



postnote

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PUBLIC DIALOGUE ON SCIENCE & TECHNOLOGY

In the past few years many organisations have adopted various forms of ‘public dialogue’ to address sensitive areas of scientific and technological policy. In May 2002, in a wide-ranging speech on science and technology, the Prime Minister called for “a robust and engaging dialogue with the public.”¹ This briefing updates POST’s previous work in this area², focusing in particular on radioactive waste and GM crops.

UK attitudes to science

Repeated surveys (e.g. see table opposite) show that, overall, the UK population is very supportive of science and technology (S&T), and that people appreciate its value in a modern society. However, after controversies in the 1980s over radioactive waste, and in the last decade over GM food, BSE, mobile phones and stem cell research, many people are concerned about the pace of change, and the ability of governments to regulate science and technology effectively.

To address this topic, in 1999 the House of Lords Select Committee on Science and Technology conducted an inquiry into *Science and Society*³. The Committee’s report in March 2000 recognised the general level of support for S&T among British people, and confirmed that the UK had not become generally anti-science.

However, the report referred to “a crisis of confidence” in the regulation of S&T, something echoed in the results from the survey cited opposite. The Committee found that the bulk of S&T does not lead to controversy but in some instances contention and polarised viewpoints result. The Committee found that disputes arise especially where debate and dialogue on these topics is couched solely in terms of health or environmental impact, and excludes other arguments put forward, such as ethical, consumer and economic aspects.

UK public attitudes to science⁴

Statement made during survey	Percent agreeing
Because of science, engineering and technology there will be more opportunities for the next generation	77%
Rules will not stop researchers doing what they want behind closed doors	69%
Science and technology are making our lives healthier, easier and more comfortable	67%
Scientists seem to be trying new things without stopping to think about the risks	56%
Politicians are too easily swayed by the media’s reaction to scientific issues, they should take more of a lead	53%
Politicians support science for the good of the country	43%
The speed of development in science and technology means that it cannot be properly controlled by Government	41%

Such a discourse, the Committee argued, often adds to an erosion of trust in institutions handling S&T. The Committee found this was particularly so where wider issues were dismissed or downplayed as irrational and where uncertainties and unknowns were ignored or glossed over. It recommended a change in the culture of public and private institutions dealing with S&T that would lead to greater openness and dialogue, going beyond market research and public education to become “a normal and integral part of the process” of science-based policy-making.

Public dialogue on S&T is rarely an end in itself. It can be used informally (e.g. at science centres and museums, or in schools) to encourage more people to consider taking up scientific careers. Similarly, informal dialogue can help people gain a wider appreciation and understanding of science and technology. However, the specific focus of this briefing is on using public dialogue more formally during decision and policy-making by institutions engaged with S&T.

Public dialogue – two case studies

In the last five years, the topics of radioactive waste management and genetically modified crops have been among two of the most contentious technological issues the UK (and elsewhere). Each has created widespread and often highly polarised public dispute. To address the controversies raised, there have been several recent initiatives aimed at broadening public debate, and moving the issues beyond polarised positions⁵.

DEFRA radioactive waste consultation

In 1999, the House of Lords Science and Technology Committee published a report on managing nuclear waste. Among the recommendations, it suggested that future policy in this area *“has to be the subject of wide-ranging consultation”*.

Also in 1999, in a separate exercise, the independent research charity the UK Centre for Economic and Environmental Development (UKCEED) convened a form of public dialogue (a consensus conference) on this topic. This process brought together 15 people as a cross-section of the UK population to learn about, discuss and deliberate on the issue of radioactive waste management over the course of a few months. The consensus conference took place in May 1999, in the period between publication of the House of Lords report, and the Government's response. The report from the consensus conference⁶ was written by the citizens and was presented in public to the Environment Minister.

In September 2001, the Department for the Environment, Food and Rural Affairs (DEFRA) published a consultation paper setting out a new approach to policy-making on radioactive waste management, the central theme of which was a high level of active public dialogue. To supplement the consultation DEFRA and the Scottish Executive commissioned social research exercises and public meetings and reconvened the citizen's panel from the 1999 consensus conference.

Following this programme, the Government and the devolved administrations announced in July 2002 that a new independent overseeing body would be set up by the end of the year to review the materials to be considered as radioactive wastes, the range of management options available for each, and the criteria against which these options should be assessed. It would then assess each option and draw up recommendations for Ministers. The new body would include technical experts and people with wider perspectives on environmental, health, social and ethical issues. DEFRA has stated that it wishes the new body to *“operate in an open, transparent and inclusive manner”* and that it *“must engage with interested stakeholders and the public.”* Further, in response to a report from the Commons Environment, Food and Rural Affairs Committee in October 2002, the Government stated that it *“will need to remember one simple principle of public engagement: it is a waste of everyone's time unless the decision-maker is willing to listen to others' views and then do something which it would not have done otherwise.”*

Genetically modified crops and food

During the 1990s controversy developed and intensified on issues related to developments in genetics, biotechnology, and food safety. The Government conducted a review of public attitudes to biotechnology in 1999, and responded by establishing three new bodies: the Food Standards Agency, the Human Genetics Commission and the Agriculture and Environment Biotechnology Commission (AEBC).

In September 2001, the AEBC published a report (*Crops on Trial*) exploring the implications of current farm-scale evaluations of particular GM crops. The AEBC's advice was that the decision on whether or not to commercialise GM crops in the UK should be informed by a widespread public debate. In April 2002, the AEBC submitted advice to the Government on the form of the debate.

In July 2002, the Government accepted the advice and (with the devolved administrations) asked the Chair of the AEBC to establish a steering board *“independent of Government”* to develop the scope and programme for the public debate. The Government also announced two other studies that will be undertaken in parallel with the public debate. The Cabinet Office Strategy Unit is reviewing the costs and benefits of possible commercial growing of GM crops to the UK economy, while the chief scientist at DEFRA and the Government's chief scientific adviser are leading a review of the scientific issues.

These three activities are currently under way, and are likely to be closely interrelated, although the exact mechanisms for ensuring effective liaison are not yet clear. The public debate strand began in November 2002 with a series of ‘foundation discussion workshops’ to allow groups of citizens to deliberate and discuss issues surrounding GM food and crops to help to plan for a broader programme of nation-wide public engagement and dialogue events. The programme will be announced shortly, with the debate being conducted during early part 2003. The steering board has been asked to submit a report on the debate to ministers by the end of June 2003. The exact form of this report and what the government and devolved administrations intend to do with it are not yet clear.

Issues

Common threads from public debate on S&T

In common with many controversies over S&T, debate on radioactive waste and GM crops has traditionally tended to focus on issues of safety or risk (the potential to cause harm to human health or the environment). However, evidence from academic research⁷ and recent public dialogue processes indicates that previous depictions of public concerns have often failed to take account of the broader psychological, social, cultural and institutional factors that shape public attitudes to scientific advances and technological developments.

For example, it is apparent that people are rarely entirely for or against a particular technology and are often ambivalent – recognising both pros and cons. Similarly,

traditional depictions of the public as being 'ignorant of the facts' appear to be simplistic. Indeed, the public seeks and welcomes diverse sources of information on an issue and is not easily swayed by sensationalist media. Also, non-specialists are able to balance conflicting views and assimilate complex scientific information and principles quite readily.

In addition, people are able to weigh risks and benefits in a sophisticated way, and to query how fairly these are shared across society. Further, in deliberations on controversial issues, people often question the need for the science or technology in the first place, as well as the motives of industry, academics or governments in promoting it. Lastly, debates highlight concerns that people have in relation to whether regulators are sufficiently powerful, competent and trustworthy to manage the risks in the public interest.

Good practice has shown, therefore, that to complement science-based risk assessment, and to do justice to the full range of public concerns over S&T, public dialogue is likely to be most beneficial where it encompasses wider contextual issues related to:

- **principle** – the need for the technology; the risks and benefits and who receives them; how people can be involved in decision-making processes; what information people will have prior to the development or deployment of the technology; and whether people will have an effective choice about whether to accept or reject the technology
- **regulation** – the competence and effectiveness of regulators and the effectiveness of regulatory controls once in place
- **credibility** – the information and assumptions used in framing and assessing risks and benefits; who has undertaken the assessment and their vested interests; the ability of risk assessors to take account of long-term consequences, uncertainties and unknowns
- **accountability** – contingency planning in the event of unforeseen impacts occurring and responsibility and accountability for unforeseen harm.

Such concerns have emerged from DEFRA's consultation on radioactive waste, the outcome of the BSE Inquiry, DTI's recent exercise looking at energy policy, and in previous exercises to characterise public attitudes to biotechnology. The opportunity arises, therefore, for the forthcoming public debate on GM crops to relate to these broad generic issues. Indeed, the independent evaluation of the GM crop initiative will particularly focus on any lessons for more general application.

The value of public dialogue in S&T

Proponents put forward two basic arguments in favour of dialogue in S&T. The first is that traditional consultation tends to be unattractive to many people and draws on only 'predictable' sources. They argue that dialogue can provide new opportunities for people who may be affected by decisions on new S&T to have their voices heard – particularly in shaping discussions in their own

terms, establishing two-way relationships with policy-makers and specialists, and fostering learning.

Second, as scientific knowledge is subject to inherent uncertainties, science-based decision-making involves making subjective judgements such as the original framing of the issue, the questions to ask, and the assumptions made in carrying out the work. Many argue that exposing these assumptions to open and critical public scrutiny will lead to more rigorous science.

The limits of public dialogue in S&T

Representation versus inclusion

In common with wider discussions on participation in public policy-making⁸, there are questions over whether processes involving only small numbers of people (such as focus groups, workshops and consensus conferences) can be representative of the views of the general population. These are not statistically robust samples of the population, as would be obtained from an opinion poll, but proponents of dialogue rarely make this claim. Rather, they argue that these processes reveal, through deliberation, the *considered* perspective of a group of citizens; inferring that this might be replicated throughout society were similar exercises to be carried out nationwide⁹.

Scaling up - from local to national dialogue

Most dialogue processes have been undertaken at a local level. While this may be appropriate for local decision-making, it is unclear how dialogue can be scaled up for issues of national importance. Key to this is ensuring that national dialogue programmes have sufficient resources and time to ensure an effective exercise. For the GM debate, ministers have allocated a total budget of £250,000 and require a report by the end of June 2003. Concerns have been raised (not least by the GM debate steering board itself¹⁰) that this time pressure and level of resource present a considerable challenge to ensuring an effective and credible programme.

Setting the boundaries for public dialogue in S&T

Despite these issues, there is broad agreement that the scientific community should be more responsive to public concerns. However, some observers have pointed to the dangers of placing too much reliance on dialogue (creating a 'deliberative fix'), as it could be used to:

- avoid decision-making for as long as possible
- suppress expression of disagreement in an over-compelling search for consensus, thus pacifying potential opposition rather than building agreement
- simply pander to public concerns without taking due account of the diversity of views alongside scientific and political factors
- deflect blame from those responsible and accountable for decisions onto participating citizens.

There are limits to the role of public dialogue in S&T. It is not necessarily appropriate in all situations², but in fostering a more open and inclusive debate between specialists, policy-makers and the public, dialogue could help to:

- explore assumptions used in science, set research priorities, and steer technological change
- help to monitor and review scientific and technological development as it occurs
- communicate scientific research – making explicit areas of agreement and contention, and the extent and significance of remaining uncertainties
- set the boundaries for S&T in wider society in terms of legislation and regulation (e.g. on stem cell research).

Ensuring effective dialogue

Planning

The cases described above illustrate the danger that dialogue may be embarked upon without adequate attention to its objectives or impact, or how it fits into an overall programme to inform policy and decision-making, including through the scientific advisory system. Good practice suggests that the specific objectives for the dialogue should be made explicit at a very early stage, but there also needs to be clear understanding of how the dialogue will be used to inform decisions. On the GM crops debate, ministers are yet to state how they will use the outputs in their decision-making, raising difficulties in planning the debate and questions over its credibility.

Making sense of dialogue

More practically, public dialogue processes can generate large amounts and different types of information about people's knowledge, experiences, attitudes and values. Dialogue can also reveal the extent to which these views are expressed clearly, where they may conflict, and how they may change during deliberation. Such social intelligence is not necessarily straightforward to describe and analyse, and there is a danger that analysis can 'lose much in translation'. While DEFRA's radioactive waste consultation was a limited exercise, the GM crops debate is intended to involve many more people, participating in more diverse events. Also, DEFRA intends that the next phase of development of its policy on radioactive waste will involve extensive public engagement, drawing lessons from the GM debate. Thus, these processes may need significant resources to make the most of the outcomes and sufficient time for the initiatives.

Impact and learning

Formal dialogue processes have been used in public policy-making for over twenty years, but S&T is a relative newcomer. During this time, principles defining good quality dialogue have been developed, based mainly on the fairness and competence of the process¹¹. However, there has been relatively little effort to evaluate **outcomes**. It is by no means certain even what sort of impacts could arise; upon whom they could impact, or how any one 'official' process of dialogue fits into the wider context of other unofficial activities occurring concurrently. For example, there has been a debate running on GM crops and food for a number of years. The issue will gain more coverage as the official public debate unfolds, and debates will continue elsewhere (local communities, interested groups and in Parliament itself), raising the question of how the official debate will feed into, and learn from these other activities.

Overview

Public dialogue continues to develop in the area of policy and decision-making in S&T. While experience grows, and pockets of good practice are apparent, overall effort remains fragmented, with few attempts to learn from a broad range of experience⁸. While public dialogue in S&T is likely to have some benefits, the limits to its application are also being recognised. Also, there is currently little clear evidence of how dialogue informs policy and decision-making.

Decisions still have to be taken, recognising the limitations of dialogue processes. Suggestions for further work to address these include:

- **research into the outcomes of dialogue** to identify the scope and nature of possible impacts and to develop an evaluation framework that can establish the effectiveness of dialogue against its objectives
- **establishment of a national learning resource** on public participation to exchange experience and to help identify and disseminate good practice, particularly on how institutional cultures and practices develop to make the full use of public dialogue.

If the forthcoming public debate on GM crops fulfils the requirements for effective deliberation, it will be a significant exercise using dialogue to inform decision-making on S&T. An opportunity arises to learn much about the role of public dialogue in policy and decision-making. This is likely to resonate throughout the science and technology community and across the public sector.

Endnotes

- 1 *Science Matters*. Prime Minister's speech 23 May 2002.
- 2 POST (2001). *Open Channels: public dialogue in science and technology*: POST report 153, March 2001.
- 3 *Science and Society*: Third Report of the House of Lords Select Committee on Science and Technology HL38 (Session 1999-2000).
- 4 Office of Science and Technology and the Wellcome Trust (2000). *Science and the Public*. Available on the internet at: <http://www.wellcome.ac.uk/en/1/mismiscnepub.html>
- 5 see also the DTI public consultation on energy during 2002: www.dti.gov.uk/energy/developpe/int_public_and_stake_con_rep.pdf
- 6 www.ukceed.org/consensus_conference/citpanreport.htm
- 7 e.g. see Irwin, A. and Wynne, B. (1996). *Misunderstanding Science? The public reconstruction of science and technology*. Cambridge University press; Marris, C. et al (2002). *Public perceptions of agricultural biotechnologies in Europe*, www.pabe.net
- 8 Cabinet Office (2002). *Viewfinder: a policy maker's guide to public involvement*.
- 9 Fishkin, J.S. (1991). *Democracy and deliberation. New directions for democratic reform*. Yale University Press.
- 10 but also by the House of Commons Environment, Food and Rural Affairs Committee and many academic analysts in this area,
- 11 for example whether all interested parties were able to participate, and whether all views expressed were treated respectfully.

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