

## DINNER/DISCUSSION SUMMARY

### Scientific Advice, Risk and Evidence Based Policy Making

Held at The Royal Society on 15<sup>th</sup> November, 2006

We are grateful to Pitchill Consulting and QinetiQ for supporting this meeting

**Chair:** **The Earl of Selborne KBE FRS**  
Chairman, The Foundation for Science and Technology

**Speakers:** **Phil Willis MP**  
Chair, House of Commons Select Committee on Science and Technology  
**Professor Paul Wiles CB**  
Chief Scientific Adviser and Director of Research, Development and Statistics, Home Office  
**Rt Hon John Gummer MP**  
House of Commons

MR. WILLIS outlined the conclusions of the Report of the Select Committee on Science and Technology. While Government had the right to institute policies for political reasons without scientific evidence - e.g. fox-hunting - they must not falsely allege there was scientific evidence for policies. The Committee supported the guidelines laid down by Lord May, and endorsed by Lord Jenkin's House of Lords Committee, and he welcomed the Government's commitment, on coming into office to use evidence-based policies on "what works". But three cases the Committee had studied threw doubt on this commitment - the failure to recognize the damage implicit in the EU Physical Agents Directive to the use of MRI machines; the rejection of scientific advice on drugs classification; the failure to take account of the technology problems in introducing identity cards. (Ruth Kelly's policy to ban "junk foods" from schools was another example of policy without any scientific backing). The Committee was also concerned about allegations that Departments interfered with outside research. They recommended changes in the structure of Government - the Government's Chief Scientific Adviser (GCSA) should be in the Cabinet Office and Departmental Chief Scientific Advisers (DCSAs) should be external appointments, with up-to-date knowledge of current research. There was concern about the lack of scientific skills in the civil service, and loss of scientific capacity in the population. All research should be published; horizon scanning should be built into Departmental plans, and emphasis, particularly concerning risk assessment, placed on communication.

PROFESSOR WILES welcomed the Select Committee's report, and would study its conclusions. He would, in particular, welcome an objective inquiry into any allegations of interference with external scientific evidence. Scientific advisers were just that - advisers - as with many others advising ministers. It was crucial to understand that Ministers had to make decisions relying on advice, which would come from many quarters and not be easy to reconcile. But much progress had been made in widening the range of policies based on scientific evidence, and Government recognized that scientific knowledge must be exploited and

was as key an element in its strategies as was defence or finance. But there still were problems - the structure of government did not respond to the multi-faceted, multi-disciplinary problems such as security or social deprivation; DCSAs had not been appointed in all Departments, and were not always part of the senior management of the Department. Moreover science budgets did not match needs, and could damage scientific capacity. Neither Ministers, civil servants nor the public fully understood scientific method, and the need for publication, discussion and open debate. Of course, some things must be kept secret, and the problems of irresponsible media reports made one cautious, but it was crucial that open publication and debate were the priority, unless exceptional circumstances prevailed.

MR GUMMER set out the dilemmas facing politicians. They got elected through retailing attractive theories, but, alas, these theories might not be true. This was highly inconvenient, both because having to explain that your theory was wrong opened one to political abuse, but also because "truth" was transient - scientific evidence could disprove what scientific evidence had earlier led one to believe. There was no perfect answer, and politicians often had to do the best they could with managing the best advice they were given. The public understood none of this, and it was the politician's task to try and tell them the "truth" in terms that they could understand. This was exceptionally difficult where science did not coincide with public emotion and media campaigns - the Alzheimer Society's campaign to overturn the NICE decision on a drug was an example - Homeopathy another. But this did not mean that government should not lay down rules - e.g. defining organic food - to enable people to make a choice, even if their choice might be scientifically misguided. But there were significant problems; sometimes the evidence did not get to the decision taker; or he got only partial evidence, plausibly presented by someone who only later was identified as a lobbyist. Perhaps the most difficult task is persuading the public to accept scientific evidence related to new products. This takes much time, and the GM foods disas-

ter shows what happens if not enough time and effort was given to putting the science case over. There needed to be independent sources of advice on scientific issues which the public would accept as being unbiased, and the scientific community as authoritative. The Food Standards Agency was a good example. A similar type of agency was needed for climate change. Why was the proposed legislation on the independence of statistics in the Queen's speech being restricted to statistics? It should apply to all science.

In the following discussion a number of speakers suggested that it was not always clear when pure science advice was being tendered, or whether it was being combined with political judgments. It was important that, if advisory committees were reporting on scientific issues, they were composed of scientists who had the respect of their peers. It was equally important that the advice was published and subject to peer review and comment. The DCSAs had a vital role here, not only in ensuring that members of such committees were of the right calibre, but that unpopular views were supported against political or public pressure. They also had to understand the differing timescales which attached to scientific research and political action. This meant that they had to exercise considerable foresight in identifying problems, on which evidence needed to be produced, well before politicians saw the need for action. There had been successful efforts to explain issues to the public and to provide evidence to back policies - nanotechnology and stem cells, were cited - but there were doubts whether sufficient resources were being put into identifying the future. This was partly because of budgetary pressures on Departments, but also because not sufficient effort was being made to connect academic research to problems which Government might have to face. But an underlying problem was the public culture, where scientists were openly mistrusted, scientific methodology - publication and challenge - derided, and the connection between sound evidence and successful policies ignored.

It was suggested that some of these problems could be met if the Government made more use of independent inquiries, such as the Stern Report, and the outside academies, such as the Royal Society or the Academy of Engineering. There was undoubtedly room for further work in this area, but it should not be at the expense of devaluing the work done by scientists in government, or suggesting that government scientists did not live up to their scientific credentials. Scientists working in government departments were first and foremost scientists: it would be against their training and ethos, and lose any respect from their peers if they compromised the conclusions they drew from evidence because of pressure from politicians. But they did need to be embedded in government, so that they could understand what Ministers needed, what were their priorities, and their problems in explaining policies to colleagues and to the public. In short, there had to be an organization which would pull the science base through government to Ministers. The task was to do this and yet retain public confidence in the science produced by government.

Speakers had concentrated on the problems of the executive, but there were significant questions to be raised about the performance of Parliament. How many members had scientific training, or indeed, interests? Why was it that the Select Committee had difficulty in filling its ranks? Did committees understand that they must allow sufficient time for quality evidence to be produced? Did they have sufficient and sufficiently qualified staff to produce good reports? What Parliamentarians had, for example, protested against Ruth Kelley's egregious statement on junk

foods? If the executive was sloppy about using science, was not that the fault of Parliament? Political argument, no less than scientific argument, was desirable - where it did not take place, as perhaps, it had not over climate change, there was the danger that the government was allowed to get away with insufficiently robust policies.

There were, inevitably, problems within the civil service. Not only were there were insufficient scientifically trained civil servants, but more prominence seemed to be given to attracting lawyers and PR staff. It was of concern that in recent fast-track entry cohorts, scientists had been in a small minority. There was also the cultural background to civil service advice and decision making. Compromise, working within financial constraints, protecting Ministers, silo mentality, "workability" got in the way of asking searching questions, allowing time, cooperating with other departments, understanding the need for public communication, and developing alternatives. Perhaps much of this was inevitable, but it strengthened the case for CASs to have close and direct contact with Ministers, and to be part of the top management team of a Department.

Sir Geoffrey Chipperfield KCB

The presentations are on the Foundation website at [www.foundation.org.uk](http://www.foundation.org.uk).

#### Useful web links:

##### **The Foundation for Science and Technology:**

[www.foundation.org.uk](http://www.foundation.org.uk)

##### **Pitchill Consulting:**

[www.pitchill.com](http://www.pitchill.com)

##### **QinetiQ:**

[www.qinetiq.com](http://www.qinetiq.com)

##### **Sir Roy Anderson FRS FMedSci, Chief Scientific Adviser, Ministry of Defence**

[www.science.mod.uk](http://www.science.mod.uk)

##### **Professor Brian Collins, Chief Scientific Adviser, Department for Transport**

[www.dft.gov.uk](http://www.dft.gov.uk)

##### **Professor Howard Dalton FRS, Chief Scientific Adviser, Department for Environment, Food and Agricultural Affairs**

[www.defra.gov.uk/science](http://www.defra.gov.uk/science)

##### **Professor Sally Davies FMedSci, Director, Research and Development, Department of Health**

[www.dh.gov.uk](http://www.dh.gov.uk)

##### **Professor Mike Kelly FRS FEng, Chief Scientific Adviser, Department for Communities and Local Government**

[www.communities.gov.uk](http://www.communities.gov.uk)

##### **Professor Sir David King KB ScD FRS, Chief Scientific Adviser to the Prime Minister and Head of OSI**

[www.dti.gov.uk/science/science-tech-and-dti](http://www.dti.gov.uk/science/science-tech-and-dti)

##### **Dr Patrick McDonald, Chief Scientific Adviser, Health and Safety Executive**

[www.hse.gov.uk/research](http://www.hse.gov.uk/research)

##### **Dr Andrew Wadge, Chief Scientist, Foods Standard Agency**

[www.food.gov.uk/science](http://www.food.gov.uk/science)

##### **Professor Paul Wiles CB, Chief Scientific Adviser, Home Office**

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## Workshop Record Note

### Science Evidence and Policy Development

Held at The British Academy, 10 Carlton House Terrace, London on 10<sup>th</sup> October, 2006

Chair: The Rt Hon the Lord Jenkin of Roding

Speakers: Professor Paul Wiles CB  
Chief Scientific Adviser, Home Office  
Professor Steve Rayner  
Programme Director, ESRC Science in Society Programme,  
Saïd Business School, Oxford

Lord Jenkin said the workshop was part of the process for preparation for a FST dinner/discussion on 15th November on the same theme.

PROFESSOR WILES noted recent improvements in scientific input into policy, but said that the relentless search for new policies; the difficulties of long term planning; the problems of communication between scientists and policy makers; communication between departments; and the political demand for certainty, all caused problems. An underlying concern was that there was no national policy to create the next generation of scientists.

PROFESSOR RAYNER noted the absence of international (e.g. EU) links and reference to the public in the diagram. He stressed that science could not provide a single inevitable path to policy; it could inform but not drive. The civil service needed both science and policy training. If voter apathy was to be overcome, technical expertise needed to be balanced by other forces.

The following major points were made in the discussion:-

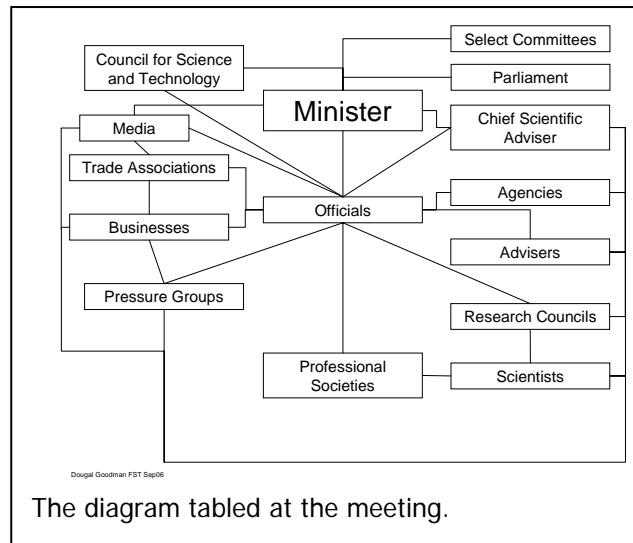
1. Communication between scientists in their various disciplines; between scientists and policy makers; between advisers - economic, scientific or social - and decision takers (Ministers); between the Whitehall/Westminster village, the scientific establishment, the media and the general public, must improve if

scientific evidence is to be successfully integrated with other factors to improve policy making. Prerequisites were a common understanding of the languages used by various players - which meant scientific training for administrators, policy training for scientists, and media training for all - and a willingness to exchange information laterally at low levels in the hierarchies (ICT would help on this). There needed also to be an understanding of the different timescales required by evidence gathering and political decisions, and the transforming nature of decisions when taken.

2. No matter how much evidence was collected, there could be no certainty from economic, scientific or social conclusions and there would always be unintended consequences from

policy decisions, no matter how soundly based on evidence they appeared to be. Tasks for advisers to Ministers were to enable them to understand the uncertainties (risks) and pick up unintended consequences as soon as possible. If consultations were closed before risks had been adequately formulated and explained to the public and their fears (and suspicions of experts) addressed, policies based on good science would not be enacted (e.g. GM Foods).

3. The centre, through both HM Treasury and the Cabinet Office had a vital role to play. They could require common evidence bases from Departments, crucial where policies required cross departmental work, and the budgetary decisions Treasury agreed with Departments could define, expand or limit re-



search and development work. Both Chief Scientific Advisers (CSAs) and Chief Economic Advisers (CEAs) needed a central focus, and there was a strong case for them working more closely together, as they often did not appreciate the interaction of scientific and economic interests. There was a case for the office of the Chief Scientist being in the Cabinet Office instead of in DTI. The advantage of the post being in DTI was the linkage with the science budget, but this was not overwhelming. The role of ensuring common, high scientific standards throughout and across Departments did not depend on the allocation of the science budget.

4. It was agreed that the GM case was not well handled. A scientifically sensible policy failed to be enacted because insufficient effort was put into dealing with other factors, above all public attitudes. The lesson was that it was not sufficient in developing any policy to ask what works but what (we hope) works but is politically acceptable. That means listening to, and trying to guide public opinion, which will, in the end, be reflected in votes. Mass democracy is here and must be accommodated - how was not clear - but ignoring it leads to no policy, ineffective policy or plain bad policy.

5. Policies based on scientific and other evidence were all very well, but did they lead to wealth creation, and, if so how? Scientists and economists did not speak easily - or at all - to each other, and there was a lack of connection between science, technical development, and business success. Economists should accept that pure science - knowledge for knowledge sake - is essential, because we don't know what it will lead to (there could be an unintended beneficial consequence), but scientists should accept that many good ideas which might be worth exploring will have less priority than ideas which can be thought to have a business relevance.

6. The media role was important - it influenced Ministers daily, and could drive them to immediate reactions. Inevitably they would give prominence to maverick scientists (they were news) and it was the task for the scientific establishment and advisers to persuade Ministers that the mavericks were wrong. Ministers would not listen unless the case was made to the general public. This meant quick reaction in media friendly language to the public as well as policy friendly language to Ministers. Main stream scientists, expert in their subjects must be prepared to come out in the open and criticize "bad" science forcibly. That meant accepting the risk that, occasionally, the "bad" science might be proved right.

7. There were particular problems in the Civil service, which followed from some of the points made above. While many had science or economic degrees, few could combine the inputs from the different specialist advisers. The intense drive under the present administration to deliver policies meant that many were so focussed on delivery that they lacked

the time or motivation to interact with the outside world and look objectively and (criticise and seek to amend or modify) existing policies. They were also too UK centric; they did not react quickly enough, or see the import of EU directives on the work of different departments. There were still too many gaps in information because no one Department was taking responsibility for coordinating various aspects (population policy - how many immigrants). It was becoming more and more difficult for information to be synthesized for policy making because civil servants no longer had knowledge of, let alone control of, the information reaching Ministers from e.g. pressure groups, lobbyists, or political colleagues or advisers. Separate sources of information could flow into No. 10 without advisers being able to check or collate it. Civil servants were hamstrung when appearing as witnesses to Select Committees because ministers saw their primary role as avoiding anything which might cause ministerial embarrassment.

Sir Geoffrey Chipperfield KCB

Office of Science and Innovation science in government pages:

[www.dti.gov.uk/science/science-in-govt/page8314.html](http://www.dti.gov.uk/science/science-in-govt/page8314.html)

Home Office web site science effort:

[www.homeoffice.gov.uk/science-research/](http://www.homeoffice.gov.uk/science-research/)

ESRC Science in Society Programme:

[www.sci-soc.net/SciSoc/](http://www.sci-soc.net/SciSoc/)

Select Committee Inquiry into science evidence:

[www.parliament.uk/parliamentary\\_committees/science\\_and\\_technology\\_committee/sag.cfm](http://www.parliament.uk/parliamentary_committees/science_and_technology_committee/sag.cfm)

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