# Stakeholder Involvement in Swedish Nuclear Waste Management

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## 1. Introduction

The focus in this paper[1] is on past, current and emerging patterns of stakeholder involvement in the siting of a deep repository for final disposal of Sweden's spent nuclear fuel. In particular, we concentrate on how the two municipalities of Oskarshamn and Östhammar have acted as engaged stakeholders, and have gained recognition as such, in the siting process. In general: How has stakeholder involvement gained acceptance as an activity of value in the siting of major waste facilities? What are the issues currently subject to stakeholder involvement and how have these been decided upon?

## 2. Switch to a Strategy Based on Voluntarism and Dialogue

In the early 1980s the Swedish Nuclear Fuel and Waste Management Company (SKB) formulated a systematic geo-scientific research programme of test drillings across Sweden with the aim of supporting the site selection process for finding a proper location for a final repository for spent nuclear fuel. The original intention was to set about discovering the absolute best and safest place to locate a final repository. However, the drillings resulted in political protests in most of the municipalities where they were conducted, even though they were advertised as more concerned with basic research and not part of a site selection process. However, this strategy of not involving people turned out to be a disaster for the nuclear industry (Lidskog 1994: 57). The industry was forced to change its narrow technocratic siting strategy to become more socially sensitive and include the opinion of local residents in their future activities.

In October 1992 SKB sent a letter to all 286 municipalities in Sweden (SKB 1992). In this letter the work of managing and disposing of nuclear waste was presented. This new initiative from SKB, to contact all the Swedish municipalities, signalled the adoption of a site selection strategy offering priority to local involvement. SKB's letter resulted in feasibility studies in two municipalities in the sparsely populated interior part of northern Sweden. However, after the completion of these studies the residents, in local referenda, voted against participating further

[1] This paper draws on research conducted within the cross-national research project *CARL – A social science research project into the effects of stakeholder involvement on decision-making in radioactive waste management* (see paper 'Introducing CARL').

in the siting process for a deep repository (SKB 1998: 94). After the decisions of these municipalities to leave the process no more volunteers were forthcoming.

## 3. Feasibility Studies in Communities Already Hosting Nuclear Facilities

In May 1995, SKB published a report providing an overview of the nation's five nuclear municipalities offering a first assessment of their suitability for the siting of a deep repository (SKB 1995). Given the likely presence of appropriate bedrock in several of these communities, the existing infrastructure, as well as the established knowledge and competence in these locations is deemed important for defining them as prospective sites for a deep repository.

On the basis of its preliminary overview, SKB was able to identify Varberg, Östhammar, Nyköping and Oskarshamn as good candidates for feasibility studies. When SKB proceeded to invite these four municipalities to accept feasibility studies they received four different responses (Sundqvist 2002: 191, SOU 2002). Östhammar took just four weeks to say yes to a feasibility study after a vote in the municipal council. Varberg, after suffering a minor earthquake at the time of SKB's invitation, voted not to allow a feasibility study. Nyköping decided not to take a formal decision on the issue, as they saw no way of formally preventing SKB from assessing their feasibility if that is what they wished to do. Oskarshamn voted yes to a feasibility study, but only after 17 months of local deliberations and planned activities. It was not until October 1996 that SKB finally learnt that they were officially welcome to carry out a feasibility study in Oskarshamn.

Concentrating on the cases of Östhammar and Oskarshamn, how then should we interpret their contrasting approaches to accepting a feasibility study? Regards Östhammar, it appears that they reasoned that they had been asked to participate in a nationwide siting process and although all the steps in this process are clearly not of equal relevance to them, being a participant requires that you follow them. Unlike all those municipalities who had ignored SKB's 1992 invitation, Östhammar were happy enough, when directly asked, to speedily confirm their faith in SKB as a local employer, and their willingness to develop their co-operation with the nuclear industry further. Oskarshamn, however, viewed participation in a feasibility study in terms of a strategic opportunity for them, as by 1995 they were already an experienced and organized local stakeholder in nuclear waste issues. In this respect they had already assumed a unique position in relation to the other nuclear municipalities in Sweden. Already with the siting of CLAB (the central interim storage facility for spent nuclear fuel) in Oskarshamn in 1980, the future of the municipality became wedded with the success or failure of the KBS-3 method.[2]

When Oskarshamn eventually said yes to a feasibility study, they made this conditional upon the fulfilment of a particular set of local demands directed as much towards central government as towards SKB. In many instances, these demands

[2] SKB's choice of method for spent nuclear fuel disposal is the multi-barrier KBS system. This method was rapidly developed in the late 1970s as a response to a legislation requiring absolute safe handling of spent nuclear fuel in order to get permission to fuel new nuclear reactors. As a consequence, and after government approval, Sweden became world leading in nuclear waste management, and the KBS system, an international point of reference for technological work in the field.

were not new concerns for the municipality, but related to established lines of local policy which the municipality was again taking the opportunity to advance. According to the municipality, the organization they established in relation to SKB's feasibility study amounted to the development of an Oskarshamn Model for local stakeholder involvement (SOU 2002: 219).

Underlying, the Oskarshamn Model is the perception of something like a mutual hostage situation characterizing the relationship between SKB and the municipalities hosting nuclear facilities in Sweden (cf. Rees 1994). Both the possible future, or the final burial of the Swedish nuclear programme is currently dependent upon the establishment of a new pattern of 'voluntary relations' between SKB and the municipal hosts of the KBS-3 system of spent nuclear fuel disposal. As new municipalities interested in entering into such a pattern of 'voluntary relations' with SKB were not sufficiently forthcoming after 1992, SKB were by 1995 obliged to start facing the prospect of siting the whole of the KBS-3 system within the Swedish nuclear industry's own backyard. As the custodians of this backyard the municipalities already hosting nuclear facilities were thereby encouraged to recognize that SKB was on the verge of becoming just as much their hostage in the search for a safe solution to the waste problem, as they already were of them.

The turn of SKB to communities already hosting nuclear facilities as potential hosts for feasibility studies, eventually led to three additional municipalities also accepting feasibility studies. These municipalities are neighbouring ones to Östhammar and Oskarshamn: Tierp, Älvkarleby and Hultsfred. On 15th November 2000 SKB publicly announced its choice of sites for site investigations, thereafter a full-scale report was published one month later (SKB 2000). The chosen sites were located in the municipalities of Östhammar, Oskarshamn and Tierp (a 'reserve' site was also identified in the municipality of Nyköping). The reactions in Nyköping and Tierp led to withdrawal from the siting process, while Oskarshamn and Östhammar accepted site investigations.

## 4. Site Investigations in Östhammar and Oskarshamn

As during the feasibility study stage, the municipality of Östhammar wasted little time in agreeing to host a site investigation after the government decision at the beginning of November 2001. A decision on the matter was taken on 4th December when the municipal council voted 43 to 5 in favour of hosting an investigation. A contract with SKB was signed shortly after the municipal decision where the municipality set down 15 separate conditions. These conditions are not particularly exceptional and determine, for example, that SKB alone shall carry out the site investigation; that the municipality is not bound to accept further studies/investigations in connection with the siting of a deep repository; that the municipality shall be granted unlimited access to the results of the site investigation; that highly technical aspects of SKB's investigation shall be summarized in a fashion understandable by local citizens; that the municipality's reference group shall be kept well-informed about the progress of the site investigation in a fashion that enables them to pass on information to local citizens; that the municipality's reference group's own ideas and perspectives are given due attention by SKB; that SKB themselves maintain a high level of ambition to inform local citizens about the

progress of their site investigation paying special attention to young people, summer residents and those living close to a proposed repository; and that municipal expenses in connection with a site investigation shall be reimbursed through the Nuclear Waste Fund (Östhammars Kommun 2002).

The municipal council in Oskarshamn voted to allow SKB to carry out a site investigation in March 2002. The 13 conditions they set down framing their agreement to host a site investigation are, as to be expected, far more detailed and challenging than those set down in Östhammar. They are also directed at SKI and SSI, and not only at SKB. In this way they make evident a clear ambition to shape and influence the site investigation process. Some of the more notable conditions include:

- Only spent fuel deriving from Swedish nuclear power plants in the volumes publicized by SKB is under consideration in the site investigation. The siting of a new repository for low- and medium-level waste (SFL3-5) remains a separate issue.
- SKB and the government authorities must deepen their dialogue with citizens over issues of safety and radiation protection and must not handle these issues in isolation from the public.
- SKI and SSI must remain highly observant of SKB's work and keep the municipality regularly informed of the latter's ability to live up to the rigorous investigative standards imposed upon them by government authority.
- The connection between safety analyses and the specific criteria for choosing one particular site over another for a deep repository must be clarified further by SKB
- The municipality demands that SKI and SSI during the course of the site investigation make a systematic summary of the relevant research which in important respects has come to conclusions other than those reached by SKB. The government authorities should also evaluate this alternative research.
- The municipality requires a decision from government as to the acceptability of their position that: Oskarshamn will only say yes to an encapsulation plant on condition that this facility will not be commissioned before a site for a deep repository has been subject to government review and decision.
- In accordance with the government decision on site investigations, the question of which alternatives (methods and sites) should be dealt with in a comprehensive fashion through the EIA process.
- The long-term relations of responsibility for a deep repository must be clarified further. (Oskarshamns kommun 2005)

If feasibility studies were more concerned with surface conditions and the political geology of different municipalities, site investigations re-focus attention on underlying bedrock conditions determining a municipality's suitability for hosting a deep repository. Site investigations can be seen as coinciding with the resumption of a research-driven siting process for a deep repository. After an interlude lasting 16 years (1986-2002), issues of physical access to municipal space and local political acceptance have been finally overcome, and SKB's drilling equipment has now once again assumed a position centre-stage in the siting process. There now exists a general expectation that the bedrock conditions in either Östhammar or Oskarshamn (or even in both locations) will, most likely, be deemed 'good enough' to host a deep repository by both SKB and the responsible government authorities (SKI and

SSI). While initial test drillings in the early 1980s proceeded with only the informed consent of local landowners, today's site investigations are being accompanied by highly elaborate EIA procedures.

The key characteristic of SKB's site investigations in Östhammar and Oskarshamn is their *bifurcated* nature. Three different types of government legislation have a bearing on the siting process for encapsulation plant and deep repository (SKB 2003). The two major forms of legislation are the Act on Nuclear Activities from 1984 and the Swedish Environmental Code (superseding previous environmental legislation) from 1999. In addition, SKB have to apply for general planning permission for both developments from the relevant municipal authority. Current site investigations are in the first instance designed to produce the new technical and geological knowledge required to respond to the rigorous demands for nuclear safety that SKI and SSI are responsible for enforcing in accordance with the Act on Nuclear Activities. Thus, the stakeholders involved in assuring that this legislation is respected are both relatively few in number, and largely predefined by their possession of highly specialised and accredited forms of expertise.

Site investigations are also, however, to form the basis for the preparation by SKB of detailed Environmental impact statements (EIS) to be submitted to 'Environmental Courts' (miljödomstolar) in respect of the Swedish Environmental Code. Here the possible and expected impacts of the two planned facilities on the natural environment, human health and society are to stand in focus. The question of alternative sitings must be seriously addressed, as must the use of alternative methods for achieving the same technological ends. In addition, the option of carrying out no development at all must be addressed (the so-called zero-alternative) for both an encapsulation plant and deep repository. Compared to the Act on Nuclear Activities, therefore, the potential number of stakeholders involved in guaranteeing that sufficiently comprehensive EIS are prepared appears relatively large. Furthermore, who all these stakeholders are is not at all easy to define in advance of the Environmental impact assessment (EIA) processes generating the EIS. For this reason, there appears to be a built-in tension in SKB's site investigations in Oskarshamn and Östhammar. Depending upon which government legislation achieves greatest influence over these investigations, stakeholder involvement will either be progressively opened up during the course of investigations, or continue to remain relatively limited and contained. The outcome of the site investigations will in the course of the next year or so, either appear increasingly open, or increasingly predictable. The built-in tension in SKB's site investigations is also heightened by the fact that it is intended to produce single documents where EIS and safety analyses will be attached and wedded to each other, allowing more or less the *same documents* to be submitted for trial/approval by *both* SKI and the Environmental Courts. In this ambition, the legitimacy of one style of addressing and responding to government authority clearly risks prevailing over the legitimacy of another.

Therefore, how SKB's site investigations will turn out can be seen to depend upon the extent to which their bifurcated nature is upheld or challenged. Will site investigations continue to focus on the safe implementation of the KBS-3 system of spent fuel disposal in either Oskarshamn or Östhammar with respect to the Act on

Nuclear Activities? Or will the EIA process challenge this situation by breathing new life into the 'big issues' of alternative methods of waste management and alternative sites? Clearly, as far as SKB are concerned the less new life that is breathed into the 'big issues' the better. The 'big issues' are to remain relatively-speaking non-issues, which are to be understood as already having been settled *prior* to commencement of site investigations. To keep the 'big issues' at bay and no threat to their basic mission of implementing the KBS-3 system in either Östhammar or Oskarshamn, SKB have serious reasons for wanting to keep the lid on the EIA process. In this situation the decisive actors during site investigations are likely to be the two government authorities SKI and SSI. Will these two actors be prepared to remain relatively closed away with SKB negotiating nuclear safety with respect to the KBS-3 system, or will they allow themselves to be drawn more into the open, and into the centre of a potentially expanding EIA process?

SKB's current approach to the EIA process during site investigations is to focus most attention on 1) informing about the progress of their geological investigations in Östhammar and Oskarshamn and 2) staging discussions with municipalities, local citizens and local organizations concerning the design and construction of a deep repository and encapsulation plant in relation to local health and environmental issues. It is emphasized by SKB that EIA meetings are a valuable opportunity to take account of local citizens' insights and perspectives, and that they should be characterized by a mutual exchange of knowledge and ideas (SKB 2004: 7). Given the preference of the municipality of Östhammar, discussed above, for treating nuclear waste management as far as possible as an unexceptional activity, it would appear that they can carry few objections to SKB's current approach to the EIA process. The municipality of Oskarshamn, on the other hand, clearly have reasons for feeling relatively dissatisfied. The current EIA process neither lives up to the 'Oskarshamn Model' for local stakeholder involvement, nor to the specific conditions they have laid down governing their participation in a site investigation. The Oskarshamn Model emphasizes openness and involvement in the decision-making process for the municipality. It also stresses that SKB must be pressed into providing clear answers to 'difficult' questions. In relation to site investigations, the most 'difficult' question to which Oskarshamn require a clear answer is the one concerning the exact criteria by which SKB will decide which site investigated is best-suited for a deep repository (Oskarshamns kommun 2004). Considering the conditions laid down by Oskarshamn for allowing a site investigation, it is obvious that they want to use the EIA process (their established 'platform') to open up issues of safety, alternative methods and sitings in order to achieve transparency. Just because they see themselves as a long-established ally of SKB in the implementation of the KBS-3 system (first a relatively involuntary ally, but now a more self-determining one), they refuse to be kept in the dark about the technical details of the siting process as the naming of a single site draws closer. While not opposed to the KBS-3 system in which they already have so much invested, the municipality of Oskarshamn is still prepared to challenge the currently bifurcated character of SKB's site investigations. As in the past, the municipality wants to strengthen their position as a stakeholder by mobilizing environmental legislation to loosen the grip of the Act on Nuclear Activities on the siting of major waste facilities. As the

municipality of Oskarshamn has explicitly stated they consider SKB's current approach to the questions of alternative methods and sites in the preparation of an EIS as inadequate and insufficient (Oskarshamns kommun 2005). In this connection, Oskarshamn are also prepared to demand of SKI and SSI ('their experts' according to the Oskarshamn Model) that something be done about the situation in the further development of the EIA process. The interesting aspect to follow will be how far Oskarshamn's ambition to enlarge the EIA process will take it beyond what SKB currently intend. Also, if the lid is lifted on the 'big issues' of safety connected to alternative methods and sitings, is there a risk/chance that the EIA process will expand beyond what even the municipality of Oskarshamn desire?

## 5. Conclusions

An effect of the history of nuclear activity in Oskarshamn and Östhammar is that stakeholder involvement over a final repository can be divided into social and technical issues. Both municipalities have out of tradition, as part of their social acceptance of a new repository, been prepared to surrender extended involvement in key safety issues. They have been prepared to do this because they also see themselves being able to delegate these safety issues to the government authorities SSI and SKI. These two authorities have been acceptable to the two municipalities as their legitimate 'technological guardians'.

As physical geology re-enters the siting process for a deep repository, Oskarshamn appear more prepared to break with tradition than Östhammar. Oskarshamn are currently demanding transparency from SKB in relation to the exact technical and geological criteria they will use to choose between them and Östhammar as a repository site. In contrast to Östhammar, Oskarshamn are preparing with the expected help of SKI and SSI to dispute their geology and its relation to nuclear safety with SKB if they consider it necessary. If Oskarshamn act to draw safety issues in relation to alternative methods and sitings into the EIA process where might this lead?

In 1995 the government decided that municipalities chosen for feasibility studies as regards an encapsulation plant or deep repository be offered financial assistance from the Nuclear Waste Fund. In 1996 the legislation was altered to confirm this (SOU 2002:46, p.124). In 2004, a similar change was made in order to offer financial support to non-governmental organizations participating in the EIA process connected with site investigations. As environmental groups now enter the process (three groups were granted funding in the first round – 2005) the character of site investigations may change. A different understanding of what should be subject to stakeholder involvement is now on the table, but how exactly this will influence the process is still too early to say. The group most visible so far, the Swedish NGO Office for Nuclear Waste Review (MKG), has published, however, a thorough review of SKB's R&D programme from 2004. In this it is obvious that the Group wants to focus on a more strict assessment of a proposed final repository in relation to the requirements stated in the Environmental Code, that the suitability of a site should be determined by its ability to protect human health and the environment, which places substantial demands upon the site chosen. Moreover, according the Code the best available technology should be used and alternative

technology presented. According to MKG, SKB are not fulfilling these requirements in respect of the Environmental Code. The KBS method as well as the two sites in Oskarshamn and Östhammar are not chosen in relation to these requirements (MKG 2005). MKG, therefore, seems unwilling to proceed on the assumption that a final repository should be sited in either Östhammar or Oskarshamn, without detailed comparisons with other sites being carried out.

In this paper we have tried to show the changing patterns of stakeholder involvement, and also that the current pattern, often mentioned as stable, is not naturally given. Many uncertainties could be listed, but what we know for sure is that the nature of stakeholder involvement at any moment in time always remains contingent and fluid. Who the major and minor stakeholders are; which opportunities they have to act, and on what issues are continually shifting matters. While things can appear to be proceeding in a relatively orderly step-by-step fashion, the reality of stakeholder involvement is that things are continually on the verge of turning out otherwise.

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