. The matter will be examined against a clear set of criteria, which include a breach of the Principles or CoPSAC.





Department for Business, Innovation and Skills

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