

Engaging stakeholders on complex, and potentially contested, science

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Introduction

An effective process for engaging stakeholders on the science underpinning radioactive waste disposal will be essential for the successful implementation of geological disposal in the United Kingdom. Of particular importance are those stakeholders representing, and living in, volunteer communities. There have been two major shifts over the last 10-20 years in society's engagement with science which are particularly relevant to the Radioactive Waste Management Directorate's (RWMD) stakeholder engagement:

- a shift to a more inclusive approach in which the public have more of a say about science and its uses;
- a shift to a more evidence-based approach to societal decision making.

Significant challenges to effective communication and confidence building in geological disposal arise from:

- the complexities and uncertainties inherent in the relevant science;
- the sensitivities and "high stakes" (locally and nationally) associated with a disposal facility;
- the expectation that there will continue to be vocal stakeholders who are fundamentally opposed to geological disposal of radioactive wastes who will focus on any remaining uncertainties as just cause for their position.

This abstract summarises the findings of a project to evaluate approaches to engaging with stakeholders on the science underpinning sensitive decisions in sectors other than radioactive waste disposal and to identify elements of good practice which may help RWMD in taking forward the implementation of a geological disposal facility for the United Kingdom's radioactive wastes (Holmes, 2011). Six elements of good practice are listed and discussed below:

- using science appropriately;
- building trust;
- honest brokers;
- stakeholders as "scientists";

- communicating about uncertainty;
- protected spaces;
- using science appropriately.

There is a need to establish a framework to enable the appropriate use of science to inform decision making. An inclusive, evidence-based approach should draw on, and respect, a diversity of viewpoints from the scientific and lay communities, weighing them in a balanced and systematic appraisal of what is known, with what levels of confidence, and identifying where uncertainties remain which need to be addressed in order to achieve sufficient confidence to make a sound decision. It should identify where there is consensus, but also where differences of opinion remain and the reasons for those differences. A process should be established in which participants can challenge each other's views and evidence, but share a common goal of maximising the confidence that can be achieved in the knowledge and understanding that informs the decision.

Such a framework and process may be contrasted with more political models of decision making where decisions result from conflict, bargaining and coalition-forming among participants who each seek to protect or advance their particular interests. In such processes, scientific evidence is typically used as ammunition in a conflict, and called upon selectively by one or more parties to support their particular values and aims

Being selective of evidence has been prevalent in many recent public debates, for example those on climate change and genetic modification (Beddington, 2011).

Building trust

In the absence of the time, or the inclination, to engage personally with the science, many stakeholders' views are influenced strongly by whether they trust or mistrust the processes, institutions and individuals involved in a particular decision. Trust is hard won, but easily lost. Opinion surveys show that the UK public find it difficult to trust in business and government scientists (Ipsos MORI, 2011).

Various factors help to build trust in the processes whereby science informs decision making:

- The process should be open and transparent, with clarity about how the dialogue will inform the decision.
- Stakeholders who wish to be involved are enabled to do so, and can see that due account has been taken of their views.
- Realistic expectations of influence are established.
- Participants should have time to think issues through, and to become well-informed through reliable and balanced resources.
- Explanations are provided of how eventual decisions rest on the evidence.

It is also important to build trust at the interpersonal level between the staff and stakeholders who are involved. Good relationships, built over time, can be influential in influencing attitudes to the science: many stakeholders are more likely to evaluate the person than the science.

A research project on "deliberating the environment" examined how members of the public reacted to scientists in dialogues about environmental issues:

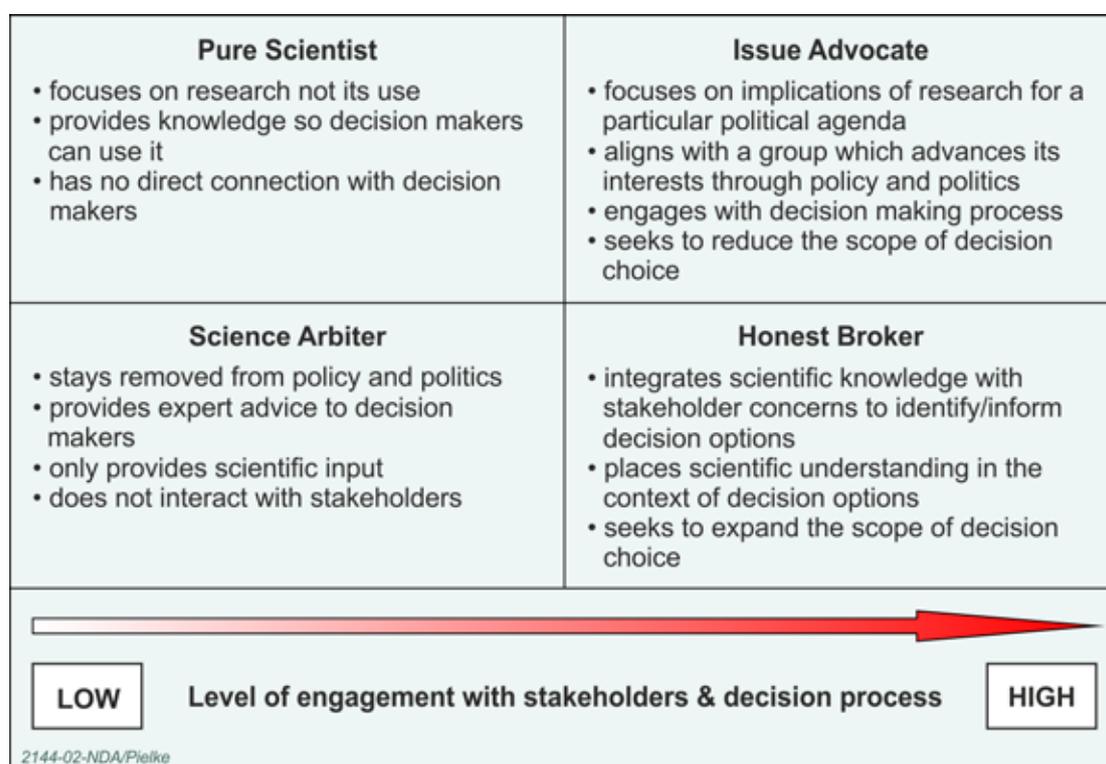
Their most positive reactions were to those two scientists who made most effort to find and develop common interests. Both of these scientists had considerable experience of public engagement but they also identified with their exchange partners. They were willing and

able to draw effectively on their own lives as “non-scientists” (e.g. as parents, partners, working class people, concerned citizens, confused “green” consumers) to make a connection with their exchange partner and promote conversation. (ESRC, 2010)

Honest brokers

Honest brokers (Pielke, 2007), sometimes known as translators or knowledge brokers, can play an important role in facilitating interactions between science and decision making. Figure 1 illustrates how this role differs from other potential roles in scientists informing decision making.

Figure 1: Modes of scientist engagement with stakeholders and decision-making process



Source: Adapted from Pielke (2007).

A key motivation to establish and involve knowledge/honest brokers derives from the mistrust that stakeholders may retain of scientists employed by organisations who are proponents of the development on which a decision is to be made. Honest brokers need to be accepted by all parties as being impartial and authoritative, and must have a range of distinctive technical and communication skills in order to be effective (Bielak, et al., 2009).

One example of honest brokers in action is provided by the establishment of an international panel of experts to review the issue of eutrophication in the Baltic Sea in 2005 (Holmes and Savgard, 2008). This issue was controversial, both in the sense of competing stakeholder interests across countries bordering the Baltic, and disagreements between scientists. Important factors in the success of the panel in helping to resolve controversies were the transparent approach to selecting panel members, and the freedom given to the panel in framing the questions and writing its report.

Stakeholders as “scientists”

Involving stakeholders in the generation and interpretation of scientific knowledge can be helpful in building trust through engendering ownership. Stakeholders may appropriately be involved in some, or all, of the following stages of the research process:

- informing the formulation of the research questions, ensuring that different framings of the issues are reflected, and consequently that research outputs address stakeholder concerns;
- undertaking the research, particularly where local and lay knowledge can improve the quality of the research;
- interpreting and communicating research so that it resonates with stakeholder concerns.

These considerations have led, for example, to the appointment of lay members to government advisory committees to help make expert advice more legitimate and encourage greater public confidence in the decisions of government.

For example, the Fisheries Science Partnership established by Defra in 2003 (and emulated in several European countries) involved fishermen in the co-commissioning of research on issues directly relating to catch quotas and regulations, issues of direct and substantial consequence for the fishermen (Holmes and Lock, 2008, 2010). This scheme has been very successful in building relationships and understanding between the fishing and science communities, and in securing ownership of the arising knowledge by the fishermen.

Successful stakeholder engagement in the research process requires significant investments of time and resource, and it is important to make adequate provision in research timetables and budgets.

Communicating about uncertainty

The science relating to issues of public significance always contains some degree of uncertainty. It is important that all stakeholders respect and accept this, as it:

- does not reflect a lack of quality or rigour in the science;
- does not mean that science loses its value in informing decisions.

Effective communication of uncertainties and their significance is rarely done well. Uncertainties and their negative consequences are often exaggerated by the media and by actors intent on a particular outcome.

The Intergovernmental Panel on Climate Change (IPCC) has devoted much effort to considering how confidence levels/uncertainties can be effectively communicated (IPCC, 2007). In the UK, the Marine Climate Change Impacts Partnership (MCCIP) has adopted a simplified approach in which confidence in annual statements about specific impacts of climate change is categorised as high, medium or low according to the amount of evidence that is available and the level of scientific agreement/consensus (MCCIP, 2011). This approach has proved popular with policy makers and stakeholders, and is now being extended by the Living with Environmental Change Partnership (www.lwec.org.uk) to annual statements (“report cards”) for land-based impacts of climate change.

Protected spaces

In order to progress and facilitate decision making, spaces need to be created in which productive dialogue can take place between scientists and stakeholders. Issues

and questions can be explored in a process of honest enquiry, without fear that views expressed will be used externally.

The Council for Science and Technology (2005) recommended that such spaces should be created which:

...provide a forum for reflective, considered and informed discussion between people with a range of views and values. Structured conversations between experts, non-experts and policy-makers can permit all to re-evaluate their perspectives and assumptions in the light of those of others, evolve their thinking, and explore areas of mutual and convergent understanding.

For example, such spaces have proved effective in enabling productive dialogue between fishermen and marine scientists on the science underpinning catch quotas (Holmes and Lock, 2008, 2010).

Bennett (2002) points to the need to exclude the media from such protected spaces, “The presence of a journalist can jeopardise discussions. Stakeholders, thinking they may be quoted in tomorrow’s newspaper, may not voice their true concerns.”

Summary

Six elements of relevant good practice have been identified:

- *Using science appropriately:* Taking an inclusive, evidence-based approach in which collaborative inquiry takes a holistic, weight-of-evidence view of the science rather than focusing on items of evidence in isolation, using them to prove or disprove a particular point of view.
- *Building trust:* Ensuring that processes of engagement engender trust, and that trust is built at an interpersonal level between those involved in the process.
- *Honest brokers:* Can play an important role, mediating between the people and organisations involved, and interpreting the science and its significance for decisions.
- *Stakeholders as “scientists”:* Involving stakeholders in the generation and interpretation of scientific knowledge promotes ownership and helps ensure that it is socially robust.
- *Communicating about uncertainty:* Establishing uncertainty as an inherent feature of science, and discussing uncertainties in a way which is helpful to stakeholders while remaining true to the science.
- *Protected spaces:* Creating spaces in which productive dialogue can take place between scientists and stakeholders, where issues and questions can be explored in a process of honest enquiry.

For RWMD the scientific uncertainties inherent in evaluating the performance of a geological disposal facility into the far future present a challenge of engaging productively with stakeholders on the science. The stakeholders who are fundamentally opposed to disposal will focus on remaining uncertainties as just cause for their position. Whatever the process of stakeholder engagement on science that is eventually developed, it will be important to build in evaluation and learning, together with the flexibility to adjust the process as experience is gained. Its development should also keep one eye on the planning and legal framework to ensure that synergies, rather than pitfalls, are built in.

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