

**ADDRESSING ISSUES RAISED BY STAKEHOLDERS:  
EXPERIENCES OF EIGHT ORGANISATIONS**

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Demand for stakeholder involvement has become imperative in the field of radioactive waste management. Providing for fair and competent stakeholder involvement, however, raises several questions of practice, for example: How to address issues raised by stakeholders? How to take stakeholders' views into consideration if they are divergent or conflicting? This paper reviews eight case studies prepared for the Topical Session on Addressing Issues Raised by Stakeholders, aimed at analysing the impacts of stakeholder involvement on decisions in RWM organisations. The studies outline the experiences of the following organisations: Canadian Nuclear Safety Commission (CNSC)<sup>1</sup>; Canadian Nuclear Waste Management Organization (NWMO)<sup>2</sup>; Nuclear Waste Management Organisation of Japan (NUMO)<sup>3</sup>; Posiva, Finland<sup>4</sup>; Radioactive Waste Repository Authority, Czech Republic (RAWRA)<sup>5</sup>; Swedish Radiation Protection Authority (SSI)<sup>6</sup>; United Kingdom Environment Agency<sup>7</sup>; United States Environmental Protection Agency (EPA)<sup>8</sup>. Case study reports are included in the Annex of this volume.

The paper outlines the main trends and lessons learned from the above case studies. The first section focuses on impacts of stakeholder involvement on specific RWM decisions regarding policy and process. Examples presented in the second section illustrate how stakeholders' concerns may influence general decision-making practices and organisational behaviour. In the third section various approaches to handling divergent stakeholder views are introduced. The paper concludes with recommendations extracted and derived from the eight reports.

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1. Flavelle (this volume).
  2. Shaver (this volume).
  3. Takeuchi et al. (this volume).
  4. Seppälä (this volume).
  5. Šumberová (this volume).
  6. Hedberg (this volume).
  7. Chandler (this volume).
  8. Forinash (this volume).

## 1. Issues raised by stakeholders: Their impacts on specific RWM decisions

Case studies focus on the following types of decisions:

1. Designing the process aimed at selecting RWM option(s) (e.g., defining criteria for evaluating and comparing options, planning the dialogue between stakeholders and experts, etc.).
2. Selecting RWM option(s).
3. Designing the site selection process (e.g., defining stages, site selection criteria, stakeholder involvement tools, etc.).
4. Selecting a site for an RWM facility.
5. Defining the details regarding the RWM facility (concept, safety standards, monitoring, community oversight, etc.).

In the following, using the cases as illustrative examples, we shall show what procedures were followed in exploring stakeholder views and concerns, and how they influenced the decisions taken by government agencies and implementers.

### 1.1 *Designing the process aimed at selecting RWM option(s)*

Ensuring the participation of stakeholders in designing the process aimed at selecting RWM options facilitates the identification of widely accepted management options. Involving stakeholders in this type of decisions calls for national dialogue.

- In 2002, the Canadian Nuclear Waste Management Organisation (NWMO) was mandated by the government to undertake a study of different waste management options for spent nuclear fuel. In order to design a process which reflects the values and perspectives of Canadian society, NWMO has conducted a comprehensive national consultation process. This includes face-to-face conversations with a number of individuals and representatives of organisations at local, provincial, national and international levels, and public opinion research studies. NWMO invited comments on how it should approach the overall design of the study of RWM options. Stakeholders cited transparency and fairness as a priority for the study process and also emphasised that the process must be grounded in knowledge and expertise. In response, NWMO has committed to seek an open, transparent dialogue with all interested citizens and communities. It makes accessible to the public on a website as much relevant information as possible (e.g., research papers, submissions by the public, minutes from meetings, etc.) and invites public reflections where possible. In order to provide for knowledge and expertise, NWMO has engaged a large number of – Canadian and international – scientific advisors from technical, legal and management fields. Formal and informal reviews and panels are arranged around all key documents (Shaver, this volume).

To prepare the development of an evaluation framework, NWMO elicited stakeholders' ideas on the priorities concerning RWM options through National Citizens' Dialogues in 2004. The identification of key values emerging from these dialogues has assisted NWMO in developing the assessment framework of waste management options (Shaver, this volume).

## 1.2. *Selecting RWM options*

Involving stakeholders in strategic decisions on selecting RWM options is a relatively new phenomenon. Earlier, the selection of RWM options was typically the responsibility of national governments, and the consideration of stakeholder values took place through the mechanisms of representative democracy. However, this practice has changed recently and stakeholders increasingly demand that their voices be heard.

- In Finland, an 1983 government decision obliged the waste producer TVO to make preparations for final disposal of spent fuel in addition to the option of shipping the waste abroad for reprocessing. The issue of prohibition of waste transport to Russia was first taken up in the Nordic Council and later the minister representing Finland in the Nordic Council brought up the issue in the Finnish government. There were also requests by the Green Party to stop spent fuel export. In addition, in the early 1990s, when it was expected that Finland would join the EU, the prohibition was needed to prevent potential waste import from EU and, for the sake of balance, the export as well. Finally, both export and import of waste was prohibited by a Parliament decision in 1994 (Seppälä, this volume).

In accordance with the above decisions of the Finnish government and Parliament, long-term storage of spent fuel was not assessed as a zero alternative to final disposal in the Environmental Assessment Program report. However, statements provided by the Finnish Environment Institute and the Ministry of Trade and Industry noticed this deficiency. As a result, assessment of the zero alternative was introduced in the EIA final report. (Seppälä, this volume).

In a number of countries, where stakeholders were not sufficiently involved in strategic decisions on selecting RWM options, conflicts subsequently unfolding in the course of site selection processes led the public and the politicians to call into question the option(s) selected by technical experts. This happened at the end of the 1990s in Canada and more recently in the Czech Republic.

- In the Czech Republic long-term RWM policy is defined by a basic strategic document entitled “The Concept of spent nuclear fuel and radioactive waste management” (Concept). The Concept was prepared by the Ministry of Industry and Trade in cooperation with the implementer (RAWRA) and several other interested parties, and it was approved by the government in 2002. According to the Concept, construction of a deep geological repository for the direct disposal of HLW is the only realistic option for a final solution based on the current level of knowledge. However, a new evaluation of options is expected in 15-20 years time, which could revise this decision. Before the government decision the Concept was subjected to an EIA, which included a public hearing. Throughout the policy development process, RAWRA made efforts to attract the attention of the public to the Concept and the EIA process, however, the issue failed to grasp the interest of the media and most people learnt about the decision only later, during the site selection process. (Šumberová, this volume)

The Concept requires that two suitable sites for the construction of a deep geological repository be selected before 2015. The screening stage of the site selection process was completed by RAWRA by 2003 when six potentially suitable sites for a disposal facility were identified. Then petitions were submitted and referenda were organised in 15 communities at 4 of the sites, opposing any further development in their vicinity. Even the legitimacy of the geological disposal option has been questioned by politicians, communities and other stakeholders, who suggested that other options, e.g., a European regional repository and transmutation technologies should also be considered. As a result, the

government decided to postpone geological activities at all sites for five years. (Šumberová, this volume)

In order to avoid similar conflicts, a growing number of countries strive to base the selection of RWM options on national dialogue.

- Besides Canada, in the U.K., too, a national consultation involving key stakeholders is ongoing in order to determine the waste management options that constitute the elements of the national RWM strategy. (Shaver, this volume; Atherton, this volume)

### ***1.3 Designing the site selection process***

There are two ways for involving stakeholders in designing the site selection process. One way is to involve them in preliminary planning (e.g. in the case of the German AkEnd process), another is to design a stepwise site selection process, where stakeholders are consulted from time to time and their opinion is taken into consideration in shaping the process.

- In Sweden, the Act on Nuclear Activities prescribes that the implementer (SKB) must every third year present its research and development programme to the government, which may set conditions for SKB's future work. The review of the programme is carried out by the regulator (SKI), which in turn invites comments from a large number of organisations, e.g. other authorities, municipalities involved in SKB's siting process, environmental groups, universities etc. Thus, the review serves the two-fold purpose of giving a broad audience insight into SKB's work and providing the same audience with a possibility to comment, and hence influence, SKB's future activities. (Hedberg, this volume)
- In Japan, the Specified Radioactive Waste Final Disposal Act stipulates that a HLW repository site be selected via a stepwise process including three stages. The implementer NUMO is required to submit a report describing the results of the investigations at the end of each stage and before proceeding to the next stage. Local residents will be notified about the publication of this report and the document will be open for comments. In addition, the Ministry of Economy, Trade and Industry must solicit opinions from the governors and mayors of concerned communities prior to finalising decisions made during the site selection process. Views of elected officials and the public will be respected when designing the subsequent stages of the siting process. (Takeuchi et al., this volume)

### ***1.4 Selecting a site for an RWM facility***

In many countries, EIA is considered the primary framework for public participation in site selection processes. EIA procedures are sufficiently flexible to accommodate new needs as they appear during both the scoping and the assessment phases of the process. (Hedberg, this volume)

- EIA was chosen as the primary tool for stakeholder involvement in the Finnish site selection process. In the scoping phase of EIA, the implementer Posiva organised public meetings in each of the candidate communities where local residents could raise their concerns about the planned facility. For example, impacts of the disposal facility on the image of the municipality and on the consumption of local farm products were discussed. In response to these concerns, social impact assessment studies were conducted. (Seppälä, this volume)

In cases where site selection strategy is based on voluntariness and local acceptance, the affected public has a strong influence on the final site. A special way of involving stakeholders is providing for veto right, i.e., allowing communities to withdraw from consideration within a certain period.

- In Finland, from the very beginning, a veto-right was assured for municipalities, and a host community for the HLW facility was chosen primarily on the basis of local consent. Similarly, in Sweden, site selection strategy has been based on voluntariness and local acceptance. (Hedberg, this volume)
- In Japan, NUMO has chosen an “open solicitation” approach for finding candidate sites for the HLW repository. Therefore NUMO has invited municipalities throughout the country to consider volunteering as candidates for areas to explore the feasibility of constructing a final repository. (Takeuchi et al., this volume)
- In the Czech Republic, a number of NGOs and communities demand a veto right for potential host communities. An amendment to the Atomic Act on this issue was put forward by a number of independent senators, but has been rejected so far. (Šumberová, this volume)

### ***1.5 Defining the details of the RWM concept***

In recent practice, details of the waste management concept, including safety standards, monitoring and mitigation measures, are finalised through consultations with a variety of stakeholders.

- In the Finnish case, the concept of retrievability was not originally a part of the final disposal concept. When the regulator, STUK introduced the safety requirements, one member of the government insisted that retrievability be included in the requirements. In response to this request, in the final version of safety requirements, retrievability became a precondition for final disposal. (Seppälä, this volume)
- In Sweden, the regulations developed by SSI concerning the final management of nuclear waste have a clear goal, but are very general and leave a large number of approaches open to show compliance with the standard. SSI needs to develop more detailed guidelines that give adequate guidance to the implementer on how to fulfil SSI’s requirements, but also to meet the concerns of, and to be understood and accepted by, the concerned public. SSI decided to engage the municipalities involved in the siting process for a HLW repository in the development of guidelines on long-term safety of spent fuel disposal. SSI invited persons from the municipalities that participate in SKB’s site specific investigations to focus group discussions, so that questions and comments from the discussions will provide an important input to SSI’s work on the guidelines. (Hedberg, this volume).

## 2. Issues raised by stakeholders: Their impacts on decision-making practices

In the foregoing we have shown the methods used by the decision makers in exploring the concerns and values of stakeholders and how these influenced the various types of RWM decisions. However, stakeholders' views may influence not only specific (process or policy) decisions, but also the general decision-making practice and behaviour of organisations. This is illustrated by Kotra (this volume), Atherton (this volume), Piguet (this volume), and the following examples drawn from the case study reports.

- Following an extensive consultation program in association with the certification decision on the WIPP facility in 1992, the U.S. Environmental Protection Agency (EPA) assessed stakeholder satisfaction with the program. They found that stakeholders appreciated some aspects of the program but were frustrated with the lack of two-way dialogue and were interested in getting clearer information on technical issues. (Forinash, this volume)

The EPA is using the results of the assessment in formulating the stakeholder consultation program for WIPP's first recertification review in 2004. In response to stakeholders' criticisms, the Agency decided to provide more opportunities for dialogue and face-to-face meetings. This is a departure from past strategies emphasising public hearings and comments periods, in which the Agency only gathers information, and responses to concerns tend to be provided long afterwards. The Agency has also been more direct about asking stakeholders about their preferences for information and meetings, rather than trying to predict. Other key elements of the revised program include (1) defining the goals for public participation more clearly, (2) communicating the stages of the review process, the estimated schedule, and the public's role at each stage, (3) seeking a broader group of stakeholders, (4) using e-mail and Internet technologies to a larger extent, and (5) communicating the basis for the Agency's decision. (Forinash, this volume)

- Based on its experience of public consultation, the UK Environment Agency has developed a six-step approach to designing and implementing consultation and engagement activities. This approach includes the following steps: (1) defining context for engagement/consultation with stakeholders, (2) identifying objectives for engagement/consultation with stakeholders, (3) identifying stakeholders, characteristics and needs, (4) designing the best fit consultation or engagement approach, (5) engaging with stakeholders, monitoring and adapting the process, (6) evaluating and reviewing effectiveness of consultation or engagement. The adopted approach reflects the recognition that – contingent upon existing relationships, political circumstances, stakeholder understanding, etc. - there might be a different way to engage various stakeholders to achieve the best outcome. (Chandler, this volume)

The Agency is also looking at ways of taking account of public concerns about particular risks in decision-making. One approach has been to try to assess the level and depth of public concern, and to include this as a criterion for weighing up options; another approach is to involve members of the public in risk assessment. (Chandler, this volume)

- The Canadian Nuclear Safety Commission (CNSC) has responded to the increasing expectations by the public to be heard by, and for transparency of, their government, by changing its practice in a number of ways. Public hearings and meetings in communities where licensees have their operations have become the most important tools for increasing transparency and public engagement. License applications, environmental assessments, stakeholder interventions and CNSC staff evaluations and recommendations are published and distributed to all interested stakeholders. Improved scheduling of hearings and meetings and the use of teleconferencing, videoconferencing and video webcasting improve

accessibility to public events. The CNSC publishes detailed Records of Proceedings, including the reasons for decision, within six weeks of closing of a hearing. (Flavelle, this volume)

CNSC also provides a broad range of documents and information on its internet site. A corporate outreach program is continually evolving to coordinate and improve the effectiveness of CNSC staff interactions with various stakeholder groups, including municipal organisations, major licensees, the general public and other stakeholders, often at their request. (Flavelle, this volume)

Stakeholder consultation is an integral part of developing new or amending existing regulations. It took three years with consultations to develop the regulations pursuant to the Nuclear Safety and Control Act. Subsequent amendments to those regulations also receive stakeholder scrutiny, and in some instances the implementation of regulations is modified in response to stakeholder consultation (for example, some elements in the program to implement the Cost Recovery Regulations are included at the request of stakeholders). (Flavelle, this volume)

- In Sweden, SKI and SSI conducted a joint research project entitled RISCUM to explore how facts and expert and stakeholder judgements interact to form the basis for decisions. The project introduced the concept of “stretching” to emphasise that transparency requires that SKB’s environment is sufficiently demanding and that SKB can be challenged from different angles. (Hedberg, this volume)

Drawing on the experiences of consultation processes, the RISCUM project recommended two stakeholder involvement tools as especially useful for stretching: EIA and hearings. Hearings have been used to serve for stretching SKB, as well as the regulators. On the other hand, well-structured procedures for EIA have been developed in the municipalities of Östhammar and Oskarshamn. In EIA processes, - as well as various other decisions, - regulators are expected to assist the municipalities in stretching institutional actors and act as the “people’s experts”. (Hedberg, this volume)

### **3. Addressing divergent stakeholder views**

The case studies show clearly the trend that regulators and other policy makers, as well as the implementers increasingly inform and consult stakeholders about alternative solutions, anticipated consequences, values and preferences. The question arises, how can the decision maker take into consideration stakeholder views if there is a considerable difference in opinion among the various stakeholders.

Research in this field indicates that the following four approaches or their combinations can be applied (Vári, 1989):

1. The reconciling approach, aimed at integrating the views of the parties.
2. The statistical approach, aimed at aggregating the views of the parties by quantitative methods.
3. The compromising approach, aimed at finding a compromise acceptable for each party.
4. The confronting approach, aimed at finding a creative solution via direct confrontation of the different opinions.

The essence of the *reconciling* approach is that it does not try to remove the divergences between the views, ideas, values of various stakeholders, but attempts to integrate them<sup>9</sup>. An example for this approach is the development of an assessment framework for evaluating and comparing RWM options, by integrating the values elicited from a number of Canadian stakeholders (Shaver, this volume). Another example is the identification of possible impacts to be considered in Finnish and Swedish EIA processes (Seppälä, this volume; Hedberg, this volume). In all these cases, ideas of various stakeholders were integrated in a joint framework, without the need for reaching a consensus on the relevance of various concerns and values.

Similarly to the reconciling approach, the *statistical* approach does not try to remove divergences, but aggregates different views by using mathematical methods (e.g., statistical procedures, decision analysis). An example for this approach is the statistical analysis of views elicited via public opinion surveys in the Japanese siting process (Takeuchi et al., this volume). Measuring local and national acceptance via local government vote and Parliament vote in the Finnish case and public referenda organised in the Czech Republic are other examples (Seppälä, this volume; Šumberová, this volume). An innovative tool is the UK decision analytic procedure, which tries to assess the level and depth of public concern and include this as a criterion for weighing up options. (Chandler, this volume)

In case of the *compromising* approach, a decision is reached which is a deliberate compromise between the various stakeholders. This approach assumes that the views of the stakeholders may come closer to each other<sup>10</sup>. The UK experiments to involve members of the public in risk assessment with the expectation that a compromise can be reached among them, is an example for this approach. (Chandler, this volume)

In contrast to the former three approaches, the *confronting* approach focuses on the differences between the problem representations of various stakeholders. It is based on the assumption that revealing and confronting different opinions may help exploring the sources of conflicts and thus may facilitate the finding of creative and mutually acceptable solutions. An example is the introduction of the concept of “stretching” and the use of hearings in Swedish decision processes (Hedberg, this volume). Confronting the stakeholders’ claims of truth, legitimacy and authenticity is likely to bring underlying knowledge, beliefs, values, preferences, etc. to the surface. This process will help testing the arguments of all parties, as well as testing the authenticity of stakeholders and experts<sup>11</sup>.

#### 4. Recommendations

A number of recommendations can be extracted and derived from the reports reviewed in this paper. In the following, these recommendations are summarised:

- It is important to be clear about the goals of stakeholder involvement, the steps of the process, the estimated schedule, and the role of the public at each stage.

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9. Phillips (1989) calls this „requisite modelling” where the model „is requisite in the sense that everything required to solve the problem is either included in the model or can be simulated in it”. According to Phillips (1989) requisite models must be developed by all key stakeholders.

10. Negotiation support methods (e.g., computer-assisted bargaining and analytic mediation) are primary tools for the compromising approach (Hoch et al., 2001).

11. This method was developed by Wene and Espejo (1999). Another method for the confronting approach is for example, the Strategic Assumption Surfacing and Testing (SAST) (Mason and Mitroff, 1981).

- It is important to be clear about the information sought and the feedback to be provided by the decision makers.
- It is important that the basis for the decision is clearly understood.
- It is important to keep records of the comments and questions raised by the stakeholders and ensuring that all points have been dealt with.
- It is important that stakeholders closely follow and influence the scientific/technical investigations and the decision process.
- It is important that evaluation and feedback be provided for the public.
- There is a general demand for „independent” expertise on the part of the public.
- There is a general demand for stakeholder funding.
- Consulting the public when the legal scope for them to influence the decision is small causes anger, so it is important to be clear on what issues can reasonably be influenced.
- People want to see that they have influenced the process and have had a meaningful impact on the outcome.

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