

Scientific Advice, Risk and Evidence Based Policy Making

Phil Willis MP

Thank the Foundation for Science and Technology for inviting me, on behalf of the Commons Science and Technology Select Committee to lead what I hope will be an interesting debate this evening on our latest Report *Scientific Advice, Risk and Evidence Based Policy Making*.

Our decision to pursue this inquiry reflects the key role that scientific advice and risk assessment, increasingly play in policy making.

Indeed, as we saw last week with the excellent presentation by Sir Nick Stern most of the high profile policy issues that face our nation and the world are critically dependent on the input of scientists.

- Securing economic prosperity through the knowledge economy;
- Protecting the population of the country against an avian influenza pandemic;
- Mitigating and adapting to climate change;
- Safeguarding the UK's energy supply;
- Detecting and averting potential terrorist threats;
- Tackling obesity;

In each of these policy few would deny that successful policy development requires **both an effective scientific advisory system, an appropriate use of evidence and an effective way of dealing with risk by Government.**

We make the point very strongly in our Report – **Government has every right to promulgate policies that are NOT evidence based.**

Some policies have a mainly **political or ideological basis, like the ban on Fox hunting** or simply in **response to public clamour like removing the fuel escalator** at the time of the fuel protests.

What the Committee feel is unacceptable is where Ministers or Opposition spokespeople claim their policies are evidence based when clearly that is not the case.

Or where evidence is commissioned, published or cited in a biased way simply to affirm a policy decision.

Indeed as successive Governments have found to their cost – unless the evidence underpinning policy is robust, capable of rigorous scrutiny – and is communicated convincingly to the public.

The consequences for public confidence can be:

- Grave for public confidence as was the case with **MMR**,
- Damaging to scientific progress as we have seen with **GM crops** or
- Potentially disastrous as with the decision to go to war in **Iraq to deal with WMD programmes**.

There has been and I suspect always will be a constant tension between scientific advice, risk and policy making.

Our Report recognises this tension and the very considerable efforts made by successive GCSA's and governments, to build capacity and good practice into the scientific advisory system since the perceived loss of public confidence over the BSE crisis some 10 years ago.

GCSA Guidelines

- "...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 analyse all relevant papers"

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Sir Robert, now Lord May's **Guidelines on the Use of Scientific Advice in Policy Making in 1997** regularly updated by the current GCSA.

The excellent recommendations from the Phillips Report in 2002

And the recommendations from Lord Jenkin and the House of Lords Select Committee provide an excellent basis for the use of scientific advice and our Report recognises it as such.

When New Labour came to power in 1997 – they promoted the mantra of evidence based policy making saying they were interested in 'what works' not ideology.

Evidence Based Policy Making

- Government should regard policy making as a **continuous, learning process, not as a series of one-off initiatives**
- We will **improve our use of evidence and research** so that we understand better the problems we are trying to address
- We must make **more use of pilot schemes to encourage innovations** and **test** whether they work
- We will ensure that all policies and **programmes are clearly specified and evaluated**, and the lessons of success and failure are communicated and acted upon. Feedback from those who implement and deliver policies and services is essential too
- We need to apply the **disciplines of project management** to the policy process

'Modernising Government' White Paper
1999

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The question of course is what is meant by 'what works?'

What works for popularity? For media coverage? For re-election?

That aside the clear message being sent out by the PM and his government that evidence based policy was the rule rather than the exception.

Our Committee supports and endorses such an approach to policy making as I am sure most in this room do this evening.

So does the reality match the rhetoric?

We launched our Inquiry a year ago and decided to test the new commitment to evidence based policy making by using three case studies to underpin the central themes of our Inquiry?

The Inquiry

- Launched November 2005
- Published 3 thematic inquiries:
 - Watching the Directive: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive
 - Drug Classification: making a hash of it
 - Identity Card Technologies: Scientific Advice, Risk and Evidence

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We also took evidence from a wide range of specialists ranging from the **GCSA and Head of Government Economic Service to Food Standards Agency, Learned Societies, professional Bodies, Academics, Departmental Chief Scientific Advisers, Secretary of State at DTI, Ministers at the Home Office and the DTI Permanent Secretary.**

We **visited European Commission** to take evidence from **Mr Biosca de Sagastuy** the man responsible for drafting the MRI directive

And visited the USA to explore potential lessons from the scientific advisory system there.

Capacity in Government

Let me also make clear that despite some very significant reservations– there are many examples of excellent practice to be found in our scientific advisory service.

Our Report recognises the strong leadership of Sir David King the GCSA and welcomes the steps he has taken to secure DCSA's in most Departments.

Though the absence of a DCSA in the Treasury is somewhat puzzling!

There are a bewildering array of scientific advisory bodies from the mysterious “**Council for Science and Technology**” that directly advises the PM to the **ad hoc groups that advise on subject like GM science and Animal Science but there does not appear to be an overall sense of co-ordination and direction.**

We were also concerned whether the role of administrative Head of OSI sat comfortably with the co-ordinating and challenge function the GCSA has across government.

We therefore recommended that the **GCSA should cease to be head of the OSI and instead have an enhanced cross departmental role in the Cabinet Office with a seat on the Board of the Treasury.**

And that the day to day responsibility for the scientific advisory system, ultimately the responsibility of the PM should be assumed by the Cabinet Office led by the GCSA.

Placing the GCSA and the Head of Government Economic Service together in the Cabinet Office with key roles in the Treasury would send out the most powerful and clear message that scientific method and analysis was truly at the heart of government and was at least on a par with the economic service.

Given the move to place the new Science Minister in the Cabinet Office this recommendation carries even more weight!

We have also recommended that DCSA's have greater independence to challenge departmental thinking..

Which is why we have recommended that where possible **DCSA's should be external appointments from individuals who have occupied senior positions in their scientific communities and who command the respect of their peers for their current research.**

Capacity in Government

- GCSA should cease as Head of OSI and have enhanced role in Cabinet Office with seat on Board of Treasury
- GCSA should assume responsibility for scientific advisory system across Government
- DCSA's to be external appointments involved in current research

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Capacity in Government

Capacity in Civil Service

"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"

The Campaign for Science and Engineering (CaSE)

"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 e.g the HSE lead on MRI and the EU Physical Agents Directive"

Science Council

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One of the most worrying findings from our Inquiry was the decline of scientific capacity within the Civil Service itself.

Without the capacity to be an **'intelligent customer'**- to both frame the questions and analyse and interpret the responses Government is potentially at a disadvantage.

A classic example of how things can go badly wrong was the Health and Safety Executive leading on MRI with the EU Physical Agents Directive.

The failure of the HSE to understand that the Directive could potentially halt the use of MRI for research and use in invasive procedures from 2008 was missed.

This is not a new problem. The previous ST Committee made the same criticism of DFID in 2004 which resulted in the appointment of Professor Sir Gordon Conway as CSA.

However given the commitment of the Government to scientific method, research and evidence based policy we found it disappointing that there are still no accurate figures for total number of scientists and engineers in the civil service, **despite the 2002 Cross Cutting Review of Science and Research recommendation that this should be done.**

(A review of the Civil Service **fast Track Entry statistics for 2005** indicate that **for every successful candidate** admitted to the Civil Service with a science degree – there were **four with Arts and Humanities degrees – like I have!**)

Sir David in his evidence not only accepted this as a problem he went further suggesting that **scientific skills or qualifications were an impediment to promotion!**

Of course in previous years the Government could rely on a steady stream of highly qualified scientists and engineers working in its own laboratories.

But the changing status of Government Scientific facilities such as LGC, FSS and QinetiQ means a further loss of capacity.

It was our concern for the loss of scientific capacity and the need to enhance the status of scientists and engineers within the civil service that we **recommended the establishment of a Government Scientific Service.**

The GSS would sit alongside the Government Social Research Service and the Government Economic Service

The GSS would be able to take the lead in identifying good practice in professional development for scientists and engineers, including those of secondments and promoting good practice across Government.

Evidence

Slide 15 - “Where the evidence changes I change my mind” John Maynard Keynes

Some witnesses rejected the concept of ‘evidence based policy’ including the Centre for Evidence based Policy and Practice!

Slide 16 Evidence Based Policy

- **“our experience shows it misrepresents the relationships between evidence and policy”** Centre for Evidence Based Policy and Practice

Others implied that policy should only be based on evidence.

We noted those concerns and accepted that not all policy need be based on evidence.

There was certainly no shortage of examples where the **disconnect between evidence and policy was pretty stark!**

Slide 17 Junk Food in Schools

Ruth Kelly's use of evidence was somewhat missing when she announced her ban on junk food.

“I am absolutely clear that the scandal of junk food served every day in school canteens must end...we will ban poor quality processed bangers and burgers from next September”

Ruth Kelly, 28th Sept 2005

Sir John Krebs in his 'Sense about Science' lecture was scathing in his dismissal saying the 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.

In fact this policy initiative broke every one of the GCSA's rules of engagement!

And despite their being a DCSA in Education and Skills was allowed to run unchallenged.

JUNKED



An Anecdote!

- **Overall drop in school dinner uptake of 5.8%**
At some schools the decline was as high as 30%

BBC Survey – November 2006

- **‘turkey twizzlers’ – Sales up 32%!'**

Bernard Matthews!



Slide 20 – Evidence Based Policy?

In many ways the Junk Food episode reveals the fault lines in the government's policy of promoting 'evidence based' policy as if all policy is evidence based when clearly it is not.

In fact Ruth Kelly NEVER claimed she had evidence for her policy it was assumed!
(She merely implied it!)

We fully acknowledge that there are some good examples of scientific evidence being used to inform policy – welfare to work – energy and indeed as we saw last week Nick Stern’s economic analysis of Climate Change.

But by promoting the myth that all policy is evidence based – the Government is actually undermining those policies where it is crucial that there is public confidence in the evidence. (MMR; GM; Climate Change etc).

Slide 21 If no evidence – say so!

Recommendations - Evidence Based Policy

- If there is no evidence – say so!
- If policy based on evidence – the evidence should be published
- Pilots should be used to try out policy and if policy changes a result – that should not be viewed as failure

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We make the point very clearly that where there is an absence of evidence, or even where the Government is knowingly ignoring or contradicting the evidence that exists, as we saw with our Inquiry into Drug Classification – maybe for good reason – they should say so.

Where policy is based on evidence it should be published and reviewed.

What is more we urge the Government and indeed **opposition** Parties to accept that good research, the use of pilots or trials may well result in a change of policy or a change of direction.

This should be seen as good use of evidence in policy making and not as it so often is now – a failure of policy altogether.

Research and Evidence

Of course evidence to support public policy requires good scientific research method and here again we found a mixed picture emerging.

In our Drugs inquiry we observed that Government had invested little in research into addiction and drugs policy research.

There was little evidence to support the current policy objectives underpinned by the ABC drug classification system.

Drug users were not deterred by the classification system and the police service claimed they paid little attention to it.

Yet proposals by Professors Nutt and Blakemore to bring forward a new classification system based on degree of harm were sidelined without explanation by the Home Secretary as was the promised review of drug classification.

The Government's rejection of our recommendations in our Drugs report was hardly a ringing endorsement for evidence based policy!

Our ID cards inquiry demonstrated a lack research into emerging technologies even though the entire programme depended on technologies being available within a time span that meets the government's plans.

And we have again highlighted the problem **that policy – orientated research** has not generally been supported through the Research Assessment Exercise because it tends not to be published in prestigious journals.

This is a very important issue and we expect to return to it in the future.

But one of the most disturbing aspects of our Inquiry was the accusation by some academics that their work, commissioned by Government was selectively published in order to 'prop up' policies.

Research Evidence Questioned?

"it was with sadness and regret that I saw our work ill-used and our faith in government's use of evidence traduced"

Professor Tim Hope University of Keele

Professor Hope went further alleging that the Home Office had interfered with other papers – even to the point of telling academics not to present their papers at a Criminology Conference in 2003.

"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"

Reece Walters – Stirling University

These are serious allegations which our Committee clearly has no authority to investigate but someone should.

Research Evidence

However it is crucial that academics supplying research for Government departments should have the same academic freedoms as those in universities or institutes unless there are special circumstances that prevent it.

We feel that securing this, is rightly the role for the GCSA who under our proposed structure would have overall responsibility for professional scientific standards.

We also recommend that all commissioned research and research underpinning policy should as a matter of course be published and evidence cited in support of policies monitored as part of the departmental science reviews.

(Research – Horizon Scanning)

Horizon Scanning

- Congratulate GCSA and Government on Foresight Programme
- Support the establishment of OSI Horizon Scanning Centre
- Horizon scanning must be built into departmental programmes

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Finally in terms of research ***we have recognised the very considerable efforts made by Sir David King and the OSI to embed horizon scanning in relation to science and technology across government through the Foresight Programme.***

We strongly support the establishment of the new OSI Horizon Scanning Centre and feel that if the process is firmly embedded in every area of government we can largely avoid the problems that have emerged over the MRI (Physical Agents) EU directive and likewise the EU Directives on Clinical Trials.

As ever though a word of caution.

Horizon scanning is a pretty futile exercise if departments ignore its findings and concentrate solely on the immediate.

As Paul Wiles very frankly said to us:

“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”

Risk and Communication

I am acutely aware that there is a great deal in our Report that I have not been able to cover – including the **use of expert groups and** our proposals for an enhanced role for learned societies perhaps along the lines of the US Academy of Sciences,

But hopefully colleagues will raise those issues during the general debate.

But I did want to conclude by saying a few words about the final section in our Report Risk and Public Communication.

Our Report does not attempt to deal with individual areas of risk though our case study on ID cards considered Risk Management – and our Drugs classification looked at degree of harm.

Instead we chose to look at the communication of risk to the public, the dissemination of best practice and that pesky perennial, that precocious pre-emptor, that precarious pretender! (I must stop asking Bruce Forsyth for lines) - the precautionary principle!

Successive Government's have attempted to deal with the issue of risk. We have seen '**Green Books**', '**Orange Books**', a Treasury guide on '**Managing risks to the public; appraisal guidance**' and even a **Risk Management Assessment Framework** whereby each Department assesses its own risk management performance.

Whilst there is still a long way to go our **Report welcomes the progress being made and urges the Government to continue seeking ways to sustain and improve risk assessment in policy making.**

Slide 28 (Lessons from MMR)

MMR

It is not about the Science. It's about belief

Dr Andrew Wakefield,
The Guardian, 5th Dec 2001

Study fuels fear over MMR jab

Has Leo had MMR jab?

New evidence 'shows MMR link to autism'

Daily Mail, 9th Aug 2002

'No link' between MMR and autism

BBC Online, 3rd Mar2005



However as Paul Wiles so correctly stated in his evidence to us **'it is a constant struggle'** to improve the understanding of risk against a background of *'a weak scientific and numeracy culture in this country'*.

That challenge has been championed by the Food Standards Agency, where **Dame Deidre Hutton and her illustrious predecessor Sir John Krebs have adopted a simple approach of good science and open communication and we commend the approach across government ..**

It is certainly an approach we commend to Departmental Chief Scientific Advisers who like David King, should take a greater lead in communicating risk, particularly when it involved explaining quite complicated research.

Having strong risk communicators in all Departments, prepared to explain risk openly even if it causes the policy makers unease is better than expressing doubts later.

Slide 28 *Precautionary Principle*

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

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As for the ‘precautionary principle’ so oft quoted by *Mobile Phone Mast protestors* *as a result of the Stewart Report* we have concluded it has little practical use because it conveys **not a scientific principle but a meaningless feeling of well being**.

The idea that if there is any risk – there should be avoidance is clearly absurd

We therefore take the advice of George Orwell and condemn it to the dustbin.

Thank you.

