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Provision of information on low level radiation issues

Experience of public consultations in the UK and Central/Eastern Europe

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Abstract

Whether one is in a village hall on the Hungarian border or in Colchester, most people probably go to a nuclear-related public meeting because they are concerned about safety and environmental issues, often about the potential health risk from low-level radiation. However, in every case the author's impression is that many – usually most - people seem to leave the meeting more confused about low-level radiation than when they arrived. This paper is very much a personal view, drawing on the author's experience, and explores some of the reasons why this might be and what might be done about it.

1. Introduction

I have been to public meetings on nuclear power issues in 5 Central/Eastern European countries and attended or evaluated transcripts from over 20 nuclear-power related public meetings in the UK over a period of a decade or more. My conclusion is that whether one is in a village hall on the Hungarian border or in Colchester, the things people want to talk about are frequently the same. The potential health risk from low-level radiation has been a significant issue in every single meeting, and in every case my impression is that many – usually most - people seem to leave the meeting more confused about low-level radiation than when they arrived.

In the majority of consultation programmes, public meetings are only one component. They are arguably not particularly effective in promoting two-way communication and genuine stakeholder involvement in decision-making, but they do still have an important role to play and are likely to be a feature of any major consultation for the foreseeable future, albeit perhaps increasingly supplemented by 'surgeries'.

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This paper therefore attempts to distil 10 years of experience and discusses some key communication issues in respect of low-level radiation, including.

- Why people attend public meetings;
- What can realistically be communicated in a public meeting;
- What is it that people want to know about low-level radiation issues;
- What does the community expect of the regulators; and
- In each case, is there anything we can change about the approach?

2. Why do people go to public meetings?

It is tempting for consultation sponsors to assume that members of local communities and other stakeholders are interested enough in the issue under consideration and sufficiently predisposed to participate that they will attend a public meeting on a nuclear issue. When only six people turn up, or the room is packed but only by supporters of local pressure groups, they then bemoan ‘public apathy’. However communities are not in fact generally apathetic. People often rationally and consciously choose not to go.

Achieving greater involvement is certainly not just a case of reducing the barriers to attendance, although a superficial reading of good practice guides might be interpreted as suggesting that this is the case. Most guides list factors that must be addressed to reduce the ‘cost’ of participation and minimise the barriers to attendance such as venue, time and date, and language but they tend to be less forthcoming about the benefits to the individual and the factors that motivate participation in the first place.

If we want to encourage greater involvement, perhaps we ought to spend more time addressing the question of why people should spend a wet Friday evening in the local village hall when there is so much else they could be doing, and so many other issues to worry about. If we want people to come spontaneously, I believe they have to be offered a ‘product’ or an opportunity that they want to take up, and it has to be ‘sold’ it to them as would anything else one was trying to get people to attend.

An opportunity to object is only one of the possible motivators, but it is of course a powerful one. My impression, based on talking to many participants over the years, is that most go simply because they have heard about the meeting and are to a greater or lesser degree concerned about the project. They rarely go because they are supportive of a proposal or because they see it as an essential part of community level democracy. This poses a challenge for consultation sponsors seeking wider community involvement, in that the best chance of getting a packed hall is to raise the anxiety level – a high profile local issue can easily make a 100-fold difference to attendance figures.

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But do we always need a packed hall? Many consultation sponsors find it frustrating that meetings are often (though by no means always) dominated by those opposed to a project and motivated - it may seem to them - by principle than by the balance of argument on the project in question. But to be honest, if all we are doing is offering people an opportunity to complain, the majority will not be motivated to attend. Why should they; and indeed, does it actually matter if they do not?

Public meetings attended only by 'the usual suspects' are however certainly not inevitable, and there are ways to make better use of the opportunities public meetings afford to broaden participation. One meeting participant commented as follows:

"If it is going to be just a talking shop, you'll only get the anxious and the opinionated. But if it's part of a proper programme to engage the community in a meaningful way in the decision, you'll get the 'neighbourhood watch' as well".

The point he was making is that ordinary people with a sense of responsibility towards the community *will* take part if they believe it is important, just as they do on local liaison groups. So we have to be clear why we are really seeking involvement. Is it for community peer review purposes - offering stakeholders an opportunity to express their views - or because we are asking for participation in the decision making?

Addressing barriers through better promotion and user-friendly documentation helps, but if one wants to broaden involvement the key thing - for me - is to convince the community that what it has to say can make a difference. Do people feel that the meeting is being held because the sponsor really wants to understand their perspective, or is the meeting only being held because there is a regulatory requirement? Does the community's voice matter in helping shape projects and (very importantly) emissions and health monitoring? Does it make a real difference in helping distinguish between options? Participation ought to go deeper than unconditional acceptance or rejection. Or are we on this occasion going further and asking for participation because we will reflect the balance of views expressed in the decision we make? In this case, we cannot rely on spontaneous involvement.

I would argue that this scenario should be treated as an extension of the democratic process, not as peer review. Passion is not necessarily synonymous with wisdom, so we should seek to involve a representative cross section of people and not give undue weight to the most vociferous. This being the case, we may well have to go out and actively recruit people, recompense them for their time, and design processes with which they feel comfortable - just as any other organisation inquiring into public attitudes and preferences has to do. We cannot rely solely on a sense of civic duty or self interest to engage the public, and many of our usual stakeholder groups are becoming overwhelmed by the volume of consultation. The Low Level Radiation Campaign coined the acronym UNCLE to describe the phenomenon - Unlimited Nuclear Consultations Leading to Exhaustion.

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We have also to bear in mind that sponsored processes are intended to compliment the existing local democratic arrangements, not supplant them. There is widespread recognition that stakeholder and, in particular, public involvement in regulatory decision-making and policy development supports democracy. However there are also some risks – real or perceived - to the democratic process that need to be managed. Ironically, the increasing emphasis on stakeholder dialogue, in the absence of efforts towards balance and transparency, actually risks narrowing accountability and giving the impression of greater influence by sectional interests.

It is not unknown for stakeholder groups to argue against the validity of local authority positions on the basis that they have ‘sold out’, but I am increasingly wary of processes that might appear to be designed to facilitate the negotiation of a way forward between stakeholder groups independently of wider considerations by the regulator and the other three side of the ‘engagement square’ i.e. direct public input, representative democratic input and professional scientific and policy advice. Increasing the opportunities for stakeholder involvement may also paradoxically reduce the relative influence of some of the stakeholder groups they were intended to help, because they are not equipped or resourced to participate as fully as the main campaign groups in a more extensive programme.

It all comes down, I think, to being clear and honest with ourselves as well as with the prospective participants about the reasons for them, freely offering opportunities for involvement but focussing on getting active and representative participation at key points, which may be earlier or at a more strategic level than has generally been the case up to now. We should not be pushing for ‘broad involvement’ simply for the sake of it, or designing stakeholder programmes with ‘one of everything’ because we are not clear what type of process we and the participants really need.

3. Communicating in public meetings

If we accept that most people attend meetings because they want their concerns to be heard, either directly or articulated by someone else, it is important that their anxiety is recognised and respected. It is not helpful to tell people that they are wrong to be anxious, especially about a difficult issue such as the impact of low-level radiation. Concern is the rational response from their perspective to the range of different messages they hear or read in the papers.

Although people might have skimmed a summary, in generally they will not have read any detailed information about the project, even on those occasions where the documentation has been specifically written with a scope and content suitable for ordinary members of the public. Faced with the prospect of requesting (and even sometimes paying for) a complex document and then trying to make sense of it, most people come to the meeting to just make their concern known and to listen to the debate.

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A short overview followed by an explanation from the protagonists of their opposing positions is a familiar format in the media and people are used to forming their own view on this basis. On the whole people appear to be reasonably comfortable with transparent bias in presentations from people who they do not expect to be neutral. My impression is that many people actually prefer two opposing positions well argued to a single 'objective' position whose objectivity they cannot reasonably evaluate.

In many public meetings, people seem to appreciate 'the opposition' being given a chance to make a statement rather than being restricted to asking questions. Organisers sometimes fear that a 'rabble-rousing' speech can raise the temperature, maybe even to the point where industry participants feel unsafe. This has never been the case at any meeting I have attended – indeed, we have been very grateful to Greenpeace campaigners for calming the situation on a number of occasions. But it does occasionally happen, and as is so often the case in these matters the right course of action still remains a matter of judgement based on the context and the personalities involved. It should go without saying that good prior communication with local pressure groups and a thorough briefing for the chairman are essential parts of meeting planning.

Public meetings are generally poor fora for presenting technical detail, although specific questions do require a specific answer. People seem to retain impressions more readily than specific new knowledge. Most want to use the debate to help them 'see the wood' rather than acquire expertise. There is nothing illogical in this – people's perceptions of, for instance, the trustworthiness of the regulator, are probably more important than a detailed understanding of any particular technical issue.

It usually takes longer to answer a question than to ask it (although questions sometimes have a habit of mutating into speeches, just as experts sometimes cling for as long as possible to topics they feel safe with when giving their answers). However, emotions quite often run high at a public meeting and people get impatient with detailed explanations or responses in these circumstances, especially if they are waiting to speak.

One public meeting I attended had degenerated into argument and the situation was only recovered when the project representative was limited to 2 minutes to answer a question in the same way that those asking the question were limited to 2 minutes. The project team spokesman had believed he was substantiating his answer with technical detail, but the audience did not have his technical grasp and so could not evaluate what it was being told. They therefore had no idea whether what he was saying really did substantiate his conclusion and, assuming that he also knew this, probably discounted the detail as a delaying tactic.

The point is that fairness and balance are often more important than a comprehensive answer. This particular audience felt it could gain sufficient insight into whether the issue was being dealt with competently or not in 2 minutes, but that further explanation added little.

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It is always going to be a balancing act; too little detail may appear to be avoiding the question, too much can feel like time wasting or baffling jargon. Although factual information is always going to be an important component of any communication, the overall package has to match people's needs and give a clear overview of the nature of risks and uncertainties, the reasons why the regulators can be trusted to look after the community's interests, the extent of independent analysis, the areas of disagreement, and of the community's ability to influence events - all without getting bogged down in detail which is better provided in supporting material.

One area where the level of detail presented seems variable is the contribution of different sources of dose to the individual. There are also sometimes apparently conflicting messages: why, for instance, if there is nothing special about 'man-made' radiation, do dose limits (often interpreted by people as safety limits) not count background radiation towards the total? There are also areas where people seem to perceive that there are differences between their understanding and the information being presented to them. The lay person might well feel that there must be differences between the impact of direct 'shine' radiation, contamination or natural activity in the environment and activity that might end up being ingested, yet they may be perceived to be lumped together in a single limit. There are answers to these points of course, but I have picked them out because they do not seem to be as consistently covered in presentations or consultation materials as they might be.

People seem *relatively* comfortable with the concept of variability and that dose varies with individual diet in a reasonably predictable way. We can see why this may be so, because the concept is familiar in everyday life and people are used to making decisions and managing risk based on it, even if they are not conscious of doing so. People also seem *relatively* comfortable with the way basic statistics are used in such circumstances, where a distribution is built up from historic measured data. They often seem to have some general appreciation of how insurance companies aggregate data for groups of individuals and use it in conjunction with simplifying assumptions to calculate premiums, whether it is car or life insurance. Almost everyone understands why 20 years old males pay more for their motor insurance.

However, moving from distributions to probability often causes communication problems, and explanations of probabilistic risk and the implications for individual behaviour - what does a 1 in 10^6 risk of death mean to *me* - are always going to be a serious challenge. Some seem to come away with the impression that 'statistics' means simply that the health impact is certain and that all that is unknown is who it is that is going to die. Someone at a meeting I attended commented to the panel that he did not understand the statistics being presented, but that it was clear to him that *someone* was going to die. Was it someone in this room? Risk comparison was in fact the attempted response, but that is also fraught with difficulty - comparing 'natural' with 'imposed' risks, or those incurred for the commercial benefit of others, is for instance not recommended.

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The difficulties of debating with people in public meetings who appear to reject any level of risk from a nuclear plant are well known. People in the nuclear industry often express their frustration with the public's demand for action on the part of the authorities to reduce risks that appear trivial, whilst at the same time refusing to take action themselves about much larger risks. Radon is a good example. We and others consistently find a high level of awareness and understanding but very few take remedial measures unless forced to do so in connection with, for instance, a house sale.

Another area of difficulty is cost/benefit. The public may appear to be asking for huge expenditure to address a minimal hazard and it sometimes feels as if participants are saying that Government money is essentially unlimited, or that expenditure in one area has no impact in another. ALARA (As Low As Reasonable Achievable) is one of the Governments key principles in UK Strategy for Radioactive Discharges, but the ALARA concept does not play well in public meetings, though individuals seem to be happier with it in the cooler atmosphere of a 'surgery' or 'open house'. Public meetings tend all too often to be dominated by those wedded to ALATA (As Low As Technically Achievable). This is often a genuine reaction from ordinary members of the public, though it may occasionally be less out of conviction and more in the hope that the costs involved will spell the end of the project.

Attempts to introduce the 'value of life' concept in particular often provoke an angry reaction during public meetings. The problem is not that many people completely fail to understand these concepts or are unable to comprehend the logic behind them, but rather that they have an adequate level of understanding and then still reject the conclusions, at least in the context in which the discussions are taking place. There is therefore no simple answer to this and there is certainly no magic presentational technique, but again better process design and involving a broader cross-section of the community seem to help.

The challenge is to engage communities in the reality of allocating society's resources. People have tried to use risk communication techniques to encourage a more 'objective' response but over-simplistic attempts to match project costs against the cost of (for instance) a new hospital are doomed to failure, because nobody really seems to believe that money that could be spent reducing risk to their community will be diverted to additional NHS bed space.

It is worth reminding ourselves at this point that rationality and objectivity are not the same thing. Local people are sometimes accused of being irrational when in fact they are merely (quite rationally) trying to avoid being the ones who have to accept something unpleasant for the greater good. NIMBY may fail the altruism test, but it is perfectly consistent with the priority self-interest is given throughout much of our culture. It is perfectly logical to argue against a local waste facility no matter how objectively perfect the geology. No doubt many of us would do the same thing.

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Many people also find dose/response relationships intuitively difficult and any discussions about the significance of different dose/response models need careful handling. There is a body of literature that deals with people's understanding of dose-response phenomena. The US study by Kraus, Malmfors and Slovic, for example (Kraus 1992), explored perceptions of dose-response issues and I believe there have been several since. Question framing is very sensitive in this area, but when points are put to people in a form that they might come across them in a public meeting or the media they often make the link between *any* exposure to a carcinogen (or radiation) and the likelihood of cancer – even though their everyday life experience ought to tell them something different.

This is one reason pressure group arguments are so effective. For instance in the Krause study 86% agreed (34% strongly) that “if you are exposed to a toxic chemical substance, then you are likely to suffer adverse health effects”. 34% agreed that “if you are exposed to a carcinogen, then you are likely to get cancer”. And of course the relative ‘strength’ of radiation as a cancer-causing agent is almost always very much over-rated.

There is no scope in an overview paper such as this to go into detail but, for me, a partial answer to these problems lies in designing a process that explicitly recognises these issues and facilitates involvement higher up the policy/strategy/implementation decision making chain when necessary. We might then be able to explicitly address the Governments prioritisation principle, whereby “*..priority is given to reducing discharges which have greatest radiological significance or which present most risk of damaging the marine environment, whilst ensuring that the costs of such reductions are not grossly disproportionate to their benefits*”. Option selection for individual projects through BPEOs would then have greater meaning.

A word of caution is however appropriate. The majority of stakeholders will have more respect for a decision arrived at through a process they have participated in, but a community will not necessarily accept an unwelcome project just because national groups (of whatever hue) and individual experts have spent the last year developing a consensus on the attributes and weightings that brought it to their doorstep.

4. Some specific low-level radiation issues

Having said all this and emphasised the importance of concentrating on conveying accurate impressions and leaving the majority of the detailed factual information to supporting documents, there are some specific questions that people at public meetings almost always seek answers to, and there is merit in tackling these directly. The primary question people are generally trying to explore is:

- *Is the routine operation of this nuclear power station (or whatever the activity is) going to damage my health, or that of people I care about, in any way, or increase to an extent that is unacceptable to me the risk that I or they will develop cancer?*

If the answer is ‘yes’, it should not be permitted. If it is ‘no’, they still want to know more. Typical points might include the following.

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- *There are persistent stories of cancer clusters, so why are the ‘authorities’ so confident that the answer really is ‘no’ and can they be trusted in their judgement. Do they know all they need to know to make this judgement.*
- *Is the regulators’ version of ‘no’ the same as the community’s i.e. is their judgment on the acceptability of a given level and character of risk consistent with that the community might make? (This may or may not include consideration of any benefits accruing to the community). Or, are they basing their judgement on criteria which are hard to understand or not acceptable.*
- *Have they really checked systematically for health impacts from existing operations - specifically, have they checked the local area. If not, why not.*
- *What is the extent and significance of any uncertainty and, given this uncertainty, is this still a risk the community should consider tolerable.*
- *What are they going to do to monitor the situation, to make sure that if they are wrong and there is an impact in the future, it will be detected quickly.*
- *Would action be taken quickly to protect the community if assumptions proved to be unfounded, even if it meant closing a power station? People need to be convinced that the goal posts will not be moved to suit the operator and that the regulator has the authority and commitment to shut the plant down if necessary – maybe even on a precautionary basis.*

Typically, people seem to think, fairly or not, that the low-level radiation argument is a bipolar one, and questions that have come up include:

- *How can differences on such a fundamental issue for the nuclear industry have coexisted without being resolved;*
- *What steps are being taken to establish who is right;*
- *Is the process of investigation open and transparent, and are there opportunities for challenge;*
- *Are all points of view being given a fair hearing;*
- *If there is to be additional research, is it being carried out by ‘independent scientists’; and*
- *Will we be told the outcome.*

Since they are so common and rational, these are, in my opinion, questions that ought to be addressed upfront in supporting documentation, in the material presented at meetings and in answer to questions.

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5. Some comments on surgeries and public meetings

Whilst it is possible to talk about public meetings in isolation, they almost always need to be considered as part of a wider programme. There is an increasing tendency to link public meetings with community ‘surgeries’ or ‘open house’ days, where people can call in and ask questions or raise concerns with either the project team or regulators, individually or in small groups.

There are many advantages in this approach: issues can be explored in much more depth and explanations tailored to the knowledge of the individual, and of course it is much less traumatic for those who would otherwise be on the platform. Surgeries are also commonly perceived to be less intimidating for ordinary members of the public, in that there is no public speaking involved and face-to-face contact helps build trust.

However one of the merits of public meetings is that they allow people to hear all sides of an argument and then make up their own minds on some of the more controversial issues. People can see how ‘officials’ react to challenge, and they can also gauge the officials’ values and attitudes towards them and other groups in a way that they cannot do at a surgery. Public meetings also bring project teams face to face with the reality of anxiety in a community and the sharp end of public accountability, which is, perhaps, no bad thing.

And whilst it is easier to express a view at odds with that of the majority at a surgery, some people might be put off because they feel that they need to have well-marshalled arguments to enter into a one-to-one discussion with an ‘expert’.

6. Pressure groups

In my experience, the general public on the whole values the involvement of pressure groups or other campaigning NGOs (non-governmental organisations), although there can be considerable variation amongst local communities. Pressure groups are not expected to be ‘objective’, but they are commonly perceived to be independent of vested interests, and those that campaign on nuclear issues do have a reputation for ‘standing up to the authorities’ and not flinching from asking difficult questions and demanding information.

The people I come across in focus groups etc. seem increasingly reluctant to accept reassurances from regulators; they want information that allows them to make up their own minds. One may or may not believe in the arguments put forward by the Low Level Radiation Campaign, and one may or may not feel that they raise concerns in people’s minds unnecessarily, but it seems to be commonly perceived that power station communities have a lot more information from health authorities on local cancer rates because the LLRC exists.

This suggests that regulators and specialist advisory bodies should do more to help interested or concerned people find and evaluate information themselves. They might also do more to help local authorities and health trusts answer questions - local sources of information seem often to be trusted more than the government is.

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7. The role of the regulator

The role of the regulator is almost always a key issue and if regulators want their approach to low-level radiation issues to command respect at a public meeting, they have to go beyond demonstrating technical competence. They must recognise that trust is actually the most important thing, and that credibility also crucially depends on independence, transparency, vigilance, and the power or authority to act on behalf of the community.

People at public meetings take careful note of what is said concerning past regulatory responses to transgressions and the attitudes and positions revealed within the meeting, and of the way regulators interact with other parties present. They notice, for instance, how the regulators' and independent bodies' interventions relate to the position of the proponents or the opposition.

Regulators may have to work hard in a meeting to convince the sceptics that they are independent. This is particularly so if the context is such that a regulator has to explain the background and justification for the project. If a regulatory body wants to be recognised as an impartial judge, it cannot speak for or against the project, it must let the two sides speak for themselves. If the format permits, regulatory bodies should be seen to be asking questions, testing the arguments put forward and inviting additional comment before making a decision.

Our regulators are highly regarded and generally acquit themselves well in public meetings, but the regulation of nuclear power in the UK is quite complicated and this causes difficulties for people trying to understand the situation. Different regulators and advisory bodies cover areas that can sound to the lay person as if they should be part of the same brief, and they interact in ways that are quite difficult to follow.

Opening presentations at public meetings in England and Wales might include, for instance, references to the Environment Agency, Health & Safety Executive, Food Standards Agency, Department of Health, Health Agency, National Radiological Protection Board, and the Local Health Authority or Trust. Then there are the 'acronym' bodies. RWMAC and OFGEN may get a mention and, and perhaps also the HSC and NUSAC. We now also have the LMU to consider (or is it the NDA?). And what is CoRWM?

They may all be independent, but most can hardly be said in truth to be totally independent of government, and their independence is achieved in different ways. There is rarely time in a public meeting to explain the different roles properly, so a sensible approach is to focus instead on the way the regulatory system as a whole operates and emphasise the underpinning principles and values. However, there is a residual concern that people might find it hard to have full confidence in a system they cannot understand and, since confidence in regulation is a key factor shaping a community's response to a possible increase in risk, perhaps more information on regulatory frameworks and roles does need to be available.

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One option is to support verbal presentations with a fact sheet. It could combine an overview of roles with examples of how regulation works in practice on specific issues, perhaps in ‘frequently asked questions’ format – e.g. “*what happens if a site exceeds its discharge limit*”? It could include contact points with advice as to how people should go about getting additional information or raising different sorts of concern.

8. Conclusions

This has been a personal view. Much of what I have discussed above is to some degree subjective and other practitioners may see these things differently. However if we are to improve the way we deal with low-level radiation issues in public consultations, we need to share our experience and I hope this paper helps stimulate discussion.

I would like to conclude by saying that in my experience most people, even amongst the more passionate objectors, *do* understand the need for communities to accept their fair share of the detriments from an activity alongside the benefits, providing that they accept that it *is* a reasonable activity in the first place, providing that it *is* a fair share of the detriments, and provided that they trust ‘the system’ to protect them from harm. Including, of course, harm from low-level radiation.

References

Kraus 1992. Intuitive Toxicology: Expert and Lay Judgements of Chemical Risks. Kraus, Malmfors and Slovic. *Risk Analysis* 12(2) 215-232.