



Parliamentary Office of
Science and Technology

Science and Society: three years on

Proceedings of a seminar held in Portcullis House, 13th May 2003

In 2000 the House of Lords Select Committee on Science and Technology published a report on the relationship between the public and science and technology. The report, *Science and Society*, recommended that increased openness and dialogue from scientific institutions should play an integral role in scientific decision-making. In May 2003, to mark the third anniversary of the report, the Parliamentary Office of Science and Technology (POST) organised a seminar in Westminster to examine developments in the area of public dialogue on science and technology.¹ This paper summarises the contributions from speakers and the points raised in discussion.

Welcome and introduction

Dr. Phyllis Starkey, Chair of POST

The traditional view of the public understanding of science was that by increasing the public's knowledge of science, their objections to it would fall away. This view is no longer valid. As taxpayers fund science, the public should have an influence on the direction of research and require a two-way dialogue with scientists. Furthermore, it is important to understand that people do not just want to know the theoretical risks of an application but also who benefits, who bears the risk and who controls the exposure.

The *Science and Society* inquiry

Lord Jenkin of Roding, Chair of the House of Lords *Science and Society* inquiry

Three years after the report is a good moment to reflect. Did we get it right? What do we need to do to make dialogue happen? Are we going in the right direction?

The House of Lords inquiry was brought about by the disturbing loss of public confidence in science, particularly as a result of debates on radioactive waste management, BSE and biotechnology – especially genetically modified foods and cloning.

Although the idea of an uneasy relationship between science and society was not a new notion, the report gave the argument some status and drew together much evidence on this.

Overall, the report made 26 recommendations with five main messages:

- there is a crisis of trust. Such mistrust may threaten the public's tacit assent towards research.
- the public's values and attitudes must be listened to. This does not just include attitudes towards science itself but also attitudes towards the ethics, morals and values behind the science.
- the view of public 'understanding of science was demeaning and condescending and is no longer enough. Scientists need to understand the public: hence the importance of dialogue and engagement.
- secrecy must give way to a presumption of openness and transparency.
- scientists must learn to live with a free press. Improved education for scientific literacy is needed (particularly as the majority of the science curriculum is oriented towards the very small minority of students who wish to go on to do science).

As a result of the report, there is a clearer awareness of the need to restore public trust. All of the major scientific institutions are responding. However, an important caveat was highlighted. Some of the greatest advances of science have been made in the face of public hostility, sometimes religious in origin; Galileo Galilei and Charles Darwin provide the two most outstanding examples from the past. To prohibit science from progressing without express public support in advance would be retrograde and repressive, and would stifle creative scientific research or drive it overseas. This is not what the Committee's recommendations were intended to achieve.

The Government's response

Professor Sir David King, Government Chief Scientific Adviser

The old approach to the public understanding of science is now well left behind. The new approach is public engagement with science and technology, which recognises the need for a dialogue in which both scientists and the public can contribute to the debate.

The BSE crisis emphasised the need for dialogue. In this case, science itself was not at fault but government procedures were. The crisis highlighted the improvements that were required:

- openness and transparency
- robust scientific advice for risk assessment and management
- foresight techniques
- enhanced cross-government working
- a better approach to using science in policy-making.

The 2001 Foot and Mouth epidemic was the first trial of the new processes. Decisions were made with openness, honesty and transparency and bringing in as much cooperation and knowledge as possible from interested parties helped bring the disease under control earlier than had been predicted. These policies are also being applied to the GM foods debate with the establishment of a GM Science Review Panel that is operating alongside the public debate and economics review.

The fields of science, technology, engineering and medicine (STEM) still hold a strong position in the UK. However, there are growing concerns within the population over the corporate funding of academic research – a sense of a ‘corporate takeover’ is emerging. The result may be that the public may not welcome scientific advances that they believe are controlled by industry, which may lead to public investment in STEM not being paid back through marketable new technologies. For example, the emergence of the biotechnology sector may be seen as a payback for public investment in molecular biosciences.

It is critically important that society is engaged with science. If scientists cannot succeed in engaging young people and the public in general in their work, people will not choose careers in science and there is a risk that public support for science – on which scientists depend for their “*license to practice*” – will diminish.

The Science and Engineering Base Group within OST is setting up a new Science and Society Directorate to address these and other key issues such as science careers, promoting SET for women and wider diversity issues within science. The Directorate will strengthen and improve the coherence of this work in the group and more widely in government.

The UK National Radioactive Waste Consensus Conference

Jonathan Selwyn (UK CEED), Pam Phillipou and Ted Bowen (members of consensus conference panel)

During the late 1990s there was a growing need to develop a new approach to radioactive waste policy that involved wider consultations and public engagement. In response, UK CEED, an independent charitable foundation, devised and managed the development of a 1999 Consensus Conference on radioactive waste management involving a citizens' panel. The initiative was supported by government, industry and ngos with a purpose to engage a broad cross-section of citizens in a two-way interaction regarding the disposal of radioactive waste.

Sixteen people were chosen from across the UK to make up the panel. Following briefing on the subject, the panel took control of the process including selecting witnesses and devising questions to ask in public hearing sessions. After hearing evidence from the witnesses, the panel wrote and presented a report to key policy makers at a final day press conference.

The process was not without its difficulties. Selecting a panel to be broadly representative, particularly when trying to ensure participation from ethnic minorities, was a challenge. Achieving consensus from interested parties on the nature of the panel's briefing material took far longer than anticipated. Also, the panel members were frustrated that witnesses did not reveal the extent of their links with industry or ngos prior to the public hearing.

However, the process overall was judged by most observers a success and has made an important impact on policy-making in this area, with many of the panel's recommendations having since been reflected in

government and industry policy. The continuing interest of the panel members towards the issue and the reconvening of the panel by the Minister in 2002 help to demonstrate that the public can engage in a meaningful way with complex science and technology issues.

ESRC *Science in Society* research programme

Dr Sara Ward, Executive Director

The ESRC's Science in Society programme was set up in response to the House of Lords report with the objective of exploring and facilitating the rapidly changing relationships between science, engineering and technology and wider society. The programme has already become deeper than originally intended and considers broader issues. Such issues include the interaction of science with governance and the economy; science communication; globalisation; and genomics.

Projects within the programme are interdisciplinary and interactive, and researchers will communicate through engagement rather than solely relying on traditional information transmission. ESRC has recognised that much of its work impinges on this area, and has established a new 'cluster' of programmes and institutions called Governance, Environment, Science and Technology (GEST). It is hoped that this will create an institutional memory within ESRC at the start of what is considered to be a long process of addressing the relationship between science and society.

A service has also been initiated whereby the policy community can make their requirements from the programme known and the programme will encourage researchers to submit proposals to address these needs.

Critiquing public dialogue

Dr Bill Durodie, Senior Research Fellow, International Policy Institute, Kings College London

An alternative view is that the issue of public dialogue is about democratising debate and not about science.

Scientists have a responsibility to listen to and challenge the public. The proposed public dialogue can be seen as bad for science and for society: although science does not have a greater or more irreversible risk than the arts, it is more policed. This is mainly due to the perception of change and risk being out of keeping with actuality. At present, technical transformations do not have as great an impact as they have done in the past, however we are in a period of greater pessimism and mass political disengagement.

Public dialogue demoralises, downgrades and marginalises science expertise and patronises the public. It postures as radical and egalitarian but instead politicises decision-making and deflects blame from authority. Inclusion of the public portrays the debating process as more important than the science itself, and becomes fundamentally anti-science.

Rather than the impact of science on society, it may be more important to look at the impact of society on science; especially the impact of a society lacking in vision and aspiration and one that causes science to face greater self doubt and cynicism than before.

Leverhulme Trust *Programme on Understanding Risk*

Professor Nick Pidgeon, University of East Anglia

There is now a need for research on the motives, methods and quality of public engagement in science. Data collected from different sources over a two year period so far show that public attitudes may be long term and stable.

With regard to openness, the public believe that scientists should listen more and do not believe that government policies are transparent. There is a general optimism and confidence in science, although there were some worries about commercialism and funding by industry and the need for independent watchdog scientists. Dialogue is perceived to contribute towards democracy, aid the transparency of decision-making and allow new insights into policy. However, there were concerns regarding representation of views, especially those of non-experts, and definition of the problem.

Following deliberative events, participants felt that debate fostered learning and democracy although there was scepticism over whether it would make any impact. In conclusion, there is an emerging relationship between science and society, however science needs to be more responsive (e.g. relevant to people's lives and with a demonstrable link between deliberative process and subsequent decisions).

An NGO's perspective

Maria Adebawale, Director, Capacity

Capacity is a non-governmental organisation that seeks to convey social justice, inclusion, access to information and a voice in decision-making to under represented communities. Science can play a crucial role in this process by providing some of the solutions.

However, science must be held to account as it has a huge impact on society. It improves society but cannot be conducted in a vacuum. The public feel that agendas are being set elsewhere and that science is being used for commercial and not societal needs. Information empowers people: if it is inaccessible and difficult to understand it is useless. Where do scientists get their information? Scientists are not the only people with knowledge, communities also own important knowledge. This is a key lesson that has been learned from public participation activities in developing countries, particularly on environmental law and the exploitation of biodiversity.

Science has traditionally not engaged with the public. It has limited its role to telling and then defending. However, a lack of dialogue leads to suspicion of science and negative outcomes for both sides.

Society's role is to question science (the information and its accessibility, cost, style, research agendas and control). Objective scientists must work with local knowledge to bring about local solutions and share their knowledge and skills with society.

An industry perspective

Christine Drury, Unilever

Unilever is a consumer business that is based on the outcomes of research and development. The applications of industry have always been governed by scientific knowledge. However, industry is becoming more aware of society's attitudes towards technology. Unilever refers to 'consumers as citizens' who make associations with a product, asking: how is it made? what does it contain? do I want it in my life?

In addition, consumers are influenced by other organisations, the media and friends. These perceptions and the apparent value of the product affect consumer preferences. Opposition to technologies, such as the irradiation of food in the 1970s and GM in the 1980s and 1990s, has emphasised the need for the technology to be 'visible' if an application is to become accepted. Over the last three years, industry has recognised that interaction between market research and new science information must be increased. Public views must be built in to upstream product development processes and be noticed at board level as a business risk, such as a risk to corporate reputation. Science and society can and will become embedded in business – from the board down and the bottom up.

Embedding science in society

Dr. Roland Jackson, Chief Executive, British Association

Two challenges and opportunities must be overcome to promote science in society: addressing these will take the process further along the road to embedding science in society.:

- **increasing public confidence to engage in debate.** Debate is a public good but both public and experts may need support to engage with confidence when they come together with such different knowledge and experiences. Care must be taken that experts do not frame the debate in ways that exclude or devalue public conceptions: discussions should build from public interest and concern with non-science perspectives accepted as legitimate, although the public's views should be challenged in an evidence-based manner. The concept of mutual learning through dialogue is a better model than 'education' or 'communication', which can so easily be perceived as one-way processes. Engaging under-represented audiences is a particularly difficult challenge and tends to need additional resources. A question arises over how much science is really needed to engage actively in a debate. More work is needed on this topic, but it is clear from, for example, patient groups and consensus conferences that most members of the public can engage in meaningful debate about issues involving science given sufficient personal interest, resources and encouragement.
- **dialogue between the public and industry.** The government have already recognized the need for open discussion, which is not yet perceived by industry in general to the same extent. The mindset tends to be expressed through public relations rather than dialogue with mutual influence. Some industries are forming novel partnerships with consumer or special interest groups for public dialogue, and more widespread engagement of industry in this way would be valuable.

The GM public debate

Anna Bradley, member of the debate steering board

Problems with public policy discussion must be addressed and to do this more public engagement is needed. As part of this process, the GM debate steering board was set up in 2002. Members represent the full spectrum of interests and views on GM, and experience and expertise on public engagement in science and technology.

From the outset, the board had conceptual and political difficulties that brought up many questions. Is the debate to be PR or engagement (one-way or two-way dialogue; explaining or learning)? Is it open or closed (pre-framed or framed by the public)? Is it integrated into policy making or bolted on? Practical issues were also encountered, including funding, scope of the board, independence, government commitment to listen to outcomes, and linkage to the other strands of the debate. Furthermore, there were problems for the steering board in achieving consensus on the information base for the debate; a lack of experience and expertise; and, for part-time members, the risk associated with involvement in such a public operation.

The board has completed extensive research and preparation and set up means for the debate to go ahead. Independent evaluation of the debate's outcome will be a great opportunity to learn wider lessons about public engagement.

Discussion points

- There is a need for more ethnic minorities to be included in representative panels and scientific institutions. Our multi-cultural society must be reflected in scientific debate, especially as promotion of dialogue brings about better understanding of society's issues and increases aspirations.
- The capacity of participants, communities and institutions must be increased so that they can effectively take part and use the results of dialogue in taking outcomes forward.
- Experts must be able to answer new questions, or old questions in a new way. However, the value of non-expert or citizen knowledge is a highly political issue and must be debated.
- The dispute between science and society is about power relationships. Consultations build trust –the initial relationship between the participants and sponsors of the debate must be correct and clear, otherwise institutional set-up is meaningless.
- Those developing the technology are often the same people who offer evidence for its safety and desirability. New institutional arrangements are necessary to provide a neutral assessment of the social benefits of science.
- There is a danger of an institutionalised and prescriptive response to science. For example, adhering to the government's timetable for the GM debate, or insisting that lay knowledge must have value without contest.
- Politics and general risk aversion may underplay the achievements of science and the reputation of science is lowered as only controversial issues are publicised. The public want their concerns and questions to be addressed but do not necessarily want to make the decisions.
- Social sciences can predict potential problems between science and society, but it appears that no one is willing or able to take the results on board. There is a need to integrate natural and social sciences, and recognise and reward researchers who communicate and engage with the public.
- People don't want to be the experts or make decisions, but they do want to be assured that their issues and concerns are taken seriously.

Further reading

Science and Society, Third Report of Session 1999-2000, House of Lords Select Committee on Science and Technology, HL38 (<http://pubs1.tso.parliament.uk/pa/ld199900/ldselect/ldsctech/38/3801.htm>)

Public dialogue on science and technology. POSTnote 189, November 2002 (www.parliament.uk/post/pn189.pdf)

Open Channels: public dialogue in science and technology, POST report 153, March 2001 (www.parliament.uk/post/pr153.pdf)

Endnotes

¹ POST is an office of both Houses of Parliament, charged with providing independent and balanced analysis of public policy issues that have a basis in science and technology. Following the House of Lords *Science and Society* inquiry, POST was given the remit to maintain a watching brief on public dialogue on science and technology and to keep both Houses of Parliament informed. For more information, contact Gary Kass (020 7219 2161; kassg@parliament.uk) POST is grateful to Sarah Cant from University College London for her assistance in preparing for, and reporting on, the seminar.