



House of Commons  
Science and Technology  
Committee

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# Scientific Advice, Risk and Evidence Based Policy Making

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**Seventh Report of Session 2005–06**

***Volume I***

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## The Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Office of Science and Innovation and its associated public bodies.

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A list of Reports from the Committee in this Parliament is included at the back of this volume.

### Committee staff

The current staff of the Committee are: Dr Lynn Gardner (Clerk); Celia Blacklock (Second Clerk); Dr Anne Simpson (Committee Specialist); Ana Ferreira (Committee Assistant); Robert Long (Senior Office Clerk); and Christine McGrane (Committee Secretary).

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## Summary

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During this inquiry into the Government's handling of scientific advice, risk and evidence in policy making we have already produced three separate Reports concerning our case studies: on MRI safety, the illegal drugs classification system and ID card technologies. This Report draws upon the lessons of these case studies and the other evidence we have received to reach conclusions about the operation of the scientific advisory system as a whole.

We have recommended that the role of Government Chief Scientific Adviser (GCSA) be split from that of Head of the Office of Science and Innovation to reflect the very different nature of the two jobs and to enable full attention to be given to the GCSA's cross-departmental functions. We also argue that the GCSA would be better placed in a department with cross-departmental responsibilities, such as the Cabinet Office, and that the post-holder be further strengthened by having a seat on the board of the Treasury.

We welcome the steps that the current GCSA, Sir David King, has taken to secure the establishment of departmental CSAs in most departments. We have found that more needs to be done to ensure that all departmental CSAs are able to maximise their contribution to strategic decision making and policy development within their departments, and they are able to work collaboratively with the GCSA to provide an active network of scientific support for Government. We have also made recommendations to enhance scientific support in the civil service: the establishment of a Government Scientific Service, similar to existing government professional services, would serve to improve the position of scientists as a professional group within Whitehall and to help departments make more effective use of existing resources.

We have found scope for greater involvement of the learned societies and professional bodies in the UK scientific advisory system, not least in order to reduce dependence upon external consultants.

In considering evidence based policy, we conclude that the Government should not overplay this mantra, but should acknowledge more openly the many drivers of policy making, as well as any gaps in the relevant research base. We make the case for greater public investment in research to underpin policy making and recommend the establishment of a cross-departmental fund to commission independent policy-related research. In order to combat the short-term nature of the political cycle, there is a need for horizon scanning to be embedded into the policy making process and for a general recognition that changing policy in the light of evidence should be regarded as a strength rather than a weakness.

Transparency in policy making has been improved but we believe that in terms of a scientific input, a more high profile role for departmental CSAs can produce further improvements. Better monitoring of public consultations would also be merited.

We have found that there has been some valuable work on risk carried out by Government in recent years but have made a number of recommendations designed to ensure that the recent high level of attention devoted to this subject is maintained. We urge the

Government to further its efforts to promote the responsible coverage of risk in the media, specifically by greater involvement of departmental CSAs and the development of a greater consistency and clarity in public communication.

# 1 Introduction

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1. On 9 November 2005 we launched a major inquiry into the Government's handling of scientific advice, risk and evidence in policy making. As part of this inquiry, we undertook three case studies focusing, respectively, on the EU Physical Agents (Electromagnetic Fields) Directive, the classification of illegal drugs and the technologies underpinning ID cards. The Reports of these case studies have now been published.<sup>1</sup>

2. Our decision to pursue this inquiry reflects the key role that scientific advice and risk assessment and management are increasingly playing in policy making. Many of the most high profile policy issues are critically dependent on the input of scientists. These include: securing the economic development of the UK through the knowledge economy; protecting the population of the country against an avian influenza pandemic and other infectious diseases; mitigating and adapting to climate change; safeguarding the UK's energy supply; detecting and averting potential terrorist threats; and tackling obesity. In each case, effective policy development requires both an effective scientific advisory system and appropriate use of evidence and advice on science and risk by Government. This Government has repeatedly stated its commitment to pursuing an evidence based approach to policy making and placed great emphasis on the role of science in informing policy. In undertaking this inquiry, we sought to test the validity of the Government's claims. Our terms of reference were broad and inevitably we focussed on certain aspects rather than seeking to cover the whole field in great detail. In determining where to focus, we were guided by the evidence we received as well as by the work in similar areas undertaken recently by other select committees, to which we refer.<sup>2</sup> We followed up questions raised by our predecessor Committee about the role and location in Government of the Chief Scientific Adviser and examined how Government is using the different components of the present advisory system, including its in-house capacity. In the light of the current emphasis on evidence based policy making in Government we decided to explore what this means in practice. We also pursued in our overall inquiry some of the issues raised in our case studies on risk, transparency and public communication.

3. We held five evidence sessions in conjunction with the over-arching inquiry, during which we heard from:

- The Government Chief Scientific Adviser; Government Chief Social Researcher and the Head of the Government Economic Service;
- The Food Standards Agency;
- Learned societies, professional bodies, campaigning organisations and academics;

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1 Science and Technology Committee: Fourth Report of Session 2005–06, *Watching the Directives: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive*, HC 1030; Fifth Report of Session 2005–06, *Drug classification: making a hash of it?*, HC 1031; and Sixth Report of Session 2005–06, *Identity Card Technologies: Scientific Advice, Risk and Evidence*, HC 1032.

2 See Annex A for terms of reference of the inquiry

- Departmental Chief Scientific Advisers from the Home Office, Department for International Development and Department for Transport; and
- The Secretary of State for Trade and Industry and the Department of Trade and Industry Permanent Secretary.
- The transcripts of these sessions are published with this Report, together with the 26 submissions we received in response to our call for evidence and requests for supplementary information.

4. During the course of this inquiry, we visited the United States in order to explore potential lessons from the scientific advisory system there. To inform our case studies, we also looked at the US drugs classification system and examined the development of technologies for use in ID systems there.<sup>3</sup> We would like to place on record our thanks to all those who helped organise the visit and contributed to the inquiry.

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3 See Annex B for outline of visit programme

## 2 Background

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### Inquiry

5. In March 1998, our predecessor Committee launched a major inquiry into the scientific advisory system. The inquiry took place against a backdrop of widespread concern over a perceived loss of public confidence in the system of scientific advice supporting Government policy making. In the introduction to the resulting Report, published in March 2001, the Committee cited the Government's handling of the Bovine Spongiform Encephalopathy (BSE) crisis, as well as mounting disquiet over standards in public life and the operations of Government quangos, as key factors underpinning the loss of public confidence.<sup>4</sup>

6. The Government was aware of these concerns too and, around the time of our predecessor's inquiry, had begun taking steps to address the problems. In March 1997, the then Government Chief Scientific Adviser, Sir Robert (now Lord) May, published the first version of *Guidelines on the Use of Scientific Advice in Policy Making*, setting out principles to be followed by government departments in using and presenting scientific advice and evidence. The Guidelines were subsequently updated in 2000 and 2005. These Guidelines (referred to hereafter as the GCSA's Guidelines) aim to address "how evidence should be sought and applied to enhance the ability of government decision makers to make better-informed decisions". The key messages are that policy makers should:

- "think ahead and identify early the issues on which they need scientific advice and early public engagement, and where the evidence base is weak and should be strengthened;
- get a wide range of advice from the best sources, particularly when there is uncertainty;
- publish the evidence and analysis and all relevant papers".<sup>5</sup>

The Guidelines explicitly state that they apply to social science as well as natural and physical science.

7. In addition, in October 2000, Lord Phillips of Worth Matravers' independent review of the "history of the emergence and identification of BSE and new variant CJD in the United Kingdom, and of the action taken in response to it up to 20 March 1996" was published. The review, which had been commissioned by the Government, identified a wide range of key lessons to be learned regarding the use of scientific advisory committees, the commissioning and coordination of research for policy and the communication of risk to the public. A selection of Lord Phillips' conclusions can be found in Box 1.

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4 Science and Technology Committee, Fourth Report of Session 2000–01, *The Scientific Advisory System*, March 2001, HC 257, paras 56–57

5 Chief Scientific Adviser/Office of Science and Innovation, *Guidelines On Scientific Analysis In Policy Making*, October 2005, para 4

**Box 1: Some lessons highlighted by the Phillips Review**

Departments should retain 'in house' sufficient expertise to ensure that the advice of advisory committees, and the reasoning behind it, can be understood and evaluated.

Government departments must review advice given by advisory committees to ensure that the reasons for it are understood and appear to be sound.

The proceedings of the [scientific advisory] committee should be as open as is compatible with the requirements of confidentiality.

The public should be trusted to respond rationally to openness.

Potential conflicts of interest should not preclude selection of those members otherwise best qualified, but conflicts of interest should be declared and registered.

When giving advice, an advisory committee should make it clear what principles, if any, of risk management are being applied.

Contingency planning is a vital part of government. The existence of advisory committees is not an alternative to this. The advisory committees should, where their advice will be of value, be asked to assist in contingency planning.

When a precautionary measure is introduced, rigorous thought must be given to every aspect of its operation with a view to ensuring that it is watertight.

It is not always clear in practice where responsibility rests as between ministers, officials and advisory committees for advising, determining policy and taking key decisions on medicines. This should be clarified, so as to ensure that important policy decisions are taken by, or approved by, ministers, whether those decisions are to take action or to take no action.

The progress of research and the implications of any new developments must be kept under continuous and open review.

8. In embarking upon this inquiry, we took as our starting point our predecessor Committee's findings. However, as noted above, we cast our net more widely in this inquiry to look at the Government's treatment of scientific advice, evidence and risk in the round. We used our three case studies addressing different elements of Government policy and involving distinct elements of the scientific advisory system to examine the Government's approach in detail. Some of the main findings of these case studies are listed in Box 2.

**Box 2: Key relevant findings of case studies****Watching the Directives: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive**

- The Health and Safety Executive did not apply the necessary expertise to its assessment of the impact of the Directive
- Inquiry illustrated how a failure of policy makers to consider comprehensive scientific advice early in the policy making process can have serious consequences
- Use of the term “precautionary principle” should cease, in view of the lack of clarity surrounding its meaning
- Lack of involvement of senior scientists within government on an issue with strong science input
- HSE contradicted itself on the line it was pursuing in negotiations in Brussels
- Ministers were not informed early enough about concerns being raised, but acted with commendable speed when finally alerted
- Weaknesses in horizon scanning activities of Department of Health, MRC and medical research community
- Need for improved links between UKREP in Brussels and UK scientific community.

**Drug classification: making a hash of it?**

- Advisory Council on the Misuse of Drugs (ACMD) failing to adhere to Code of Practice for Scientific Advisory Committees
- Lack of transparency in workings of the ACMD and confusion over its remit
- In view of cross-cutting nature of Government’s drug policy objective, ACMD needs to play stronger role in supporting work of DfES and DoH, not just Home Office
- ABC classification system does not reflect accurately harm associated with misuse of illegal drugs
- Government has been attempting to use classification to ‘send out signals’ but no evidence base on which to draw in determining any effect of signal being sent out
- Found no convincing evidence for deterrent effect which is widely seen as underpinning Government’s drug policy
- Lack of investment in research and consequent weakness of evidence base on drug abuse and addiction is severe hindrance to policy making
- Classification system should be replaced with more scientifically based scale of harm, decoupled from penalties, to give public better sense of harm associated with drug misuse.

**Identity Card Technologies: Scientific Advice, Risk and Evidence**

- Lack of transparency in the processes by which scientific advice is incorporated into policy within the identity cards programme
- Consultations had not provided the level of confidence in the scheme that could be expected following successful consultation
- Lack of clarity regarding the scope of the identity cards programme and how technology will be used within the scheme
- The Home Office is using advisory committees to provide guidance on biometrics. The Report recommended that this practice be extended to Information Communications Technology
- Home Office taking an inconsistent approach to scientific evidence and choices regarding biometric technology have preceded trials
- Lack of a clear process by which advice from external social science experts could feed into the scheme
- Home Office had developed a risk management strategy but was not making details public. The Report recommended that the Home Office makes details of its risk model public.

**Evidence based policy making**

9. The Government’s memorandum to this inquiry set out the origins of the current emphasis on evidence-based policy making: “while not a new concept, [it] has its roots in Government’s commitment to ‘what works’ over ideologically driven policy, and in the

Modernising Government agenda”.<sup>6</sup> The 1999 *Modernising Government* White Paper stated: “This Government expects more of policy makers. More new ideas, more willingness to question inherited ways of doing things, better use of evidence and research in policy making and better focus on policies that will deliver long-term goals”.<sup>7</sup> In addition, the Cabinet Office’s 1999 report entitled *Professional policy making for the twenty first century* identified nine features of better policy making, most of which either focussed on better use of evidence or helped to create conditions to promote the effective use of evidence.<sup>8</sup>

10. There have also been a number of Government policy documents addressing the scientific advisory system. The 2002 Cross-Cutting Review of Science and Research and the subsequent White Paper, *Investing in Innovation*, made a number of recommendations aimed at strengthening the Government’s scientific capabilities, including that departments should publish science and innovation strategies and appoint Chief Scientific Advisers (see paragraphs 27 and 28 below). In July 2004 the Government also published a 10 year investment framework for science and innovation. This framework defined eight attributes—listed in Box 3—for the effective management of science and research across Government, which sought to place scientists and scientific advice and evidence at the heart of policy making. There are, in addition, a number of guides and manuals issued by different departments which seek to improve the way scientific advice, risk and evidence are handled in policy making (see Box 4).

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6 Ev 86

7 Cabinet Office, *Modernising Government*, March 1999, Cm 4310, Chapter 2

8 Ev 86

**Box 3: Attributes for the effective management of science and research across Government**

- The Government as a whole, and all Government departments, will have adopted a culture of using sound scientific advice to inform policy development, delivery and departmental decision-making. This should involve DCSAs in all major departments with direct access to ministers and departmental managers, and with departmental managers involving DCSAs on all major policy issues, not just those with obvious scientific aspects.
- All scientific work commissioned and used by Government will be of appropriately high quality, drawn from the best possible sources (including the science base and the private sector), commanding the confidence of Government ministers and officials. Government departments will be paying the full economic costs of the research they commission from universities.
- Priorities for research will be set at the strategic level, not just within departments as they are now, but also across government as a whole, taking account, for example, of the 2003 Strategic Audit from the Cabinet Office. CSAs—acting as a group—along with other bodies, such as the Council for Science and Technology, will provide advice on the prioritisation of strategic issues. The use of science in policymaking will be applied consistently across the board where an issue affects more than one department.
- All Government departments will be using sophisticated scientific horizon-scanning techniques, linked both to their own policy horizon scanning, that of other departments, and to the OST horizon-scanning centre. This should involve departments drawing upon the science base to ensure they are informed about future risks and opportunities. Cross-departmental science initiatives, such as the Foresight programme and Prime Minister's Strategy Unit work, should develop and disseminate best practice guidelines and should provide capacity to deal with selected issues, working closely with other departments.
- Scientific expertise will be used to the maximum effect possible, allowing greater use of Research Council, charity and private sector input to Government advice, and giving Government scientists greater opportunities to contribute to the work of the science base and the exploitation of their work in the wider community, industry and commerce. Analysts, including scientists, will be able to network more effectively—within their own department, across departments, Research Councils, the private sector and internationally—to ensure awareness not just of research results already generated but also active research underway elsewhere.
- Knowledge transfer objectives will be fully incorporated into departments' S&I strategies, and scientific advice on procurement in Government departments will be seen as a natural and logical means of pulling through the development of new technologies.
- The use of scientific knowledge will have been fully integrated into Government analytical and risk assessment processes, and risk assessment guidance will be consistent with the advice in Guidelines 2000. Science will be regarded as one of the key analytical inputs to decisions along with specialisms like economics, law and statistics, with policy staff at all levels aware of the need to seek scientific advice—in the same way as they incorporate economic and legal advice.
- Scientific advice for the Government will be generated in a fully inclusive manner and command the support of the public and other stakeholders. Scientists, including Government scientists, will have the training and willingness to communicate openly with the public, including through the media. Politicians and the public will understand what science and research can and cannot deliver, in particular that science and analysis will provide information and knowledge to those who must take decisions, but that it is for politicians and for the public to take the decisions themselves.

*Source: Science and Innovation Investment Framework 2004–2014*

**Box 4: Government manuals, guides and reports**

**Guidance**

Green Book: Appraisal and Evaluation in Central Government  
Magenta Book: Guidance Notes on Policy Evaluation  
Orange Book: Management of Risk-Principles and Concepts  
Guidelines on Scientific Analysis in Policy Making  
Code of Practice for Scientific Advisory Committees  
Managing risks to the public: appraisal guidance  
Communicating Risks

**White papers and policy documents**

Modernising Government  
Cross-Cutting Review of Science and Innovation  
Investing in Innovation  
Science and Innovation Investment Framework 2004–2014

11. We also refer in this Report to the work that other select committees have done recently on evidence based policy making and the Government's approach to risk. In addition, the Public Administration Committee is expected to publish shortly the Report of its *Governing the Future* inquiry which has explored the place of strategy and planning in Government and is, therefore, of relevance to our conclusions on horizon scanning in chapter 4.

## 3 Sources of advice and expertise

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### Chief Advisers and Heads of Profession

#### *Government Chief Scientific Adviser*

12. The Government Chief Scientific Adviser (GCSA), currently Professor Sir David King, is responsible to the Prime Minister for the quality of scientific advice within Government. The Government told us that the GCSA’s advice is independent and it is up to the Prime Minister and Cabinet to decide whether to act on it.<sup>9</sup> The GCSA is supported in his work by staff in the Office of Science and Innovation (OSI) Trans-departmental Science and Technology Group.

13. The GCSA acts through a number of channels. For example, he has regular meetings with ministers and permanent secretaries from different departments. He also leads ad hoc advisory groups focussing on issues such as GM science, natural hazards and biometrics. In addition, the GCSA participates in a number of important committees:

- Various **Cabinet committees**, including Science and Innovation (SI) and the ministerial Committee on Animal Rights Activists;
- The **Chief Scientific Adviser’s Committee (CSAC)**—composed of departmental CSAs, as well as the Government Chief Social Researcher (chaired by the GCSA);
- The **Council for Science and Technology**—the highest level committee on scientific advice to Government (co-chaired by the GCSA);
- The **Global Science and Innovation Forum (GSIF)**—a cross-departmental forum for discussion of international issues of relevance to science and innovation (chaired by the GCSA);
- The **Scientific Advisory Panel for Emergency Response (SAPER)**—comprised of internal and external experts and aims to strengthen the use of scientific advice in crisis management (chaired by the GCSA); and
- The **Coordination of Research and Analysis Group (CRAG)**—promotes better dialogue between policy experts and the full range of analytical disciplines within Government (chaired by Sir Brian Bender, the DTI Permanent Secretary).

The GCSA has also recently taken on the role of Head of Scientific and Engineering Profession (HoSEP) and, as such, “seeks to give leadership and greater visibility to the role of scientists in support of overall Government policy”.<sup>10</sup> We discuss the status of scientists and engineers in the civil service further in paragraphs 45–6. In addition, the GCSA is Head of OSI and holds Permanent Secretary status within the DTI.

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9 Ev 86

10 Ev 87

### **Head of the Government Economic Service**

14. Sir Nicholas Stern is the Head of the Government Economic Service (GES). At present, there is no Government Chief Economist post but in the past this role has sometimes been combined with that of Head of the GES. Sir Nicholas told us that, as Head of the GES, he is “available to give advice to any minister, should that be requested”.<sup>11</sup> The Government explained the role of GES members (i.e. Government economists) as follows:

“members bring economic analysis to the policy-making process in government, using basic economic principles and empirical evidence to analyse proposals for the allocation of limited resources. They use a range of tools including the key principles of public economics, an economic understanding of markets, incentives and institutions, cost-benefit analysis and econometric modelling, as well as providing less technical advice”.<sup>12</sup>

As Head of the GES, Sir Nicholas “supports and guides departmental Government Chief Economists, who have a direct role in advising ministers on social science issues, and who meet regularly to discuss cross-cutting issues”.<sup>13</sup> Sir Nicholas is also second Permanent Secretary at the Cabinet Office and Adviser to the UK Government on the Economics of Climate Change and Development. In addition, he leads the Stern Review on the Economics of Climate Change.

### **Social Science Chiefs of Profession**

15. Alongside economists, there are three other main professional groups of social scientists in Government: social researchers, statisticians and operational researchers, each overseen by a Chief of Profession. Karen Dunnell, the National Statistician, is based at the Office for National Statistics and Tony O’Connor, the Chief Operational Research Analyst, is based in the Prime Minister’s Delivery Unit at the Cabinet Office.<sup>14</sup> Sue Duncan, Government Chief Social Researcher and head of the Government Social Research Service (GSR), oversees the use of social research in Government; social research being defined as follows:

“social research uses the methods of scientific enquiry—such as surveys, qualitative research, analysis of administrative and statistical data, case studies and controlled trials—to measure, describe, explain and predict social and economic change”.<sup>15</sup>

The purpose of the GSR is “to provide government with objective, reliable, relevant and timely social research to inform policy-making and delivery”.<sup>16</sup> The Government Social Research Unit (GSRU), which supports the work of the Head of the GSR and is based in the Treasury, takes a lead “on strategic social research issues and standards for research in

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11 Not published

12 As above

13 As above

14 Ev 89

15 As above

16 As above

government”, helps to promote “the use of evidence in strategy, policy and delivery” and provides practical support to departments.<sup>17</sup> GSR has over 1,000 members spread across 20 departments and agencies, as well as the devolved administrations.

16. Sue Duncan explained that her principal role as Government Chief Social Researcher was “to set standards for the Government Social Research Service in areas of professional and ethical practice and to provide the resources to do that”. Unlike Sir Nicholas Stern and Sir David King, she has “no role specifically in advising ministers; that is done via departmental experts”.<sup>18</sup> This is perhaps to be expected in light of the fact that Sir David King made clear in his evidence to us that, as GCSA, he takes full responsibility for social science as well as for the natural and physical sciences, engineering and technology. **We support the current arrangement whereby the Government Chief Scientific Adviser’s remit encompasses the natural, physical and social sciences, as well as engineering and technology, but we note that it is a challenge for one individual to cover such a disparate range of subject areas and disciplines.** We also note that Sir David King’s advocacy of social science has been lower profile than his contributions in areas of natural and physical science. **It is therefore vital that the Government Chief Scientific Adviser works closely with the Government Chiefs of Profession in the social sciences, including economics, to establish higher profiles for these disciplines.**

### **Head of OSI**

17. Since OST’s inception in 1992, the GCSA has fulfilled a dual role combining a cross-departmental coordination and advisory function with the post of Head of the OST (now OSI). Our predecessor Committee expressed concern in its 2004 Report on the introductory hearing held with the Director General of the Research Councils (DGRC), Sir Keith O’Nions, that the current arrangement “could impede the [G]CSA’s ability to operate as an independent and high-level advocate of science across Government”.<sup>19</sup> It is also questionable whether the role of administrative Head of OSI sits comfortably alongside the GCSA’s responsibility to exert, where appropriate, a challenge function in respect of senior civil servants and ministers in other departments. Furthermore, it seems unlikely that the GCSA has sufficient time to enable him to give full attention to developing both his cross-departmental challenge and advisory functions and his administrative and oversight responsibilities for OSI, meaning that aspects of one or both of these important roles may be neglected. Since the two strands of the job each require quite distinct skills sets and focus, it is also not clear that a single candidate would be well placed to fulfil both elements of the job.

18. If the GCSA did not occupy the post of Head of the OSI, the natural candidate to take up that role would be the DGRC—renamed in the 2005 restructuring of the DTI ‘Director General of Science and Innovation’ (DGSI). The DGSI already bears strategic responsibility

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17 Ev 90

18 Q 1

19 Science and Technology Committee, Ninth Report of Session 2003–04, *Director General of the Research Councils : Introductory Hearing*, HC 577

for the science budget and it could be argued that the role of Head of OSI involves a more comparable skills set and focus to those required for the post of DGSI than is the case for the post of GCSA. The management and financial responsibilities involved in heading the OSI are not obviously complementary to the cross-departmental advisory role and challenge functions of the GSCA. **We recommend that the posts of Government Chief Scientific Adviser and Head of the Office of Science and Innovation be separated. The Director General of Science and Innovation at the DTI should become the new Head of OSI.** Clearly, the addition of another significant work stream to the DGSI's responsibility will have ramifications for his work load and it may be necessary to redistribute other elements of his portfolio accordingly, as well as ensuring that he has sufficient support. It will also be vital to make sure that the loss of this responsibility does not weaken the post of GCSA or in any way detract from its potential influence. This appeared to be a key concern of Sir David King when we put the idea to him. We address it in the following section.

### ***Role of different departments***

19. We have argued repeatedly that science should play a cross-cutting role within Government. This is reflected in the fact that our Reports and those of our predecessors Committee have looked at the work of a wide range of different departments—in this inquiry alone, we have received evidence from the following departments:

- Department for Communities and Local Government (DCLG);
- Department for Education and Skills (DfES);
- Department for Environment, Food and Rural Affairs (DEFRA);
- Department for Transport (DfT);
- Department for Work and Pensions (DWP);
- Department of Trade and Industry (DTI);
- Food Standards Agency (FSA);
- Health and Safety Executive (HSE);
- HM Treasury;
- Home Office; and
- Office of Science and Innovation.

The Secretary of State for Trade and Industry, Rt Hon. Alistair Darling MP, also admitted that he “would be hard-pressed to name any department where [scientific advice] was not important”.<sup>20</sup> **In view of the cross-cutting nature of science and the cross-departmental responsibilities of the Government CSA, it would make sense for the post to be based in**

**a department with a similarly cross-cutting remit**, the most obvious candidates being the Treasury and the Cabinet Office or even Number 10.

20. Sir David King agreed with us that the question of whether he should be based in the DTI was “a good one because the role of the Chief Scientific Adviser is to report to the Prime Minister and the Cabinet and yet my office is in the DTI”. Furthermore, he told us that this situation produced a “tension” that he felt “many days of the week”.<sup>21</sup> However, he argued that moving to another department would “probably mean taking all 150” OSI staff with him.<sup>22</sup> This need not be the case—many of those staff do not directly support Sir David’s role as GCSA and we have already proposed removing the role as head of the OSI from the GCSA. The GCSA could also follow the example of Sir Nicholas Stern, the Head of the Government Economic Service, and retain a desk in OSI while becoming affiliated to another department. Following his appointment as Adviser to the Government on the Economics of Climate Change, Sir Nicholas moved his base to the Cabinet Office but retained a desk in the Treasury. Sir Nicholas noted that his affiliation to the Cabinet Office made sense because he had “embarked on a project which cuts right across government and affects every department”.<sup>23</sup> There is a case for applying the same rationale to Sir David King’s position. In addition, placing the HGES and the GCSA in the same department would considerably enhance the importance of the cross-departmental role of the Cabinet Office.

21. The post of GCSR, and the Government Social Research Unit which supports it, have also recently relocated from the Cabinet Office to the Treasury “as part of machinery of government changes”.<sup>24</sup> The GCSR Sue Duncan told us that she very much welcomed the move, not least because: “it also means that we are in the department that leads on the spending reviews, which draw heavily on government-generated research and evidence, and it is actually an opportunity for me to have a stronger input into that process”.<sup>25</sup> Again, a similar logic could be applied to the post of GCSA.

22. We put the suggestion that the GCSA’s post be relocated to either the Cabinet Office or Treasury to Sir David King and Mr Darling. Neither gave us a firm indication of their preference, but both indicated that they were open to change and acknowledged the arguments in favour of a move. Sir David told us: “I could be in the Treasury. I could be in the Cabinet Office”, noting that “in the past the Chief Scientific Adviser has been in the Cabinet Office”.<sup>26</sup> Sir David also emphasised the key role of the Treasury:

“it seems to me that the Treasury is in a trans-departmental role, in the sense that all of its actions [...] are through other Government departments. [...] I think, in the

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21 Q 13

22 Q 18

23 Q 1055

24 Ev 89

25 Q 19

26 Q 1293

sense that I am the trans-departmental Chief Scientific Adviser, I work quite closely with the Treasury”.<sup>27</sup>

The Secretary of State also pointed out that “There is very little that happens in government the Treasury does not both know about and approve and is not actively involved in”.<sup>28</sup>

23. Another argument for the relocation of the GCSA’s office stems from the concern that science and technology have not been sufficiently influential in shaping the Government’s long term policy agenda. The Environment Research Funders’ Forum, for example, told us that “science tends not to be involved early enough in establishing policy priorities” and asserted that it “should be more engaged with establishing the government’s bigger strategic questions, typically originating in Treasury or the Cabinet Office”.<sup>29</sup> The long term strategies needed to address policy issues such climate change, obesity, transport infrastructure and even pensions would all benefit to varying degrees from an early scientific input. Moving the GCSA’s office to one of these strategic departments or to Number 10 could help to ensure strategic questions are suitably informed by science.

24. It is not trivial to determine whether the GCSA’s office would be best situated in the Treasury, Cabinet Office or Number 10—there are strong arguments for and against each. The Treasury obviously has a pivotal role to play in policy making across the piece and it is essential that the GCSA has an opportunity to work closely with senior officials and ministers in that department, which does not have a departmental CSA. However, locating the GCSA post within the Treasury could carry with it a risk that the GCSA’s energies become channelled predominantly into matters of concern to that department and could also call into question his independence or the perception of it. The Cabinet Office (which also currently lacks a departmental CSA) would in many respects be a natural location for the GCSA, reflecting his role as CSA to the Cabinet and Prime Minister, his cross-departmental remit and his independence. These advantages need to be offset against perceptions that the influence of the Cabinet Office has been eroded by the growing concentration of power within Number 10 and Number 11. Finally, placing the GCSA’s office in Number 10 could enable him to leverage the strategic role of this department and make the most of the Prime Minister’s sponsorship but could again undermine his independence (or the perception of it) and potentially weaken his influence within the Treasury.

**25. A long term solution is required for the post of Government Chief Scientific Adviser, not just one which happens to suit the strengths of present incumbent. On balance, we recommend the relocation of the GCSA’s office to the Cabinet Office. In addition, the GCSA should be given a seat on the board of the Treasury to ensure that the crucial work of this department benefits from a scientific perspective at the highest level. The changes we have recommended seek to strengthen the influence and effectiveness of the GCSA. It is therefore essential that the resources available to the**

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27 Q 1291

28 Q 1295

29 Ev 98

**GCSA to support his work do not diminish as a result of these changes.** This means that although the GCSA's new office is likely only to include the core staff currently employed within OSI whose work directly supports his function as GCSA, arrangements must be in place to ensure that he has ready access to the expertise and resources of the OSI. For example, the work of the Foresight team is clearly important to the GCSA but there would be no need for the entire team to move to the Cabinet Office, providing that close relationships are maintained with the GCSA's office and he is given access to their resources. The close working relationship already developed between Sir David King and Sir Keith O'Nions as GCSA and DGSI, respectively, would greatly facilitate such an arrangement.

### **Responsibility for the scientific advisory system**

26. We also identified during this inquiry a need for greater clarity regarding the ministerial responsibilities for the scientific advisory system headed by the GCSA and for evidence based policy making across Government. This was highlighted by the difficulty we experienced in trying to secure an appropriate minister to give evidence to us on behalf of the Government. The Treasury has been the lead department for risk and is perceived to be playing an increasingly important role in science policy—the recent *Science and innovation investment framework 2004–2014: next steps* document, for example, was widely considered to have been largely driven by the Treasury.<sup>30</sup> As noted above, the Cabinet Office plays a key role in promoting an evidence based approach to policy making. OSI obviously makes a major contribution to the effective use of science and evidence in policy making too, but the GCSA, Sir David King, takes the lead in the area of scientific advice, rather than the Minister for Science and Innovation, Lord Sainsbury. Ultimately, Sir David reports to the Prime Minister but the Secretary of State for Trade and Industry, Alistair Darling, chairs the Cabinet Committee on Science and Innovation (SI). Mr Darling told us that “every single Secretary of State” shared responsibility for ensuring that the Government was using scientific advice appropriately in policy development.<sup>31</sup> Although we accept that as being true at departmental level, **we are of the view that clear leadership can be valuable for improving accountability and providing a driver for implementation of good practice across departments. We recommend the Government clarify the lines of ministerial responsibility for the scientific advisory system. For example, whilst ultimate responsibility must rest with the Prime Minister, day-to-day responsibility might best be assumed by the Cabinet Office led by the Government Chief Scientific Adviser.**

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30 HM Treasury, DTI, DfES, DH, *Science and innovation investment framework 2004–2014: next steps*, March 2006

31 Q 1284

## Departmental Chief Scientific Advisers

### Role

27. The *Investing in Innovation* White Paper published in 2002 stated that all departments that use or commission significant amounts of research should have a CSA and Sir David King has made it a priority during his time in office to promote the appointment of departmental CSAs (DCSAs). The DCSA Induction Pack describes their position as follows:

“The role of the DCSA is to provide independent advice to the Department’s Ministerial Head and the Departmental Management Board. While implementation will vary between departments, the DCSA is responsible for ensuring that the quality of scientific evidence-based advice within the Department is to the required quality, fit for purpose and underpins implementation of the Government’s guidelines on S&T policy making. A key part of the DCSA role is the ability to alert the Department to those areas where current research can assist in developing sound public policy”.<sup>32</sup>

DCSAs have a number of other responsibilities, including delivering departmental science and innovation strategies, encouraging the use of horizon scanning and promoting the science and society and knowledge transfer agendas.

28. In practice, the role of the DCSA varies between departments. For example, in some departments, e.g. DEFRA, the DCSA has overall responsibility for the economic/social science function whilst in others, e.g. DFID, the DCSA sits alongside (i.e. is of the same seniority as) the Chief Economist and/or Chief Statistician/Social Researcher. Not all departments have appointed DCSAs. Some departments, such as the Foreign and Commonwealth Office (FCO) and Department for Education and Skills, have *de facto* DCSAs with the function being fulfilled by, respectively, the Head of Science and Innovation and the Chief Economist. The Department for Culture, Media and Sport (DCMS) has recently announced its intention to appoint its first DCSA.<sup>33</sup> The Treasury and Cabinet Office do not have DCSAs.

### Appointments

#### External recruitment

29. The DCSA Induction Pack states that it is “very important that the DCSA is a scientist with a high and current reputation”, noting that the “ability to continue in active research is helpful to achieving that objective”.<sup>34</sup> DCSAs who have been appointed from outside the civil service have been employed on part-time fixed-term contracts (typically four days per week) with the aim of enabling them to maintain their external research.

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32 Not published

33 [http://www.culture.gov.uk/about\\_us/science.htm](http://www.culture.gov.uk/about_us/science.htm)

34 Not published

30. In some departments, the DCSA has been appointed as a result of an internal promotion. Paul Wiles, Home Office DCSA, although originally an academic, was the Home Office Director of Research, Development and Statistics for three years before becoming the DCSA. In most other departments, DCSAs have been recruited from senior positions in academia. For example, the Department for Transport DCSA, Professor Frank Kelly, was, and remains, Professor of Mathematics at the University of Cambridge. He is shortly to be replaced by Professor Brian Collins, Professor of Information Systems at Cranfield University. Professor Sir Gordon Conway was President of the Rockefeller Foundation before being recruited as the DFID DCSA and also holds an academic appointment at Imperial College, London, on a part-time basis.

31. We heard support for external recruitment of DCSAs. Professor Kelly told us of his experience:

“I feel that some of the big wins from having a chief scientific adviser in the department is the challenge function and the opening up of the relationships between science and technology within the department and in the science base as a whole. I think that if you come from outside of government you perhaps find that a little bit easier”.<sup>35</sup>

The Secretary of State for Trade and Industry, Mr Darling, who had previously been Secretary of State for Transport, told us that he had also valued Professor Kelly’s contribution at the DfT and his external perspective: “having someone like that to look at problems afresh, to bring his own background to bear on the department’s consideration was an immense help and partly it informed our decision actually to pursue road pricing as a solution to the congestion problems we will face in the future”.<sup>36</sup> Professor Sir Gordon Conway, not surprisingly perhaps, also spoke in favour of recruiting DCSAs from outside the civil service, telling us:

“I think it does help having people from outside, particularly senior people from outside. [...] When we speak it carries a bit of weight. [...] If you come from an academic institution in this country and you have established a reputation there you carry with it a weight that goes behind the evidence you are trying to get across”.<sup>37</sup>

As well as bringing fresh perspectives and experience, outside appointees might find it easier to be absolutely frank with ministers and senior officials than those with careers in the civil service. **We recommend that the presumption should be that all future departmental Chief Scientific Advisers should be external appointments who have occupied senior positions in their scientific community and command the respect of their peers.**

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35 Q 1076

36 Q 1289

37 Q 1077

### *Part-time and fixed-term appointments*

32. The majority of external appointments fulfil the DCSA role on a part-time basis. This has advantages for the department, as Sir Brian Bender explained to us:

“having someone [...] who actually spends a day a week, usually probably a Sunday rather than the Friday that they are allocated, back dealing with live research with students helps keep them fresh. I remember Frank Kelly saying to me that he got a lot of benefit, if the Secretary of State will not mind me saying this, taking his problems back to the Clare College common room and actually discussing them”.<sup>38</sup>

In addition, Professor Kelly pointed out that offering part-time contracts was important because “many of the academics you would like to get are not going to be willing to stop their academic research streams”.<sup>39</sup>

33. For a similar reason, Professor Kelly was in favour of the use of fixed-term contracts for DCSAs, telling us: “I could not have done more and maintained my academic position”. He further argued that the arrangement was beneficial for the department: “I think there are advantages in turning over chief scientific advisers. They come with different skills and will thus spread out the connections between the department and the science base”.<sup>40</sup> However, he conceded that the use of fixed-term contracts—typically three years in the first instance—needed to be traded off against the six months to a year that it took him to get to know his way around the department and role.<sup>41</sup> The DFID CSA, Professor Sir Gordon Conway, also admitted that he had spent “the last year and three months or so [since starting the job] getting to understand DFID, getting to understand how it works, how the Civil Service works”.<sup>42</sup>

34. Professor Kelly emphasised that “good support from within the Civil Service, establishing the right sort of support structures,” was crucial to enabling DCSAs to be effective on a part-time, fixed-term basis.<sup>43</sup> He told us that he was “supported by the research and technology staff division which are a dozen”.<sup>44</sup> Unfortunately, it seems that this level of support is not necessarily typical. Professor Paul Wiles, Home Office DCSA, said he had the direct support of “half a dozen people”, while Professor Sir Gordon Conway had only “one member of staff and another one joining”.<sup>45</sup> Effective civil service support is also crucial for addressing the concern raised by the Centre for Evidence Based Policy and Practice regarding the fact that “outsiders recruited into Whitehall, mostly in quite senior positions [have often] struggled to gain recognition from their insider

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38 Q 1341

39 Q 1081

40 Q 1086

41 Q 1087

42 Q 1090

43 Q 1081

44 Q 1095

45 Q 1095

colleagues of the expertise they brought with them; and some left quite quickly”.<sup>46</sup> **We support the use of part-time and fixed-term contracts for departmental CSAs with the caveat that departments must provide adequate support and resources for these appointments. We recognise that appropriate staffing levels will vary between departments but it seems unlikely that a DCSA can operate effectively with just one or two officials.**

35. We further note that in the Department for Transport, the DCSA is supported by a deputy CSA who is a scientist drawn from within the civil service. The deputy CSA also fulfils the role of Head of Profession for Scientists and Engineers within the department. This seems to us an entirely sensible arrangement. An externally appointed DCSA is critically dependent on sound advice from experienced officials, and civil servants are better placed to understand the needs of, and to represent, other scientists and engineers within the civil service. The arrangement also ensures that the DCSA’s challenge function is not constrained by the need to act as champion and Head of Profession for scientists within the department. **We commend to other departments the Department for Transport’s model whereby an externally appointed DCSA is supported by a senior scientist, drawn from the civil service, who acts as both deputy CSA and Head of Profession for Scientists and Engineers in the department.**

### ***Position within the department***

#### ***On tap or on top?***

36. While the introduction of DCSAs was universally welcomed in the evidence we received, several witnesses commented that DCSAs’ effectiveness depended on their ability to play a full part in high level policy development. The Royal Society warned, for example, of the importance of ensuring “that the CSA is involved in all the key strategic decisions within a department”.<sup>47</sup> The DCSA induction pack also notes that DCSAs should be “involved on all major policy issues”.<sup>48</sup> However, we, and our predecessor Committee, have identified situations where this does not appear to have happened, including in the case studies undertaken in conjunction with this inquiry. In our MRI case study, we found that senior scientists had no involvement in a policy with a strong science input and potential significant consequences for medical science. In addition, our predecessor Committee commented in its 2005 Report on forensic science that the Home Office DCSA seemed to have had little input to the transformation of the Forensic Science Service (FSS), a key scientific resource for the Government, describing “the low visibility of the Home Office Chief Scientific Adviser” as “a source of concern, particularly in view of the history of weak scientific culture in the department”.<sup>49</sup> We also note that, despite the fact that Sir David King has expressed disquiet over the loss of senior scientific posts from the civil service due

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46 Ev 173

47 Ev 103

48 Not published

49 Science and Technology Committee, Seventh Report of Session 2004–05, *Forensic Science on Trial*, HC 96–I, para 7

to the privatisation or partial privatisation of the LGC, FSS and QinetiQ, he had little input into the discussions over the future of the FSS.<sup>50</sup>

37. Norman Glass, Director of the National Centre for Social Research and former Treasury civil servant, argued that “the old Civil Service phrase [...] that eggheads/boffins should be on tap, not on top, is still very much alive and well”.<sup>51</sup> Sir David King told us: “that phrase is unacceptable” on the grounds that “‘on tap’ implies that the minister knows exactly when to turn to the scientist, turn it on and turn it off again and I disagree with that completely”. He told us: “Of course the Minister is on top but I do not think the scientist is ‘on tap’”.<sup>52</sup> Sir David also emphasised that for DCSAs to do their job, they need “to have a direct reporting line to the secretary of state [and] to be on the Board, so that during a discussion where the others think that science is not relevant it is for that scientist then to speak up and give the scientific case for it”.<sup>53</sup> He gave the example of pensions policy, which was not widely thought of as requiring scientific expertise, but in fact relied heavily on scientific disciplines such as demography. Professor Sir Gordon Conway, DFID DCSA, also told us: “science gets into everything”, giving the example of the role of technology in minimising corruption.<sup>54</sup>

38. We asked the Secretary of State for Trade and Industry his view of Mr Glass’s assertion that there was a belief in the civil service that scientists should be ‘on tap, not on top’. Mr Darling acknowledged that there could be a situation where “you have got an excellent chief scientific adviser who is completely up to date with all the evidence, and so on, but he is not regarded as an integral part of the department”.<sup>55</sup> He also admitted that “in my last Department, Transport, for example, there were some divisions in that Department which were extremely good at looking at all this and taking it into account; others perhaps were more reluctant”.<sup>56</sup> In Mr Darling’s view, the solution was to make sure that DCSAs and the processes they oversee were embedded in a decision-making process—“get the thing in with the bricks”.<sup>57</sup> We return to the need to create demand for scientific analysis and evidence in paragraph 51.

**39. The introduction of departmental CSAs has been most welcome but they must be able to contribute fully to strategic decision making and high level policy development within the department if their contribution is to be maximised. Departmental CSAs must be given the opportunity to play a full and active and yet independent role at board level, and be in a position to identify where their involvement is required, rather than being brought in where others have decided that there is a need for their input. DCSAs must be in the stream of policy development, not watching from the bank. The**

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50 Q 15

51 Q 1003

52 Q 1340

53 Q 1340

54 Q 1066

55 Q 1304

56 As above

57 As above

**misconception that scientists in the civil service should be ‘on tap, not on top’ must be laid to rest once and for all.**

### *Lines of responsibility*

40. DCSAs’ primary reporting lines are to their Permanent Secretary and Secretary of State. However, Sir David King told us: “I also need the chief scientific advisers to report to me, but that is very much a dotted line”.<sup>58</sup> We were interested to establish how this relationship, which Sir David described as “absolutely critically important”, worked in practice.<sup>59</sup> Professor Kelly had a very positive view of Sir David King’s input, telling us he had been “a great help”.<sup>60</sup> Sir Gordon Conway told us that he had regular contact with the GCSA, seeing him informally or formally every week or ten days. Sir Gordon said that although Sir David “does not tell me what to do”, he “makes suggestions; he makes strong and vigorous suggestions and I may agree with them or not agree with them”.<sup>61</sup> We asked Sir Gordon whether he experienced any difficulty in balancing the wishes of his Secretary of State and the views of Sir David. He conceded that “There may be tensions over emphasis”,<sup>62</sup> but said that “Government should be about argument and dialogue and tension”.<sup>63</sup> **We acknowledge the potential difficulty facing departmental CSAs in balancing the demands and expectations of their permanent secretary, minister and the Government CSA. DCSAs should report to the Secretary of State but retain the independence necessary not to restrict their freedom to speak out internally or publicly when required and to avoid any politicisation of their advice.**

41. Professor Wiles noted that the GCSA also had a direct relationship with senior officials in other departments. He explained the situation as follows:

“Sir David does have regular meetings with my permanent secretary and I think he does with other permanent secretaries as well. He is not directly managing the science in the Home Office; I am accountable through the permanent secretary to the home secretary, but that does not mean to say that he has no routes to exercise some influence both via me and directly himself to the permanent secretary.”<sup>64</sup>

**It is good that the Government CSA is able to go directly to senior officials and ministers in departments in cases where he believes his intervention is essential. In so doing he must be careful not to undermine the position of the relevant departmental CSA and recognise those areas in which their expertise should hold sway. He should, wherever possible, include the departmental CSA in his discussions with ministers and senior officials. By the same token, we believe that departmental CSAs should be free to publicly disagree with the Government CSA in instances where there is, for example, a**

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58 Q 23

59 As above

60 Q 1068

61 Q 1070

62 Q 1071

63 Q 1072

64 Q 1075

**difference in their interpretation of scientific evidence, but urge departmental CSAs and the Government CSA to co-operate closely to deliver an active network of scientific support and advice to every department. The scientific advisory system will be most effective when the departmental and Government CSAs work together collaboratively.**

## Science in the civil service

42. One of the key roles of the GCSA, DCSAs and the staff supporting them is to oversee and develop scientific expertise within the civil service. The Induction Pack for DCSAs states that departments require scientific expertise in order to:

- “interpret scientific issues simply and clearly;
- harness and synthesise existing research;
- identify their research requirements accurately;
- procure science of high quality and relevance;
- manage out-sourced research programmes;
- understand the findings of research programmes and appreciate their policy implications; and
- evaluate scientific advice from external sources and identify the implications for policy.”<sup>65</sup>

43. Clearly, departments will need to buy in external expertise to supplement their in-house expertise but the memoranda we received also highlighted the need for the civil service to maintain sufficient scientific literacy to render it an effective, or ‘intelligent’, customer of science and research. The Campaign for Science and Engineering (CaSE) told us: “it is only possible for Government to handle risk and science appropriately if it has a sufficiently expert and critical in-house capability to allow it to formulate the questions it needs to ask of external experts”.<sup>66</sup> The Centre for Evidence Based Policy and Practice also said that “securing scientific advice depend[s] on an in-house capability to handle it—identifying when science can contribute to policy, seeking it out from a wide range of sources and interpreting its relevance to policy”.<sup>67</sup> In addition, the Science Council expressed concern that “often the department or unit responsible for handling an issue on behalf of government will have little or no in-house expertise in the area of policy under review”, citing the example of “the HSE lead on MRI and the EU Physical Agents Directive”—the subject of one of our case studies.<sup>68</sup>

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65 Not published

66 Ev 115

67 Ev 173

68 Ev 128

44. Our predecessor Committee criticised levels of departmental scientific expertise on a number of occasions. In its 2004 Report *The Use of Science in UK International Development Policy*, it stated that there were “serious weaknesses in DFID’s approach to the use of science and technology” and suggested that its “fundamental lack of scientific culture” could be partly explained by “a lack of in-house expertise”.<sup>69</sup> As a result of the Committee’s criticisms, as well as the concerns of the GCSA, DFID appointed its first DCSA, Professor Sir Gordon Conway, in December 2004. Our predecessor Committee also commented on the weak scientific culture in the Home Office in its Reports on terrorism and forensic science in 2003 and 2005, respectively.<sup>70</sup>

### Scientists and engineers

45. There are no accurate figures regarding the total numbers of scientists and engineers in the workforce,<sup>71</sup> despite the recommendation in the 2002 Cross-Cutting Review of Science and Research that “Departments should maintain records on specialist staff in order to be able to identify their scientific qualifications and experience”.<sup>72</sup> Nevertheless, Sir David King said there had been a “continuing reduction of scientists and engineers in the civil service”, which he described as “a concern”.<sup>73</sup> Sir David further revealed that “anecdotal evidence suggests that the situation has been exacerbated by individuals in more general civil service jobs hiding their scientific skills as they viewed them as an impediment to promotion”.<sup>74</sup> **It is worrying and regrettable that there is a perception that not only has there been a decline in scientific expertise within the civil service, but civil servants perceive specialist skills to be a hindrance to career progression. We recommend that the Government implement the 2002 recommendation of the Cross-Cutting Review of Science and Research to maintain records on specialist staff in order to identify their qualities and experience and to investigate, and if necessary tackle, negative attitudes towards scientific qualifications.**

46. Sir David King told us that the changing status of Government scientific facilities such as the Laboratory of the Government Chemist (LGC), Forensic Science Service and QinetiQ (formed from the Defence Evaluation and Research Agency) had exacerbated the situation: “we are losing scientific expertise from within the civil service [and] the opportunity for people to bubble up into top positions in the civil service with a hard science training is being reduced”.<sup>75</sup> The Government also acknowledged in its 2002 White Paper on Science and Innovation that “the privatisation of scientific research establishments, and the development of an arms-length relationship between departments

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69 Science and Technology Committee, Thirteenth Report of Session 2003–04, *The Use of Science in UK International Development Policy*, HC 133–I, para 3

70 Science and Technology Committee, Eighth Report of Session 2002–03, *The Scientific Response to Terrorism*, HC 415–I, para 40 and HC (2004–05) 96–I, para 7

71 The Government Economic Service, Social Research Service and Statistical Service collect data on numbers of civil servants in each of these professions.

72 <http://www.dti.gov.uk/files/file14480.pdf>, Recommendation Chapter 8, p 91

73 Ev 141

74 As above

75 Q 14

and the remaining public sector establishments, has eroded what was previously the main base for the supply of practising scientists to departments”.<sup>76</sup> However, there is no evidence that action was taken subsequent to this realisation in order to compensate for this loss of expertise. The significance of these research establishments can also be inferred from the Government’s evidence to our predecessor Committee’s inquiry into the scientific advisory system, in which the Government described Public Sector Research Establishments (such as the LGC and Forensic Science Service), of which there were then 50—either sponsored by Government departments or by the Research Councils—as “a key element in the Government science and technology advisory system”.<sup>77</sup> **The Government’s failure to do enough to address the implications of the privatisation of Public Sector Research Establishments for the scientific capacity of the civil service has been damaging. Remedial action is now required to redress the effect of the loss of, and restriction of access to, expertise in establishments such as the Laboratory of the Government Chemist, Forensic Science Service and QinetiQ. Future plans for changing the status of such Establishments must also take greater account of the potential detrimental impact of these changes on the scientific advisory system supporting Government policy making.**

### *Social science*

47. We heard some evidence of deficiencies in civil service expertise in the social sciences although, as discussed below in paragraphs 54-6, there is a widespread view that the status and influence of economists in the civil service is significantly stronger than that of scientists in other disciplines. Nevertheless, Sir Nicholas Stern, Head of the Government Economic Service, was of the view that economic expertise was still lacking in some departments, telling us he would “welcome a still stronger presence of economists” in the Department of Health, Department for Education and Skills and Ministry of Defence.<sup>78</sup> Sue Duncan, Government Chief Social Researcher, also identified room for improvement in social research expertise. She explained that “across departments there are a lot of junior staff” and noted that the Health and Safety Executive and DEFRA in particular needed to strengthen their social research expertise.<sup>79</sup>

### *Generalists*

48. Experts in the civil service (and from outside) need to work closely with civil service generalists if scientific advice and evidence are to be effectively incorporated into policy. William Solesbury, Senior Visiting Research Fellow at the Centre for Evidence Based Policy and Practice, told us that it was in this area—the competence of the generalist staff - that the civil service’s weakness lay: “I do not think there is, as yet, very much, or at least not a very sophisticated understanding of the occasions when evidence is useful, the sort of

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76 HM Treasury, *Investing in Innovation: A Strategy for Science, Engineering and Technology*, July 2002, para 7.9

77 HC (2000–01) 257, para 78

78 Q 1050

79 Q 34

evidence to be obtained, how to evaluate evidence when it is available, how to interpret it, and how to weigh it”.<sup>80</sup> We discuss the Government’s recent efforts to address this problem below. **It seems to us necessary that all senior officials and policy makers should have a basic understanding of the scientific method, the role and importance of peer review, the relevance of different types of evidence, and the way to evaluate it.**

### **Professional Skills for Government**

49. A key initiative undertaken by the civil service in recent years has been the Professional Skills for Government (PSG) programme. According to the PSG website, PSG is “a major, long-term change programme designed to ensure that civil servants, wherever they work, have the right mix of skills and expertise to enable their departments or agencies to deliver effective services”.<sup>81</sup> The programme requires civil servants to demonstrate skills and expertise in four areas—leadership, core skills, job-related professional skills and broader experience—at the appropriate level in relation to their job and chosen career path. The core skills required comprise people management; financial management; programme and project management; and analysis and use of evidence. Senior civil servants will also be expected to demonstrate core skills in strategic thinking and communications and marketing. There are 18 named occupations within the PSG framework, including ‘Scientist/Engineer’, and three ‘career groupings’: corporate services delivery; operational delivery; and policy delivery.

50. Sir David King told us that the PSG initiative would improve the use of science and social science within Government on both the supply and demand side.<sup>82</sup> As noted above, one of the core skills policy makers are required to demonstrate is analysis and use of evidence. Senior civil servants will also be expected to move from ‘using’ and ‘understanding’ evidence to ‘championing’ the role of analysis and evidence.<sup>83</sup> Each of the core skills has a designated Head of Profession or ‘Champion’. Currently, Sir Nicholas Stern is the Head of Profession for analysis and use of evidence, Sir David King is the Head of Profession for scientists and engineers and Sir Brian Bender is the Head of Profession for policy delivery.

51. Witnesses to this inquiry gave the introduction of the PSG framework a cautious welcome. The Centre for Evidence Based Policy and Practice told us that the recognition of the need for generalist civil servants to understand what science can offer and when that contribution is required was “laudable, but insufficient”, asserting that “Skills alone are not the problem. Attitudes need to change too”.<sup>84</sup> William Solesbury, Senior Visiting Research Fellow at the Centre, also warned that that the PSG requirement needed to filter “through into the training and, more importantly the reward systems in the Civil Service”.<sup>85</sup>

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80 Q 1002

81 <http://psg.civilservice.gov.uk/>

82 Ev 135

83 As above

84 Ev 173

85 Q 1002

Professor Wiles, Home Office DCSA, went even further, telling us that the most important recommendation that we could make in this Report would be to “Make sure that Professional Skills for Government as they develop have clearly within [them] an insistence on a process and a framework for taking evidence into account”.<sup>86</sup> **We are encouraged by the emphasis in the Professional Skills for Government framework on the use and analysis of evidence. A basic understanding of the scientific method and the interpretation of different types of evidence, together with the development of an informed demand for scientific input and analysis amongst generalist civil servants, particularly those at senior levels, are important prerequisites for effective policy making.** However, it is too early to assess whether Professional Skills for Government will succeed in achieving this objective. **We recommend that the Government put in place the necessary reward systems and incentives to support its ambitions in this area.**

52. We remain concerned that despite the introduction of PSG, the civil service is still likely to be a place where generalist skills are valued more highly than specialist ones. We note that under PSG senior civil servants are required to have ‘broader experience’ which the PSG guidelines state can be gained “most obviously by doing a job in another career grouping other than the chosen career path (the three groupings are operational delivery, policy delivery and corporate services delivery) and/or by working in another sector”.<sup>87</sup> In many cases, the opportunities for civil servants who are, for example, lawyers or IT professionals to apply their skills within different contexts will be greater than for scientists whose professional expertise is considered to be less broadly applicable within Government. While it is, of course, understandable that the Government seeks to develop civil servants with transferable skills, it is short-sighted if that precludes highly-skilled experts who wish to remain experts within their field from progression to the upper echelons of the civil service or if its view of which transferable skills are valuable is too narrow. The tendency for civil servants to rotate between jobs on a regular basis (often in order to broaden their experience) can also be detrimental in specialist areas where accumulation of knowledge and experience is particularly important. As Dr Caroline Wallace, Science Policy Adviser, Biosciences Federation, told us: “there is a perception now that to progress in your career you move policy area every 18 months or so, so no-one is in one policy area for more than two years”.<sup>88</sup>

53. **In policy-making, scientific literacy must be given equal value to economic knowledge and drafting ability, while further reform of the civil service is essential to bring about a cultural shift: specialist skills must be given equal value to generalist skills and this should be reflected in rewards structures. It is also essential that more opportunities are created for scientists to progress to the most senior positions without being required to sideline their specialist skills.**

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86 Q 1141

87 <http://psg.civilservice.gov.uk/>

88 Q 930

## **A Government Scientific Service?**

54. The evidence which underpins policy can be derived from either the social or the natural and physical sciences. It is generally accepted that within the civil service economists play a more central role in policy making than natural or physical scientists or engineers, whose input may be sought for specialised topics but are otherwise seen as having only a marginal contribution to make to policy development. The central role of economists in Government is reflected in the opening words on the Government Economic Service's website: "Think of all the issues that have hit the headlines recently. Behind every story there will be an economist, delving into the details to establish the economic pros and cons".<sup>89</sup> Sir David King told us that "the creation of the 'Scientist/Engineer' profession within the PSG framework clearly puts scientists and engineers on the same footing as other professional groups".<sup>90</sup> However, when asked whether scientists were now an equal footing with economists and lawyers in terms of their credibility and status in the civil service, Sir David admitted that the situation was "very mixed".<sup>91</sup>

55. In this context, it is perhaps noteworthy that while there is a Government Social Research Service, a Government Economic Service, a Government Statistical Service and a Government Operational Research Service, there is no equivalent Service for the natural and physical sciences, engineering and technology. Sir Nicholas Stern, Head of the Government Economic Service (GES), described the role of the GES as follows:

"we try to make economists better by helping with the recruitment [...] and organising the training and the professional development of economists. We make them better economists so that they are better able to serve government".<sup>92</sup>

We asked Sir David whether scientists in the civil service would not benefit from a similar arrangement. He suggested that the Office of Science and Innovation was fulfilling the same function:

"The Office funds the science base in our university sector, the Office reviews the quality of science, as I have just said, in every government department, and, through the chief scientific advisers, I am trying to pull the evidence base in the sciences across the patch together, so I think that is the very function of the Office of Science and Technology [Innovation]".<sup>93</sup>

Although we do not dispute that, under Sir David's leadership, the OSI has taken steps to address the problems identified above in scientific expertise within the civil service, it is clearly not equivalent to having a Government Scientific Service, just as the existence of the Treasury does not obviate the need for a Government Economic Service. Sir David also asserted that scientists in Government comprised a "much more heterogeneous group of

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89 <http://www.ges.gov.uk/>

90 Ev 136

91 Q 1344

92 Q 1021

93 Q 12

people” than the disciplines which already had their own Government Services and would be “therefore rather more challenging to corral”.<sup>94</sup> It may be true that a Government Scientific Service would need to encompass a broad range of scientists and engineers but there is diversity too within the Government Economic Service. Moreover, it could be argued that the very fact that the scientific community within Government is currently fragmented between the various scientific disciplines and engineering makes the need for an over-arching and coherent Government Scientific Service even more pressing.

**56. We recommend the establishment of a Government Scientific Service.** Since the disbanding of the Scientific Civil Service, there has been insufficient action to strengthen the position of scientists and engineers as a professional group within the civil service. **A Government Scientific Service would provide a stronger professional identity and a focal point for specialists from across the physical and natural sciences and engineering working within Government.** We do not envisage the creation of a new bureaucratic structure: the Government Scientific Service should take over the existing relevant functions from within OSI and the PSG team.

57. In the course of this inquiry, we did identify some examples of good practice, most notably in the Food Standards Agency (FSA). Around 40% of FSA staff have scientific qualifications and the FSA seemed proud that many of its staff “are recognised internationally as experts in their fields”.<sup>95</sup> The FSA told us that it sought to “develop the skills and knowledge of our scientific staff by encouraging them to attend or present papers to appropriate conferences or workshops so that their expertise is kept up-to-date and recognised by the scientific community”.<sup>96</sup> Other departments have also taken steps to develop and support their scientists—one example would be the Science in DEFRA Change Programme led by the DEFRA DCSA, the aim of which is summarised as: “right science; right scientists”.<sup>97</sup>

58. Some departments have also employed secondments as a means of strengthening their scientific capabilities. Secondments—both outward and inward—can be invaluable for enabling civil servants to deepen and update their specialist skills and for obtaining in-house expertise on a fixed-term basis. CaSE asserted in its memorandum that “The system of handling scientific advice within Government will not really be fit for purpose until departments build into their structures a constant flow of scientifically-trained individuals, who bring the eyes of independence to the overall handling of information and uncertainty relating to science and engineering”.<sup>98</sup> Our predecessor Committee also concluded in its 2004 Report on the use of science in international development policy that DFID would benefit from more frequent secondment of scientists into the department. We have heard informally that DFID has taken steps to implement this recommendation.

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94 Q 1349

95 Food Standards Agency, *Science Strategy 2005–2010*, para 125

96 As above

97 Ev 158

98 Ev 115

59. Professor Kelly, DCSA at the Department for Transport, told us that he also had first hand experience of the benefits of secondments. In particular, he emphasised the advantages of being able to co-opt highly specialised expertise for the duration of a specific task:

“when there are particular initiatives—road user charging is one that is a big issue at the moment—the Department is able to second people in, very, very skilled people, who are able to be recruited for particular projects. Every department is different but I think there is an advantage in having the ability to have teams assembled and working on a critical project for a period of time rather than long term career civil servants.”<sup>99</sup>

**The proposed Government Scientific Service should take the lead in identifying good practice in professional development for scientists and engineers, including the use of secondments, and promoting its adoption across Government.**

### **Assessing in-house expertise**

60. In the next section, we consider the Government’s use of external scientific advice and expertise. **Determining which expertise should be retained in-house and which sought externally is of critical importance** but there are many compounding factors that render this process extremely challenging. Most departments have not been particularly effective at collecting data on the skills and experience of their employees in a way that facilitates assessment of the overall expertise held in-house—a problem exacerbated by the fact that, as discussed above, employees may not advertise their specialist skills in a generalist-oriented civil service. In addition, as the Government told us, “The ability to retain, fund and develop scientific expertise for unforeseen challenges is a real issue for departments. The need to fund, retain the expertise, and constantly update the skills is an equation that is rarely truly resolved.”<sup>100</sup>

61. We repeatedly asked the witnesses who came before us how departments should determine whether they had sufficient in-house expertise to meet their needs and to be intelligent customers of external scientific advice. The fact that we did not receive a single answer that convincingly addressed the question no doubt reflects the difficulty of the task. Nevertheless, it is not sufficient for departments to continue making what appear to be *ad hoc* assessments of whether they possess appropriate scientific expertise without producing any convincing rationale or evidence to underpin them. **Departments must collect comprehensive data, in a manner which is consistent and comparable between departments, regarding the numbers of scientists and engineers which they employ.** Clearly, a distinction must also be made in these data between staff with scientific qualifications who are now employed as generalists and those who are employed as scientists or engineers. **Furthermore, we recommend that the Government Chief Scientific Adviser commission a study of the way in which departments should assess**

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99 Q 1094

100 Ev 137

**their need for scientific skills and determine whether these needs are being met.** The Government Scientific Service should play a leading role in the review and in taking forward the recommendations which emerge.

## External sources of advice

62. As discussed in the previous section, the Government draws upon specialist expertise from both within and outside the civil service in developing its policies. Sir David King told us: “what we have got to recognise is that the science advisory system within government only works by going out for expert information outside of government”.<sup>101</sup> The Induction Pack for DCSA lists possible sources as: “academics, eminent individuals, learned societies, advisory committees, consultants, professional bodies, public sector research establishments (including the Research Councils), lay members of advisory groups, consumer groups and other stakeholder bodies”.<sup>102</sup> We consider some of these in more detail below.

### Scientific advisory committees

#### Council for Science and Technology

63. The Council for Science and Technology (CST) is the Government’s top level advisory board on science and technology, with a remit “to advise the Prime Minister and the First Ministers of Scotland and Wales on strategic issues that cut across the responsibilities of individual government departments”. Following a quinquennial review, the CST was re-launched in 2004 with new membership, terms of reference and mode of operation. Our predecessor Committee was critical of the previous incarnation of the CST and concluded in its 2003 OST Scrutiny Report that “The new Council for Science and Technology deserves a chance to succeed but the Government must not waste another five years. The Government should put it on a year’s probation and have the courage to abolish it if it is not working”.<sup>103</sup>

64. CST members, who are appointed by the Prime Minister, are senior academics and industrialists with backgrounds in science, engineering and technology. The Council has two chairs, each with a different role. One chair is elected from among the members (currently Sir Keith Peters); he chairs meetings where CST is discussing and developing its advice to Government. The other chair, Sir David King, chairs meetings where CST is reporting its advice to Government. The CST sets its own work programme but develops it in discussion with Government. It can deliver its advice to Government by publishing reports, by providing confidential written advice, or by holding discussions with ministers, officials and special advisers. In recent years, it has published various reports including *Policy through dialogue*, *An electricity supply strategy for the UK*, *Better use of personal*

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101 Q 27

102 Not published

103 Science and Technology Committee, Fourth Report of Session 2003–04, *Office of Science and Technology: Scrutiny Report 2003*, HC 316, para 43

*information: opportunities and risks and a Universal ethical code for scientists.*<sup>104</sup> The Council also has periodic meetings with the Prime Minister.

65. We have not had the opportunity to look in detail at the workings of the CST during this inquiry. However, we believe that the CST has a potentially important role to play as the highest level scientific advisory committee, with a remit to advise the Prime Minister directly. Since it is comprised of eminent experts from a wide range of disciplines and sectors, the CST could—in addition to publishing policy statements and reports—provide a useful sounding board for, and challenge function to, the GCSA. We intend to return to the work of the CST later in this Parliament.

### *Departmental scientific advisory councils*

66. DEFRA is frequently cited as an exemplar of good practice in terms of its scientific advisory system. Its establishment of an independent Scientific Advisory Council (SAC) has been widely welcomed. DEFRA told us that the Council was established in February 2004 to support the CSA in the provision of independent, expert, and strategic advice on the science underpinning the department’s policies. The Council communicates its advice to the CSA and, via the CSA, to ministers. There are currently 16 members of the Council covering a broad range of expertise of relevance to DEFRA. The Council meets in full every quarter and at least one meeting a year is open to the public. Most of the Council’s work is taken forward through sub-groups.

67. The Royal Society endorsed DEFRA’s model of a Scientific Advisory Council and argued that other departments should follow suit: “Government Departments’ access to independent advice in science and engineering should be based on having a panel (and in some cases panels) of independent experts available to each department to support their use of science”.<sup>105</sup> Professor Wiles, the Home Office DCSA, told us that “The main Home Office advisory committee is similar but in some ways different from DEFRA’s”, noting that, unlike DEFRA’s SAC, membership was based on nominations by learned societies and the committee was chaired by the Home Office Permanent Secretary.<sup>106</sup> Professor Wiles argued that this was an “advantage because it means that the independent external advisory group is talking immediately and directly to the most senior administrator in the Home Office”.<sup>107</sup> Professor Sir Gordon Conway, DFID CSA, said that DFID did not have an equivalent group at present but he was attracted to the idea: “The issue of having a senior advisory group is one that I am feeding into this senior management review”.<sup>108</sup> By contrast, Professor Kelly, DCSA at the DfT, told us that it did “not make sense to have a scientific advisory committee for the whole department because [...] the range of input that we need from the broad scientific community is so large that we would have around

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104 See <http://www2.cst.gov.uk/cst/reports/>

105 Ev 102

106 Q 1095

107 As above

108 As above

the table people who would have difficulty in talking to each other”.<sup>109</sup> We do not accept this point since the same argument could equally be applied in respect of DEFRA and indeed to the over-arching Council for Science and Technology.

**68. DEFRA’s decision to introduce an independent Scientific Advisory Council to support the work of the departmental CSA is sensible and should be emulated by other departments. It is critical that these Advisory Councils are independent and are seen to be so.** By providing a manifestly independent expert opinion, such committees can add weight to the views of the DCSA where they coincide and provide an important challenge function where they do not. Scientific Advisory Councils may also be able to provide a more direct and trenchant critique of departmental policies and practices where necessary than a DCSA who has to balance his independence – real or perceived – against the need to retain influence within the Department. It is interesting, for example, that the Chairman of the DEFRA SAC, John Beddington, recently spoke publicly of the Council’s concern about cuts in funding for research within the Department, telling reporters: “We’re concerned whether DEFRA has sufficient funds to conduct its science programmes to underpin the government’s policy goals”.<sup>110</sup>

69. The Science and Technology Committee stated in its 2001 Report on the scientific advisory system: “While we accept that close links with the department concerned can be useful, we suggest that it would be beneficial for at least some of a committee’s staff to be brought in from outside (for example on secondment from the Research Councils or the Learned Bodies)”. The Committee also emphasised the need for staff of advisory committees to “appreciate that they work for the committee and not for the Department”.<sup>111</sup> These views remain valid. **Wherever possible, the secretariat of scientific advisory committees should include secondees from appropriate scientific establishments, to both enhance the specialist knowledge within the secretariat and safeguard its independence.** In our case study Report on drugs classification, our concerns in this area led us to recommend that the secretariat arrangements for the ACMD should be reviewed.<sup>112</sup> We regret that this recommendation was rejected by the ACMD, although the Home Office accepted it in principle.<sup>113</sup>

### **Code of Practice for Scientific Advisory Committees**

70. Most departments rely on a range of scientific advisory committees to provide specialist advice on specific policy areas. Examples include the nine scientific advisory committees feeding into the work of the Food Standards Agency and the Home Office’s Advisory Council on the Misuse of Drugs. These committees are expected to conform to the Code of Practice for Scientific Advisory Committees. Committees which follow the Code of Practice are often referred to as ‘code committees’. The GCSA is in the process of updating

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109 Q 1095

110 “Spread too thin, DEFRA’s science budget can no longer do its job, warn advisers”, *Research Fortnight*, 10 May 2006

111 HC (2000–01) 257, para 129

112 HC (2005–06) 1031, recommendation 15

113 Response from ACMD; Cm 6941, p 9

the Code of Practice, which was last issued in 2001, and there does not appear to be a public list of current code committees at present, despite the Government's commitment to ensure that this list is publicly available and up to date.<sup>114</sup> **We urge the Government to update the code and the list of code committees as a matter of urgency.**

71. We found evidence in our case study on the classification of illegal drugs that the Advisory Council on the Misuse of Drugs—the scientific advisory committee responsible for the provision of advice in the area of drugs policy—was not complying with the Code of Practice. We also identified a need for departments to have mechanisms in place which enable them to check whether advisory committees are functioning properly without compromising the independence of the committees. The current Code of Practice contains no specific advice on how departments should achieve this. Sir David King made it clear that, in his view, DCSAs should take responsibility for overseeing such committees, telling us: “It is part of the role of departmental CSAs to ensure that scientific advisory committees within their department are performing effectively”.<sup>115</sup> However, we note that the Home Office DCSA seemed reluctant to accept this mantle for fear of interfering with the Advisory Council's independence.<sup>116</sup> In relation to the identity cards technology case study, we were pleased to note that the Home Office has accepted our recommendation to create an ICT Assurance Committee, integrating this with the existing Independent Assurance Panel.<sup>117</sup>

72. We asked the Government whether it had ever commissioned independent reviews to assess the performance and working methods of scientific advisory committees. It told us that it had not but that the rolling programme of Science Reviews would examine “scientific advisory committees and the implementation of the Code of Practice by which they are covered” and that individual departments also carry out their own reviews, citing the fact that “DEFRA are currently reviewing how their Non Executive Bodies [including scientific advisory committees] could be improved”.<sup>118</sup> We note that our predecessor Committee's Report on the scientific advisory system argued that the Government should “establish a system of five-yearly reviews for individual committees”, in keeping with the quinquennial review system in place for Non-Departmental Public Bodies.<sup>119</sup> **We recommend that the revised Code of Practice for Scientific Advisory Committees provide explicit guidance on how the performance of these committees should be monitored. It should give departmental CSAs clear responsibility for overseeing the performance of scientific advisory committees sponsored by their Department and advise them to commission light-touch independent reviews every five years to ensure**

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114 Science and Technology Committee, First Special Report of Session 2001–02, *The Government's Response to the Science and Technology Committee's Fourth Report, Session 2000–01, on The Scientific Advisory System*, November 2001, HC 360, para 21

115 Ev 202

116 Q 1173

117 Home Office, *Government Reply to the Sixth Report from the House of Commons Science and Technology Committee Session 2005–06 HC 1032, Identity Card Technologies: Scientific Advice, Risk and Evidence*, Cm 6942, October 2006, page 5

118 Ev 202

119 HC (2000–01) 257, para 77

**that committees are functioning as required and to identify innovations in working practices that could usefully be applied by other committees.**

73. The Committee on Radioactive Waste Management (CoRWM), while not strictly speaking a scientific advisory committee, was heavily criticised by the House of Lords Science and Technology Committee in its Report on Radioactive Waste Management for its available expertise and the way in which it had fulfilled its role.<sup>120</sup> In addition, two of CoRWM's technical members left the committee before it published its draft recommendations—one was sacked; the other resigned in protest. Following the Lords Science and Technology Committee's Report, the DCSA at the sponsoring Department, DEFRA, has assumed a more active role in safeguarding the quality of technical input to CoRWM. We note that the Government Response to our predecessor Committee's Report on the scientific advisory system stated that the Code of Practice for Scientific Advisory Committees "may also be adopted by a broader range of committees".<sup>121</sup> **We recommend that committees not designated as 'scientific advisory committees' but which play a significant role in the provision of scientific advice, or whose advice to Government relies heavily on scientific input, be required to comply with the Code of Practice for Scientific Advisory Committees.**

### **Membership**

74. Determining the membership of scientific advisory committees is an important and sensitive process. The Institute for the Study of Science, Technology and Innovation (ISSTI) warned that "when selecting which 'experts' to involve, government should be alert to the range of commitments and biases that advisers may bring", commenting that "bias is inevitable, whether it arises from career-based motivations, financial considerations or personal value systems, or as is more usual, a combination of all three".<sup>122</sup> ISSTI also agreed with the Crop Protection Association that "bias arising from people's membership of pressure groups is less likely to be remarked upon than the potential for bias amongst industry stakeholders or those funded by them".<sup>123</sup> The Royal Society of Chemistry argued, however, that the expertise of industrialists could be invaluable since "experts working in the field are more likely to be up-to-date with developments than those who are not".<sup>124</sup> The Society was concerned that because campaigning organisations tended to be perceived as more independent or credible than those of industry experts, they were "often able to make unsubstantiated claims that can distort the discussion and make informed, evidence-based policy-making more difficult".<sup>125</sup> The latter view was echoed by a number of other witnesses. **Industry members can be important sources of expertise and experience but are frequently perceived to be less trustworthy than NGO representatives. This is unfair**

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120 House of Lords Science and Technology Committee, Fifth Report of Session 2003–04, *Radioactive Waste Management*, HL 200

121 HC (2001–02) 360, para 21

122 Ev 119

123 As above

124 As above

125 Ev 124

**and illogical: the same standards and expectations should be applied to both categories of representative.**

75. We heard various views about the role of lay members on scientific advisory committees. Professor Malcolm Grimston, Associate Fellow at Chatham House, asserted that: “Increasingly, committees examining complex scientific issues are being populated by lay members, ‘elevating public opinion over professional expertise and subordinating science to prejudice’”.<sup>126</sup> Dr Pike, Chief Executive of the Royal Society of Chemistry, appeared to disagree, arguing that it could be very useful “to have one or two people who have the wider picture” since “if you just have a lot of specialists focusing on their own areas, there may be some tunnel vision and you need one or two generalists, I think, to try to be the glue”.<sup>127</sup> Dr Peter Cotgreave, Director of the Campaign for Science and Engineering, made a distinction between expert committees providing purely technical advice, where he saw “no place on that for someone who is not an expert in that issue”, and more policy-oriented committees, where inclusion of lay members was desirable: “there is no point in making a policy based on scientific evidence if you cannot bring the public with you, on nuclear fuel, for example”.<sup>128</sup> Our view is that in this respect scientific advisory committees are expert committees providing technical advice, rather than policy-oriented committees which might better describe a Policy Commission or review group. The Science Council also highlighted the “need for government to distinguish between scientific evidence; scientific opinion and advice from scientists based on the incomplete evidence available; and opinion and advice from scientists, non-scientists and campaigners where there is no evidence”.<sup>129</sup> **It is also important not to allow the “double counting” of non-scientific opinion or advice.** Policy makers in Government will rightly weigh up the scientific and technical advice they receive against non-scientific considerations—for example, of an economic, political, cultural nature, according to other advice they receive. It is important therefore that scientific advice is not already diluted by these other factors as this will lead to such factors being effectively considered twice by policy makers, who will never receive unadulterated scientific advice.

76. The Code of Practice for Scientific Advisory Committees states that “Lay members should be clear about the capacity in which they have been appointed and the role they are expected to fulfil”, but other than suggesting that they may be able to help the committee consider the wider context of its work, it does not specify what this role should be, presumably leaving it to individual committees to decide.<sup>130</sup> **There is an urgent need for greater clarity regarding the role of lay members on scientific advisory committees and the status of their contribution. Clearly, where a committee has been tasked with providing purely technical advice, it would inappropriate to give the views of lay members equal weight to advice from experts: scientific advice must be based on**

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126 Ev 204

127 Q 939

128 Q 943

129 Ev 127

130 <http://www.dti.gov.uk/files/file9769.pdf>, paras 25, 30

**science.** It is not acceptable for lay members to speak on behalf of scientific advisory committees without the committee’s agreement—recent instances of lay members being quoted in the media as ‘experts’ on scientific committees have been misleading and regrettable.<sup>131</sup> We also reiterate our predecessor Committee’s comment in its Report on the scientific advisory system that “It should be clear that the role of the lay member is to bring an alternative perspective to the committee and not to represent an interest group”.<sup>132</sup> **In view of the many potential problems identified above in having lay membership of scientific advisory committees (as opposed to policy commissions where they play a vital role), we recommend that scientific advisory committees dealing with technical advice to Government should not routinely have lay membership.**

### Consultants

77. Consultants can play a helpful role in the provision of independent external advice but we encountered a widely-held view that the Government was not using them in an appropriate manner. Professor Nancy Cartwright, a Professor at the London School of Economics and Political Science, told us there was:

“a movement that suggests that evidence collected by agencies, such as consultancy firms, that know nothing about the subject matter will be better since the agency will have no stake in the results. But it is widely recognized that good studies generally require huge amounts of background knowledge, deployed in subtle ways [...] expertise and implicit knowledge and practices matter tremendously”.<sup>133</sup>

The Royal Society of Chemistry also expressed concern over “the use of private consultants by Government—which has the effect of undermining the traditional willingness of the scientific community to contribute to the formal consultation process”.<sup>134</sup> The Society further told us:

“increasingly reliance appears to be being placed on administrative staff to ‘buy in’ the services of consultants. In many cases they lack the competency to frame the question, recruit the appropriate expert or understand the answer when it has been provided. Even where such departmental expertise is available, the scientists who are often located in Government agencies are too far removed from the policy making process”.<sup>135</sup>

We saw for ourselves the extent of the Government’s dependence on external consultants in our case study on the technologies supporting ID cards. In May 2004, the Home Office employed PA Consulting on a three-year contract to aid the implementation of the identity cards programme. The Home Office said that it was necessary to involve a private company as it did not have “ready access to certain skill sets and resources necessary for

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131 e.g. “Alarm over beef imports”, *Daily Mail*, 3 July 2006

132 HC (2000–01) 257, recommendation 43

133 Ev 96

134 Ev 122

135 Ev 125

implementation of a large and complex project such as Identity Cards”.<sup>136</sup> Between 6 April 2005 and 18 April 2006, the Home Office paid PA Consulting £14,248,799.21 for work on the identity cards programme.<sup>137</sup>

78. We asked the Secretary of State for his view. Mr Darling told us that there were two issues:

“One is, I think right across government there is a general feeling that we should be using less consultancy rather than more, and certainly that is my view [...] That said, which is the second point, the size of government, and certainly Whitehall, in many places has been reduced, and the DTI has got over 1,000 fewer people than it had, what, two years ago”.<sup>138</sup>

The latter phenomenon has been driven in large part by the recommendations of Sir Peter Gershon’s review of public sector efficiency. It is interesting to note that Sir Peter found in his review “little evidence that the procurement of professional services (for example consultancy, legal services, financial advisory services) is managed to ensure value for money”.<sup>139</sup>

**79. The efficiency measures taken as a result of the Gershon Review have increased the Government’s dependence on consultants as sources of scientific and technical advice. This gives cause for concern. As discussed above, the Government must have sufficient expertise to ensure that it both asks the right questions and does not become an uncritical, unquestioning consumer of the advice it receives.** Consultants can often provide a ‘one stop shop’ for advice in different areas but may not necessarily possess the best expertise to answer all the questions Government is seeking to answer. **We believe that improved auditing of skills within the Government and a strong Government Scientific Service would enable the Government to make more efficient use of the existing expertise within the civil service and, ultimately, to obtain better scientific advice.** As discussed in the next section, better leveraging of the expertise embodied by learned societies and professional bodies could also help to strengthen the Government’s scientific advisory system.

### ***Learned societies and professional bodies***

80. The GCSA’s Guidelines state that “the potential networks of organisation such as learned societies should not be underestimated” by departments seeking expert advice. Nevertheless, many of the learned societies who provided evidence to this inquiry felt their resources were being under-utilised by the Government. The Royal Society of Chemistry told us that “scientific and learned societies should not be undervalued or underused as

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136 HC (2005–06) 1032, p 11

137 HC Deb, 18 April 2006, Col 448W

138 Q 1365

139 Sir Peter Gershon CBE, *Releasing resources to the front line*, Independent Review of Public Sector Efficiency, July 2004, para 3.24

sources of scientific advice by Government”.<sup>140</sup> In addition, Professor Martin Taylor, Physical Secretary and Vice-President of the Royal Society, told us:

“we are a very great resource. We have not just got our fellowship that covers expertise in all science but also all our various contacts, networks, including networks overseas. This is something superb for the Government to be able to draw from and I do not think, to be honest, they draw from us quite enough”.<sup>141</sup>

The Science Council also commented that it was “disappointing that in spite of the OST [OSI] guidance on scientific advice, it is too often the case that specialist bodies are not consulted by government or non-departmental bodies in advance of policy positions or legislation being established”.<sup>142</sup> We have observed that the Government is very ready to go to outside consultants rather than the learned societies as a first resort.

81. We saw during our visit to the US the more formalised role fulfilled by the National Academies—the National Academy of Science, National Academy of Engineering, Institute of Medicine and National Research Council—in the provision of scientific advice to Government. The National Academies have a mandate to “investigate, examine, experiment, and report upon any subject of science or art” whenever called upon to do so by any Department of the Government.<sup>143</sup> Most of the science policy and technical work is conducted by the National Academies’ operating arm, the National Research Council, which was created expressly for this purpose. Collectively, the National Academies “provide a public service by working outside the framework of government to ensure independent advice on matters of science, technology, and medicine”.<sup>144</sup> We recognise that the UK’s learned societies were established within a different institutional framework. Nonetheless, the Government has on occasion commissioned work from the learned societies, including a well-received Royal Society/Royal Academy of Engineering study on nanotechnology.<sup>145</sup> **We find the institutional structure of the scientific advisory system in the US attractive and encourage the Government to discuss with the learned societies the extent to which similar arrangements could be adopted in the UK and the changes that this would necessitate.**

82. In the meantime, **there is ample room for greater involvement of the learned societies and professional bodies in the UK scientific advisory system.** Our predecessor Committee also argued in its 2001 Report on the scientific advisory system that “Involving the Learned Bodies more closely in the scientific advisory system would be a straightforward way of demonstrating its independence”.<sup>146</sup> The Science Council, which acts as an independent body for scientific professional institutions and learned societies,

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140 Ev 122

141 Q 924

142 Ev 128

143 <http://www.nasonline.org/>

144 As above

145 Royal Society and Royal Academy of Engineering, *Nanoscience and nanotechnologies: opportunities and uncertainties*, July 2004

146 HC (2000–01) 257

told us that a scientific advisory network for Government drawn from its members would be “a positive step in building public trust and confidence”.<sup>147</sup> It would also help the Government to surmount one of the current obstacles to more effective engagement—the fact that civil servants may not be able to readily identify the appropriate organisations and points of contact to consult in respect of a particular policy. **We recommend that the Government take up the offer by the Science Council to coordinate a scientific advisory network comprising all the professional bodies.** We note, however, that there are relevant scientific bodies that are not affiliated to the Science Council and an arrangement would need to be in place to ensure that these organisations are not sidelined.

### Academics

83. The scientific advisory system could also be strengthened by addressing the barriers to engagement faced by academics and introducing incentives to promote their participation in the policy making process. The Environment Research Funders’ Forum told us that “Differences in motivations, cultures, time-frames and reward structures were identified as obstacles to good communication [between scientists and policy makers], with time pressures exacerbating the difficulties”.<sup>148</sup> Professor Malcolm Grimston, Associate Fellow at Chatham House, saw a more fundamental problem: “the philosophical and practical mismatch between the political and technical mindsets”.<sup>149</sup> These barriers have significant repercussions for evidence based policy making, as discussed in the next chapter. Not all are easy to address but a recurring—and resolvable—problem raised in evidence concerned the influence of the Research Assessment Exercise (RAE). The Environment Research Funders’ Forum, for example, commented on the “lack of incentives for researchers to engage with the policy process [with] the Research Assessment Exercise topping the list of negative influences”.<sup>150</sup> **This situation, where the RAE acts as a disincentive to engagement by the scientific community with policy, must be rectified in the successor to the RAE.**

### Conclusions

84. Much has been done under the leadership of Sir David King and his predecessors to strengthen the scientific advisory system supporting Government policy development. Nonetheless, challenges remain to ensure that the system is able to meet current and future demands and is functioning at its best. Separating the roles of GCSA and Head of OSI would give the GCSA greater freedom and independence, enabling him to focus on his advisory and challenge functions. Relocation of the GCSA’s office to the Cabinet Office would further strengthen his position and place him at the heart of Government, in line with his cross-departmental remit. The introduction of DCSAs has been welcome but, like the GCSA, their effectiveness depends on their independence and ability to contribute to

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147 Ev 128

148 Ev 97

149 Ev 204

150 Ev 99

policy making at the highest level as much as on their knowledge and skills. DCSAs also need effective support from officials but we have noted with concern the sidelining of scientific expertise in the civil service and highlighted the need to move towards a situation where specialist skills are once again valued in their own right. The establishment of a Government Scientific Service could make a significant contribution towards redressing the current imbalance and strengthening the status of scientists and engineers within the civil service. This, in turn, could help to reduce the Government's dependence on consultants. We also encourage the Government to make greater use of the learned societies and professional bodies whose collective expertise provides an indispensable resource. Finally, we have identified a need for improved monitoring of the implementation of good practice that has been developed by the GCSA and others—our experience suggests that guidelines are not always being translated into practice within departments.

## 4 Evidence Based Policy

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*“When the evidence changes I change my mind; what do you do?”- John Maynard Keynes*

85. One of the defining characteristics of the early years of the present Labour Government was its stated commitment to evidence based policy making. In the words of the Centre for Crime and Justice Studies at King’s College London:

“When Labour came to power in 1997 it made a very clear commitment to ‘evidence-based’ policy making across government and in particular, in criminal justice. This was summed up by Tony Blair when he declared ‘what matters is what works’. The clear message sent out to academics and researchers was that the government wanted to use the application of knowledge to inform and determine policy making”.<sup>151</sup>

However, over the years, the Government’s commitment to evidence based policy has been called into question on many occasions. In the course of this inquiry, various witnesses queried whether evidence based policy making was in fact feasible, given political and other constraints. The Centre for Evidence Based Policy and Practice told us: “Although the term ‘evidence based policy’ has gained currency in recent years (and is reflected in the title given to our Centre by the ESRC in 2000), our experience suggests that it misrepresents the relationships between evidence and policy”. According to the Centre, “Evidence informed policy’ is nearer the reality”.<sup>152</sup> William Solesbury, Senior Visiting Research Fellow at the Centre, expanded upon this as follows:

“I think the concept that policy should be based on evidence is something that I would rail against quite fiercely. It implies first of all that it is the sole thing that you should consider. Secondly, it implies the metaphor ‘base’ and implies a kind of solidity, which [...] is often not there, certainly in the social sciences although I think to a great degree, [...] not always in the natural and biological sciences”.<sup>153</sup>

86. Norman Glass, Director of the National Centre for Social Research, agreed, telling us: “I do not like the phrase ‘evidence based’—it is not the way policy gets made”.<sup>154</sup> Professor Tim Hope, Professor of Criminology at the University of Keele, also argued that there was “an incompatibility between the ideology of evidence-based policy and the natural inclination of the political process to want to secure the best outcomes”.<sup>155</sup> According to Professor Hope, the “power and influence of politics tends to infect the procedures and

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151 Ev 145

152 Ev 173

153 Q 991

154 Q 995

155 Ev 147

processes of knowledge production of science, to its detriment, and [...] to the detriment of the public interest”.<sup>156</sup>

87. Various commentators have recently drawn attention to flagship Government policies that appear to have been developed in the absence of any convincing evidence that they would work. Sir John Krebs, former Chairman of the Food Standards Agency, singled out the announcement in September 2005 by the then Secretary of State for Education and Skills, Ruth Kelly, that the Government planned to ban junk food from meals and vending machines in English schools.<sup>157</sup> According to Sir John, this policy had been developed with: no evidence that it would work; no scientific definition of junk food; no cost benefit analysis; and no public engagement.<sup>158</sup> Sir John also noted that the report, *Tackling Child Obesity—First Steps*, published by the Audit Commission, Healthcare Commission and National Audit Office in February 2006 commented that there was “no evidence whether [the current] range of programmes or initiatives to improve children’s health and nutrition generally will encourage obese children or children at risk of obesity to eat more healthily”.<sup>159</sup> Judy Nixon, a Senior Lecturer at Sheffield Hallam University, has also argued that there is little convincing evidence to support the use of Anti-Social Behaviour Orders, commenting that “While there is a diverse and growing literature on ASBOs the absence of robust empirical research means that much of what is written is dominated by anecdote, conjecture and rhetoric”.<sup>160</sup> Furthermore, in each of the case studies we conducted we encountered examples of more tenuous relationships between policies and the evidence on which they were purported to be based than is suggested by the phrase ‘evidence based policy’.

88. In evidence to us, both the Head of the Government Economic Service and Government CSA acknowledged the need to strengthen the Government’s use of evidence. Sir Nicholas Stern told us that there are many examples from across government where evidence is really shaping policy, such as welfare to work. Nonetheless, he acknowledged that “we do have to push harder on using evidence in Government”, and said that he would welcome a stronger presence of economists in health and education departments.<sup>161</sup> He also noted that “You would always like, as an ex-academic, more time to look into the evidence than the pace of decision making life allows you”.<sup>162</sup> Sir David King also admitted that there was: “an enormous amount of work still to be done”, telling us: “I think we have moved a long way, but this is a bit of a tanker that needs turning to get a full understanding of what the strength of scientific knowledge can bring to the evidence based system”.<sup>163</sup>

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156 Q 987

157 “Junk food to be banned in schools”, *BBC News*, 28 September 2005

158 Sir John Krebs, *Scientific Advice, Impartiality and Policy*, Inaugural Sense About Science lecture, 7 March 2006

159 National Audit Office, Healthcare Commission, Audit Commission, *Tackling Child Obesity—First Steps*, 28 February 2006, HC 801

160 Ev 146

161 Q 1050

162 Q 1034

163 Q 26

89. **We applaud Sir David King’s efforts to integrate fully science into an evidence based approach. Government should also be clear when policy is not evidence-based, or when evidence represents only a weak consideration in the process, relative to other factors.** There will be many situations in which policy is primarily driven by factors other than evidence, be they political commitments or judgments (eg the minimum wage), moral standpoints (eg stem cell research), or urgent responses to circumstances or policies on which there is little empirical evidence to go on. If evidence-based policy making is to retain credibility, it is essential that it is not abused: ministers should only use the phrase when appropriate and need not be too chary about acknowledging that certain policies are not based on evidence. They should certainly not seek selectively to pick pieces of evidence which support an already agreed policy, or even commission research in order to produce a justification for policy: so-called “policy-based evidence making” (see paragraphs 95–6). **Where there is an absence of evidence, or even when the Government is knowingly contradicting the evidence—maybe for very good reason—this should be openly acknowledged.**

90. The Secretary of State acknowledged this point. He told us: “You want to take into account all the available evidence; but, at the end of the day, a minister’s job, Parliament’s job, is to reach a judgment as to whether or not a particular policy ought to be pursued or not, and you can look at evidence and that will influence your judgment”.<sup>164</sup> **We agree that ministerial decisions need to take into account factors other than evidence, but this is not reflected in the Government’s oft-repeated assertion that it is committed to pursuing an evidence based approach to policy making. We have detected little evidence of an appetite for open departure from the mantra of evidence based policy making. It would be more honest and accurate to acknowledge the fact that while evidence plays a key role in informing policy, decisions are ultimately based on a number of factors—including political expediency. Where policy decisions are based on other such factors and do not flow from the evidence or scientific advice, this should be made clear.** We would not expect a DCSA or a GCSA to defend a policy or part of a policy which is not based on scientific advice. We return to this topic in chapter 6.

## Research

91. Scientific evidence is generated as a result of research. The Government’s commitment to evidence based policy therefore necessitates a concomitant commitment to proper investment in research. Most departments have now developed science and innovation strategies which identify departmental research priorities. These strategies are undoubtedly helping to bring a greater degree of rigour and transparency to the setting of research priorities and the commissioning process, but much remains to be done and there are significant gaps in the evidence base relating to key Government policy areas. For example, in our case study looking at the classification of illegal drugs we found a worrying lack of investment in addiction and drugs policy research which could only serve to hinder policy making in that area. Furthermore, our case study addressing the technologies

underpinning ID cards highlighted the fact that the Home Office did not employ a clear mechanism for identifying when there was a need to commission research to support emerging priorities as a result of policy development, the objectives described in the departmental science strategy being largely static and high-level. This was particularly significant in light of the fact that the entire ID cards policy depends on the necessary science and technology being developed and available within a timescale that fits with the Government's plans. **Departments need to evolve more effective mechanisms for identifying gaps in the evidence base for policy development which are capable of responding to new and emerging political priorities.** We consider this further in the context of horizon scanning in paragraph 110.

92. In both the drugs and ID cards case studies we noted a lack of investment in social science research, which is critical for building an evidence base to underpin policy making and for evaluating the effectiveness of existing policies. The Institute for the Study of Science, Technology and Innovation also commented on the importance of sustained investment in social research in this area: “too often there is an illusion that applied, policy-oriented research is like turning on or turning off the tap from which all knowledge flows but, in reality, research cannot just be turned on at will to provide solutions to policy-makers”.<sup>165</sup> However, departments only commission a limited amount of policy-oriented research and it has not been the main focus of the Research Councils either. In addition, policy-oriented research has not been rewarded by the Research Assessment Exercise, since it tends not to result in publications in prestigious journals. Our predecessors also highlighted this point in their Report on the use of science in international development policy.<sup>166</sup> Professor Kelly, the Department for Transport DCSA, added further weight to the argument that incentives needed to be improved to encourage the best researchers to pursue policy-oriented research, telling us: “It is difficult to get good research and I have not myself found that the lack of money is the most severe constraint [...] It is attempting to define the problem so it attracts the very best academics.”<sup>167</sup>

93. The GCSA, Sir David King, has expressed concern regarding the pressures on departmental research budgets. He told us:

“I think that the tension between the research budget and delivery in departments is a constant tension, so I feel, for example, that in the Department of Health there has been almost a tradition of R&D budgets being raided for delivery purposes and this is to the detriment of the long-term health of the department. I understand the reasons for the tension, absolutely, but at the same time these create problems in the longer term”.<sup>168</sup>

The Environment Research Funders' Forum (ERFF) also noted the “need to improve engagement between Government departments and their non-departmental public bodies (NDPBs) and with the research institutes they support”, telling us: “there is valuable

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165 Ev 120

166 HC (2003–04) 133–I, paras 184–185

167 Q 1112

168 Q 1373

knowledge that is not making its way through to the policy process”.<sup>169</sup> ERFF further suggested that there was “scope to improve the usefulness to policy making of the directed or managed programmes of the Research Councils”.<sup>170</sup> We are aware that many departments have entered into concordats with Research Councils, partly in recognition of this problem. We return to the need to strengthen investment in policy-oriented research in paragraph 98.

### **Publication of research findings and evidence**

94. The Freedom of Information Act 2000 has placed an additional demand for openness in the policy making process. The GSCA’s guidelines advise that:

“It is good practice to publish the underpinning evidence for a new policy decision [...] When publishing the evidence the analysis and judgment that went into it, and any important omissions in the data, should be clearly documented and identified as such.”<sup>171</sup>

The guidelines further state that “departments should ensure that data relating to an issue is made available as early as possible to the scientific community, and more widely, to enable a wide range of research groups to provide a check on advice going to government”.<sup>172</sup> It is notable that in respect of issues falling under Environmental Information Regulations, publication “will usually be obligatory rather than just good practice”.<sup>173</sup> The designation of something as “good practice” stops well short of ensuring that it happens. The Government confirmed in evidence that it: “is committed to making the scientific evidence base public via the Freedom of Information Act, departmental publication schemes and other levers. OST has recently begun to work with departments and the Government Communications Network to ensure that evidence is presented as transparently and effectively as possible”.<sup>174</sup> We heard in evidence that the Home Office publishes all its commissioned research, provided it is of the requisite standard and that there are no security or other legitimate reasons for non-disclosure.<sup>175</sup> **Commissioned systematic reviews of the evidence base should usually be considered as research for the purposes of publication policy.**

95. The commissioning of research from academics by Government departments is widespread so we were extremely concerned to hear allegations from certain academics that departments have been commissioning and publishing research selectively in order to ‘prop up’ policies. Professor Tim Hope, a criminologist from the University of Keele who has worked with the Home Office, told us: “it was with sadness and regret that I saw our work ill-used and our faith in government’s use of evidence traduced”.<sup>176</sup> Of two case

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169 Ev 99

170 Ev 100

171 <http://www.dti.gov.uk/files/file9767.pdf>, para 25

172 As above, para 26

173 <http://www.dti.gov.uk/files/file9767.pdf>, para 25

174 Ev 89

175 Q 1131

176 Ev 147

studies looking at burglary reduction commissioned by the Home Office, Professor Hope told us that the department decided to only write up one: “Presumably [...] because the area-wide reduction was greater here than elsewhere”.<sup>177</sup> Professor Hope also accused the Home Office of manipulating the data so as “to capitalise on chance, producing much more favourable findings overall”, despite the fact that “for individual projects, the [Home Office] method produces considerable distortion”.<sup>178</sup> Furthermore, Professor Hope alleged that the Home Office had interfered with presentation of research findings by other researchers:

“At the British Society of Criminology conference in the University of Bangor in July 2003 there were a number of papers to be given by academics on the basis of contracted work that they were involved in, as I was, for the Home Office. A number of the researchers were advised not to present their papers at the last minute even though they had been advertised in the programme by Home Office officials”.<sup>179</sup>

Other academics have voiced similar concerns. For example, Reece Walters of Stirling University has claimed of the Home Office’s treatment of research results: “It is clear the Home Office is interested only in rubber-stamping the political priorities of the Government of the day [...] To participate in Home Office research is to endorse a biased agenda”.<sup>180</sup>

96. These are serious accusations, amounting as they do to allegations of serious scientific/publication malpractice, and should be subject to vigorous examination. We are not in a position to make a judgment about the veracity of these claims. We are pleased that Sir David King has agreed to investigate any “cases where the party raising the concerns feels a departmental CSA has not dealt with the issue adequately”, although he told us that he has received no such requests to date.<sup>181</sup> We have heard enough on an informal basis about the selective publication of research to harbour concerns. Such allegations do nothing to encourage the research community to engage in government-sponsored research or to improve public confidence in the validity of such work. Because of the obvious problem of potential complainants being dependent on funding from those who commission research, the GCSA should not require a formal complaint from the alleged victim in order to instigate an investigation of substantive allegations of this sort of malpractice. **We urge the Government CSA to investigate proactively any allegations of malpractice in the commissioning, publication and use of research by departments and to ensure that opportunities to learn lessons are fully taken advantage of. We would expect the results of any such investigations to be made public.**

97. Complete openness in publication policy is the best way to dispel concerns over the independence and handling of research. We welcome the view of the Secretary of State for

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177 Ev 148

178 As above

179 Q 993

180 “Truth about crime ‘being distorted’”, *Metro*, 13 February 2006

181 Ev 202

Trade and Industry that “in general, evidence ought to be published”<sup>182</sup> and note that most departments, including the Home Office, have committed to make publicly available the results of the research which they commission. This commitment needs to be borne out in practice. **We recommend that the Government Chief Scientific Adviser ensures that the publication of research underpinning policy development and evidence cited in support of policies is monitored as part of the departmental science reviews.**

98. The concerns raised above highlight the need for research commissioned by departments to be carried out and published without inappropriate interference from the sponsoring department. **Research must, so far as is achievable, be independent and be seen to be so. We are not convinced that the current mechanisms for commissioning research deliver this objective. We have also made the case for greater investment in research to underpin policy development. We recommend the creation of a cross-departmental fund for policy related research to be held by the Government CSA in order to meet these dual aims.** The fund would be in addition to, rather than instead of, existing departmental research budgets although it would be expected that over time a greater proportion of Government spend on policy-oriented research would be via the cross-departmental fund, reflecting the fact that science is becoming increasingly multidisciplinary and many key policy areas require the co-ordinated efforts of multiple departments.

## **Methodology**

99. We received evidence suggesting that in using research results, departments were not paying sufficient attention to the methods used to generate the evidence in question. Sense About Science told us: “From the perspective of good policy making, it is also clearly important that the status of evidence is understood at all stages and by all parties”.<sup>183</sup> Professor Hope commented that “methodology ought to matter, as it does to scientists, because it is the only way in which the validity of the evidence itself can be held to public account”.<sup>184</sup> In addition, the Centre for Evidence Based Policy and Practice said that it had found “a far too casual approach to the use of evidence (particularly social science findings) from other countries without adequate regard to contextual differences” and argued for “the concept of ‘fitness for purpose’ as the appropriate measure of quality, meaning that the science should be methodologically good enough for the weight to be attached to it in informing policy”.<sup>185</sup>

100. Norman Glass, Director of the National Centre for Social Research, warned that the “consequences of bias in evidence, which is what we social scientists are essentially hunting down day after day”, were sometimes considered by policy makers to be “a kind of geeky interest”. Mr Glass argued, however:

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182 Q 1316

183 Ev 117

184 Ev 147

185 Ev 174

“If you are basing your evidence on unrepresentative, biased samples then you cannot believe a word. In fact, it is worse than knowing nothing. Knowing things that are not so is worse than knowing nothing at all”.<sup>186</sup>

Professor Nancy Cartwright from the London School of Economics and Political Science also emphasised the need to take into account different types of evidence: “the best decisions are made on the basis of the total evidence [...] taking into account how secure each result is and how heavily it weighs for the proposal and also taking into account the overall pattern of the evidence”.<sup>187</sup> There is often a temptation to justify policy by selective use of available evidence. But this, and a failure to acknowledge the implications of the methodology used and the overall balance of evidence, risk serious damage to the credibility of evidence-based policy making.

**101. We recommend that where the Government describes a policy as evidence-based, it should make a statement on the department’s view of the strength and nature of the evidence relied upon, and that such statements be subject to quality assurance (see paragraph 114 below).**

## **Trials and pilots**

102. Trials and pilots provide Government with an opportunity to test out policy concepts. A Cabinet Office review of Government pilots entitled *Trying It Out: The Role of ‘Pilots’ in Policy-Making* published in December 2003 described their value as follows: “Although pilots or policy trials may be costly in time and resources and may carry political risks, they should be balanced against greater risk of embedding preventable flaws into a new policy”.<sup>188</sup> However, we uncovered evidence in our ID cards case study which demonstrated that departments do not always commission trial or pilots at the appropriate stage in policy development and may use the outcomes for purposes other than those specified at the outset of the pilot. William Solesbury, Senior Visiting Research Fellow at the Centre for Evidence Based Policy and Practice, also told us: “there are probably too few [pilots] and they are used inappropriately”. He was of the view that there was a “mismatch between the research timetable and cycle and the political cycle” so that “once pilots are up and running ministers are very often keen to roll them out before results are ready”.<sup>189</sup>

103. In July 1998, the Government launched a pilot of its high-profile Sure Start scheme, a family support programme for parents in deprived areas. There were around 200 centres in the programme at the time of launch, and by 2005 there were around 530 schemes. Norman Glass, then a Treasury civil servant, played a central role in the development of the original Sure Start programme. The Government’s 10 year strategy for childcare, published in December 2004, included a pledge that by 2010 there would be 3,500 centres, in a move widely seen as shifting the emphasis of the programme towards childcare (rather than child development). Norman Glass was highly critical of this development, telling us:

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186 Q 1003

187 Ev 96

188 Cabinet Office, *Trying It Out, The Role of ‘Pilots’ in Policy-Making*, December 2003, recommendation 2

189 Q 1014

“we should have learned much more about the experience from those 200 before we rolled it out on any scale [...] We rolled it out too much, too fast and too inadequately reviewed”.<sup>190</sup> Anna Coote, former health policy director at the King’s Fund, also argued at the time: “one bold social experiment is being transmuted into another rather different one, before anyone has a chance to learn whether the original approach was worthwhile”.<sup>191</sup> In addition, the Education and Skills Committee stated in its March 2005 Report *Every Child Matters*: “We are concerned that significant changes are being made to the Sure Start programme when evidence about the effectiveness of the current system is only just beginning to emerge”, further noting that this reflected “the inherent difficulties of pursuing transformative and rapid change while at the same time maintaining a commitment to evidence-based policy”.<sup>192</sup>

104. *Trying It Out* stated that a pilot “should be undertaken in a spirit of experimentation” and “Once embarked upon [...] must be allowed to run its course” since “the full benefits of a policy pilot will not be realised if the policy is rolled out before the results of the pilot have been absorbed and acted upon” and “Early results may give a misleading picture”.<sup>193</sup> This does not appear to have been taken on board by the Government. The Secretary of State for Trade and Industry, Alistair Darling, admitted to us that while it was “highly desirable, in some areas, that something should be trialled and you ought to be able to walk away from something and say, ‘Well, it didn’t work’”, this posed problems for ministers: “As you well know, in politics that sometimes can be difficult, because people say, ‘Ah, you’ve failed and the whole thing’s a disaster,’ and so on”.<sup>194</sup> It is necessary to change the political culture, including among opposition parties and the media, to ensure that a decision to change track after a trial or pilot has been evaluated is recognised as good practice, and that failure to evaluate trials and pilots or a failure to change course after evaluation where this would be appropriate is recognised as bad practice. **Pilots and trials can make a valuable contribution to policy making but there is no point the Government initiating them if it is not going to use the output properly. In order to protect them from political pressures, pilots and trials should be carried out at arm’s length from Government or at least be independently overseen.**

## Horizon scanning

105. In recent years, there has been a growing emphasis on “horizon scanning” to identify potential threats and opportunities involving science and technology that could impact on Government policy. The *Science and Innovation Investment Framework 2004–2014* stated that horizon scanning was “essential to the effective governance and direction of Government policy, publicly funded research and many of the activities of the private sector, and to the interactions between them”.<sup>195</sup> Over the last 12 years, the OSI-based

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190 Q 997

191 “But does Sure Start work?”, Anna Coote, *The Guardian*, 19 January 2005

192 Education and Skills Committee, Ninth Report of Session 2004–05, *Every Child Matters*, HC 40–I, para 39

193 Cabinet Office, *Trying It Out, The Role of ‘Pilots’ in Policy-Making*, December 2003, recommendations 5–6

194 Q 1326

195 HM Treasury, DTI, DfES, *Science and innovation investment framework 2004–2014*, July 2004, para 8.17

Foresight programme has undertaken a significant amount of work on the identification of medium to longer term threats and opportunities posed by science and technology by bringing together scientists, industry and Government. Recent projects have included Cyber Trust and Crime Prevention, Exploiting the Electromagnetic Spectrum, and Brain Science, Addiction and Drugs. A high-level Stakeholder Group, chaired by a minister from the sponsor department, is assembled to oversee each project. The Group reconvenes one year after the publication of the project's findings to review the progress made. The GCSA's Guidelines on Scientific Analysis in Policy Making also state that "individual departments should ensure that adequate horizon scanning procedures are in place, sourcing data across all evidential areas, to provide early indications of trends, issues, or other emerging phenomena that may create significant impacts that departments need to take account of".<sup>196</sup>

106. In addition, as a result of a commitment in the Science and Innovation Investment Framework 2004–2014, the Government has established a centre of excellence in science and technology horizon scanning, based at OSI. The Centre aims to:

- Inform departmental and cross-departmental decision-making;
- Support horizon scanning carried out by others inside Government; and
- Spot the implications of emerging science and technology and enable others to act on them.

The Secretary of State told us that the efforts to strengthen horizon scanning in relation to science and technology had already had an impact: "I have seen a change actually from the late 1990s to where we are now, in that, as a secretary of state now, I would expect to have far more knowledge and far greater awareness of the challenges facing my department, in the longer term, the science, if you like, than certainly was the case eight or nine years ago".<sup>197</sup> **We commend the Government CSA and the Office of Science and Innovation on their work aimed at strengthening horizon scanning in relation to science and technology across Government.**

107. Other parts of Government also undertake horizon scanning in respect of threats and opportunities which Government policy should take account of. The Prime Minister's Strategy Unit, for example, "provides the Prime Minister with in-depth strategy advice and policy analysis on his priority issues" and has a remit "to identify and effectively disseminate thinking on emerging issues and challenges for the UK Government".<sup>198</sup> Professor Martin Taylor, Vice President of the Royal Society, questioned whether horizon scanning across Government and beyond was being properly co-ordinated. He told us:

"The Royal Society has its own horizon scanning. From what I can gather most of the departments have it, certainly DEFRA has, and of course there is the OSI that runs

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196 <http://www.dti.gov.uk/files/file9767.pdf>

197 Q 1303

198 <http://www.strategy.gov.uk/>

something sometimes called the scan of scans, so there is a lot of it out there but I do not honestly believe it is terribly well joined up”.<sup>199</sup>

The Government admitted to us that “within Departments there is not yet a common embedded view of what horizon scanning is, how and where it is applied, and what part it plays in business processes including strategy and risk management” but suggested that the OSI Horizon Scanning Centre would help to address this.<sup>200</sup> We also note that the Public Administration Committee has been undertaking an inquiry entitled *Governing the future* which will look more broadly at the role of horizon scanning in policy making.

108. Despite the Government’s efforts, we heard criticism of the fact that science was not involved sufficiently early in the policy making process. The Science Council told us:

“lead government units must recognise the need to draw much earlier on many more sources of advice and expertise and they should seek to understand fully the potential impact of the wording of regulation and legislation before it is cast in stone. Too often the involvement of experts comes at a point when poorly drafted regulation has to be implemented in a way that minimises the unintended consequences”.<sup>201</sup>

Cancer Research UK was particularly concerned about horizon scanning at the EU level:

“In two recent examples of European legislation, the EU Directives on Clinical Trials and on Physical Agents, the UK has been ineffective in horizon scanning. Both pieces of legislation had the potential to make a significant impact on medical research. The strong impression across the medical research community is that the Government and its departments were either too late entering the debate on this legislation or not adequately aware of the potential impact of these Directives”.<sup>202</sup>

We also concluded in our Report on the case study on the EU Physical Agents (Electromagnetic Fields) Directive (the MRI case study) that “failures in the horizon-scanning activities of the Government and its agencies, the Research Councils” meant that the “Directive was well over the horizon before the medical research community, led by the MRC, reacted to its potential consequences”.<sup>203</sup> The Government has admitted that although “There are a number of existing mechanisms for Horizon Scanning issues emerging from the EU [...] there is no overarching coordinating framework that draws them all together”.<sup>204</sup> We have already recommended in our Report on the MRI case study that the Government review its horizon scanning activities in respect of EU legislation which could impact on, or benefit from, the UK science and technology community. We hope that the Government will rectify this situation by implementing our recommendations

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199 Q 975

200 Ev 138

201 Ev 128

202 Ev 134

203 HC (2005–06) 1030, para 72

204 Ev 142

109. Another criticism levelled at horizon scanning in Government is that the outputs of such activities are often not well utilised by policy makers. Professor Wiles, Home Office DCSA, expressed the problem thus: “doing horizon scanning is one thing, getting an organisation to actually lift its head from immediate problems and think ten or twenty years ahead and use that horizon scanning is sometimes a challenge”.<sup>205</sup> He told us:

“You can imagine, particularly at the moment in the Home Office, it is difficult to get the Department to take its gaze above the immediate crises it has to deal with and say, ‘Yes, all very well, but in the long run the way to do that is to be able to look further ahead, understand the kinds of risks that lay in the future and think about how you are going to manage them’”.<sup>206</sup>

The Secretary of State for Trade and Industry was sympathetic, telling us “of course it is the case that if the department is so involved in day-to-day matters then I can quite see that, frankly, what happens in ten years’ time may not be the thing that is top of the in-tray”,<sup>207</sup> but suggested that it depended on the particular minister involved: “There are some politicians who do take very short-term positions and I am sure we can think of many examples; there are others, on the other hand, who take a far-sighted view on behalf of the whole country, of course”.<sup>208</sup> To take account of this reality, horizon scanning needs to be firmly embedded in the policy making process across Government.

**110. In the context of the electoral cycle and an era of 24 hour news coverage, it is not hard to see why politicians prioritise actions that can deliver short term benefits over those not likely to yield dividends until they have long departed from the Government. It is a major challenge for the Government to ensure that the results of horizon scanning are being used properly. The Government needs to put in place incentives to encourage departments to take a more long term view in developing policy.** This will be vital if today’s major policy challenges—including energy, climate change and terrorism—are to be addressed in a sustainable manner. The Secretary of State himself pointed out that “Pensions is another case in point, where, frankly, unless there is long-term agreement between the political parties it is going to be difficult”.<sup>209</sup> In our view, more needs to be done to drive this change. **We recommend that it be a requirement for departments to demonstrate in all major strategic planning documents that they are using the results of—not just conducting—horizon scanning and research.**

111. Part of the problem arises from the fact that **the Government’s current approach to policy making is not sufficiently responsive to changing evidence, making it hard to feed in results from activities such as trials, research and horizon scanning.** There needs to be a stronger culture of policy evolution whereby policies are updated and adapted as new evidence emerges. We recognise the political difficulties involved in achieving a change, but **we urge the Government, as well as the opposition parties, to move towards**

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205 Q 1107

206 Q 1108

207 Q 1392

208 Q 1390

209 Q 1328

**a situation where a decision to revise a policy in the light of new evidence is welcomed, rather than being perceived as a policy failure.** The Centre for Evidence Based Policy and Practice also highlighted the fact that this would require “for all policy fields, a continuous updating of the evidence base as new scientific research—commissioned by government or by others—yields results that can inform policy development and delivery in a timely way”, suggesting that a key challenge was: “Managing those stocks of policy-relevant knowledge—keeping them objective and impartial, up-to-date, accessible”.<sup>210</sup>

## Quality control

112. In light of the concerns identified above, we sought to establish what processes were in place to control the quality and use of evidence in policy making. There is at present no independent or rigorous verification of Government claims that its policies are evidence based. We were also told by various departments that the fact that they had DCSAs, science and innovation strategies and scientific advisory committees meant that their policies could be considered evidence based. We are unconvinced.

113. Nonetheless, we did find that some provision had been made for quality control of the evidence feeding into policy making and the processes by which it is incorporated into policy. Sir David King told us that, as GCSA: “whether it is energy review or preparations for a flu pandemic it is my job to go in and challenge the evidence, see that it is robust before it goes up to ministers”.<sup>211</sup> He also indicated that DCSAs fulfilled similar roles within individual departments. That is welcome but does not amount to a formal monitoring of the advice provided based on the evidence or the degree to which assertions of the evidence-based nature of a policy are valid. In addition, Sir David argued that his Guidelines on Scientific Analysis in Policy Making made an important contribution towards ensuring that the Government followed an evidence based approach to policy making. We heard much support for the Guidelines. The Biosciences Federation was one of a number of witnesses who praised them in evidence to us: “the recently updated OST [OSI] guidelines provide an excellent framework for the use of scientific expertise in formulating public policy”.<sup>212</sup> However, questions were also raised about the extent to which departments were putting the Guidelines into practice.<sup>213</sup> When asked whether the Guidelines were actually making a difference, the departmental CSAs who gave evidence to us seemed less than convinced about their usefulness. The DFID DCSA Professor Sir Gordon Conway’s immediate response was: “I am not sure I can answer that specifically”.<sup>214</sup> Professor Paul Wiles, Home Office DCSA, said: “I see that as something that needs to be placed alongside the actual processes by which policy is developed.”<sup>215</sup> Professor Frank Kelly, DCSA for the Department for Transport, was of the view that “they

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210 Ev 175

211 Q 1334

212 Ev 109

213 Ev 116

214 Q 1098

215 Q 1099

set a context rather like the context that a contract sets in commercial terms. Something is going wrong when you try to read the contract”.<sup>216</sup> Sir David King expressed surprise at this view on how the Guidelines are used in practice.<sup>217</sup>

114. We also found in our MRI case study that the Health and Safety Executive and the National Radiological Protection Board/Health Protection Agency had failed to follow the Guidelines in their response to the EU Physical Agents (Electromagnetic Fields) Directive.<sup>218</sup> **It is useful that the Government CSA has issued guidance on the use of scientific analysis in policy making but it is disappointing that there has been so little monitoring of its implementation. Departmental CSAs should, in future, be more proactive in ensuring that the principles defined in the Guidelines on Scientific Analysis in Policy making are adhered to within their departments.** We accept that the Science Reviews being led by OSI do examine whether departments are following the Guidance but since the launch of the programme in 2003, only one review has been completed (another three are underway). We consider the Science Reviews further in paragraphs 121–123. We also note that the Food Standards Agency has been developing a ‘Science Checklist’ “to make explicit the points to be considered in the preparation of papers dealing with science-based issues”, which overlaps with both guidance issued by the Government’s Social Research Unit and the Guidelines on Scientific Analysis in Policy Making, suggesting either that the Guidelines are not presented in the most useful format or that individual departments would benefit from tailoring the Guidelines and associated guidance to their specific needs.

115. **To increase public and scientific confidence in the way that the Government uses scientific advice and evidence, it is necessary for there to be a more formal and accountable system of monitoring the quality of the scientific advice provided and the validity of statements by departments of the evidence-based nature of policies.**

### **Peer review**

116. It is not possible within the terms of reference of this inquiry to do justice to the issues involved in peer review more generally, although, as our predecessor Committee previously indicated,<sup>219</sup> we intend to return to this subject at a later date. The GCSA’s Guidelines highlight the importance of quality assurance and peer review:

“Quality assurance provides confidence in the evidence gathering process whilst peer review provides expert evaluation of the evidence itself. Both are important tools in ensuring advice is as up to date and robust as possible”.

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216 Q 1100

217 Q 1367

218 HC (2005–06) 1030, para 60

219 Science and Technology Committee, Tenth Report of Session 2003–4, *Scientific Publications: Free for All?*, HC 399-I, para 95

The Royal Society told us: “the effective use of independent peer review is a vital part of ensuring the quality of the work that Government Departments sponsor”.<sup>220</sup> Sense About Science suggested that “Peer review is a dividing line: it indicates that work has been scrutinised for its validity, significance and originality”.<sup>221</sup> Most departments have now set out their arrangements for peer review of evidence in their science and innovation strategies.

117. A number of witnesses argued that the Government needed to strengthen its approach to reviewing and evaluating its policies (rather than the underlying evidence). The Royal Society of Chemistry said that it was “not aware of much if any post hoc examination of decisions taken”, suggesting that this might be due to the fact that “if such an analysis indicated that the original decision was incorrect this would be politically embarrassing”.<sup>222</sup> The Environment Research Funders’ Forum commented that “measuring impact and uptake was identified as important but difficult” by the people it consulted and noted that “within departments and agencies quality assurance and evaluation systems can have too narrow a focus, and need to be extended to the full science-into-policy process, including the question formulation and policy uptake stages”.<sup>223</sup>

118. The Centre for Evidence Based Policy and Practice told us that Government needed to conduct evaluation “not just to show ‘what works’ but also why policies work (or not), and what we understand of current phenomena and likely future trends in shaping policies and outcomes”.<sup>224</sup> This echoes comments made by Norman Glass: “‘What works’ is important, but ‘how it works’ [...] is equally, if not more, important”.<sup>225</sup> The same can be said about the importance of showing why a policy did or does not work as intended. Mr Glass, a former Treasury civil servant, has been especially critical of the Treasury’s approach to policy evaluation, commenting that “Systematic evaluation of policies (even where it exists and the Treasury itself is a notable non-practitioner) remains, in many cases, a procedure for bayoneting the dead”, and telling us “the Treasury is a notable absentee [in terms of evaluation]. They introduce all sorts of policies, tax policies, which never get evaluated because they do not have the process”.<sup>226</sup>

119. The Sure Start programme discussed in paragraph 103 in the context of policy pilots has been put forward as an example of the Government’s weakness in policy evaluation. The £20 million evaluation of the programme, being carried out by a team at Birkbeck College, London, has been criticised for its timing and approach. It has been claimed that the evaluation “did not ask participants whether they had actually used Sure Start services”,<sup>227</sup> and has been likened by one journalist to “the under-fives pulling up recently

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220 Ev 107

221 Ev 118

222 Ev 127

223 Ev 99

224 Ev 174

225 “Surely some mistake?” Norman Glass, *The Guardian*, 5 January 2005

226 Q 1012

227 “Sure Start sets back the worst placed youngsters, study finds”, *The Guardian*, 1 December 2005

sown radishes to see if their vegetables were growing”. It was emphasised that “this was not the researchers’ fault, but their commissioners”.<sup>228</sup>

120. Some have called for more independent auditing of Government policies in terms of their relation to the evidence base. William Solesbury from the Centre for Evidence Based Policy Making suggested that a National Audit Office-style body could provide a useful function in reviewing Government policies and assessing their relationship with the evidence base: “There might be a case for something that might be akin to the National Audit Office, which has a position of great authority and, usually retrospectively, passes judgments of this kind”.<sup>229</sup> However, the Secretary of State seemed sceptical as to the value of such a body. He told us that he had “doubts as to whether or not it is possible to get somebody who was so distant, so impartial”, noting that different people “will look at the same evidence and come to different conclusions” about whether it is reflected by the policy.<sup>230</sup> We understand this scepticism. While the importance of peer review for establishing the validity of evidence underpinning policy is not in question, peer review is not necessarily the best mechanism for evaluating policies themselves. **Nevertheless, peer review of the extent to which Government policies are evidence-based by learned societies, professional bodies and researchers can play a useful role in stimulating debate and refining policy makers’ thinking and should, therefore, be welcomed by the Government. We recommend that the Government commission such reviews, on a trial basis, of selected key policies after a reasonable period of time as part of the policy review process.**

### Science Reviews

121. As noted above, the Office of Science and Innovation has embarked on a rolling programme of Science Reviews looking at each government department in turn. Sir David King set up the Science Review Team in response to a recommendation in the 2002 *Investing in Innovation* White Paper. The aim of the Reviews is “to externally scrutinise and benchmark the quality and use of science in government departments”, where science is interpreted as “physical, natural and social sciences research and data collection (monitoring and surveillance) activities”.<sup>231</sup> The Science Reviews got off to a slow start with the review of the first department, DCMS, taking nearly two years. The reviewing function has since been outsourced and reviews are now being conducted on the HSE, DEFRA and DCLG.

122. Sir David told us that the very fact that departments knew they would be subject to a review served a useful purpose: “the existence of the science reviews begins to develop best practice in departments even before we arrive, so there are departments which might try and persuade me to delay the review because they want to put things right, and that in itself

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228 “Shaky times for Sure Start”, *The Guardian*, 13 September 2005

229 Q 1019

230 Q 1332

231 [www.dti.gov.uk/science/science-in-govt/works/science-reviews/background/page25852.html](http://www.dti.gov.uk/science/science-in-govt/works/science-reviews/background/page25852.html)

is not necessarily a bad thing”.<sup>232</sup> He also explained that his ability to persuade departments to implement review recommendations flowed from the support of the Treasury and Prime Minister:

“the Treasury now works with my Office on each of those spending review applications from government departments where science and social sciences are included. So in other words, there is a financial factor that, as you might imagine, is quite an important factor in all of this. The Treasury is one important element, but of course the second element is that the drive comes from the Prime Minister to improve the quality of the evidence base”.<sup>233</sup>

We look forward to seeing the results of the next wave of reviews as they emerge.

123. One potential weakness of the Science Reviews is that they fail to address cross-departmental policy making. The Royal Society told us: “The cross-departmental overview is a vital aspect of Sir David King’s role”<sup>234</sup> but said that it was not convinced that “the Government is dealing effectively with the scientific advice on the key cross-departmental issues of energy and climate change”.<sup>235</sup> In addition, in the case study looking at the technologies supporting ID cards, we found little evidence that the Home Office had liaised effectively with other government departments. The Institute for the Study of Science, Technology and Innovation also told us: “nasty surprises can often occur in the cracks between departments”.<sup>236</sup> Norman Glass, Director of the National Centre for Science and Research, was similarly concerned about cross-departmental working:

“departments do not—it is amazing—even compare their research programmes with one another to see whether there is overlap and whether they could do things synergistically. Getting people to work together is a problem in all these cases. Everyone signs up to it, but nobody does it”.<sup>237</sup>

This resonates with the observation of our predecessor Committee in its 2001 Report on the scientific advisory system that “where issues cross departmental boundaries—as they do on GM foods, mobile phones and climate change, for example—there is frequently inadequate co-ordination of the research being commissioned by the different departments, and insufficient cross-fertilisation of ideas”.<sup>238</sup> On climate change, we welcome the cross-departmental approach that the Government has now developed, for example in the review led by Sir Nicholas Stern. **We recommend that issue-based reviews be introduced as a means of auditing cross-departmental policies. These could be incorporated into the Science Review of the department which has been designated as lead department for the relevant policy.** For example, the DEFRA review could include

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232 Q 70

233 Q 72

234 Ev 102

235 Ev 104

236 Ev 120

237 Q 1013

238 HC (2000–01) 257, para 97

examination of the Government's approach to climate change policy, for which DEFRA is the named lead department.

## Conclusions

124. Evidence based policy making has been a watchword of this Government and is widely seen as representing best practice. However, in reality policies are developed on the basis of a myriad of factors, only one of which constitutes evidence in its scientific sense. We have argued that the phrase 'evidence based policy' is misleading and that the Government should therefore desist from seeking to claim that all its policies are evidence based. It is, nonetheless, important that Government invests in research in order to strengthen the evidence base available to inform its policy decisions and we have recommended the establishment of a cross-departmental fund, overseen by the GCSA, to boost government investment in policy-oriented research. It is also vital that research, trials and pilots are conducted, and the outputs published, free from political interference. We are concerned by suggestions that this is not happening in all cases and call for the GCSA to ensure that allegations of poor practice are investigated. In addition, we note that government investment in research, pilots and horizon scanning will never yield dividends unless proper mechanisms exist to incorporate the results of such activities into policy development. In this respect, the short term outlook encouraged by the electoral cycle is a major obstacle to effective policy making and we urge the Government and opposition parties to move towards a more iterative mode of policy making where refining policies in the light of new evidence is seen as a mark of good practice, rather than a sign of failure.

## 5 Transparency in policy making

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125. The Government's commitment to evidence based policy making brings with it an obligation to instil greater transparency into the policy making process. There is a need to demonstrate the evidence on which policies are based. We have discussed earlier (see paragraphs 89–90) how the Government should only seek to claim policy is evidence based when it genuinely is and to acknowledge the other influences involved. We also stressed the need for an open and honest policy on the publication of research: a vital ingredient of a transparent approach. In this chapter we explore the need for clarity on the evidential basis of policies and the role of public consultations in the development of policy.

126. As discussed earlier in paragraphs 101 and 115, there is scope for improving clarity over the extent to which evidence holds sway over other factors in the determination of policy. Too often there has been a reluctance to even engage in this discussion. For example, we found in our case study on the classification system for illegal drugs that the need to “send messages” on drugs was an important consideration in decisions on classification, not just the evidence on the harm that these drugs caused. However, the importance of this factor was far from clear; we called on the Home Office to be more transparent about the various factors influencing its decisions.<sup>239</sup> Indeed, we found the Government's use of the Class of a particular drug to send a signal to be “incompatible with the Government's stated commitment to evidence based policy making”, given the absence of any evidence on actual effectiveness on which to draw. The Environment Research Funders' Forum acknowledged that although progress had been made on the publication of research and the workings of advisory committees, “explanation of how a policy decision rests on the evidence remains rather patchy”.<sup>240</sup> The Food Standards Agency, which we argue later is in many ways a model of transparency, was criticised by stakeholders for failing to indicate clearly how it reached certain conclusions. The 2005 Dean Review of the FSA called for it always to publish “a clear, concise summary of the evidence considered, and how this has led to the conclusion reached”.<sup>241</sup> This approach represents a good model for the Government to follow in all cases where policy is strongly based on scientific evidence. **A strong emphasis on the publication of all evidence used in policy making, along with a clear explanation as to how it is used, should be one of the guiding principles of transparent policy making.**

### *Publication of scientific advice*

127. There has traditionally been a distinction made between information which serves to inform policy making and policy advice to ministers from civil servants. Under the Freedom of Information Act 2000, information is exempt from its provisions if it relates to “the formulation or development of government policy” or ministerial communications.<sup>242</sup>

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239 HC (2005–06) 1031, paras 75, 82

240 Ev 99–100

241 Dean Review, p 14, <http://www.food.gov.uk/multimedia/pdfs/deanreviewfinalreport.pdf>

242 Freedom of Information Act 2000, section 35 (1)

The Secretary of State for Trade and Industry, Alistair Darling, defended the distinction between commissioned research and advice to ministers: he did not want to see a situation in which it became difficult for advice to be sought or given in writing.<sup>243</sup>

128. There is a need to reconcile the legitimate confidentiality involved in the relationship between civil servants and ministers with the increasing commitment to openness and transparency in advice on scientific issues. In policies with a significant reliance on scientific evidence, there is already a self-imposed obligation to make public information which might otherwise be classified as “advice to ministers”. Under the Freedom of Information Act and the GCSA’s guidelines, “there should be a presumption at every stage towards openness and transparency in the publication of expert advice”.<sup>244</sup> We note that the FSA has powers to publish information and advice, “including advice to ministers”<sup>245</sup> and has taken a public line independent from the Government on occasion.<sup>246</sup> We are not aware of any great problems that this has caused.

129. We refer in paragraph 178 below to the increasingly high profile role the current GCSA and his predecessor have had in commenting on a range of scientific issues with policy implications. We suspect that under previous GCSAs, such advice may have been given in private. Indeed, Sir David King told us that, in the case of climate change, he put the evidence before the Government and “it then became quite apparent that that evidence needed to be put out into the public domain.”<sup>247</sup> We support the approach he has taken: the public and experts are more aware of the advice the Government receives so debate can progress on a more informed basis. We would argue that open debate should be promoted, even at the risk that disagreements among scientists may cause some public confusion or undermine confidence in the Government’s advice. In practice, on strongly science-dependent policies, there should be little that government scientists are telling ministers that is not made available publicly in some form. There will of course be circumstances in which it is right that scientific advice will need to be private and the facility for the provision of candid advice in confidence must always remain. However, the welcome trend toward increased transparency and openness—encouraged by the current GSCA—means that the traditional blanket of obfuscation that is “advice to ministers” looks somewhat outdated in relation to science-based decisions. **We recommend that departments make it a presumption that significant scientific advice from departmental CSAs as well as scientific advisory committees is published.**

### *An open process*

130. Transparency should be extended not only to the scientific advice itself but also to the process by which it is obtained. The Environment Research Funders’ Forum emphasised the role of transparency in engendering trust and called for departments to “establish

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243 Q 1400

244 GSCA guidelines, para 25, <http://www.dti.gov.uk/files/file9767.pdf>

245 Dean Review, para 4.1.1

246 Ev 189

247 Q 97

clearer ‘audit trails’ to record how science is used in policy making”. It saw transparency of the evidence base as essential to the process of securing successful partnerships in policy advocacy.<sup>248</sup> The need for transparency is emphasised in the OSI’s Code of Practice for Scientific Advisory Committees. It states:

“Committees should operate from a presumption of openness. The proceedings of the committee should be as open as is compatible with the requirements of confidentiality. [...] The committee should maintain high levels of transparency during routine business.”<sup>249</sup>

Increasingly, scientific advisory committees are adhering to these guidelines and making available details of their work and deliberations. Agendas and minutes of meetings are usually routinely published on websites: DEFRA’s Science Advisory Council is a good example. This openness can only help increase confidence amongst experts and the public alike. The FSA has, in many ways, set the standard in terms of transparency. In line with its commitment to openness and transparency, it has from the outset conducted its board meetings at which issues of policy and strategy are discussed in public. The Dean Review of the FSA found that open board meetings were seen by stakeholders as a demonstration of the Agency’s commitment to openness and commented that it “appears still to be the only Government-related body to have open meetings in the way it does”.<sup>250</sup> (Completely open board meetings may not be practicable for all organisations all the time: we note that the FSA policy on board meetings is being reviewed in order to combine in-depth technical debate with the principle of openness.<sup>251</sup>) Progress is not universally good though; not all advisory bodies have achieved such standards. It was disappointing to discover that the ACMD did not publish minutes of meetings or hold any open meetings and that it did not appear interested in increasing the transparency of its operations.<sup>252</sup> We are pleased to note that in its response to our Report, the ACMD accepted that “it should take steps to improve the transparency of its work”.<sup>253</sup> Existing pronouncements on best practice appear insufficient to produce the requisite standards in all advisory bodies. We have discussed in chapter 3 the enhanced role that DCSAs should play in evaluating the effectiveness of advisory committees.<sup>254</sup> Accordingly, **we recommend that departmental Chief Scientific Advisers monitor the extent to which their departments and associated advisory bodies are adopting best practice in terms of openness and transparency and seek to ensure that any deficiencies are addressed.**

131. Our other Home Office-related case study, concerning ID cards, identified a lack of transparency in the way in which it handled and communicated risks affecting the ID cards programme, as assessed by the Gateway Review process. For some stakeholders, the lack of information regarding this process was a cause of concern. We heard how an overly

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248 Ev 99

249 Office of Science and Technology, *Code of Practice for Scientific Advisory Committees*, December 2001, para 46

250 Dean Review, para 1.4.4, <http://www.food.gov.uk/multimedia/pdfs/deanreviewfinalreport.pdf>

251 Ev 188

252 HC (2005–06) 1031, para 73

253 Home Office, *Government Reply to the Fifth Report from the House of Commons Science and Technology Committee Session 2005–06 HC 1031*, Drug classification: making a hash of it, Cm 6941, October 2006, p 14

254 See para 72

cautious attitude to the disclosure of information could be counter-productive, as it inhibited the contribution to the improvement of the scheme that could be made by outside expertise. Whilst we recognised in our Report the need for confidentiality on the specifics of the programme, we recommended that an overall indication of the outcomes of the review process should be made public. This would promote confidence in the ID cards scheme among potential commercial partners and the public alike and would also facilitate the dissemination of best practice in Whitehall.<sup>255</sup> We note that on the day we published our case study Report, the Information Commissioner upheld two complaints under the Freedom of Information Act against the Treasury and the Office of Government Commerce for their refusal to release general information on the Gateway reviews of the ID card programme, on public interest grounds. This decision is welcome: the Government should be looking to use the formal progress of projects through the review system as a means of increasing confidence in them among the public and interested organisations, including potential partners. It is not in the *public* interest for any problems to be hidden. **We recommend that Government guidelines be amended to ensure that, as a matter of good practice, some high level information about the progress of major projects through Gateway reviews is made public.**

132. We have already commented upon the success of the FSA in placing transparency and openness at the heart of its mission and day-to-day business. The FSA has demonstrated that such a commitment can improve confidence in an organisation and trust in the scientific advisory process. We have also seen in the drugs case study how a failure to demonstrate this openness can affect not just policy itself, but confidence in the policy making process and in a department. The challenge facing Government now is to ensure that the rhetoric of transparency is translated into action right across the board and the existing examples of good practice are widely followed. Commitment at the highest levels will be necessary if this challenge is to be met.

## Consultation

### Policy and purpose

133. Consultations are now an established part of the policy making process and have been widely welcomed as a means of promoting public engagement in the political process and in producing more informed and better policy. The Cabinet Office's *Consultation Guidance* provides a useful indication of a whole range of methods that can be employed, including e-consultations, citizens' juries, focus groups and practitioner panels.<sup>256</sup> The accompanying Code of Practice sets out the principles of good consultation and the standards for practical implementation, although it is quite short and high level in nature.<sup>257</sup>

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255 HC (2005–06) 1032, para 119

256 [http://www.cabinetoffice.gov.uk/regulation/consultation/consultation\\_guidance/methods\\_of\\_consultation/index.asp](http://www.cabinetoffice.gov.uk/regulation/consultation/consultation_guidance/methods_of_consultation/index.asp)

257 <http://www.cabinetoffice.gov.uk/regulation/documents/consultation/pdf/code.pdf>

134. None of the evidence we received questioned the general principle of public engagement on policy development and the usefulness of public consultations. Not surprisingly, Government witnesses were equally convinced of the value of public consultations. The Secretary of State for Trade and Industry, Alistair Darling, described public consultations as “useful, quite simply because in a number of cases the Government does not know the answer” and because they can allow the Government to test the extent of public support for a particular course of action.<sup>258</sup> Professor Wiles emphasised the importance of public consultation in testing working assumptions, describing the dialogue as “one of the checks against the evidence base you are using”. Professor Sir Gordon Conway agreed, stressing that each consultation usually produced some new information or alternative perspective.<sup>259</sup> Notwithstanding the general support for public consultations, which we endorse, the evidence we received included a number of concerns about their conduct and influence in the policy making process.

135. The guidelines on consultations stress the importance of clarifying the purposes of consultation at the outset and identifying the stakeholders at which it is aimed. We agree that it is essential to ensure that there is a distinction made between consultation with the public, in order to take account of public opinion, and consultation with experts or the scientific community, in order to obtain technical advice or feedback. The Institute for the Study of Science, Technology and Innovation (ISSTI) highlights the difficulties involved in reaching a consensus when lay members are involved in policy making, even when they are briefed on technical issues and the policy choices available.<sup>260</sup> It is unlikely that the same questions are apposite for experts and lay people alike. This point is not specifically addressed in the Cabinet Office guidelines, although different approaches to consultations are listed. In practice, the distinction is not always made. For example, the Government’s consultation on the review of the Human Fertilisation and Embryology Act 1990 did not specify from whom responses were sought, nor indicate the issues on which a medical/scientific input was particularly important to policy formulation. We specifically asked the FSA about the purpose of consultation. In response, it referred to putting engagement with the public and other stakeholders at the core of its approach. More substantively, it uses public engagement in order to “understand different appetites for risk of citizens in order to communicate what a complex technical risk means in terms of practical action”.<sup>261</sup> This is an example of the two-way process by which consultation informs the development of a communication strategy, not just a policy. Also, there may be times when a consultation is primarily an exercise in getting a message across to the public or a particular community, rather than seeking opinions. Whatever the rationale for the consultation, clarity of purpose is essential from the start, not least in order to manage the expectations of contributors.

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258 Q 1401

259 Q 1127

260 Ev 121

261 Ev 187

136. We are also concerned about the extent to which public consultation exercises in which comments are invited on draft proposals are used as an indicator of public opinion. Respondents to such exercises are self-selecting. Well-organised campaigns by pressure groups can easily give a misleading impression of the weight of public opinion. For example, the results of DEFRA's recent consultation on badger culling were reported as indicating that 96% of some 47,000 responses were against a cull. However, some 68% of these responses were from organised campaigns. Opinion was in fact quite evenly divided among responses from interested organisations and substantive responses from the public.<sup>262</sup> If public opinion is an important determinant of a particular policy an independently conducted opinion poll might represent a more scientific and informative approach. Professional polling organisations are better at asking the right questions than civil servants. We were concerned to hear the Minister for Public Health, Caroline Flint MP, drawing lessons about public opinion from the consultation on the Human Fertilisation and Embryology Act 1990, given that the report on the consultation explicitly stated that the responses were self-selecting and therefore could not be said to be representative.<sup>263</sup> After an oral evidence session with the Minister on the subject, we learnt very little about which policies were strongly influenced by public opinion and those on which the Government had firm views. In our opinion, and following our predecessor Committee's lengthy inquiry on this subject in 2004–05, which included an e-consultation, this was one consultation that added very little to the process of policy making.

### Feedback

137. The provision of feedback to contributors is also essential to the maintenance of public confidence in the consultation process. The Cabinet Office guidance on consultation emphasises the need to provide participants with feedback on how their input has been used to inform policy development. This is particularly important when key stakeholders are involved. There was a strong message from stakeholders with interests in the ID cards programme that they were unaware of how their views were contributing to policy development. We will look to see how the Home Office fulfils its commitment to improve on this.<sup>264</sup> The Institute for the Study of Science, Technology and Innovation told us: "we would warn of the dangers of raising expectations about public engagement without subsequent feedback and the consequent 'consultation fatigue' and disenchantment that this can engender".<sup>265</sup> The Secretary of State for Trade and Industry acknowledged the point about raising expectations but thought that there were many occasions when consultation is "highly desirable".<sup>266</sup> Cancer Research UK commented that "the process of policy development is still not transparent, the results of consultations,

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262 "Public says 'no' to badger cull", *BBC News*, 12 July 2006 and DEFRA, *Summary of Responses to the Consultation* at <http://www.DEFRA.gov.uk/corporate/consult/badgers-tbcontrols/responses-summary.pdf>

263 Oral evidence to the Science and Technology Committee, Session 2005–06, *Human Reproductive Technologies and the Law: follow-up*, HC 1308–i, Q 52; Report on the Consultation on the review of the Human Fertilisation and Embryology Act 1990, Department of Health, March 2006

264 HC (2005–06) 1032, para 36

265 Ev 121

266 Q 1401

although published, often do not bear much resemblance to the final policy”, citing the examples of the development of the Human Tissue Act 2004 and the implementation of legislation for the European Clinical Trials Directive.<sup>267</sup>

138. On the positive side, the Royal Society of Chemistry praised the Environment Agency’s practice of producing “a response document which outlines all the comments made and their response, including arguments as to why some comments are being rejected”.<sup>268</sup> Other witnesses called for all departments to adopt this practice and an examination of recent consultations reveals that many departments frequently do so. There are also examples where feedback has been negligible or vague. We recognise the practical difficulties and resource implications involved in the provision of feedback but we believe that it is a valuable exercise in maintaining engagement and confidence. **We recommend that, as a matter of good practice, each policy statement or legislative proposal which follows a public consultation make explicit reference to how the consultation influenced the policy, including an explanation, where necessary, as to why any views or proposals widely supported by contributors were rejected.**

### *A cause of delay*

139. There can also be a temptation to use public consultation as an excuse for delaying or avoiding difficult decisions. Professor Grimston, Associate Fellow at Chatham House, told us: “There is an urgent need, then, to reintegrate sensible science into decision-making. The political establishment must recognise that some problems simply cannot be discussed away and that a strong lead will be needed even if society is not quite ready for strong leadership”<sup>269</sup> The Institute for the Study of Science, Technology and Innovation also commented that “dialogue should not become a delaying tactic or a substitute for clear decision-making by government departments”.<sup>270</sup> In 2003, the Government’s Energy Review was widely criticised for avoiding the issue of nuclear power, with ministers insisting that a further consultation would be necessary before any decisions could be taken. We have referred above to the limited usefulness of the Department of Health’s consultation on the Human Fertilisation and Embryology Act. This consultation closed in November 2005 and nothing has emerged from it one year later, even though the Minister told us in oral evidence in July 2006 that she would make some announcements over the summer.<sup>271</sup> Such inactivity can only promote scepticism in consultations and perhaps threaten future public participation.

140. Public consultations are often valuable and certainly good practice, but should not be viewed as always essential. There are policy areas in which the options are reasonably clear, the arguments have been well rehearsed in public, and both scientific views and public opinion are well documented. In these situations the Government should be prepared to

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267 Ev 135

268 Ev 125

269 Ev 205

270 Ev 121

271 HC (2005–06), 1308–i, Qq 4–5

bring forward legislation, in draft, for Parliament to consider. **Whilst we accept that there can be legislative and political uncertainties which affect the policy making process, we recommend that public consultations generally be accompanied by an indicative timescale of resulting decisions.**

### *Timing*

141. The scope and timing of any consultation is also important. One complaint that we heard was that the 12 week minimum period for consultations to run is not always adhered to. The Science Council noted that “Government has an unfortunate tendency to work to very tight time scales when consulting on key issues and policy area” and that “Consultations undertaken at speed have a tendency to play to campaigning groups and others whose opinions and views may already be well formed but not underpinned by the evidence”.<sup>272</sup> Professor Wiles acknowledged the problem and spoke of the disconnection between the civil service and academic years: “I think it is literally a lack of understanding of the different timetables of different types of jobs. That is no excuse; we need to get it right”.<sup>273</sup> The Cabinet Office collects statistics on compliance with this aspect of the code. It set a target of 75% of consultations exceeding 12 weeks by 2004–05. This target has been met: the figure achieved was 77% in 2004 and 80% in 2005. Non-compliance requires ministerial consent, but this was not obtained in 20 cases in 2005.<sup>274</sup> From 2005, departments are expected to state in their annual reports the reasons for any failure to obtain ministerial sign off to a breach of the code.<sup>275</sup> We accept that there may be good reasons for accelerating the consultation process in breach of the 12 week minimum—there may be legislative pressures either in Europe or Westminster—but a failure of compliance on this count in around one fifth of consultations represents quite a high proportion. We agree with Professor Wiles that more needs to be done here and refer in paragraph 145 below to improvements in the monitoring process.

142. In our case study on ID cards, we found that confidence in the scheme amongst stakeholders had been affected by the perceived lack of clarity and limited scope of the consultations. Witnesses claimed that the consultations had been pitched at the wrong level: they had focussed on how an ID card could work rather than on what technologies could be used to deliver the desired objectives.<sup>276</sup> Although the Government Response did not accept the Committee’s findings, it did note that industry will have further opportunities to fully engage with the project team during procurement and we encourage the Identity and Passport Service to use these opportunities to improve confidence in the scheme. This example illustrates the benefits of early engagement with experts on the terms of the consultation itself. This point was reinforced by Dr Wallace from the Biosciences Federation, who told us that such early engagement did happen but “not often enough”.<sup>277</sup>

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272 Ev 128

273 Q 1097

274 Ev 140; <http://www.cabinetoffice.gov.uk/regulation/documents/consultation/pdf/2005.pdf>

275 As above

276 HC (2005–06) 1032, paras 25–33

277 Q 953 [Dr Wallace]

Guidelines stress the importance of consultations being carried out early enough for the results to have a real impact on the policy making process, and the Cabinet Office does disseminate good practice, for example on early engagement, in its annual report on consultations.<sup>278</sup> One good example of this is the Government's engagement activities on nanotechnology. Having had the need for early public engagement flagged up, partly by Government-sponsored work, shortly after nanotechnology began to attract considerable public attention, the DTI has funded a series of innovative public engagement activities and research into public attitudes, largely under the Sciencewise programme.<sup>279</sup> A Nanotechnology Engagement Group was established to co-ordinate these activities and disseminate best practice more widely.<sup>280</sup> This welcome approach should help avoid widespread public misunderstanding and promote a more rational and less bipolar debate than has sometimes been evident, for example that on GM crops. There are certainly examples of good practice on which to draw, but our concern is that too often departments are not following them. The Cabinet Office may keep limited statistics on compliance but the most effective drivers for good performance on consultations must come from within departments themselves.

### *Perceptions of bias*

143. More serious concerns arise when the consultation appears to be couched in terms which are perceived to indicate a bias on the part of the Government towards a particular outcome. Of course, on occasions when the Government does have a preference for a policy and is seeking views upon it, this should be explicitly stated and the grounds for movement clearly spelt out. But an unstated bias, whether perceived or real, can undermine any subsequent policy. The 2006 Energy Review was undermined in many eyes by a perception that a decision on nuclear power had already been reached. The DEFRA consultation on bovine TB in cattle was widely criticised in evidence to the departmental select committee on the grounds that the consultation document did not present an accurate view of the scientific evidence, as presented by the Independent Scientific Group which was established by DEFRA to oversee the trials of badger culling.<sup>281</sup> The way the consultation document was framed prompted stakeholders to raise "serious questions over DEFRA's ability to use sound science when planning policy developments".<sup>282</sup> The Royal Society of Chemistry was sceptical of Government's general approach to consultation and warned: "the scientific community wants a process of consultation and not ratification".<sup>283</sup>

**We recommend that scientific advice be routinely used in drawing up the terms of**

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278 <http://www.cabinetoffice.gov.uk/regulation/documents/consultation/pdf/2005.pdf>

279 Q 1402; Royal Society/Royal Academy of Engineering, *Nanosciences and Nanotechnologies: Opportunities and Uncertainties*, July 2004 and Government response to this report, p 21

280 [http://www.involving.org/mt/archives/blog\\_13/NEGIntro180705.pdf#search=%22nanotechnology%20engagement%20group%22](http://www.involving.org/mt/archives/blog_13/NEGIntro180705.pdf#search=%22nanotechnology%20engagement%20group%22)

281 Environment, Food and Rural Affairs Committee, Sixth Report of Session 2005–06, *Bovine TB: badger culling*, HC 905–I, para 5

282 Consultation response from the Wildlife and Countryside Link, [http://www.wcl.org.uk/downloads/2006/Link\\_response\\_Badger\\_Cull\\_10Mar06.pdf](http://www.wcl.org.uk/downloads/2006/Link_response_Badger_Cull_10Mar06.pdf), p 5

283 Ev 122

**consultations, in order to ensure the right questions are asked and to avoid any subsequent criticism of its terms.**

### *Conclusions*

144. We recognise and welcome the efforts that have been made to improve the transparency of scientific advice to Government in the wake of a number of high profile episodes which served to undermine public confidence. There is still further to go. In line with the approach adopted by the current Government CSA, we have advocated a more high profile, public face for departmental CSAs, both in giving advice and policing best practice on transparency within departments.

145. Consultations have a very useful role to play in improving not only transparency but the quality of policy making. We welcome the steps that the Government has taken to ensure that they are now a vital part of the process. Nonetheless, it is important to guard against consultation fatigue and growing doubts surrounding the link between consultation and the content of policy. In some circumstances an approach of continuous dialogue rather than periodic consultation might be more profitable, as outlined in a recent report from the Council for Science and Technology.<sup>284</sup> Early engagement with the right stakeholders may be more important on occasion than full-blooded public consultation. Systematic monitoring is required to ensure that standards are being met and goals are being achieved. At present the Cabinet Office produces a very short report, indicating compliance with the 12 week timeframe and citing a few examples of best practice. We suspect that this report is not widely read in the civil service and is not an effective tool for managing performance. We do not propose that a raft of bureaucratic measures is drawn up but we believe there is scope for a closer analysis of performance. We hope that other select committees will play their part and scrutinise this aspect of departmental activity. **We recommend that the Cabinet Office monitor whether departments are following best practice on consultations and act where repeated breaches of the code of practice for consultations occur.**

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<sup>284</sup> CST, *Policy Through Dialogue: Informing policies based on science and technology*, March 2005, [www2.cst.gov.uk/cst/reports/files/policy-through-dialogue/report.pdf](http://www2.cst.gov.uk/cst/reports/files/policy-through-dialogue/report.pdf)

## 6 Risk and public communication

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### Introduction

146. The perception and treatment of risk covers a wide spectrum of events and activities, from the expected and calculable, such as vehicle accidents and crime, to the uncertain and less predictable, such as natural disasters or health epidemics. In another sense, there is also risk attached to the business of government itself. Programmes and projects are subject to risks, whether technological, financial or external, which are managed and mitigated as part of the process of policy implementation. Whilst our case study on ID cards dealt with risk management in that context, in this Report we focus largely, although not exclusively, on the former, broader understanding of risks, as they apply to the public.

147. The management of risk has been subject to growing attention in Government in recent years and is now being considered at the highest levels. In December 2002, following a report from the Strategy Unit, the Prime Minister established a three year Risk Programme, based in the Treasury, to monitor progress on the Government's handling of risk. This programme has led to further cross-departmental work on risk and the production of additional guidance and performance assessments. The increasing profile in Government of risk management was illustrated in a speech by the Prime Minister in May 2005. He suggested that an increasingly risk-averse culture in Britain was having a detrimental impact on public policy.<sup>285</sup> The Government's management of risk has also attracted the scrutiny of Parliament. The work of the Public Accounts Committee now routinely includes an assessment of the handling of risk in the context of specific policies or projects and across the public sector more generally.<sup>286</sup> In June 2006 the House of Lords Select Committee on Economic Affairs published a Report on *Government Policy on the Management of Risk*.<sup>287</sup> This followed up some of the concerns identified by the Prime Minister in his speech and used some specific examples to assess the models and approaches used by Government in managing risk, although it found no significant evidence to suggest that Britain has become increasingly risk averse.

148. In view of the broad scope of our inquiry, we did not undertake a detailed analysis of the economic models adopted and applied by the Government to manage risk. Instead, we pursued some of the risk-related issues highlighted by our case studies and the other evidence we received. These include the application of the precautionary principle, the communication of risk to the public and the dissemination of best practice.

### Cross-government work on risk

149. The present Government is not the first to seek ways of improving the handling of risk. An Interdepartmental Liaison Group on Risk Assessment (ILGRA) was established in

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285 Speech by the Prime Minister, the Rt Hon Tony Blair, at the Institute of Public Policy Research, 26 May 2005

286 Public Accounts Committee, Fifteenth Report of Session 2004–05, *Managing risks to improve public services*, HC 444

287 Economic Affairs Committee, Fifth Report of Session 2005–06, *Government Policy on the Management of Risk*, HL 183–1

1991 with a remit to promote consistency and disseminate best practice in risk assessment in Government.<sup>288</sup> It produced three reports in ten years. These identified areas of weakness, highlighted how a more strategic and consistent approach to risk assessment could be pursued and spawned further inter-departmental activity on risk management. The Royal Commission on Environmental Pollution did some valuable work on risk evaluation in the environmental context in its 1998 report *Environmental Standards and Public Values*. Specific guidance for departments on risk management has been included in general guidance on policy making produced by the Treasury. The “Green Book” is a best practice guide for policy development and appraisal and sets out how economic, financial, social and environmental assessments of a policy or project should be combined.<sup>289</sup> It focuses on risks to projects and does not specifically deal with risks to the public. This is supplemented by further detailed guidance on different aspects of policy making. For risk, the “Orange Book” contains practical guidance on the development of a strategy to manage risk, including in the context of proposals which relate to public health and safety.<sup>290</sup> As a result of this work, the Government has established the following principles for risk management, which departments are expected to follow:

- Openness and transparency—both about their understanding of the nature of risks to the public and about the process they are following in handling them;
- Engagement—departments will be expected to involve a wide range of representative groups and the public from an early stage in the decision process;
- Proportionality—action should be proportionate to the level of protection needed, consistent with other action, and targeted to the risk;
- Evidence—departments should ensure that all relevant factors, including public concerns and values, have been taken into account; and
- Responsibility and choice—where possible, people who willingly take risks should also accept the consequences and people who have risks imposed on them should have a say in how those risks are managed.

These broad principles are fleshed out by practical guidance and technical models for assessing and evaluating risks, notably the June 2005 guidance produced by the Treasury on *Managing risks to the public: appraisal guidance*.<sup>291</sup>

150. The Risk Programme established in 2002 built upon the work of ILGRA, which it superseded. In its third and final report, in 2002, ILGRA noted that a Cabinet Office review had established that many departments had Risk Frameworks, which were “becoming embedded in their policy work and culture”. However, it identified areas where further work was required: these included tackling risks that impact upon a cross-departmental

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288 <http://www.hse.gov.uk/aboutus/meetings/ilgra/>

289 HM Treasury, *The Green Book, Appraisal and Evaluation in Central Government*, April 2003

290 HM Treasury, *The Orange Book, Management of Risk-Principles and Concepts*, October 2004

291 HM Treasury, *Managing risks to the public: appraisal guidance*, June 2005

basis and improving risk communication by having a central resource to collate research and disseminate best practice.<sup>292</sup> The replacement of ILGRA in 2002 by a high level group based in the Treasury and reporting directly to the Prime Minister could be seen as an implicit recognition that the group's useful work had not had a sufficiently strong impact across Whitehall. The final report of the Risk Programme in June 2005 noted a measurable improvement in managing risk but also identified significant remaining challenges.<sup>293</sup> These are listed by the Government as follows:

- *“even better anticipation of risk, and more early action to tackle it* —there are still too many major policies and projects starting before the risks have really been understood and gripped;
- *better management of risk with delivery partners* —increasingly we are delivering services and projects through partnerships, either with the private sector or the wider public sector. Yet our evidence is that departments do not feel confident of successfully managing risks in this environment;
- further embedding of risk management in the core processes of government for example in the current comprehensive Spending Review;
- in some cases more needs to be done to understand the overall portfolio of risk a department faces and to work out how to present this information to the board in a concise fashion;
- continuing to develop an open dialogue with the public on risk issues, to build confidence and trust; and
- behind all of this lies an issue we have been grappling with for some time — creating a culture of leadership for delivery and reform and on managing the inevitable risks this brings.”<sup>294</sup>

151. After over a decade of concerted action on risk, there clearly remains much to do. These challenges have been addressed primarily by a sub-Committee on risk of the Permanent Secretaries' Management Group, chaired by Sir Brian Bender. Since 2003 departments have been required to self-assess their performance against a specially developed Risk Management Assessment Framework, monitored by the Treasury. The average departmental score improved from 2.9 out of 7 to 3.1 from 2004 to 2005.<sup>295</sup> Our request for a breakdown by department of these figures was refused on the grounds that the scores were self-assessed and therefore comparison between departments was “not meaningful”. Nonetheless, the scores indicated the “direction of travel of Whitehall at large”.<sup>296</sup> Yet it is hard to see how an average measure can be considered useful if the

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292 ILGRA, Third report, 2002, pp 4–5

293 Ev 200

294 Ev 201

295 As above

296 Ev 203–4

individual data are considered meaningless. The other reason given—that highly sensitive decision making in key policy areas was involved—we also do not regard as valid: a departmental breakdown need not reveal the policies covered. This explanation reveals the limitations of this potentially useful exercise: a more accurate indication of progress and reliable guide to departmental performance might have been achieved by independent assessment from the outset.

152. The need to reinforce a change in culture in departments has been identified by the Government as a key priority, particularly in relation to the taking and management of risk. We were told that the sub-Committee on risk is promoting the establishment of a culture of well managed risk-taking by publishing examples of good practice across Government.<sup>297</sup> We have noted earlier the weak scientific culture in some departments<sup>298</sup> and some witnesses expressed doubts about departments' in-house capability in risk assessment. The Royal Society of Chemistry told us of “underlying problems within the UK (and EU Agencies) concerning the understanding of the conceptual basis of health and environmental risk analysis by scientists involved in regulatory risk assessments and policy advice for, in particular, chemicals, due to lack of adequate academic and training facilities in the UK (and EU)”.<sup>299</sup> Our MRI case study identified failings in the way in which the relevant regulatory impact assessment established all the potential risks of the EU Physical Agents (Electromagnetic Fields) Directive. We gained the impression that regulatory impact assessments were not afforded a high priority and called for improvements in the way that they are conducted.<sup>300</sup> Similarly, our case study on illegal drugs found inconsistencies in the way in which the health risks associated with the use of different drugs were incorporated into policy on classification and then communicated. The House of Lords Economic Affairs Committee identified similar doubts over whether guidelines on risk management had been implemented in the development of policy on passive smoking.<sup>301</sup>

153. The Government CSA, Sir David King, acknowledged that the ability of the Government to assess risk “varied from one government department to another”.<sup>302</sup> We note that the House of Lords Economic Affairs Committee concluded that whilst the Government has developed a “sound and potentially useful framework” for the assessment of risk, there were questions over whether this framework was being applied properly. We agree that a great deal of valuable work has been done on risk over the last ten years: departments now have a framework within which to develop their own approaches. However, a set of well crafted guidelines is not sufficient to ensure effective risk management on the ground. Whilst the Chief Social Science Researcher, Sue Duncan, asserted that the Treasury guidance on risk is used by departments,<sup>303</sup> we are not convinced

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297 Ev 202; HM Treasury, *Risk: good practice in government*, March 2006

298 See para 44

299 Ev 123

300 HC (2005–06) 1030, para 32

301 HL (2005–06) 183–I, para 84

302 Q 76

303 As above

that it is yet in routine use across Whitehall. The challenge, as has been acknowledged by Government, is to change the culture in departments. This requires not only commitment from the top—ministerial and Permanent Secretary level—but an emphasis from managers right down the line on the importance of risk assessment and management. This should involve appropriate emphasis in training and development which we discussed in the context of Professional Skills for Government (paragraphs 49–53). **We recommend that departments ensure that the Professional Skills for Government programme and other training activities provide comprehensive coverage of the principles and practice of risk management.**

### **Best practice**

154. There is a balance to be struck between ensuring consistency of practice across Government and allowing sufficient flexibility to enable individual departments to respond according to the very different situations they face. We are aware that some departments have been undertaking their own work on risk. Whilst we recognise the scope for further research by departments on specific policies or issues, there is also a danger of wheels being invented simultaneously across different parts of the civil service. DEFRA, DoH and DfES all have their own guidelines covering risk assessment and management and there is a fair degree of overlap. In the mid–1990s there was a debate in ILGRA on the merits of having one set of guidance to cover the whole of Government, and there was general agreement that each department needed to be able to produce its own.<sup>304</sup> The Government has taken some steps to avoid duplication of activity: the work of the sub-Committee on risk is communicated to the Cabinet Secretary and senior officials and departmental risk improvement managers meet 4–5 times a year to share good practice.<sup>305</sup> This is welcome, but we are not persuaded that this work goes far enough or is an adequate substitute for a continued centrally-driven risk agenda (see paragraph 174 below).

155. In view of the importance that the Government has rightly attached to risk management in recent years and the considerable remaining challenges that have been identified, we were surprised to discover that consideration is being given to scaling down cross-departmental work in this area. The sub-Committee on risk decided in July 2006 that there will be no more departmental self-assessments under the Risk Management Assessment Framework and that a decision will be taken in autumn 2006 on whether the sub-Committee should continue at all.<sup>306</sup> We find it surprising that, having established a useful tool for departmental performance monitoring, the Government is dropping it so soon. Without it continuing, it will be impossible to judge whether the efforts to embed risk assessment in the policy making process have had any lasting impact. We do not believe that now is the time for the sub-Committee on risk to be wound up. It would send the wrong message about the intensity of the focus on risk management. A high level group is an important symbol that risk management is not another passing trend in

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304 UK Interdepartmental Liaison Group on Risk Assessment, 1996 Report, <http://www.hse.gov.uk/aboutus/meetings/ilgra/>

305 Ev 202

306 As above

administrative practice, but an integral part of the policy making process. **We welcome the progress the Government has made toward promoting proper risk analysis in policy making but are concerned about how this progress will be sustained. We recommend that the sub-Committee on risk continue to operate and that it ensure that the monitoring of departmental performance on risk management is maintained.**

## The Precautionary Principle

156. In view of the ongoing debate surrounding the use of the precautionary principle we decided to include it in our terms of reference for this inquiry. We explored its application, primarily at an EU level, in our MRI case study and undertook to consider it further in our overall inquiry.

### Definition

157. The precautionary principle is but one tool or approach which can be used in risk management. What it is and how it should be applied has been the subject of considerable academic debate and also exploration in policy guidelines. The first attempt at a definition was contained in the Rio declaration on climate change in 1992. It stated that “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”<sup>307</sup> However, increasingly campaigning organisations and, taking their lead, members of the public and the media are interpreting the precautionary principle as meaning “where there is potential harm from a technology, it should be restricted until and unless it is demonstrated or proved to be safe”. This restrictive interpretation causes difficulty for policy-makers and those seeking to communicate policies which involve a more reasonable interpretation or application of the precautionary principle. The definition provided by the current GCSA, Sir David King, was: “When there is reasonable suspicion of harm, lack of scientific certainty or consensus must not be used to postpone preventative action”.<sup>308</sup> However, he preferred to talk of a “precautionary approach” rather than a principle, to be applied where “the scientific evidence is incomplete or inconclusive, and there is the possibility of severe and irreversible consequences”.<sup>309</sup> He explained the distinction: “My objection, if you like, to a precautionary principle is that it seemed to be stating something new when, in fact, I think all it was stating is ‘you should be cautious’ and it did not seem to me that it should be embodied in a new, big principle”.<sup>310</sup>

158. In spite of the preference of the GCSA for a precautionary *approach*, it is the precautionary *principle* that is included in the latest Treasury guidance setting out the five guiding principles of risk management. Under the proportionality heading, the guidance states that the Government “will apply the precautionary principle where there is good reason to believe that irreversible harm may occur and where it is impossible to assess the

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307 UNCED, 1992, <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=78&ArticleID=1163>

308 Q 84

309 Ev 139

310 Q 1382

risk with confidence, and will plan to revisit decisions as knowledge changes”.<sup>311</sup> The definition used is the one used in the Rio Declaration on the environment, but without further elaboration.

159. The ILGRA group published a report on the precautionary principle in 2002. It took the Rio definition of the precautionary principle as a starting point but emphasised that “Policy guidelines are needed to indicate when, for example, the precautionary principle should be invoked, how a risk-based approach can continue to be followed when the scientific uncertainty is such that conventional risk assessment cannot in itself determine the level of risk, and how decisions should be made on appropriate precautionary measures.”<sup>312</sup> No such guidelines have been produced. It also asserted that “Invoking the precautionary principle shifts the burden of proof in demonstrating presence of risk or degree of safety towards the hazard creator”.<sup>313</sup> This explicit statement about the burden of proof goes somewhat further than other definitions or explanations, although the guidance does go on to stress that there should be flexibility in applying this approach.

160. We noted in our MRI case study Report that the precautionary principle was not clearly defined by the Commission, although it was in common use in EU institutions, including the courts,<sup>314</sup> and indeed different variations of its formulations have been used by different EU institutions. For example, one study has found that the precautionary principle has been mentioned or applied—often extensively—in over 60 European Court of Justice judgements but only one such judgement has attempted to define it.<sup>315</sup> This obviously poses difficulties for businesses and Governments introducing new technologies. Indeed, the Director of the King’s Institute for Risk Management, Professor Ragnar Löfstedt, has commented that “what the precautionary principle actually means [...] is difficult to pinpoint, as studies indicate up to 19 different formulations”.<sup>316</sup> In spite of the inclusion of the precautionary principle in Government guidelines on risk management, and the identification by the ILGRA group of the need for further explanatory guidance on it, there is still no detailed definition of the precautionary principle for application by Government departments.

## Application

161. A precautionary approach has been claimed to have been adopted by the Government and its agencies in respect of some recent policies where scientific uncertainty or scientific controversy has existed. For example, the GM Science Review saw itself as “part of a genuinely precautionary approach to the appraisal of GM food and crops”.<sup>317</sup> Sir David

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311 HMT, Appraisal guidance, Annex B, [http://www.hm-treasury.gov.uk/media/8AB/54/Managing\\_risks\\_to\\_the\\_public.pdf](http://www.hm-treasury.gov.uk/media/8AB/54/Managing_risks_to_the_public.pdf)

312 ILGRA, The precautionary principle: policy and application, 2002

313 As above

314 HC (2005–06) 1030, chapter 4

315 Gary E Marchant and Kenneth L Mossman, *Arbitrary & Capricious: The Precautionary Principle in the European Union Courts*, International Policy Press, 2005, p 30

316 Ragnar E. Löfstedt, *Risk Communication and Management in the Twenty-First Century*, International Public Management Journal, 7 (3), pp 335–346, 2004

317 GM Science Review, July 2003, p 46

King explained that the advice was that all GMs that could be considered for crops to grow for eating should have been through all of the scientifically regulated processes that had been specifically devised. He said that whilst this represented a “reasonably good approach to applying precautions”, he was reluctant to see it established as a principle in the way that some NGOs sought, and equally reluctant to see NGOs determining whether it had been applied or not.<sup>318</sup> He stressed the importance of ensuring that any action should be proportionate to the risk that is being evaluated.<sup>319</sup> The Stewart Report on mobile phone safety also advocated a precautionary approach, explaining that this approach “requires that before accepting a new development we should have positive evidence that any risks from it are acceptably low, and not simply an absence of convincing evidence that risks are unacceptably high”.<sup>320</sup> This approach was not considered clear or satisfactory by all interested parties. The Mobile Operators Association state that “the precautionary approach recommended by the Stewart Report has itself caused confusion within parts of the community and even Parliament itself”.<sup>321</sup> Orange went further: “The ‘precautionary principle’ is interpreted very differently by the media, public and scientific community and is often interpreted by the media and public to mean that any form of unknown risk is unacceptable and must be ‘regulated away’”. They go on to argue that Government can serve to heighten public concern by giving credibility to unsubstantiated perceptions of risks.<sup>322</sup> We agree that the precautionary principle is interpreted in very different ways—it is invoked by both sides in the GM and mobile phone masts debates—and that some extreme interpretations promote a culture which tolerates no risk at all.

162. Of course, a precautionary approach does not necessarily entail regulation or bans. As the Chair of the FSA, Dame Deirdre Hutton, stressed, it can also include the provision of advice in areas of uncertainty.<sup>323</sup> We sought to find out how a precautionary approach is applied to food safety in practice. Dame Deirdre cited the example of dioxin emissions from funeral pyres during the foot and mouth epidemic, when the FSA advised those who consumed milk from their own farms that they may wish to vary their diet whilst further research was undertaken to confirm safety.<sup>324</sup> The FSA states that this advice was precautionary, in line with its policy to take a precautionary approach when risk is uncertain. This was indeed precautionary, but another, also precautionary, approach would have been simply to ban such consumption of milk pending the further tests. In fact the FSA took this more restrictive approach of a full recall of product in the case of Sudan I dye contamination of foodstuffs, where the risk of harm to consumers was probably lower than in the dioxin case. The FSA told us that they took this approach in the Sudan I case not on the basis of the risk but because such contamination was illegal.<sup>325</sup> This example

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318 Q 88

319 Q 1384

320 Stewart Report, para 6.16, [http://www.iegmp.org.uk/documents/iegmp\\_6.pdf](http://www.iegmp.org.uk/documents/iegmp_6.pdf)

321 Ev 133

322 Ev 94

323 Q 652

324 Q 646

325 Q 658

illustrates that the precautionary approach, even when applied with the benefit of experience, can not provide a definitive guide for action in every case. Its use will always involve subjectivity and judgment to a greater or lesser extent. We note that the House of Lords Economic Affairs Committee concluded that the precautionary principle was one of a few risk-related terms which should be more clearly defined or replaced with less ambiguous concepts.<sup>326</sup> We also note the view of the Head of the Government Economic Service, Sir Nicholas Stern, that risk analysis cannot be reduced to one principle.<sup>327</sup>

163. The ILGRA report on the precautionary principle states that: “Applying the precautionary principle is essentially a matter of making assumptions about consequences and likelihoods to establish credible scenarios, and then using standard procedures of risk assessment and management to inform decisions on how to address the hazard or threat.”<sup>328</sup> The Royal Society acknowledged the different interpretations of the principle in use and told us that “the question of how and when the precautionary principle should be applied needs to be determined on a case by case basis”.<sup>329</sup> The Royal Society of Chemistry expressed concern at the “tendency (as with all regulators) to adopt a ‘gate-keeping’ approach and a disproportionately ‘hard’ precautionary approach when it is possible to pass the costs of implementation to others”. It argued that the principle does not mean “better safe than sorry” and noted the “directly adverse effects” that its application can have.<sup>330</sup> A good example of this we found in our MRI case study, where new health and safety regulations governing the use of MRI scanners threaten to inhibit both future research and diagnostics to an extent that appears disproportionate to the risks involved.

### **Harmonisation with the EU**

164. Any attempt to further define a precautionary approach or principle would need to take into account the need for harmonisation with existing EU applications. In our MRI case study Report we found that the guidance produced by the EU Commission in 2000 was a helpful, if limited in terms of practical use, “check-list of issues to be considered in situations of scientific uncertainty within an overall approach to risk management”.<sup>331</sup> On the development of the policy of the Directive itself, we could find no adequate explanation of how the precautionary principle was applied in practice.<sup>332</sup> We asked Sir David King whether he thought there was any clash between the UK and EU approaches to the precautionary principle, in terms of definition and implementation. He did not believe that, in terms of output at least, there was a clash between the UK and the EU: “there is nothing that we are doing in the British Government, based on my precautionary approach, if you like, that would lead to a different outcome from other European

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326 HL (2005–06) 183–I, para 73

327 Q 1054

328 ILGRA, *The precautionary principle: policy and application*, p 2

329 Ev 105

330 Ev 126

331 HC (2005–06) 1030, para 44

332 HC (2005–06) 1030, para 49

countries operating what you might call a precautionary principle.”<sup>333</sup> We are not persuaded that this is the case. The fact that the UK Government saw no need at all for a new Directive on Electromagnetic Fields indicated to us that the prevailing view in the EU was evidently “more precautionary” or more cautious than the UK stance, irrespective of the definitions used. A noticeably different attitude to risk among EU countries is widely acknowledged, and highlighted in research on the subject in relation to food.<sup>334</sup> It would be surprising if such different approaches did not produce differences of interpretation over the application of the precautionary principle and the management of risk in general. Sir Brian Bender, the DTI Permanent Secretary, in his evidence to the Lords Economic Affairs Committee, acknowledged as much. He said, in an exchange on efforts to counter a more risk averse attitude in Brussels, “I do think, however, that we have made some progress in trying to get a more risk-based approach to EU measures and a more risk-based approach to EU regulations, but we still have a long way to go.”<sup>335</sup> This certainly accords with our impressions on a visit to Brussels to discuss our MRI case study, where we found less willingness to recognise the administrative burdens and adverse effects of health and safety regulations than tends to be the case in the UK. The tension between a more stringent precautionary approach and a desire for lighter regulation was also very evident in Brussels during the negotiations over the REACH proposals for the regulation of chemicals.<sup>336</sup>

### Conclusions on precautionary principle

*“One cannot change all this in a moment [...] but from time to time one can even, if one jeers loudly enough, send some worn-out and useless phrase into the dustbin, where it belongs.” – George Orwell*

165. The Government CSA was not convinced of the chances or even the desirability of undertaking further work to define a precautionary principle for use in policy making and, as necessary, by the courts. Such an exercise would be “seeking clarity where clarity may be very difficult to give”, in view of the scope for subjective interpretation of the precautionary principle. He said that “I think the only answer to this is to look at the detailed scientific analysis”.<sup>337</sup> These views go some way to explaining why the work undertaken by ILGRA on the precautionary principle has not been followed up. In our MRI case study Report, we recommended that, pending further work on its definition and application, the term precautionary principle should not be used in order to explain policy decisions or judgments.<sup>338</sup> In its Reply, the Government maintained that the precautionary principle “is valuable in dealing with uncertainty”, although it went on to make clear that, in practice,

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333 Q 1382

334 See, for example, European Commission, *Eurobarometer, Risk Issues*, February 2006

335 HL (2005–06) 183–II, p 25, Q 73

336 Science and Technology Committee, Sixth Report of Session 2003–04, *Within REACH: The EU's new chemicals strategy*, HC 172–I

337 Q 88

338 HC (2005–06) 1030, para 51

the principle is “interpreted as a flexible precautionary approach” which should be adopted alongside other research and monitoring and that “highly restrictive or expensive precautionary interventions should be reviewed on a regular basis in the light of research findings and new data.”<sup>339</sup> This approach to practical application appears wholly sensible, but does not support the case for the retention of a precautionary *principle*.

166. On the basis of the evidence we have received, and not least the implications of the views from the GCSA and the Head of the Government Economic Service, **we can confirm our initial view that the term “precautionary principle” should not be used, and recommend that it cease to be included in policy guidance. However, we do see value in further work which seeks to clarify the terms and correct application of a precautionary approach as set out helpfully by the GCSA.** In our view, the terms “precautionary principle” and “precautionary approach” in isolation from any such clarification have been the subject of such confusion and different interpretations as to be devalued and of little practical help, particularly in public debate. Indeed, without such clarification and explanation, to elevate the precautionary approach or principle to a scientific methodology, which can be proved or disproved to have been applied in any particular case, is both unrealistic and impractical. It also provides ammunition for those seeking to promote an overly cautious approach to innovation or exposure to any risk at all. **We believe that it is best to use the term precautionary approach, but with a consistent explanation of the degree and nature of the risks, benefits and uncertainty and an explanation of the concept of proportionality. It should never be considered a substitute for thorough risk analysis which is always required when the science is uncertain and the risks are serious. It should not be used, in itself, to explain a decision or course of action.** The key point is that any action is proportionate, and this requires judgment based on the best available scientific evidence. Decision makers have to make such judgments on a case by case basis and they should communicate effectively the rationale for their decisions. **We believe that further work should also focus on the practical application of risk management theories in circumstances of scientific uncertainty and the effective communication of the decision making process.**

167. **The term precautionary principle is in current use in other jurisdictions, including the EU, so it can not simply be wished away. However, both the Government’s current use of the term precautionary approach rather than principle and the further work we are recommending to properly clarify, constrain and apply a precautionary approach is something that we recommend the Government invite the EU and other countries to consider and adopt.**

## Risk and communication

168. A series of recent major controversies, including BSE, foot and mouth disease and GM crops, has helped focus attention in Government on the importance of public

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339 Science and Technology Committee, Sixth Special Report of Session 2005–06, *Watching the Directives: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive: Responses to the Committee’s Fourth Report of Session 2005–06*, HC 1654, p 4

communication of risk. Other drivers that have been identified include: the pace of scientific change, which has presented uncertainties (e.g. nanotechnology); growing distrust by some of the public of some institutions; easier access to a wide range of information sources; and, not least, the Government's discussion of evidence based policy making.<sup>340</sup> The Government has also established the need for more openness about the nature of risks, greater transparency in the decision-making process and the greater engagement of the public in risk management.<sup>341</sup> All these factors have a bearing on the way in which the Government communicates about risks.

### Current practice

169. Current Government work on risk communication builds on the studies undertaken under the auspices of ILGRA in the 1990s. It commissioned research on the nature of risk communication in Government and identified some of the pitfalls of public communication. The Health and Safety Executive (HSE) combined with a number of departments in 1997 to develop a set of generic principles for Government risk communications as guidance for officials. These were further refined and published by the Cabinet Office's Better Regulation Unit in 1998.<sup>342</sup> Since then some departments have developed their own guidelines on risk communication. The Department of Health guidance, *Communicating about risks to public health: pointers to good practice*, published in 1998 is probably the most comprehensive departmental guidance and is widely referred to in other Government material on risk. Much of this guidance has been brought together by the Cabinet Office in its comprehensive set of guidance, *Communicating risk*, available on the UK resilience website.<sup>343</sup> These guidelines reflect a general move in communication strategy from a top-down information dissemination model to a more two-way participatory approach which seeks to engage stakeholders and the public at an early stage. The guidelines are intended to be a toolkit to use in developing a communication strategy, providing advice on handling the media and engaging the public. They do not set out to provide detailed guidance to cover every aspect of risk communication, but are a source of information on best practice, drawing on experience, for use by those engaged in policy making and communication.

170. The guidelines build upon the five principles of risk management, listed in paragraph 149. Openness and transparency are key messages:

“Government will make available its assessments of risks that affect the public, how it has reached its decisions, and how it will handle the risk. It will also do so where the development of new policies poses a potential risk to the public. When information has to be kept private, or where the approach departs from existing practice, it will explain why. Where facts are uncertain or unknown, Government will seek to make

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340 Cabinet Office, *Communicating Risk*, <http://www.ukresilience.info/preparedness/risk/communicatingrisk.pdf>, pp 8–9

341 As above, p 9

342 HC (2000–01) 257, Written evidence from ILGRA Risk Communication Sub-Group, section 3

343 Cabinet Office, *Communicating Risk*, <http://www.ukresilience.info/preparedness/risk/communicatingrisk.pdf>

clear what the gaps in its knowledge are. It will be open about where it has made mistakes, and what it is doing to rectify them.”<sup>344</sup>

Detailed guidance is given on understanding public reactions to risk, handling the media, presenting statistics and many other aspects of risk communication.

171. In evidence to us, Government witnesses stressed the importance of making information about risks widely available to the public. The Secretary of State for Trade and Industry told us that “We can do better but the best way of communicating to the public is to put as many facts as we can in the public domain.”<sup>345</sup> Other Government witnesses acknowledged the scope for improving performance on the communication of risk. The Chief Government Social Researcher told us that “we are still learning how to communicate risk” and that “It is an area that we need to do more work on and I think that is recognised”.<sup>346</sup> The GCSA, Sir David King, cited the example of the impact of some of the media coverage of the MMR vaccine and the subsequent outbreaks of measles: “Clearly, communication breakdown occurred”.<sup>347</sup> The Home Office DCSA, Professor Wiles, talked of the “constant struggle” to try to improve understanding of risk and probability, particularly against a background of what he identified as “a weak scientific and numeracy culture in this country”.<sup>348</sup> **We welcome the public commitment to transparency in the handling of risk in policy guidance and the recognition by Chief Scientific Advisers of the need to improve public communication on risk.**

172. We have been generally impressed by the approach to communication adopted by the FSA. It has made clear and open communication a feature of delivering its aim to restore confidence in the way decisions on food safety are handled. It has been open and consultative in its communications. Its website provides a huge amount of information for the interested consumer to help take decisions on the basis of available scientific evidence. Its innovative approach to transparency has included open board meetings and extensive public engagement activities. The 2005 Dean Review of the FSA was a thorough assessment of its performance since its establishment in 1999 and concluded that stakeholders were generally of the view that the organisation had delivered on its aims to be open, transparent, put the consumer first, and to be independent.<sup>349</sup> The current Chair, Dame Deirdre Hutton, put the Agency’s good reputation down to “a combination of good science and absolute transparency”.<sup>350</sup> However, it remains to be seen whether there will be a conflict between sound science and a wish to put the opinion or the confidence of “the consumer first”.

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344 Cabinet Office, *Communicating Risk*, <http://www.ukresilience.info/preparedness/risk/communicatingrisk.pdf>, p 70

345 Q 1388

346 Q 80; see also Qq 1387–8

347 Q 1387

348 Q 1118 [Professor Wiles]

349 Dean Review, chapter 1, <http://www.food.gov.uk/multimedia/pdfs/deanreviewfinalreport.pdf>

350 Q 575

173. An example of the Agency's innovative approach to communication is its promotion of a voluntary traffic light system of food labelling for processed food. This is a commendable attempt to help those who wish to do so to choose a healthier diet. It has been criticised for being a fairly blunt instrument, in that it makes no distinction between, for example, different types of fats.<sup>351</sup> The National Consumer Council expressed concern that a range of different styles of label might confuse shoppers<sup>352</sup> and others, such as Associated British Foods, have made the point that it gives the impression that there are bad foods, to be avoided, rather than bad diets.<sup>353</sup> Of course labels may have only limited impact: Professor Ragnar Löfstedt states that "Approximately 5 per cent of the general public read warning labels, be they on pharmaceutical products or foods"<sup>354</sup> although there is also some evidence that the introduction of the scheme had a significant impact of sales in certain cases.<sup>355</sup> It is perhaps too early to judge the full impact of the introduction of what is still only a voluntary scheme and we have not focussed in detail on it.

### Leadership

174. There has undoubtedly been some valuable work carried out in Government on risk communication that draws upon the lessons of the 1990s. Government and its agencies have sponsored academic research and carried out analyses of communication on specific issues, such as foot and mouth.<sup>356</sup> Some useful guidance has been produced and made widely available. However, risk communication is still very much for each department to take forward as it sees fit, hopefully in accordance with existing best practice. Whilst we recognise that departments will need to adapt guidelines according to the individual circumstances, this approach has potential weaknesses. It may lead to messages from different Government departments lacking consistency, and we explore below how this might be addressed. Also, the absence of true ownership of risk communication as a cross-departmental activity may hinder efforts to drive further research, evaluation and monitoring of existing practice. The current approach is one of circulating examples of best practice and encouraging departments to make use of existing research and other material. Whilst this is welcome, so far as it goes, this approach is not necessarily the best way of ensuring co-ordination and use of best practice on a practical basis. The Cabinet Office, as we have noted, has published useful guidance, but it does not seem to adopt the role of leadership on risk communication. This point echoes our concerns over the leadership of the risk programme as a whole, as outlined in paragraph 155. The Treasury has led on risk, but its focus is very much on the management of risk in Government programmes and projects rather than on risks to the public, where individual departments take the lead, supported by Cabinet Office guidance on best practice. **We recommend that the Cabinet**

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351 "IoD urged to counter 'negative' media", *The Daily Telegraph*, 27 April 2006

352 "Food giants dismiss official drive for traffic light warning labels", *The Daily Telegraph*, 10 March 2006

353 "New labels send 'unhealthy' food into sales dive", *Sunday Times*, 23 April 2006

354 "We're tangled up in warning labels", *The Independent on Sunday*, 22 February 2004

355 "New labels send 'unhealthy' food into sales dive", *Sunday Times*, 23 April 2006

356 See, for example, [http://www.hse.gov.uk/research/crr\\_pdf/2001/crr01332.pdf](http://www.hse.gov.uk/research/crr_pdf/2001/crr01332.pdf). Further examples of research and guidelines are included at annex E of Communicating Risk, Cabinet Office

**Office assume greater responsibility as the centre of excellence on risk communication within Government. It should have a leading role in collating and disseminating best practice on risk communication, commissioning further research as appropriate, in conjunction with other departments, and for monitoring performance in implementing guidelines.**

### ***The role of departmental Chief Scientific Advisers***

175. It is well established that the messenger is vital in ensuring that scientific advice is conveyed authoritatively and is believed. The GCSA's Guidelines advise that in public presentations, departments should "wherever possible consider giving experts (internal or external) a leading role in explaining their advice on a particular issue, with ministers or policy officials describing how the government's policies have been framed in the light of the advice received".<sup>357</sup> The Department of Health guidance notes that messages are judged first and foremost not by content but by whether the messenger is trusted.<sup>358</sup> The Cabinet Office guidance on *Communicating Risk* explores how to identify who is placed to deliver messages. This will depend upon the nature of the message and the role the Government is taking: for example, whether it is seeking to provide accurate information on which people can make a judgment or seeking to reassure the public that steps are being taken to mitigate risks. It states that:

"where the need is for information to help people make their own decisions, ministers may not be best placed to give it, because public attitude research shows that they are not always trusted. In these circumstances it may be better to use a respected independent source to give that information".<sup>359</sup>

The guidance recommends that a cadre of suitable people is developed and trained and that to deliver these messages:

"Full use should be made of trusted, independent parties—leading academics, NGOs, subject experts, industry bodies, doctors, professional bodies such as the Engineering Institutions and accounting and actuarial bodies ...".<sup>360</sup>

**We strongly endorse the development of alternative voices for the provision of information and advice of a technical nature. Given the issues of trust identified by research, the often instinctive reaction of departments to field a minister should be resisted.**

### ***Conveying uncertainty***

*"Doubt is not a pleasant condition, but certainty is absurd." - Voltaire*

357 GCSA guidelines, para 24

358 See, for example, DH guidance, p 3

359 *Communicating Risk*, p 52

360 As above

176. There is a strong case for using different types of spokespeople when communicating levels of scientific certainty to the public. In a weak numeracy culture, as Professor Wiles identified, and with the inevitable demands of the media and the public for clear and unequivocal judgments and advice, the communication of uncertainty in relation to scientific advice to the public represents a difficult challenge. In the MMR debate, it was the Government's failure to get across convincingly the real balance of scientific opinion on the issue which contributed to public confusion.

177. The same concerns apply to the provision of expert advice to ministers. The Environment Research Funders' Forum argued that "a particular challenge relates to the need to reflect uncertainty and differences of opinion in advice to policy [makers]".<sup>361</sup> The GSCA's Guidelines state that "Departments should ensure that levels of uncertainty are explicitly identified and communicated directly in plain language to decision makers".<sup>362</sup> The 2002 review of the FSA's scientific advisory bodies recommended that "When offering advice, committees should highlight any uncertainties, and explain how these uncertainties have been handled in reaching their final conclusions".<sup>363</sup> This is sound guidance for scientific advice to ministers, but also to the public. Here, existing guidance is light on how degrees of certainty should be made public. To an extent this is a matter for ministers' judgment, but further guidance on the language to be used might assist in what can be very sensitive policy areas. The dangers in conveying or implying a level of certainty that is not scientifically justified, as in the BSE crisis, can be just as damaging as allowing a very small risk to be magnified by repeated warnings and alarmist press coverage. It may be relevant to introduce the concept of peer review (as we discuss in chapter 4) in order to comment on the validity of research underpinning advice. In our view, there would be merit in the development of some common language which could be used consistently across departments to indicate the degree of certainty in advice, when there is doubt involved. In view of the research referred to below (paragraph 178), the difficulty of conveying levels of certainty accurately and convincingly, and the pressure that ministers are placed under by the media, **we believe scientists, including departmental CSAs, should play a leading role in communicating to the public levels of scientific agreement, where necessary, and the degree of certainty in the scientific advice being offered. We recommend that common terminology be developed to be used consistently across Government in order to communicate these uncertainties.**

178. The Cabinet Office guidelines on *Communicating Risks* are sensible as far as they go, although rather general. They could go further in terms of setting out in greater detail the circumstances in which the minister, DCSA or external experts should take the lead in communication. As indicated above, we would support a wider general role in public communication for the DCSAs, who are conspicuously absent in the guidance. We welcome the highly visible role GCSAs have increasingly taken in contributing to debates

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361 Ev 99

362 GSCA's guidelines, para21

363 [http://www.food.gov.uk/multimedia/pdfs/fsa02\\_03\\_04rep.pdf](http://www.food.gov.uk/multimedia/pdfs/fsa02_03_04rep.pdf)

on scientific issues such as climate change. Overall, our impression has been that their contributions have been positive: public understanding is assisted by a well-respected scientist speaking independently and authoritatively on complex scientific issues.

179. Research on communication would support the case for greater use of independent scientific voices in public communication.<sup>364</sup> Opinion polls have indicated that doctors and scientists score much better than politicians and the media in terms of public trust. On scientific issues, scientists are more trusted than campaign groups, newspapers and politicians and media. Deeper questioning reveals that levels of trust vary according to the perceived source of funding for academics, with those sponsored by medical charities proving more trusted than those funded by Government and by industry.<sup>365</sup> We would like to see the DCSAs develop their roles to assume greater responsibility for commenting on science-related issues in public. For example, the often highly politicised debates surrounding crime statistics might benefit from the public explanation of a Government statistician or DCSA. Sir David King indicated that he and other CSAs would be happy to play a more prominent role if this would help the delivery of messages.<sup>366</sup> Such a development would require some public education on the role of DSCAs and the GSCA. Opinions polls indicate that Government-employed scientists are trusted less than those in universities.<sup>367</sup> We agree with Sir David that it is important that CSAs are not seen “(by Government or the media) as a channel for promoting Government policy”.<sup>368</sup> We suspect that such perceptions are widespread at present and it will take some time and effort to alter them. Nonetheless, in the light of Sir David’s commendable efforts in seeking to assert his independent role, we believe that the attempt is worthwhile. The need to have GCSAs, DCSAs and Government Scientific Advisory Committees perceived as independent and authoritative to aid the communication of risk and other scientific matters to the public is another reason why the steps we identify earlier in our Report to assert the independence of Government scientific advisors will pay dividends.

180. Given greater exposure, well-established independence and good performance, there is no reason why DCSAs should not be able, in time, become the trusted public voices of scientific advice and information for each department. Outside scientists could be engaged as necessary on an *ad hoc* basis to speak authoritatively on specific issues. Lines of responsibility would need to be drawn in order to avoid duplication or mixed messages: the GSCA might wish to focus on the many cross-departmental issues with scientific input, for example. Some media training would also need to be provided where necessary. **We believe that the Government’s communication strategy would benefit from the adoption of a higher public profile by departmental CSAs on policies with a strong evidence or science base. We recommend that the Government CSA explore with**

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364 Communicating Risk, p 52

365 MORI/OST; taken from speech by Sir Robert Worcester, founder of MORI, at the RAE, 26 June 2006

366 Ev 203

367 MORI/OST; taken from speech by Sir Robert Worcester, founder of MORI, at the RAE, 26 June 2006

368 Ev 203

**ministers and departmental CSAs how this might be best achieved and that the impact of this enhanced role be monitored.**

### ***Role of the Media***

181. The media is the main channel for communicating scientific advice and information on risk to the public. Given the very different objectives and approaches of the media and of Government, and the independence of the former, all Governments have to work very hard in most cases to ensure that they gets their message across in a manner which promotes understanding rather than confusion or even fear. It is therefore essential for there to be consistent, constructive and high level engagement.

182. In some circles the media is seen as part of the problem rather than the solution to improving public understanding of risk and scientific advice. For example, the Royal Society asserted that “the news media tend to give greatest prominence to new risks, or changes in existing risk, which can affect public perceptions and behaviour”, citing the example of a “small but previously unrecognised side-effect of a preventative medicine” which is given greater coverage “than the already known greater threat to health posed by the disease the medicine is intended to prevent”.<sup>369</sup> The Royal Society also expressed concern that in the name of balance, “the media invariably present opposing views on each side of an argument, regardless of the relative weight of support for those opinions”.<sup>370</sup> This pattern was particularly evident in the coverage of the MMR vaccine. The general point about media interest was supported by an academic study which found that unusual hazards which pose relatively little danger occupy a disproportionate amount of media attention, whilst proven and extensive health risks, such as smoking, alcohol and obesity are not so extensively covered.<sup>371</sup> The risk-related stories which tend to attract media attention are well-established (see box 5) and of course reflect what is interesting or unusual more than the actual level of risk to the public involved.

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369 Ev 106

370 Ev 104

371 Roger Harrabin, Anna Coote and Jessica Allen, *Health in the news : Risk, reporting and media influence*, King Fund, September 2003

**Box 5: Media triggers**

**A possible risk to public health is more likely to become a major story if the following are prominent or can readily be made to become so:**

- Questions of **blame**
- Alleged **secrets and attempted "cover-ups"**
- **"Human interest"** through identifiable heroes, villains, dupes, etc. (as well as victims)
- Links with **existing high-profile issues or personalities**
- **Conflict**
- **Signal value:** the story as a portent of further ills ("What next?")
- **Many people exposed** to the risk, even if at low levels ("It could be you!")
- Strong **visual impact** (e.g. pictures of suffering)
- Links to **sex** and/or **crime**

*Source: Communicating about risks to public health: pointers to good practice, DH, 1998*

183. Food scares are particularly prone to media exaggeration, with obvious adverse commercial consequences. The approach of the FSA to managing the media is to have a "constant background briefing with them, so that when it comes to the point at which you have a real message to get out you are in a much better position to do it".<sup>372</sup> Similarly, the Home Office DSCA, Professor Wiles, told us of his persistent efforts to engage with crime correspondents in order to ensure that they reported crime statistics accurately and in an overall context. Whilst he had achieved some success, he told us that he had not managed to persuade the press in its coverage to reflect the socially and geographically skewed nature of crime to avoid the effect of over-estimating the risks for the majority of people.<sup>373</sup> The Government Response to the ID cards Report noted that the Home Office is attempting to apply what it has learnt through the communication of crime statistics to other areas such as identity card technologies. Such attempts are welcome, and are essential if a more mature public debate on risk is to be realized. Another important player in promoting well informed debate is the Science Media Centre, based in London. It performs a useful role for the media by assembling appropriate scientists to provide selected correspondents with detailed technical briefing on a whole range of topical issues with a strong scientific content. Again, there is more that it can help achieve in terms of improving media coverage. We would like to see DSCAs develop their links with the Science Media Centre and participate in appropriate briefings, as part of a drive to raise their profile, as long as political neutrality is given appropriate consideration.

184. Of course, there are limits to the influence of Government and other bodies on the nature of media coverage of science-related issues. The House of Lords Economic Affairs Committee concluded that Government could do little to change media treatment of risk-related stories, other than encouraging proportionality in the reporting of statistics and research.<sup>374</sup> It also criticised the Government for placing too great an emphasis at times on unsubstantiated media stories at the expense of available evidence.<sup>375</sup> It recommended that

372 Q 663

373 Q 1118 [Professor Wiles]

374 HL (2005–05) 183–I, para 34

375 HL (2005–06) 183–I, para 35

greater use be made, by Government and others, of the Press Complaints Commission in responding to instances in which risks to the public have been mis-represented. Furthermore, the Research Defence Society have successfully used the Advertising Standards Agency on a number of occasions to challenge scientific claims published by anti-vivisectionist organisations.<sup>376</sup> We agree that there is scope for a more aggressive response in these situations, but we would prefer to emphasise the importance of proactive, long term engagement.

185. The Government has recognised the importance of engaging with the media in order to seek to promote responsible coverage of issues concerning risk. Following the 2005 General Election, the Prime Minister charged John Hutton, then a Cabinet Office Minister, with trying “to persuade the media to adopt a more balanced approach to the potential risks from scientific and technological advances”. He enlisted the GSCA and the Chief Medical Officer to discuss risk analysis with the major media organisations.<sup>377</sup> We were concerned that following Mr Hutton’s move from the Cabinet Office 2005, this initiative had lost its momentum. The Government told us that this work had been continued by the Permanent Secretary for Government Communications, Howell James, and others, who had met television news organisations to discuss risk, and other media representatives to discuss specific issues, such as avian flu.<sup>378</sup> Sir David King told us that he personally had continued this work and commented that following his meeting with the editorial board of the *The Guardian*, its coverage of science advice had improved. However, he observed that the real challenge was to see a change in the way the Daily Mail handles risk: “quite a tall call” in his words.<sup>379</sup> He made a distinction between his efforts to improve media coverage of risk and the more specific responses to inaccuracies or misinterpretations in Parliament and in the media. He referred to the work of the Parliamentary Office of Science and Technology (POST) in providing authoritative information to Parliament on scientific issues.<sup>380</sup> We would agree that POST fulfils a valuable role in informing Parliament and others but it has no responsibility for correcting misconceptions or mis-interpretations, in and outside Parliament. However, organisations like the Royal Society, other learned societies, Sense about Science and the Progress Education Trust are becoming more active in this area.

186. There is nothing in Cabinet Office or Treasury guidance on responding to inaccuracies in media coverage, nor is there a central point in Government for responding directly on scientific issues. It is up to departments to judge how to respond on a case by case basis. We do not underestimate the considerable challenge of promoting balanced and accurate coverage in the media, particularly the newspapers, of stories involving risk. The BBC has developed some guidelines on risk for reporters, but these are very much the exception rather than the rule. **We welcome the Government’s attempts to liaise with the**

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376 Eg ASA, Complaints against Europeans for Medical Advancement, 7 December 2005

377 Qq 81, 1387; The Monday Interview: John Hutton; Cabinet Office Minister—“The media are entitled to be sceptical but the scientific context is important”, *The Independent*, 8 August 2005

378 Ev 203

379 Q 81

380 Q 83

**media on risk communication and its recognition that there is more work to be done on this front. We recommend that the Government continue to develop a strategic and pro-active approach to engagement with the media. The work started under John Hutton should be part of a structured programme, with attention being given to learning from recent examples of coverage as well as informing coverage of current risk-related issues. Newspaper representatives should be a priority for engagement. Government guidance should encourage a more aggressive approach to correcting inaccuracies or mis-interpretations in media coverage of risk, with departmental Chief Scientific Advisers playing a leading role when appropriate (see paragraph 180).**

### ***A scale of risks***

187. In looking at the communication of risk, we explored what use could be derived from an agreed scale of risks, linking the language used by those providing information on risk to actual probabilities and to other, well understood risks. Current Government guidance provides no help on the words that might be used to communicate different levels of risk to the public. There is no process in place to ensure that if one department describes the risk of an event happening as “very small”, the probability involved is broadly similar to that of a different risk described as “very small” by another department. Nor is there any explanation or guidance available for the public on what a “very small” risk actually means—one in a thousand or one in a million?—or what sort of other known risks might be similarly described.

188. The failure to provide a proper context for risks can allow a misleading impression to gain hold. A media report that the risk of something has “doubled” might lead to change in perception of risk when the risk concerned may be so minute that its doubling is not in fact of real significance. Without context, any risk at all may be seen by some as a cause for concern. In evidence, the Crop Protection Association said that “the lack of ability to say that anything is ‘100% without risk’ is increasingly being exploited by pressure groups and campaigners”.<sup>381</sup> Sir David King’s reluctance to rely on the reference to a precautionary principle was in part due to the fear that “if we claim that we understand a principle, then we could always say that there are enough unknown unknowns to prevent us ever from doing anything new from science and technology.”<sup>382</sup> We also note that there were calls from contributors to the Dean Review of the FSA for information to be presented in a way which makes clearer the relative risk of the issue concerned.<sup>383</sup>

189. We believe that there is merit in a common language of risk being developed for use in communicating risks to the public. This would help serve a move toward a more mature and informed attitude to risk where it is generally recognised that most activities have some degree of risk attached to them—however minuscule—and individuals are left, wherever practicable, to make decisions for themselves about how much risk they are willing to tolerate. Debate should focus on degrees of safety rather than on the black and white view

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381 Not published

382 Q 88

383 Dean Review, para 3.2.3, <http://www.food.gov.uk/multimedia/pdfs/deanreviewfinalreport.pdf>

sometimes implied that something is either safe or not safe. A published scale of risks may be of considerable help to the media in reporting any new risks. For example, instead of wholesale withdrawals of food products which may be thought to present some small risk to the consumer, regulators would ensure that information on the potential risks was provided to everyone in a clear and understandable manner, and people could make up their minds whether or not to purchase.

190. The idea of a scale of risks has been circulating in academic circles for some time and indeed, there has been some support in Government for the greater use of comparisons. As long ago as 1996, the then Science Minister, Ian Taylor MP, proposed a scale of risks which would provide “a series of common situations of varying risk to which people can relate”.<sup>384</sup> The 1998 Department of Health guidance suggests that “Given a general tendency to exaggerate the risk of rare events, comparisons may help provide a sense of perspective”, although it stresses that comparisons between different types of risks need to be treated with caution.<sup>385</sup> The guidance includes a table providing some context for figures—for example, one in a thousand equates to one in a small town—but the model was then new and appears more illustrative than prescriptive.<sup>386</sup> Various models for a scale of risks have been put forward, including one cited by a previous Chief Medical Officer (see Table 1 below).

**Table 1 Risk of an individual dying (D) in any one year or developing an adverse response (A)**

Term used	Risk estimate	Example
High	Greater than 1:100	A. Transmission to susceptible household contacts of measles and chickenpox 1:1–1:2 A. Transmission of HIV from Mother to child (Europe) 1:6 A. Gastro-intestinal effects of antibiotics 1:10–1:20
Moderate	Between 1:100–1:1000	D. Smoking 10 cigarettes per day 1:200 D. All natural causes, age 40 years 1:850
Low	Between 1:1000–1:10000	D. All kinds of violence and poisoning 1:3300 D. Influenza 1:5000 D. Accident on road 1:8000
Very low	Between 1:10000–1:100000	D. Leukaemia 1:12000 D. Playing soccer 1:25000 D. Accident at home 1:26000 D. Accident at work 1:43000 D. Homicide 1:100000
Minimal	Between 1:100000–1:1000000	D. Accident on railway 1:500000 A. Vaccination–associated polio 1:1000000
Negligible	Less than 1:10000000	D. Hit by lightning 1:10000000 D. Release of radiation by nuclear power station 1:10000000

Source: *On the State of the Public Health: the Annual Report of the Chief Medical Officer of the Department of Health for the Year 1995*, London, HMSO, 1996, p.13

384 DTI, Press notice P96/686, 11 September 1996

385 DH, *Communicating about risks to public health: pointers to good practice*, 1998, p 10

386 As above, p 10–11

191. The accuracy and usefulness of tables like the one above is disputed. When ILGRA considered the introduction of a scale of risks it found that “ranking risks is not without pitfalls and cannot be done in an objective fashion where each risk is expressed as a single number and ranked according to its magnitude”. It gives as reasons the difficulties in estimating risks accurately, accounting for public perceptions of risk and objections to comparing “apples with pears”, citing the ethical issues in comparing the risks of death by sudden accident with death caused by long term exposure to asbestos. It also questions how totally different risks can be ranked—is the risk of global warming over the next fifty years worse than the loss of a number of rare species of plants?—and the difficulty in comparing voluntary risks with involuntary ones.<sup>387</sup>

192. Although ILGRA continued to examine the role that the subjective ranking of risks can play in this and the communication of risks, it seems that none of the work going on in Government on this has borne fruit. The Government told us that it had not developed a standardised table of risks on the grounds that “risk means different things to different people”. It argued that individual risks may be taken to differ from the aggregate level of risk—for example, a driver who drives with great caution, only in daylight—and also that “people do not tend to have a very analytical approach to personal risk but rather make judgments based on the way they feel.”<sup>388</sup> Dame Deirdre Hutton similarly argued that it was difficult to standardise risks into different categories because what is a level one risk for one person might be level three for another.<sup>389</sup> Research indicates that appetite for risk varies substantially from person to person, for a host of complex cultural, personal and social reasons. There are models, included in Government guidance, which categorise people into four groups for the purposes of analysing their attitudes to risk. These models help predict how the public will respond to different risks, but also emphasise the difficulty for policy makers in defining a level of risk that all will find acceptable.

193. Questions have been raised about the way in which people make decisions about risk. Dr Wadge of the FSA said that “I do not think that most of the public think in terms of ten to the minus nine or ten to the minus seven”.<sup>390</sup> This is a valid point and serves to highlight the need to translate statistical probability into a language that is readily understandable. Another objection is that people do not base decisions on a mathematical calculation of risks: perceptions of risks are governed by a number of factors, including whether they are voluntary or involuntary, whether they are new and whether they are man-made. Research has established a number of so-called “fright factors”, which cause some risks to be viewed with more alarm than others. These are summarised in box 6. These factors help explain why public responses to individual risks do not reflect a theoretical evaluation of likelihood or impact. Individual responses will also depend upon personal values, attitude to risk aversion, and of course the perceived benefit or lack of benefit entailed. The example

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387 <http://www.hse.gov.uk/aboutus/meetings/ilgra/minrpt2c.htm#9>, chapter 3

388 Ev 139

389 Q 665

390 Q 663

frequently cited is that people are prepared to accept the potential risk of using mobile phones, but are much less tolerant of the lower risks presented by mobile phone masts.

**Box 6: “Fright Factors”**

**Risks are generally more worrying (and less acceptable) if perceived:**

- to be **involuntary** (e.g. exposure to pollution) rather than voluntary (e.g. dangerous sports or smoking)
- as **inequitably distributed** (some benefit while others suffer the consequences)
- as **inescapable** by taking personal precautions
- to arise from an **unfamiliar or novel** source
- to result from **man-made, rather than natural** sources
- to cause **hidden and irreversible** damage, e.g. through onset of illness many years after exposure
- to pose some particular danger to **small children or pregnant women** or more generally to **future generations**
- to threaten a form of death (or illness/injury) arousing **particular dread**
- to damage **identifiable rather than anonymous victims**
- to be **poorly understood by science**
- as subject to **contradictory statements** from responsible sources (or, even worse, from the same source).

Source: *Communicating about risks to public health: pointers to good practice, DH, 1998, p 5*

194. The variation in people’s appetite for or aversion to risk is well established, but the fact that people have different levels of aversion to the same risks should not be used as an argument against giving people objective information quantifying individual risks. Any scale of risks should be used for information only, not for telling people how they should respond to particular risks. Equally, the ability of people to make judgment about relative risks should not be underestimated. Most people are used to making decisions involving sometimes complex calculations of risk, whether it is deciding which shares to buy, which horse to back, which pension or mortgage to pursue or whether to travel by train or by plane. Such decisions are made using information provided combined with personal preference and judgment. More information about relative risks can only serve to improve decision making ability. A scientifically-based, indicative scale of risks has a role to play here in providing a context to assist in government communication and media liaison on risk. For example, a spokesperson could relate any new risk to the established scale, as well as providing information on how to mitigate the risk and further information about how the risk may vary among different sections of the population. This may not be possible in all circumstances: there are variables and assumptions which make precision and comparison very difficult. But, on balance, we believe that the advantages of such a scale are sufficient to outweigh the limitations. **We recommend that the Government build on existing work to develop, subject to academic peer review, a scale of risks for use by all departments, as appropriate, when communicating levels of risks to the public.**

### **Conclusions on risk and public communication**

195. We have found that the Government has overseen some valuable work on risk in recent years and has raised the profile of risk management across departments. Our concern is that this momentum may stall as attention moves to other priorities, and we have recommended some measures to ensure that this does not happen. In particular, we believe that the Cabinet Office and departmental Chief Scientific Advisers have a greater

role to play in promoting best practice in risk management and monitoring performance across departments. Communicating information on risk via the media will always be problematic, but there is scope for the Government to build on the efforts it has made so far, specifically by using departmental CSAs and outside experts where appropriate to bring a more independent flavour to public communications on risk. Finally, in view of the lack of consensus over its meaning and application, we have found little practical use for the precautionary principle. We would rather attention was focussed on delivering risk management in practice and communicating uncertainty. We have recommended that work is undertaken on promoting consistency in the use of terminology across Government, particularly when communicating to the public.

## 7 Conclusion

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196. We have described our main conclusions and recommendations at the end of each chapter. They range widely in terms of impact, reflecting the many different strands of a broad inquiry, but are underpinned by a common purpose and a clear message. We want to see the recent improvements in the scientific advisory system, epitomised by the advent of a cadre of departmental Chief Scientific Advisers, embedded and built upon. Our recommendations seek to strengthen the hand of these individuals and also the position of science specialists within the civil service. We want to see science established in the mainstream of policy making, in recognition of the contribution that science can and should make to policy making in almost every area. This desire should be shared by any Government that wishes to place evidence at the heart of policy making. We welcome the Government's commitment to using evidence, but retain some concerns that the phrase "evidence based policy making" is liable to be devalued if abused. To prevent this, we have identified a need for greater clarity and honesty in the stated rationale for policies; more transparency in the scientific advice and public involvement which influence policy; and a commitment to policy re-evaluation on the basis of emerging evidence. Not all of this is politically easy to deliver on a consistent basis, but we believe that it is essential in order to help restore public confidence in the integrity of the policy making process and to improve that process itself.

# Conclusions and recommendations

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## Sources of advice and expertise

### Chief Advisers and Heads of Profession

1. We support the current arrangement whereby the Government Chief Scientific Adviser's remit encompasses the natural, physical and social sciences, as well as engineering and technology, but we note that it is a challenge for one individual to cover such a disparate range of subject areas and disciplines. It is therefore vital that the Government Chief Scientific Adviser works closely with the Government Chiefs of Profession in the social sciences, including economics, to establish higher profiles for these disciplines. (Paragraph 16)
2. We recommend that the posts of Government Chief Scientific Adviser and Head of the Office of Science and Innovation be separated. The Director General of Science and Innovation at the DTI should become the new Head of OSI. (Paragraph 18)
3. In view of the cross-cutting nature of science and the cross-departmental responsibilities of the Government CSA, it would make sense for the post to be based in a department with a similarly cross-cutting remit. (Paragraph 19)
4. A long term solution is required for the post of Government Chief Scientific Adviser, not just one which happens to suit the strengths of present incumbent. On balance, we recommend the relocation of the GCSA's office to the Cabinet Office. In addition, the GCSA should be given a seat on the board of the Treasury to ensure that the crucial work of this department benefits from a scientific perspective at the highest level. The changes we have recommended seek to strengthen the influence and effectiveness of the GCSA. It is therefore essential that the resources available to the GCSA to support his work do not diminish as a result of these changes. (Paragraph 25)
5. We are of the view that clear leadership can be valuable for improving accountability and providing a driver for implementation of good practice across departments. We recommend the Government clarify the lines of ministerial responsibility for the scientific advisory system. For example, whilst ultimate responsibility must rest with the Prime Minister, day-to-day responsibility might best be assumed by the Cabinet Office led by the Government Chief Scientific Adviser. (Paragraph 26)

### Departmental Chief Scientific Advisers

6. We recommend that the presumption should be that all future departmental Chief Scientific Advisers should be external appointments who have occupied senior positions in their scientific community and command the respect of their peers. (Paragraph 31)
7. We support the use of part-time and fixed-term contracts for departmental CSAs with the caveat that departments must provide adequate support and resources for

these appointments. We recognise that appropriate staffing levels will vary between departments but it seems unlikely that a DCSA can operate effectively with just one or two officials. (Paragraph 34)

8. We commend to other departments the Department for Transport's model whereby an externally appointed DCSA is supported by a senior scientist, drawn from the civil service, who acts as both deputy CSA and Head of Profession for Scientists and Engineers in the department. (Paragraph 35)
9. The introduction of departmental CSAs has been most welcome but they must be able to contribute fully to strategic decision making and high level policy development within the department if their contribution is to be maximised. Departmental CSAs must be given the opportunity to play a full and active and yet independent role at board level, and be in a position to identify where their involvement is required, rather than being brought in where others have decided that there is a need for their input. DCSAs must be in the stream of policy development, not watching from the bank. The misconception that scientists in the civil service should be 'on tap, not on top' must be laid to rest once and for all. (Paragraph 39)
10. We acknowledge the potential difficulty facing departmental CSAs in balancing the demands and expectations of their permanent secretary, minister and the Government CSA. DCSAs should report to the Secretary of State but retain the independence necessary not to restrict their freedom to speak out internally or publicly when required and to avoid any politicisation of their advice. (Paragraph 40)
11. It is good that the Government CSA is able to go directly to senior officials and ministers in departments in cases where he believes his intervention is essential. In so doing he must be careful not to undermine the position of the relevant departmental CSA and recognise those areas in which their expertise should hold sway. He should, wherever possible, include the departmental CSA in his discussions with ministers and senior officials. By the same token, we believe that departmental CSAs should be free to publicly disagree with the Government CSA in instances where there is, for example, a difference in their interpretation of scientific evidence, but urge departmental CSAs and the Government CSA to co-operate closely to deliver an active network of scientific support and advice to every department. The scientific advisory system will be most effective when the departmental and Government CSAs work together collaboratively. (Paragraph 41)

### Science in the civil service

12. It is worrying and regrettable that there is a perception that not only has there been a decline in scientific expertise within the civil service, but civil servants perceive specialist skills to be a hindrance to career progression. We recommend that the Government implement the 2002 recommendation of the Cross-Cutting Review of Science and Research to maintain records on specialist staff in order to identify their qualities and experience and to investigate, and if necessary tackle, negative attitudes towards scientific qualifications. (Paragraph 45)

13. The Government's failure to do enough to address the implications of the privatisation of Public Sector Research Establishments for the scientific capacity of the civil service has been damaging. Remedial action is now required to redress the effect of the loss of, and restriction of access to, expertise in establishments such as the Laboratory of the Government Chemist, Forensic Science Service and QinetiQ. Future plans for changing the status of such Establishments must also take greater account of the potential detrimental impact of these changes on the scientific advisory system supporting Government policy making. (Paragraph 46)
14. It seems to us necessary that all senior officials and policy makers should have a basic understanding of the scientific method, the role and importance of peer review, the relevance of different types of evidence, and the way to evaluate it. (Paragraph 48)
15. We are encouraged by the emphasis in the Professional Skills for Government framework on the use and analysis of evidence. A basic understanding of the scientific method and the interpretation of different types of evidence, together with the development of an informed demand for scientific input and analysis amongst generalist civil servants, particularly those at senior levels, are important prerequisites for effective policy making. We recommend that the Government put in place the necessary reward systems and incentives to support its ambitions in this area. (Paragraph 51)
16. In policy-making, scientific literacy must be given equal value to economic knowledge and drafting ability, while further reform of the civil service is essential to bring about a cultural shift: specialist skills must be given equal value to generalist skills and this should be reflected in rewards structures. It is also essential that more opportunities are created for scientists to progress to the most senior positions without being required to sideline their specialist skills. (Paragraph 53)
17. We recommend the establishment of a Government Scientific Service. This would provide a stronger professional identity and a focal point for specialists from across the physical and natural sciences and engineering working within Government. (Paragraph 56)
18. The proposed Government Scientific Service should take the lead in identifying good practice in professional development for scientists and engineers, including the use of secondments, and promoting its adoption across Government (Paragraph 59)
19. Determining which expertise should be retained in-house and which sought externally is of critical importance (Paragraph 60)
20. Departments must collect comprehensive data, in a manner which is consistent and comparable between departments, regarding the numbers of scientists and engineers which they employ. (Paragraph 61)
21. We recommend that the Government Chief Scientific Adviser commission a study of the way in which departments should assess their need for scientific skills and determine whether these needs are being met. (Paragraph 61)

### External sources of advice

22. DEFRA's decision to introduce an independent Scientific Advisory Council to support the work of the departmental CSA is sensible and should be emulated by other departments. It is critical that these Advisory Councils are independent and are seen to be so. (Paragraph 68)
23. Wherever possible, the secretariat of scientific advisory committees should include secondees from appropriate scientific establishments, to both enhance the specialist knowledge within the secretariat and safeguard its independence. (Paragraph 69)
24. We urge the Government to update the Code of Practice for Scientific Advisory Committees and the list of code committees as a matter of urgency. (Paragraph 70)
25. We recommend that the revised Code of Practice for Scientific Advisory Committees provide explicit guidance on how the performance of these committees should be monitored. It should give departmental CSAs clear responsibility for overseeing the performance of scientific advisory committees sponsored by their Department and advise them to commission light-touch independent reviews every five years to ensure that committees are functioning as required and to identify innovations in working practices that could usefully be applied by other committees. (Paragraph 72)
26. We recommend that committees not designated as 'scientific advisory committees' but which play a significant role in the provision of scientific advice, or whose advice to Government relies heavily on scientific input, be required to comply with the Code of Practice for Scientific Advisory Committees. (Paragraph 73)
27. Industry members of scientific advisory committees can be important sources of expertise and experience but are frequently perceived to be less trustworthy than NGO representatives. This is unfair and illogical: the same standards and expectations should be applied to both categories of representative. (Paragraph 74)
28. It is important not to allow the "double counting" of non-scientific opinion or advice. (Paragraph 75)
29. There is an urgent need for greater clarity regarding the role of lay members on scientific advisory committees and the status of their contribution. Clearly, where a committee has been tasked with providing purely technical advice, it would be inappropriate to give the views of lay members equal weight to advice from experts: scientific advice must be based on science. In view of the many potential problems identified in having lay membership of scientific advisory committees (as opposed to policy commissions where they play a vital role), we recommend that scientific advisory committees dealing with technical advice to Government should not routinely have lay membership. (Paragraph 76)
30. The efficiency measures taken as a result of the Gershon Review have increased the Government's dependence on consultants as sources of scientific and technical advice. This gives cause for concern. The Government must have sufficient expertise to ensure that it both asks the right questions and does not become an uncritical, unquestioning consumer of the advice it receives. We believe that improved auditing

of skills within the Government and a strong Government Scientific Service would enable the Government to make more efficient use of the existing expertise within the civil service and, ultimately, to obtain better scientific advice. (Paragraph 79)

31. We find the institutional structure of the scientific advisory system in the US attractive and encourage the Government to discuss with the learned societies the extent to which similar arrangements could be adopted in the UK and the changes that this would necessitate. (Paragraph 81)
32. There is ample room for greater involvement of the learned societies and professional bodies in the UK scientific advisory system. We recommend that the Government take up the offer by the Science Council to coordinate a scientific advisory network comprising all the professional bodies. (Paragraph 82)
33. The situation, where the RAE acts as a disincentive to engagement by the scientific community with policy, must be rectified in the successor to the RAE. (Paragraph 83)

### Evidence Based Policy

34. We applaud Sir David King's efforts to integrate fully science into an evidence based approach. Government should also be clear when policy is not evidence-based, or when evidence represents only a weak consideration in the process, relative to other factors. Where there is an absence of evidence, or even when the Government is knowingly contradicting the evidence—maybe for very good reason—this should be openly acknowledged. (Paragraph 89)
35. We agree that ministerial decisions need to take into account factors other than evidence, but this is not reflected in the Government's oft-repeated assertion that it is committed to pursuing an evidence based approach to policy making. We have detected little evidence of an appetite for open departure from the mantra of evidence based policy making. It would be more honest and accurate to acknowledge the fact that while evidence plays a key role in informing policy, decisions are ultimately based on a number of factors—including political expediency. Where policy decisions are based on other such factors and do not flow from the evidence or scientific advice, this should be made clear. (Paragraph 90)

### Research

36. Departments need to evolve more effective mechanisms for identifying gaps in the evidence base for policy development which are capable of responding to new and emerging political priorities. (Paragraph 91)
37. Commissioned systematic reviews of the evidence base should usually be considered as research for the purposes of publication policy. (Paragraph 94)
38. We urge the Government CSA to investigate proactively any allegations of malpractice in the commissioning, publication and use of research by departments and to ensure that opportunities to learn lessons are fully taken advantage of. We would expect the results of any such investigations to be made public (Paragraph 96)

39. We recommend that the Government Chief Scientific Adviser ensures that the publication of research underpinning policy development and evidence cited in support of policies is monitored as part of the departmental science reviews. (Paragraph 97)
40. Research must, so far as is achievable, be independent and be seen to be so. We are not convinced that the current mechanisms for commissioning research deliver this objective. We have also made the case for greater investment in research to underpin policy development. We recommend the creation of a cross-departmental fund for policy related research to be held by the Government CSA in order to meet these dual aims (Paragraph 98)
41. We recommend that where the Government describes a policy as evidence-based, it should make a statement on the department's view of the strength and nature of the evidence relied upon, and that such statements be subject to quality assurance. (Paragraph 101)

### **Trials and pilots**

42. Pilots and trials can make a valuable contribution to policy making but there is no point the Government initiating them if it is not going to use the output properly. In order to protect them from political pressures, pilots and trials should be carried out at arm's length from Government or at least be independently overseen. (Paragraph 104)

### **Horizon scanning**

43. We commend the Government CSA and the Office of Science and Innovation on their work aimed at strengthening horizon scanning in relation to science and technology across Government. (Paragraph 106)
44. In the context of the electoral cycle and an era of 24 hour news coverage, it is not hard to see why politicians prioritise actions that can deliver short term benefits over those not likely to yield dividends until they have long departed from the Government. It is a major challenge for the Government to ensure that the results of horizon scanning are being used properly. The Government needs to put in place incentives to encourage departments to take a more long term view in developing policy. We recommend that it be a requirement for departments to demonstrate in all major strategic planning documents that they are using the results of—not just conducting—horizon scanning and research. (Paragraph 110)
45. The Government's current approach to policy making is not sufficiently responsive to changing evidence, making it hard to feed in results from activities such as trials, research and horizon scanning. We urge the Government, as well as the opposition parties, to move towards a situation where a decision to revise a policy in the light of new evidence is welcomed, rather than being perceived as a policy failure. (Paragraph 111)

### Quality control

46. It is useful that the Government CSA has issued guidance on the use of scientific analysis in policy making but it is disappointing that there has been so little monitoring of its implementation. Departmental CSAs should, in future, be more proactive in ensuring that the principles defined in the Guidelines on Scientific Analysis in Policy making are adhered to within their departments. (Paragraph 114)
47. To increase public and scientific confidence in the way that the Government uses scientific advice and evidence, it is necessary for there to be a more formal and accountable system of monitoring the quality of the scientific advice provided and the validity of statements by departments of the evidence-based nature of policies. (Paragraph 115)
48. Peer review of the extent to which Government policies are evidence-based by learned societies, professional bodies and researchers can play a useful role in stimulating debate and refining policy makers' thinking and should, therefore, be welcomed by the Government. We recommend that the Government commission such reviews, on a trial basis, of selected key policies after a reasonable period of time as part of the policy review process. (Paragraph 120)
49. We recommend that issue-based reviews be introduced as a means of auditing cross-departmental policies. These could be incorporated into the Science Review of the department which has been designated as lead department for the relevant policy. (Paragraph 123)

### Transparency in policy making

50. A strong emphasis on the publication of all evidence used in policy making, along with a clear explanation as to how it is used, should be one of the guiding principles of transparent policy making. (Paragraph 126)
51. We recommend that departments make it a presumption that significant scientific advice from departmental CSAs as well as scientific advisory committees is published. (Paragraph 129)
52. We recommend that departmental Chief Scientific Advisers monitor the extent to which their departments and associated advisory bodies are adopting best practice in terms of openness and transparency and seek to ensure that any deficiencies are addressed. (Paragraph 130)
53. We recommend that Government guidelines be amended to ensure that, as a matter of good practice, some high level information about the progress of major projects through Gateway reviews is made public. (Paragraph 131)
54. We recommend that, as a matter of good practice, each policy statement or legislative proposal which follows a public consultation make explicit reference to how the consultation influenced the policy, including an explanation, where necessary, as to why any views or proposals widely supported by contributors were rejected. (Paragraph 138)

55. Whilst we accept that there can be legislative and political uncertainties which affect the policy making process, we recommend that public consultations generally be accompanied by an indicative timescale of resulting decisions. (Paragraph 140)
56. We recommend that scientific advice be routinely used in drawing up the terms of consultations, in order to ensure the right questions are asked and to avoid any subsequent criticism of its terms. (Paragraph 143)
57. We recommend that the Cabinet Office monitor whether departments are following best practice on consultations and act where repeated breaches of the code of practice for consultations occur. (Paragraph 145)

## Risk and public communication

### Cross-government work on risk

58. We recommend that departments ensure that the Professional Skills for Government programme and other training activities provide comprehensive coverage of the principles and practice of risk management. (Paragraph 153)
59. We welcome the progress the Government has made toward promoting proper risk analysis in policy making but are concerned about how this progress will be sustained. We recommend that the sub-Committee on risk continue to operate and that it ensure that the monitoring of departmental performance on risk management is maintained. (Paragraph 155)

### The Precautionary Principle

60. We can confirm our initial view that the term “precautionary principle” should not be used, and recommend that it cease to be included in policy guidance. However, we do see value in further work which seeks to clarify the terms and correct application of a precautionary approach as set out helpfully by the GCSA. We believe that it is best to use the term precautionary approach, but with a consistent explanation of the degree and nature of the risks, benefits and uncertainty and an explanation of the concept of proportionality. It should never be considered a substitute for thorough risk analysis which is always required when the science is uncertain and the risks are serious. It should not be used, in itself, to explain a decision or course of action. (Paragraph 166)
61. We believe that further work should also focus on the practical application of risk management theories in circumstances of scientific uncertainty and the effective communication of the decision making process. (Paragraph 166)
62. The term precautionary principle is in current use in other jurisdictions, including the EU, so it can not simply be wished away. However, both the Government’s current use of the term precautionary approach rather than principle and the further work we are recommending to properly clarify, constrain and apply a precautionary approach is something that we recommend the Government invite the EU and other countries to consider and adopt. (Paragraph 167)

## Risk and communication

63. We welcome the public commitment to transparency in the handling of risk in policy guidance and the recognition by Chief Scientific Advisers of the need to improve public communication on risk. (Paragraph 171)
64. We recommend that the Cabinet Office assume greater responsibility as the centre of excellence on risk communication within Government. It should have a leading role in collating and disseminating best practice on risk communication, commissioning further research as appropriate, in conjunction with other departments, and for monitoring performance in implementing guidelines. (Paragraph 174)
65. We strongly endorse the development of alternative voices for the provision of information and advice of a technical nature. Given the issues of trust identified by research, the often instinctive reaction of departments to field a minister should be resisted. (Paragraph 175)
66. We believe scientists, including departmental CSAs, should play a leading role in communicating to the public levels of scientific agreement, where necessary, and the degree of certainty in the scientific advice being offered. We recommend that common terminology be developed to be used consistently across Government in order to communicate these uncertainties. (Paragraph 177)
67. We believe that the Government's communication strategy would benefit from the adoption of a higher public profile by departmental CSAs on policies with a strong evidence or science base. We recommend that the Government CSA explore with ministers and departmental CSAs how this might be best achieved and that the impact of this enhanced role be monitored. (Paragraph 180)
68. We welcome the Government's attempts to liaise with the media on risk communication and its recognition that there is more work to be done on this front. We recommend that the Government continue to develop a strategic and pro-active approach to engagement with the media. The work started under John Hutton should be part of a structured programme, with attention being given to learning from recent examples of coverage as well as informing coverage of current risk-related issues. Newspaper representatives should be a priority for engagement. Government guidance should encourage a more aggressive approach to correcting inaccuracies or mis-interpretations in media coverage of risk, with departmental Chief Scientific Advisers playing a leading role when appropriate. (Paragraph 186)
69. We recommend that the Government build on existing work to develop, subject to academic peer review, a scale of risks for use by all departments, as appropriate, when communicating levels of risks to the public. (Paragraph 194)

## Annex A: Terms of Reference for the Committee's Inquiry

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**The Science and Technology Committee agreed to hold an inquiry to examine the way in which the Government obtains and uses scientific advice in the development of policy.**

The inquiry will focus upon the mechanisms in place for the use of scientific advice (including the social sciences) and the way in which the guidelines governing the use of such advice are being applied in practice across Government. It will test the extent to which policies are “evidence-based”.

The Committee will carry out this inquiry by addressing the questions below in a series of case studies.

The first three case studies to be addressed are:

- a) The technologies supporting the Government's proposals for identity cards
- b) The classification of illegal drugs
- c) The use of MRI equipment: the EU Physical Agents (Electromagnetic Fields) Directive

In each case, **the Committee will be addressing the process of policy development rather than the actual merits of the policies.** The Committee will explore the following questions:

### *Sources and handling of advice*

- What impact are departmental Chief Scientific Advisers having on the policy making process?
- What is the role of the Government Chief Scientific Adviser in the policy making process and what impact has he made to date?
- Are existing advisory bodies being used in a satisfactory manner?
- Are Government departments establishing the right balance between maintaining an in-house scientific capability and accessing external advice?

### *Relationship between scientific advice and policy development*

- What mechanisms are in place to ensure that policies are based on available evidence?
- Are departments engaging effectively in horizon scanning activities and how are these influencing policy?
- Is Government managing scientific advice on cross-departmental issues effectively?

### *Treatment of risk*

- Is risk being analysed in a consistent and appropriate manner across Government?
- Has the precautionary principle been adequately defined and is it being applied consistently and appropriately across Government?
- How does the media treatment of risk issues impact on the Government approach?

### *Transparency, communication and public engagement*

- Is there sufficient transparency in the process by which scientific advice is incorporated into policy development?

- Is publicly-funded research informing policy development being published?
- Is scientific advice being communicated effectively to the public?

*Evaluation and follow-up*

- Are peer review and other quality assurance mechanisms working well?
- What steps are taken to re-evaluate the evidence base after the implementation of policy?

## Annex B: Outline of the Committee's visit to Washington DC and New York, 5-9 March 2006

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### Scientific Advice to Government in the USA

#### Washington

#### Monday 6<sup>th</sup> March

##### *Breakfast Briefing at the British Embassy*

Sir David Manning HMA  
Mr Julian Braithwaite  
Mr Phil Budden  
Mr Josh Mandell, Senior Policy Advisor  
Mr Jonathan Temple, Policy Advisor

##### *Meeting with Department of Homeland Security*

Senior Policy Advisors

Topics discussed: US Visit Programme, biometrics research, scientific advisory procedures within the Department of Homeland Security

##### *Meeting with Mr George Atkinson, Chief Scientific Advisor, State Department*

Topics discussed: structure of the State Department, politicisation of scientific advice, climate change policy, stem cell research policy at a federal and state level.

##### *Meeting with National Research Council/National Academy of Sciences*

Dr William Colglazier, Executive Officer, National Academy of Sciences (NAS) and Chief Operating Officer, National Research Council

Dr Ralph Cicerone, Chairman, National Research Council

Topics discussed: structure and organisation of NRC/NAS, politicisation of science, provision of scientific advice on policy, stem cell policy.

##### *Meeting with American Association for the Advancement of Sciences*

Mr Al Leshner, Chief Executive Officer  
Mr Vaughan Turekian, Chief International Officer  
Mr Kei Koizumi, Director of Budget Research  
Mr Al Teich, Director for Science & Policy Programmes

Topics discussed: use of science by the Administration, scientific advisory systems, approach to risk and the precautionary principle within the Administration, the intelligent design debate, climate change policy, and the recent budget allocations for science.

### ***Meeting with US Department of Health and Human Services***

Mr Alex Azar II, Deputy Secretary

Topics discussed: the classification of illegal drugs, the debate on stem cell research and the spread of avian influenza.

### **Tuesday 7<sup>th</sup> March**

### ***Meeting with President's Council of Advisors on Science and Technology***

Dr Celia Merzbacher, Executive Director

Mr Eric Bloch, Member

Topics discussed: the role and composition of PCAST, the decentralisation of science and technology, and the use of scientific advice.

### ***Meeting with National Science Foundation***

Dr Bement, Director

Topics discussed: The organisation of the NSF, funding, research priorities, fraud and peer review.

### ***Meetings at the RAND Drug Policy Research Centre***

Dr Peter Reuter, Co Director

Jerome Jaffe, M.D, Professor of Clinical Psychiatry, University of Maryland

Topics discussed: drug scheduling in the US, decision-making on classification, enforcement of drugs policy, decriminalisation of cannabis, and the influence of scientific research on US drugs policy.

### ***Meeting with House of Representatives Committee on Science***

Congressman Sherwood L Boehlert

Mr David Goldstone, Chief of Staff

Dr Elizabeth Grossman, Staff Director Research Committee

Topics discussed: Politicisation of science, relationship between the Committee and the Administration, science budget, and NASA.

### ***Meeting with representatives from the National Council for Science and the Environment (NCSE)***

Hon Richard E Benedick, President

Dr Ron Pulliam, Science Advisor to the Secretary of the Interior

Hon Barbara Sheen Todd, former President of the National Association of Counties

Hon Randy Johnson, former President of the National Association of Counties

Topics discussed: role of NCSE, climate change policy, politicisation of science, and impact of localism upon scientific advice.

### ***Meeting with White House Office of National Drug Control Policy***

Topics discussed: US drugs strategy, supply and demand, and the classification system.

## **New York**

**8<sup>th</sup> March 2006**

### ***Meeting with Ms Lucie Hrbkova, Programme Management Officer, New York Office, United Nations Office on Drugs & Crime.***

Topics discussed: role and effectiveness of the UN, harmonisation of classification systems.

### ***Meeting with Chief Anthony Izzo, Organized Crime Bureau, New York City Police Department***

Topics discussed: the use of evidence, impact of classification and the rise of crystal meth.

### ***Meeting with International Biometric Group and visit to IBG Showroom and the World Financial Centre.***

Samir Nanavati  
Victor Minchih Lee  
Maud Meister

Topics discussed: different technologies, multi-modal systems, international co-operation in biometrics research and future developments in biometric technologies.

### ***Meeting with Ultra-Scan and NYSTAR***

John K. Schneider, President

Topics discussed: current biometric technologies, the importance of independent testing, iris scanning technology.

### ***Meeting with New York State Office of Science, Technology and Academic Research (NYSTAR)***

Kathleen Wise, Director of Program

Topics discussed: funding regime, impact of 9/11 upon funding priorities, and increase in funding for biometric research.

### ***Meeting with US-Visit Officials at JFK Airport in New York***

Topics discussed: the structure of the US-Visit programme, a demonstration of the technology and problems with the programme.

# Formal minutes

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Thursday 26 October 2006

Members present:  
Mr Phil Willis, in the Chair

Dr Evan Harris  
Dr Brian Iddon

Dr Desmond Turner

Draft Report, Scientific Advice, Risk and Evidence Based Policy Making, proposed by the Chairman, brought up and read.

*Ordered*, That the Chairman's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 196 read and agreed to.

Annexes read and agreed to.

Summary read and agreed to.

*Resolved*, That the Report be the Seventh Report of the Committee to the House.

*Ordered*, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

*Ordered*, That the Chairman do make the Report to the House.

*Ordered*, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till Wednesday 1 November at Nine o'clock.]

# Witnesses

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<b>Wednesday 15 February 2006</b>	
<b>Professor Sir David King</b> , Government Chief Scientific Adviser, and <b>Ms Sue Duncan</b> , Chief Government Social Researcher	Ev 1
<b>Wednesday 10 May 2006</b>	
<b>Dame Deirdre Hutton</b> , Chair and <b>Dr Andrew Wadge</b> , Director of Food Safety Policy and Acting Chief Scientist, Food Standards Agency	Ev 16
<b>Wednesday 24 May 2006</b>	
<b>Dr Richard Pike</b> , Chief Executive, Royal Society of Chemistry, <b>Professor Martin Taylor</b> , Physical Secretary and Vice-President, The Royal Society, <b>Dr Caroline Wallace</b> , Science Policy Adviser, Biosciences Federation, and <b>Dr Peter Cotgreave</b> , Director, Campaign for Science and Engineering	Ev 30
<b>Professor Tim Hope</b> , Professor of Criminology, Keele University, <b>Mr Norman Glass</b> , <b>Chief Executive</b> , National Centre for Social Research, and <b>Mr William Solesbury</b> , Senior Research Fellow, ESRC Centre for Evidence-Based Policy and Practice	Ev 38
<b>Wednesday 7 June 2006</b>	
<b>Sir Nicholas Stern</b> , Head of Government Economic Service, Cabinet Office	Ev 47
<b>Professor Sir Gordon Conway KCMG</b> , Chief Scientific Adviser, Department for International Development, <b>Professor Paul Wiles CB</b> , Chief Scientific Adviser, Home Office, and <b>Professor Frank Kelly</b> , Chief Scientific Adviser Department for Transport	Ev 51
<b>Wednesday 5 July 2006</b>	
<b>Rt Hon Alistair Darling MP</b> , Secretary of State for Trade and Industry, <b>Professor Sir David King</b> , Government Chief Scientific Adviser and Head of the Office of Science and Innovation, and <b>Sir Brian Bender KCB</b> , Permanent Secretary, Department of Trade and Industry	Ev 66

## Written evidence

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4	Environment Research Funders' Forum	Ev 97
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7	Biosciences Federation	Ev 110
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11	Institute for the Study of Science, Technology and Innovation, University of Edinburgh	Ev 119
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13	Science Council	Ev 127
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15	Cancer Research UK	Ev 133
16	Centre for Crime and Justice Studies	Ev 145
17	Department for Transport	Ev 149
18	Department for Environment, Food and Rural Affairs	Ev 157
19	Department for International Development	Ev 162
20	Department for Communities and Local Government (DCLG)	Ev 170
21	William Solesbury	Ev 172
22	Department for Education and Skills	Ev 176
23	Food Standards Agency	Ev 187
24	Council for Science and Technology	Ev 193
25	Committee on Radioactive Waste Management (CoRWM)	Ev 197
26	Professor Malcolm Grimston	Ev 203

## Reports from the Science and Technology Committee

### Session 2005–06

First Report	Meeting UK Energy and Climate Needs: The Role of Carbon Capture and Storage	HC 578-I
Second Report	Strategic Science Provision in English Universities: A Follow-up	HC 1011
Third Report	Research Council Support for Knowledge Transfer	HC 995-I
Fourth Report	Watching the Directives: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive	HC 1030
Fifth Report	Drug classification: making a hash of it?	HC 1031
Sixth Report	Identity Card Technologies: Scientific Advice, Risk and Evidence	HC 1032
First Special Report	Forensic Science on Trial: Government Response to the Committee's Seventh Report of Session 2004–05	HC 427
Second Special Report	Strategic Science Provision in English Universities: Government Response to the Committee's Eighth Report of Session 2004–05	HC 428
Third Special Report	Meeting UK Energy and Climate Needs: The Role of Carbon Capture and Storage: Government Response to the Committee's First Report of Session 2005–06	HC 1036
Fourth Special Report	Strategic Science Provision in English Universities: A Follow-up: Government Response to the Committee's Second Report of Session 2005–06	HC 1382
Fifth Special Report	Research Council Support for Knowledge Transfer: Government Response to the Committee's Third Report of Session 2005–06	HC 1653
Sixth Special Report	Watching the Directives: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive: Responses to the Committee's Fourth Report of Session 2005–06	HC 1654