Guidelines on Scientific Analysis in Policy Making

Government response to the public consultation

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1. Introduction

1.1 Background

The Guidelines on Scientific Analysis in Policy Making provide a high-level framework for addressing the way in which government departments obtain and use science and engineering advice.

First published in 1997, the Chief Scientific Adviser's Guidelines have twice been revised after a process of public consultation (July 2000 and October 2005). A further update of the Guidelines was appropriate in order to consider the role of engineering advice in policy-making, and also capture changes made to the provision of expert scientific and engineering advice in government since 2005.

The public consultation has materially contributed to the updating of the Guidelines and reinforced the Government's view that they remain a valuable source of reference for the use of scientific and engineering advice in government.

1.2 Consultation process

The Government Office for Science published a consultation paper on 17 November 2009, seeking views on updating the Guidelines. The consultation was published on the Department for Business, Innovation and Skills (BIS) website,[1] and publicised through this website.

The consultation posed a number of questions on scientific and engineering advice to government and broadly covered methods for identifying issues, how to ensure a wide range of evidence and advice is taken into account, open and transparent processes, peer-review and quality assurance and how to manage the impact of novel and emerging issues. Respondents were also given the opportunity to comment on any additional issues that could be covered within the Guidelines.

The consultation paper was circulated directly to a range of internal and external partners, including national academies, learned societies, professional institutions, and colleagues across government. A press notice announced the launch of the consultation.

To supplement the consultation process, a workshop was held in London on 17 November 2009, and was attended by government officials, learned societies, and individuals. Points raised in the consultation workshop are considered in this consultation response.

[1] http://www.berr.gov.uk/consultations/page53603.html

1.3 Consultation Responses

The consultation closed on 9 February 2010. Sixty-eight responses were received:

1	Business representative organisation/trade body
8	Central government
3	Charity or social enterprise
22	Individual
2	Researcher
11	National Academy/Learned Society
1	Large business (over 250 staff)
8	Non-departmental public body
1	Consumer representative
1	Executive Agency
1	Micro business (up to 9 staff)
5	Professional Institution
4	Other

The Government is grateful to everyone who responded formally to the consultation, and to those who attended the workshop. The views expressed have helped inform our approach to updating the Guidelines which will be published mid 2010.

A summary of the responses received to the consultation, and the Government's response to the points raised is set out below.

A list of those respondents who agreed that their names and responses could be disclosed can be found in Annex A. A list of the workshop participants is available as Annex B.

2. Summary of Responses to the Consultation Questions

Question 1: The provision of science and engineering advice to government has continued to develop since 2005, for example the appointment of Chief Scientific Advisers (CSAs) to all the major science using government departments.

- Are the Guidelines still necessary or relevant to the current context of science and engineering advice?
- In revising these Guidelines, are there additional issues that could be usefully covered?

Summary of responses

- The majority of the respondents supported the Guidelines and viewed them as useful, necessary and relevant. The guidance was considered an essential tool in informing the use of science in support of policy making. A number of responses felt an update was timely to reflect recent changes in policy making practices, for example, the appointment of Chief Scientific Advisers in major science using departments was highlighted as a step forward. It was felt that the Guidelines had an important role to play in ensuring that the Government receives the most accurate up-to-date and impartial advice and information on a wide-range of issues covering many scientific disciplines.

- Some responses identified that awareness of the Guidelines is poor, and although the principles are generally followed in practice, the process of implementation and evaluation might be better emphasised in any revision. It was suggested that values underlying the Principles of Scientific Advice to Government should be reflected in the Guidelines whilst maintaining the document as relevant and concise. It was felt that the Guidelines should highlight the importance of scientific capability within the civil service if it is to behave as intelligent customers of scientific advice.

Government's response

- The Government welcomes the support for the Guidelines.

- The 2010 version of the Guidelines will emphasise further the process of implementation and evaluation of the Guidelines, reflect the Principles of Scientific Advice to Government and include a section on capability and capacity.

Question 2: Adequate dialogue with experts, stakeholders and the public is crucial to allow early identification of issues that require specialist advice.

- Are there other methods for identifying issues that require specialist advice that could usefully be highlighted in this section?

- How and when might advice at the strategic level (for example from Scientific Advisory Committees and Science Advisory Councils) be usefully distinguished from advice at the individual policy level?

Summary of responses

- A number of respondents felt that the Guidelines could place more emphasis on the need to think ahead and to allow time to take the appropriate scientific advice. In developing the knowledge base it was noted that horizon scanning processes should look beyond the UK, to Europe and internationally. In addition to adequate horizon scanning, departments also need adequate mechanisms in place for periodically reviewing evidence and updating policies, as appropriate. Departments should ensure that their processes for identifying issues on which advice is required involve multidisciplinary input, particularly where those issues are likely to have wider impacts and applications.

- The requirement for in-house scientific expertise was mentioned by a number of respondents who commented that adequate expertise was required for identification of scientific issues and to ensure that relevant groups are consulted. Specially appointed knowledge brokers or facilitators who act as an interface between researchers and policymakers, can also help to identify issues that require specialist advice.

- A number of respondents commented on the importance of early engagement of policy makers with partner organisations and of public dialogue in identifying early issues that require specialist advice or to assist with the consideration of different policy options. The potential of national academies and learned societies to facilitate dialogue between policy makers and academics was also acknowledged.

- It was felt that a body's terms of reference should make the distinction between strategic scientific advisory groups and bodies providing subject specific advice. It was also noted that strategic advisory bodies should have a role in taking a horizon scanning view when formulating advice.

Government's response

- The government agrees that broad horizon scanning processes are valuable and further emphasis will be placed on this point in the updated version of the Guidelines.

- A section on capacity and capability will be added to the updated Guidelines and will include reference to in-house scientific expertise.

- The Government agrees early engagement of policy makers with partners and public dialogue are important and additional prominence of these points will be given in the updated version of the Guidelines.

Question 3: Critical to the formulation of robust, high-quality policy is that the full range of evidence and advice is taken into account.

3a) On the evidence base

- Is there anything more that can be said about ensuring an appropriate, adequate evidence base and the role of expert advice in identifying gaps and weaknesses?
- What key indicators might policy makers use as guidance on when it is necessary to commission new research/expert advice?

3b) On expert advisors

- When developing policy, how can the Government ensure that a full spectrum of evidence is heard, from across government and externally?
- What mechanisms should government use to identify expert advisors? What role should the National Academies and other learned societies play?
- The independence of science and engineering advisors, and of advice to government, is critical. How might independence be defined? Can we ensure "independence" is delivered in practice?

3c) On government advisory structures

- How might individual advisory structures determine whether a lay member/consumer representative/ethicist would add value to its working?
- How might government better draw upon established sources of expert advice (Science Advisory Councils and Scientific Advisory Committees, for example)?

3d) On external opinion and public dialogue

- How should policy-makers manage a situation where public opinion ran contrary to expert evidence-based advice?
- What, if any additional items on public dialogue should be included in the guidelines?

Summary of responses

a)

- It was felt that the early involvement of specialists in defining the questions to be asked and assessing what knowledge is required was important. It was suggested that government might benefit from further engaging with academics experts - nationally and internationally – and that institutions such as national academies may be well-placed to nominate individuals.

- Examples of key indicators that policy makers might use to commission new research/expert advice provided by respondents included: where there is a lack of knowledge/high level of uncertainty, a high risk to health and/or the environment if policy goes wrong, the policy is based on new/untested technology/theory, or there are social sensitivities or disparity of opinion.

b)

- A number of respondents felt that key partners should be engaged throughout policy development and that openness and transparency from very early on in the policy making process would help ensure a full spectrum of evidence is heard. Knowledge transfer networks were also highlighted as a mechanism for ensuring a wide range of evidence. The network of CSAs was commented on as a mechanism for cross-departmental co-ordination.

- It was suggested that 'Independence' should refer to independence from Government or party politics, and also from significant personal financial interests. However, a number of respondents noted that it was rarely practical to have scientists who are demonstrably independent of the policy areas upon which they advise as often those with vested interests have the deepest scientific knowledge into specific areas of policy. To ensure independence of advice is delivered in practice, the most important thing is to seek a range of opinions. Transparency is also essential, and those providing advice should declare any relevant interest.

c)

- It was felt that lay members can bring a valuable perspective to advisory committees, particularly on the ways in which advice might be understood and interpreted by the public. However, it was suggested that there are no true 'lay' people, as those that put themselves forward tend to already have an interest.

d)

- A number of respondents commented that if a decision is taken that runs contrary to the scientific advice, the reason for this needs to be made clear. A transparent process for commissioning evidence and advice is essential for policymakers to explain how a decision was reached. Making this information public to stimulate dialogue on the implications and limits of the evidence is important. The Sciencewise Expert Resource Centre for Public Dialogue in Science and Innovation was highlighted as a useful point of contact and source of further resources.

- It was acknowledged that decision makers need to take a broad range of issues into account in reaching policy conclusions, and therefore those conclusions may differ from those anticipated by the experts on the scientific advice alone.

Government's response

- The Government acknowledges the importance of involving specialists early in the policy making process and engaging relevant partners throughout policy development and will make this clear in the updated version of the Guidelines.

- The 2010 version of the Guidelines will recognise the role of knowledge transfer networks and departmental CSAs.

- The updated Guidelines will acknowledge that advisors 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 an independent view.

- The updated Guidelines will also encourage departments and committees to consider the potential benefits that consumer or lay representatives can bring in the clear communication and transparency of the scientific advice that is provided by committees.

- The updated Guidelines will recommend that the reasons for policy decisions be made public, particularly when the decision appears to be inconsistent with scientific advice.

- The updated Guidelines will set out that 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.

Question 4: The Government is committed to evidence-based policy-making, and the provision of independent science and engineering advice is key to underpinning this aim.

- Academics and other external sources of research-based evidence can provide input at different times in the process of policy development, including policy formation and evaluation. How can the Government identify at what stages input would be most effective?
- When in the policy making process should the Government publish the evidence base for a given policy decision?
- On what occasions, if any, might it be appropriate for the Government or advisers to withhold advice provided/the evidence base for a policy?
- Should further distinction, if there is one to make, be made between advice in a crisis and advice delivery where the timescales are longer?

Summary of responses

- It was felt that policy makers need to remain open throughout the development of policy to inputs from academia and other interested partners. The involvement of specialists should be considered at every point, particularly at the early stage of policy development where research issues and questions are being defined.

- Generally respondents suggested that the evidential basis for a policy decision should be publicly available at the time the decision is made, although recognised there may be some exceptions. The majority of respondents considered that there were some cases where advice/the supporting material should be withheld, however this should be confined to cases where national security or the development of further knowledge to support the policy could be compromised.

- There was some division of opinion between respondents on the need for further distinction between the delivery of advice in a crisis and advice delivery where the timescales are longer. Some respondents felt that there was no distinction to be made as regardless of timescale, key conditions for the delivery of advice remained the same. However, a number of respondents commented that there was a distinction to be made and that this related to the potential for greater uncertainty in a crisis of the evidence upon which the advice is based. Where advice is provided in a crisis situation there should be an expectation that review of the advice provided in those circumstances should be a priority when specific circumstances change.

Government's response

- The Government recognises the importance of considering the involvement of specialists throughout the policy cycle. The updated Guidelines will suggest that when deciding which external sources to consult, departments should continually encourage those responsible for individual issues to establish new networks in order to capture the full diversity of knowledge on an issue.

- The updated Guidelines will encourage the knowledge base for a particular policy should be published as early as possible.

- However, the Guidelines will also recognise that occasionally there are over-riding reasons that require advice/the supporting material to be withheld, for example, national security, or requirements to protect personal or commercial confidentiality.

- The updated Guidelines will suggest that departmental guidance should consider how advice is provided in a crisis, including clear designation of responsibility, the processes to be employed and the sources of advice.

Question 5: Peer review and quality assurance can play an important role in assessing the evidence-base for a policy.

- How might departments identify when peer-review of the evidence-base is warranted?
- What kind of quality assurance is needed in different circumstances and at different stages of the policy-making process?
- What other quality assurance processes might usefully be highlighted in the updated Guidelines?

Summary of responses

- The requirement for peer review to take place as early as possible in the policy cycle to allow for early identification of areas which need to be addressed by further research was commented upon by some respondents.

- It was felt that the nature of quality assurance needed for policy development would depend on the nature of the issues and the operative constraints – one size does not fit all. However, some form of critical evaluation is indispensable. Quality assurance should consider whether research is fit for purpose and robust, and for new research projects it should consider value for money and the likelihood of delivery. Emerging knowledge still lacking peer review should be identified as such, especially when findings are controversial.

Government's response

- The Government welcomes the views of the respondents in acknowledging the value of critical evaluation in policy development and notes that the nature of quality assurance required depends on the nature of the issue.

- The updated Guidelines encourage departments to ensure appropriate quality assurance and peer review processes are carried out.

Question 6: Scientific evidence does not always provide a clear cut answer, and sometimes there are differing schools of thought on a subject. New research can valuably provide different perspectives on an issue, but managing the impact of this may be particularly challenging in the case of novel and emerging issues.

- How should policy-makers deal with a situation where experts disagree on the interpretation of a body of evidence?
- How should policy makers respond to changes in the balance of evidence?
- How might public opinion be taken into account in a context of rapid evidential change?
- How do we ensure the ability or competence of policy advisers and decision makers to interpret advice and reach sound decisions, particularly when given conflicting advice?

Summary of responses

- It was felt that policy makers should encourage experts to explain the basis for any disagreement in the interpretation of a knowledge base, how important this is to any policy decision, where the common ground lies and what can be done to resolve the agreement. When presenting the information to Ministers, policy makers should be clear about where there is agreement and why advisers' recommendations differ. Learned societies and research and professional bodies can also be used effectively in situations of disagreement as they can represent a majority opinion of a wide group of experts.

- The importance of policy makers responding to changes and considering the impact of any change on current policy or the favoured policy option was acknowledged. It was felt that policy makers should review the effectiveness of policy regularly following implementation and that changes

in the balance of evidence may necessitate that the policy is amended, or at least revisited.

- It was felt that public opinion is an important input into decision making. However, the scientific and technical evidence itself should be based on the best expert advice and be independent of public opinion. Engagement with the public can ensure transparency when dealing with difficult issues and help identify key areas of concern.

- A number of respondents highlighted the importance of internal scientific capacity. In order to act as intelligent customers departments should ensure that they have sufficient internal scientific expertise capable of providing policy-makers with objective advice on the strengths and weaknesses of the scientific evidence.

Government's response

- The Government acknowledges the value of public engagement when dealing with areas of public concern. The updated Guidelines will encourage early public dialogue.

- The Government recognises the importance of responding to changes in the balance of evidence and the updated Guidelines will suggest that departments need to be prepared to revisit issues and policy decisions as the knowledge base changes.

- As stated in the response to question 2, a section on capacity and capability will be added to the updated Guidelines and will include in-house scientific expertise.

3. Additional Comments

A number of respondents commented on the Principles of Scientific Advice to Government which were published on 15 December 2009 in draft form.

Government's response

The Government welcomed the comments on the draft version of the Principles of Scientific Advice to Government. These were reflected in the final version published on 24 March 2010.

4. Next Steps

The updated version of the Guidelines will be published in mid 2010.

Annex A: List of Respondents

Academy of Medical Sciences
Advisory Committee on Pesticides
Advisory Council on the Misuse of Drugs
P. Aggett
Professor Bainbridge
Professor Sir Colin Berry
Professor Bird
Professor Blakemore
The British Academy
British American Tobacco
British Ecological Society/Biochemical Society
British Geological Survey
British Pharmacological Society
Sir Walter Bodmer
Cancer Research UK
CaSE/Sense about Science
Chartered Institution of Water and Environmental Management
Professor Clarke
Professor Coggon
Council for Science and Technology
Sir David Cox
Professor Dayan
Department of Energy and Climate Change
Department for Environment, Food and Rural Affairs (Defra)
Defra Science Advisory Council
Environment Research Funders' Forum
A. Fisher
The Food and Environment Research Agency
Food Standards Agency
Foreign and Commonwealth Office
Geological Society
The Government Chemist
R. Haffenden
Heads of Analysis
Health and Safety Executive
Home Office
House of Lords Science & Technology Select Committee
M. Hughes
Professor Sir Gabriel Horn
Human Genetics Commission
Institute of Ecology and Environmental Management
Institute of Physics
Institution of Occupational Safety and Health
Professor Leaver
B. Line
A. Marder
Professor Mattiessen
F. McKay
Mobile Operators Association
Professor Moray
Professor Nutt
C. Peace

Professor Pollock
D. Pryer
Professor Ragan
RCUK
The Royal Academy of Engineering
Royal Society of Chemistry
Royal Statistical Society
Sciencewise-ERC
Science Media Centre
Scottish Science Advisory Council
Professor Seaton
Society for General Microbiology
UK Computing Research Committee
Wellcome Trust
Which
Professor Weiss

Annex B: List of workshop participants

Laura Bellingan	Biosciences Federation
Alison Crowther	Sciencewise-ERC
Faith Culshaw	Natural Environment Research Council
Karl Cunion	Department for Communities and Local Government
Jo Dally	Government Office for Science
Robert Doubleday	University of Cambridge
Nick Dusic	CaSE
Andrea Garman	Government Office for Science
Robert Green	Ministry of Defence
Emma Hennessey	Department for Environment, Food and Rural Affairs
Jane Jackson	Government Office for Science
Cathy Johnson	Department of Energy and Climate Change
Kevin Jones	University of Liverpool
Gary Kass	Natural England
Javier Lezaun	University of Oxford
Rhona McDonald	Government Office for Science
Patrick Miller	Food Standards Agency
Jerome Moulin	Department for Environment, Food and Rural Affairs
Michael O'Brien	Parliamentary Office of Science & Technology
Tajinder Panesor	Institute of Physics
John Perry	Ministry of Defence
Richard Ploszek	Royal Academy of Engineering
Becky Purvis	Association of medical research charities
Alice Raine	Department for Business, Innovations and Skills
Justine Robilliard	Department for Environment, Food and Rural Affairs
Amanda Roper	Department for Environment, Food and Rural Affairs
Rebecca Ross	Parliamentary Office of Science & Technology
Louise Shaxson	Delta Partnership
Leonor Sierra	Sense about Science
Elta Smith	London School of Economics
Jack Stilgoe	Royal Society
Hannah Swan	Delta Partnership
Stephen Toole	Royal Geographical Society/ Academy of Social Sciences
Vicky Warbrick	Health and Safety Executive
Iain Williams	Home Office
Harry Woodroof	Government Office for Science
Peter Wright	Department for Work and Pensions

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