



Experiences from Risk Communication in the Siting of a Geological Repository for High Level Waste in Sweden.

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1 Background

The Swedish Nuclear Fuel and Waste Management Company AB, SKB, started a programme in 1992 to site a deep repository for high level radioactive waste. The siting process is carried out simultaneously with the development of the encapsulation and handling technologies.

In the present phase, the siting process is based on municipalities volunteering to a feasibility study in their community. The municipality is provided, with up to 250.000 ECU per year from the waste funds for its own costs related to activities. The Swedish Nuclear Power Inspectorate, SKI, manages the funds on behalf of the government

SKB started its feasibility study programme at the municipalities of Storuman and Malå, two municipalities located in the far north of the country. Right after completion of the study both communities had referendum and voted against going to the next step, namely site characterisation. SKB left Storuman and Malå in accordance with the company's policy " we will not locate a repository to a community unless we are welcomed to do so by its citizens".

Currently, SKB is performing feasibility studies in four municipalities: Östhammar, Oskarshamn, Nyköping and Tierp. In the year 2001 at least two communities will be chosen for further site characterisation.

2 Risk perception and risk communication

Even though we can sense a certain maturity of the question of siting a deep repository in Sweden, there still is a tremendous challenge in interacting with the

public. And since the public is far from being a homogeneous crowd we will rather talk about the publics for the rest of this presentation.

Communicating about risks is a complex matter and the outcome of the dialogue depends on a lot of factors, among those the following:

2.1 The publics and the risk perception conversion theory

As you are considering engaging a dialogue with the publics, you want to answer: who is the public before you? Where are these people coming from? What do they know (or think they know) about you and your project? Whom else do they get their information from? What issues matters most to them i.e. what do *they* want to know?

Change in itself is perceived negatively, people that would resist the establishment of a specific facility would in many cases resist the phasing out of the same facility a couple of decades later, despite the allegedly perceived risks at the establishing phase.

It is also widely recognised, in what is called the conversion theory (1), that if a particular risk is perceived as voluntary (smoking, unhealthy food...), it will most certainly tend to be perceived as more acceptable. In contrast risks perceived in neighbouring a future geological repository for waste that would tend to be far less acceptable even if the expert states that the risk connected to a repository is a manageable one.

2.2 The expectancy – value theory

Perhaps the best-developed psychological theory of risk perception as applied to siting a deep geological repository for high level radioactive waste and similar noxious facilities is the “expectancy-value” or “expectancy-valence “ theory (1).

In general, the expectancy-value theory suggests that people tend to associate certain properties with specific objects. People's overall attitudes toward a specific object are a reflection of their subjective assessments of all the properties associated with that object. For example people tend to associate certain properties or attributes with a geological repository for waste, such as those associated with nuclear weapons or nuclear accidents at Three Mile Island and Tjernobył.

In a polarised debate it is also often seen that proponents or opponents tend to highlight ”information” that may have a strong influence on the associations people will get.

Greenpeace, as we see it, provided one clear-cut example, during its campaign against SKB feasibility studies in the north. They frequently used a road warning sign with a dead moose lying on its back. By associating disaster to something well

known, this came out as an efficient "risk communication" although not speaking to the intellect or using rational arguments.

The same type of communication principles could of course also be (miss) used for the opposite purpose. It will be up to others to judge how SKB is behaving in this respect. An explicit policy, however, is to try to provide people we meet with knowledge and experience that will put them in a better position to "judge by themselves". Key components are that they get access to information from expertise of different kind and that they as far as possible get the opportunity to "see by themselves" by visiting waste handling and research facilities.

2.3 Resistance to change and the diffusion process

Adults tend to resist learning about subjects that, if learned, may require them to change their behaviour (2). When people adopt a new idea or practice, they first become aware of the need (the waste exists and need to be handled), and then they recognise that change is possible (we only have an interim storage and must further solve the problem). Only then are people interested in learning about alternative ways to solve the problem and satisfy their needs (geological deep disposal or wait for better research and do nothing or...). The next step is to establish evaluation criteria – how would we know a good solution if we stumbled over one. Then the criteria are applied to the alternatives, resulting in a recommended solution.

One of our experiences is that we in the beginning of the siting process spent too little effort in discussing the need to do something about the waste and the different options potentially available. We tended to come to the public with a ready-made solution to a problem that many did not perceive very clearly, neither as being of their concern. The general debate over the past few years about different options and their characteristics from a technical and ethical aspect has been very useful to SKB. It has helped us to better understand what the important issues are to different publics. One example is the issue of retrievability where we have been influenced to be more explicit and to study different aspects of that particular issue.

2.4 Are the messages that are sent the ones received in risk communication?

As far as we can judge and according to our own experiences, there are no ready to use and failure proof risk communication models. While all these models and theories might help understand the hardships you are encountering, they hardly solve the problem for you. Whether your perspectives as the developer will prevail depends strongly on:

- Your actions: **What** you are doing in the communities where you are involved and the degree of trusts this is bringing to you.

- Your past history: There are always people opposing to you today because of steps and measures taken by previous organisations, in another time frame, under other legislation etc, even though you were obedient towards all existing laws and regulations. One example is the case of Kynnefjäll in the west of Sweden where test drillings were planned but never performed because of the local opposition that has prevailed for over two decades.
- Your communication skills: **How well** you manage to explain to people what you want to do, why and the consequences if the waste issue is not solved. In risk communication the messages that are sent are rarely the messages received, thus the role of semantics becomes more obvious here.

A risk communication paradox

There is a paradox in the relation between real risk, risk perception and risk assessment/risk-communication. Real risk can be reduced by doing risk assessments, communicating and discussing these broadly and openly and then adjusting to the results e.g. by modifying the system and introducing mitigating measures. Negative risk perception and the anguish it entails, however, will have a tendency to increase by the focussing on the risks of a project. Obviously the solution to this problem can not be to avoid risk assessment and risk communication, but it stresses the need to explain the different purposes of risk assessment and risk communication activities. It also points to the responsibility of everybody involved in the debate to use risk communication to clarify issues and to put things into perspective. In the long run trust will be given to those that neither exaggerate nor belittle the risks of the project.

The power of the good example

In order to make progress, SKB feels it is vital to establish a siting process that is open and transparent and hence a genuine one. Basically it is all about trust. Trust is not given, it is something one earns and that happens when people note that deeds and promises are coinciding. It goes without saying that the time element here is crucial. We have to give the publics time and opportunities to put us under scrutiny and get them involved in the issue at an early stage. Only if the publics feel they have the possibility of influencing the decision making process would they participate and have trust in you.

The Storuman and Malå experience

The feasibility studies in Storuman and Malå in the early and mid-nineties ended, from SKB's point of view, as what would seemingly be called a "failure". This since the company left both communities once the population voted against further involvement in the site characterisation step. But, because SKB acted fully in accordance with its own policy and respected the outcome of the referendum (there were allies as well in those communities), this whole experience became trust building.

The Storuman and Malå experiences have in this way contributed in the trust people have for SKB. 62 % of the citizens of Malå expressed very high or high enough level of trust for SKB (3) as a company and for the democratic approach that SKB together with local politicians and regulatory bodies is carrying out.

SKB sometime faces statements as follows: “ I do not think that a geological repository is the best solution but I think that SKB is a company worth trust”. This means that even when people disagree with our proposals they might still trust the company and dialogue with us.

In the communities where SKB is currently involved, the municipalities learned a lot from Malå and Storuman. Especially how to avoid polarised attitudes where the community divides into yes and no groupings, making the climate for discussions difficult and less constructive.

The role of the semantics and pedagogics

Involving the publics in the decision making process in order to site a repository for high level waste means also, that a lot of efforts should be put into using a language that is accessible to the publics.

But there is just as much one can do as regards misunderstandings related to semantics. Words have a social inherent meaning related to our own personal experiences. The word “liberal” means different things to a Swedish citizen and an American one (4 and5). Think what “geological repository for radioactive waste” might mean to different people in our society!

Exemplifying is one way of trying to overcome semantic difficulties, You are then given another opportunity to reformulate your message.

A common mistake made by the proponents is probably when they start by trying to explain in a great level of details about all the technical solutions. We learned the hard way that long before this explanatory stage, you want to have people “share” the problem and the ultimate goals with you (we **all** have to take care of **our** waste in the **best possible way**). They want to grow to know you before you are granted the opportunity to explain what you wish to achieve in their community.

It is amazing how much one can do to simplify the way scientific and technical matters are explained and described without altering the essence and correctness of the information. Pedagogical skills are of course important in this context, but mostly it really is a matter of hard and persistent work with language in the documents, overheads and presentations in general.

Having said the above, one can simply not deny that some people are better equipped to carry out the dialogues with the publics than others. Being a blissfully talented engineer does not automatically qualify you to the task of communicating about risks with laymen. On the other hand, the publics often perceive the PR

officers as “ sellers of messages” because they generally do not know much more about the subject than a fairly well informed citizen.

A combination of good engineers who are interested in interpersonal communication is of course an attractive profile in this respect.

3. Conclusions

SKB is planning in the year 2001 to designate two siting alternatives for further site characterisation. The work in the municipalities of Östhammar, Nyköping, Oskarshamn and Tierp is taking place in an atmosphere of constructive discussions. There is a growing feeling in Sweden among broad categories of the public that the nuclear waste exists and should be taken care of by our generation, without many of these people ever getting positive to the use of nuclear energy. While the NIMBY syndrome might still have a good grip on some, there has never been a more constructive debate about the nuclear waste than now, even though there still is a lot of work to do.

Siting a geological repository for high level waste puts our democratic system under hard tests. The decision making process is about openness, skills in interacting with the public, respect of people's fears and concerns and at last but not the least independent, competent and visible participation by other stakeholders (politicians locally and nationally, regulatory bodies....).

Good skills in risk communication are one important ingredient that might facilitate SKB's task as a developer. Far more important however, is the trust we might get from past and present record of handling the waste and from the way we work and behave in the feasibility studies in the municipalities where SKB is involved.

References

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