

Social Science

Petroleum and the public: how do we win the battle for community hearts and minds?

PROF. IAIN STEWART and HAZEL GIBSON, University of Plymouth

"We underestimated the level of community concern and unrest... Inadequate engagement led to decisions that, in hindsight, were too legalistic in approach... What we ended up doing to rebuild relations and trust was what we should have done in the first place – that was having local community people engaged as liaisons, working at the very start of the project to understand what the concerns were, rather than be driven by a project schedule, which is what essentially happened... We didn't have what we might have called social license".

(Murtagh, P. 2015)

These comments from Michael Crothers, at the time Shell's managing director for exploration and production in Ireland, concern the local conflicts and chronic delays that accrued a €2.4 billion cost overrun on Corrib Gas, Ireland's most expensive energy infrastructure project. The difficulties of securing public acceptance – the social license to operate – for major infrastructure or energy projects is, not confined to Ireland. For a number of years public anxiety over shale gas, coal bed methane, underground coal gasification and carbon capture and storage (CCS) projects has embroiled energy companies in lengthy and confrontational planning disputes.

Although gaining community participation in energy projects is also a problem for wind and solar energy plants,

The Bellanaboy Bridge gas terminal, part of the Corrib development.

there seems to be particular popular unease for projects that delve into the subsurface. In an examination of what drives public protest about CCS, for example, Wallquist et al. (2012) note a particular objection to 'tampering with the subsurface'. This notion of people wishing to see an apparently pristine subsurface remain 'naturally untouched' implies a deep-seated comprehension gap between the technical knowledge of geoscientists and the vaguer subterranean conceptualizations of the public.

Mental Models

The realization that ordinary people lack a clear grasp of the geological subsurface has been examined in a collaborative research project between geologists and cognitive psychologists at Plymouth University (Gibson et al. 2016), which looked at how geologists and non-geologists perceive the geology beneath south-west England, an area where deep geothermal projects are proposed. Heat was a recurring feature in interviews with local residents, but the depth at which this was encountered was a source of confusion. One interviewee suggested it was "... down towards the very, very bottom of the Earth. That's because it's where it's all broken down even more and I presume that's where the heat of the Earth is." While an anthropologic subsurface of shafts,

tunnels and even buildings were readily imagined, the surrounding rock was labelled simply as 'dark' or 'hot'.

These results support the view that there is a cognitive dissonance with what lies beneath. As trained geologists, we see the subterranean world very differently from 'normal' people (Stewart & Nield, 2003). In exchanges between geoscientists, this is not a problem, but in dialogues with the public it becomes more problematic.

Multiple Publics

By and large, when geoscientists confront the public we do so recognizing that there are very different stakeholders. Technical experts, industry professionals, regulators, elected civic officials, activists, concerned citizens, the media and everyone else represent multiple publics which require targeting with different communication messages. More problematic is the recognition that each of these stakeholder groups are themselves multiple publics, which not only display very different levels of scientific knowledge, but also show a diverse grasp of what science is and how it should be used. People's attitudes to scientific or technological issues and their underpinning values and beliefs explain why conflicting, and at times contradictory, views emerge from within the same stakeholder community.

"This business of meddling with nature, I don't like it at all; it is one thing that you start adopting solutions...that you carry on...examining solutions out here, but this business of storing down there, and that you go on ruining inside."

Respondent quoted in Oltra et al. 2010

There is long, extensive academic literature about public attitudes to science and technology, but arguably one of the most succinct and pointed summaries lies in a recent CSIRO report (Cormick 2014). This Australian survey follows previous studies in recognizing different science publics, each requiring different messaging strategies. For 40% of the sample population, science was a turn off; not only was science largely unknown to them, but they were largely unknown to science. This disengaged camp lie beyond the reach of conventional science communication strategies; indeed, when asked who, if not scientists, they relied on to tell them about a scientific issue, this group cited friends, relatives and media commentators, without expecting these people to have any additional technical expertise; they simply trusted them.

The CSIRO survey also examined people's underlying values and beliefs as a gauge of how they positioned themselves with respect to science. Four groups emerged;



The public often misrepresent the hazard. The experts often misperceive the outrage. But the overarching problem is that the public cares too little about the hazard, and the experts care too little about the outrage. If people are outraged because they overestimate the hazard, the solution is to explain the hazard better.

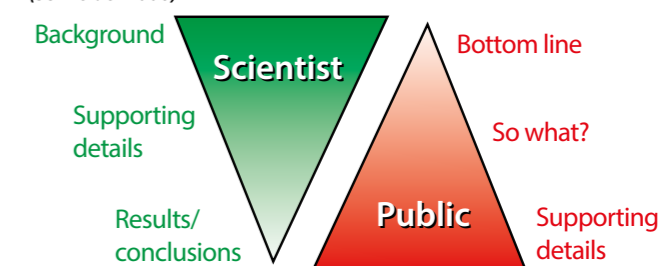
Group A, the 'science fans' (23%), expressed highest agreement that science is important to solving society's problems and least concern that it did more harm than good or advanced too fast; Group B, the 'cautiously keen' (28%) had a high interest in science but reservations on some aspects of it; the 'risk averse' group, C, (23%) were conservative in their outlook, less inclined towards science and more concerned with its risks; and finally, Group D, 'concerned and disengaged' (20%) – the least enthusiastic about the benefits of science and technology and most suspicious of its motives.

The key point that emerges is that responses from the pro-science 'fans' were significantly different to the community responses from any other segment; i.e. those who see scientific knowledge and technology as the answer to societal challenges are a marginalized sector of the general population.

This is an uncomfortable recognition that underpins the key communication challenges highlighted in the study, which are:

- When information is complex, people make decisions based on their values and beliefs;
- People seek affirmation of their attitudes or beliefs and will reject any information or evidence that are counter to these;
- People most trust those whose values mirror their own;

"...without resorting to simplification it is nearly impossible to communicate the implications of the scientific results to a broad audience." (Schneider 2008)



- Attitudes not formed by logic or facts are not influenced by logical or factual arguments.

The Community Play

Public industry communication strategies are built around conveying clear, simple explanations of the technical detail surrounding a particular issue, because that is what they have been trained to do, and because technical know-how satisfies their own perspective on the problem. Relevant facts and figures, simple graphics and language uncluttered by jargon are brought together to address the wider public worries. It appears, however, that such an approach does little to influence the majority of the concerned public, who have made up their mind about the issue not on the basis of the facts but on the basis of their gut instinct, reinforced by consulting with those around them.

A ‘community’ is a heterogeneous group of competing stakeholder groups, of varying coherence, power and networks, amid a background of disparate political, economic, social and cultural interests. Critically, every community has a history – a ‘social memory’ accrued through past disturbances, interventions and opportunities that condition how the current community reacts.

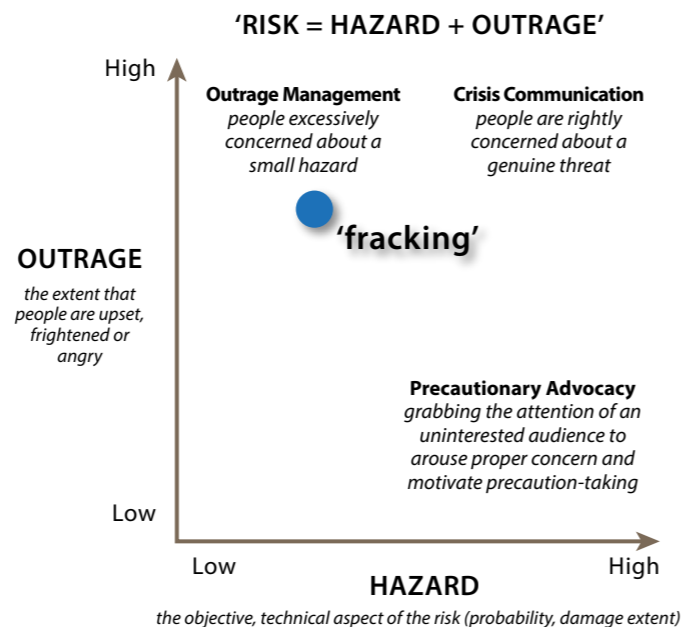
Interviewee 2: Yeah. Well, fracture means break, doesn't it.
Interviewee 1: Absolutely.
Interviewee 2: You're breaking something.
Williams, 2013

Environmental risks can be deconvolved into two competing public frames (Sandman, 1993). The first is technical, involving a scientific analysis of the hazards that are perceived to threaten a community. The second is social, focusing on the processes by which a community's concerns about hazard threats build into anxiety, then anger, and finally outrage. Sandman contended that when the experts and the public disagree about the technical side, the experts are more likely to be right. At the same time, the public's perceived risk is dismissed by technical experts as irrational, unfounded or manipulated. However, as evident from community protests, the resulting outrage is as real and measurable as the underlying hazard.

In this context, risk is a product of hazard and outrage. Generally, the anxious public cares too little about resolving the hazard component and anxious experts care too little about resolving the outrage component. Sandman argues that technical experts – fixated by the hazard – tend to overestimate the risk when the hazard is high and the outrage is low, and underestimate the risk when the hazard is low and the outrage is high. The public are a mirror image, fixating on outrage and ignoring the technical hazard, overestimating the risk when the outrage is high and the hazard is low, and underestimating it when the other way round.

Effective Communication

For technical experts to engage more effectively with communities they are going to have to improve two fundamental skillsets. First, they must learn how to more



simply convey the technical basis of their work, particularly the hazard, but this is only half of the community risk equation. The second, arguably much more tricky task, is to listen better; to hear first-hand the views of non-experts about their informal comprehension of the hazard in order to better appreciate the roots of community concern.

The message that professional geoscientists ought to be responsive to the lay concerns of non-experts may irritate many, but confronting these concerns and gauging their significance as barriers to gaining the social license to operate allows us to design more effective strategies to convey aspects of the science that community members do consider most worrisome. In addition, more equitable dialogues with concerned citizens, acknowledging the legitimacy of their worries, brokers trust, builds goodwill and bonds shared values and beliefs. In other words, the very act of engagement with a community itself reduces outrage.

It's where they're drilling and it like vibrates the Earth and it caused earthquakes and somebody was saying 'Yes it does, it's okay, it's manageable' That was recently. My instinct went 'Oh, what are you doing? You know, it's not right. It doesn't feel right.'
Williams, 2013

For those who prefer the long-standing view that the battle for community hearts and minds will be won by filling the knowledge gap in people's technical understanding, a key conclusion of the recent Australian study of public attitudes to science and technology is pertinent (Cormick 2014):

“Public concerns about contentious science or technologies are almost never about the science... and scientific information therefore does little to influence those concerns.”

A longer version of this article with references is available online: www.geoexpro.com/articles/2016/06/social-seismic-petroleum-and-the-public ■

Foldout 01 Placeholder