

COWAM Network :

Nuclear waste management from a local perspective

Reflections for a Better Governance

FINAL REPORT

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A - Executive summary

During the 1990s, nuclear waste programmes in nearly every concerned country met many difficulties. Nuclear waste management was seen as a technical issue, and the local communities were only involved in the last stage of the decision-making process when almost all components of the decision were already fixed. The management of high level radioactive waste is now recognised as a complex decision-making process entailing technical, ethical, social, political and economic dimensions where no solution can be reached solely on the basis of technical considerations. While this issue is acknowledged as a problem for the community as a whole, a major dimension in radioactive waste remains the fact that waste management is a global problem looking for a local solution. For this reason, there is an increasing need to have society, and notably directly concerned local people, involved in the decision-making process. For any solution, a sound contract between the national community and a local community is a pre-requisite. To reach such a contract there is a need for mutual trust between the two entities.

Building the project : meeting a growing need for local involvement

Starting from this view, a group composed of representatives of a local community (Oskarshamn, Sweden), national authorities (HSK in Switzerland and the special advisor to the Swedish Government on nuclear waste issues), the French nuclear implementer (ANDRA), and experts from Belgium (SCK • CEN), France (Mutadis, CEPN) and UK (NRPB) prepared and proposed a project to the EC Research Directorate in 1999 with the objective to improve the decision-making process in nuclear waste management at the local and regional levels. The project was named COWAM which stands for Community Waste Management. It was accepted as a European Concerted Action within the 5th Framework Programme of the European Commission. It was designed as a 3 years collective reflection process (2000-2003) to be developed in 4 seminars, each one being located in a local community involved in COWAM.

At its first meeting, the Steering Committee felt that there was a real need to address the issue of decision-making processes regarding nuclear waste management directly from the local point of view. It was therefore decided to give COWAM additional goals, and to make a specific effort to give European local communities and NGOs the opportunity to represent their own views in COWAM, and to create favourable conditions for local communities to network at the European level. The first year of the programme was devoted to the setting up of the network. The second year started in September 2001 with a seminar in Oskarshamn which was the first European platform of dialogue for local communities and NGOs involved in or concerned by nuclear waste management. Other seminars followed : Verdun (France) in February 2002, Fürigen (Switzerland) in September 2002, and Cordoba (Spain) in March 2003.

The initial resources could only cover part of the organisation of seminars (beside project management). In accordance with the pluralistic and local dimension set for COWAM, the seminars were thus co-organized and co-sponsored by COWAM and the hosting local government or organisation (namely : Oskarshamn for the first seminar; Conseil Général de la Meuse and CLIS for the second one; GNW for the third one; AMAC for the fourth one). About two-third of the seminars budget¹ were supported by the hosting organisation with an additional contribution from national sponsors (SKI, SSI, Swedish Ministry of Environment, SKB, ANDRA, Swiss Federal Office of Energy, AMAC, ENRESA, CSN).

COWAM Objectives

Taking into account the shift toward a stronger involvement of local communities, the COWAM project has widened its objectives :

- To empower local actors through a networking process at European level between different local contexts, countries and cultures;
- To gather and discuss the available experiences of decision-making processes at the local level within their national context in Europe;

¹ Except for the Cordoba seminar fully supported by Spanish funds.

- To set up an arena for balanced exchanges between local people, NGOs, regulators and implementers;
- To promote new approaches to decision-making in national contexts in Europe, notably by holding seminars in local communities concerned with nuclear waste management;
- To produce a Framework expressing the views of the participants at the end of the COWAM exercise in order to identify important questions for decision-making in nuclear waste management and to open up the way for wider reflections and actions in the future.

While enhancing networking between local communities and NGOs, a major task of COWAM was to bring out a shared understanding of the issues at stake and to identify possible ways forward to improve the decision-making processes with regard to nuclear waste management. Thus, the continued dialogue of local communities and NGOs with regulators, implementers and experts over three years was key to developing recommendations.

COWAM Network

COWAM network comprises 230 delegates from 10 European countries : Belgium, Czech Republic, Finland, France, Germany, Slovenia, Spain, Sweden, Switzerland, UK. Thirty local communities² are involved in the network. Local communities and NGOs represent 65% of the audience, the remaining 35% are delegates from national authorities (10%), implementers (18%), experts (7%). This network reflects the need both to strengthen local people's involvement in nuclear waste management, and to build a shared understanding with others, i.e. national authorities and implementers.

Methodology

COWAM activities were supported by a three-tier methodology : case studies involving presentations from different interest groups, single-interest working groups and mixed interest recommendation groups.

The COWAM seminars were structured to allow each of these to occur. Each seminar offered a major opportunity to review actual case studies in different local and national contexts : Sellafeld in UK, Tierp and Oskarshamn in Sweden, Görleben in Germany, Bure in France, Wellenberg in Switzerland, the Spanish situation, and Mona and Stola-Dessel in Belgium. The novel aspect of these case studies was the fact that they were presented by various people coming from different positions and playing different roles in the decision-making process: local communities, NGOs, implementers, experts, and public authorities.

The case studies were then discussed in ten single-interest working groups. *Single-interest* means that at this stage local communities and NGOs were not mixed with public authorities and implementers. The groups reported their conclusions before the wide audience at the end of each seminar. On the basis of the reports presented by the working groups a Framing Paper was prepared by the coordinator in interaction with the Steering Committee³. This paper identified important issues for discussion in the recommendation groups.

Unlike single-interest groups the eight recommendation groups were each comprised of representatives of local communities, NGOs, implementers and regulators. They met a total of three times: in Verdun (march 2002), Fürigen (September 2002) and Cordoba (march 2003). They issued recommendations which as far as possible reflect shared views among the various members of the group. The full reports of recommendation groups are available at : <http://www.cowam.com/final.htm>. A summary of the main conclusions is presented in the next section.

² "Community" here is used in the general sense of the word and refer to the local population of a given area. The communities in COWAM are represented either by local governments (municipalities, cantonal, district or regional government), by local commissions or local groups (quite often gathering elected representatives, citizens, representatives of local industry, trade-unions, and experts), or by citizens.

³ The Steering Committee comprises the group which proposed the project to the European Commission, and additional delegates notably from countries who were not first represented in the Committee, as permanent guests (*). The Steering Committee are : Harald Åhagen (Oskarshamn, Sweden), Detlef Appel* (PanGeo, Member of AkEnd, Germany), Thomas Flüeler* (ETH-Zurich, Switzerland), Gilles Hériard Dubreuil (Mutadis, France, co-ordinator), Emil Kowalski* (GNW, Switzerland), Yves Le Bars (ANDRA, France), Shelly Mobbs (NRPB, UK), Bernard Neerdael (SCK•CEN, Belgium), Serge Prêtre (formerly HSK, Switzerland), Thierry Schneider (CEPN, France), Olof Söderberg (Special Advisor on nuclear waste to the Government, Sweden), Mariano Vila d'Abadal* (AMAC, Association of Municipalities with NPP, Spain)

Results

The recommendation groups developed conclusions on the following five issues :

- **Local democracy**

Local involvement is often only called for so that “acceptance” of a given project can be found in accordance with “good standards” of democracy. COWAM participants view local democracy as a necessary step not to address “acceptance” issues but to improve the governance of nuclear waste management. This includes the empowerment of local involved people and an active participation of the wider population. A local partnership embodied by a local organisation, involving the various categories of the community representatives and other local concerned actors is expected to play a major role in gathering and disseminating information, interacting with the available sources of expertise, dialoguing and informing the regional and national levels.
- **Expertise in the local decision-making process**

Among the issues to be considered in nuclear waste management are the more technical ones, as for instance, the performance and safety assessment, the impact assessment, the details of the technical options, etc. Expertise on these issues often raises suspicion from the actors, not directly involved in assessment studies. Multidisciplinary and pluralism of views and their integration in expertise are key elements in this perspective. Because knowledge does not just “objectively” exist but is interest bound, expertise independent of the applicant has to be built up to reach a pluralistic perspective. A specific role for expertise was also highlighted in supporting local democracy and local actors’ involvement in nuclear waste management.
- **Influence of the local people on the national nuclear waste management framework.**

Local communities aim primarily at discussing and influencing the impact of and conditions for the siting of a nuclear waste management facility on their land. However, because local people are directly affected by the decisions, they need to partake in the preparation of the national policy. The involvement of local people should begin as early as a national policy is being discussed even before the site selection process starts. Since nuclear waste management is a national issue looking for a local solution, cooperation is most requested between the different levels of governance. National and local players must work together to take a shared responsibility for their waste.
- **Regional development policy**

The socio-economic dimension of the siting of a nuclear waste management facility in some countries is seen as an issue of compensation. It seems actually difficult to site a nuclear facility without considering the positive and negative impact it will have for the concerned territory. Nevertheless compensation appears as a narrow approach to the siting issue when it comes to local development. The integration and development of the site within a regional development policy which encompasses a prospective view on the future of the area is seen as a key factor to improve the governance of nuclear waste management in the short as well as in the longer term.
- **The site selection process**

Many approaches in the past appear to have failed either because they were based on technical criteria alone and didn’t consider economic, social and political aspects, or because they dealt with these aspects but without enough transparency. A preliminary discussion on site selection criteria – both at national and local level – should make clear how economic and political factors are included in the decision beside safety. The site selection process is questioned because of a lack of transparency, but also because some problems were not addressed or solved in the early phases of the decision-making process. The difficulties met in site selection point at the interaction between this phase and the earlier preparation of the national policy framework on the one hand, and the subsequent steps which are expected to take place after site selection on the other hand. Anchoring site selection in a wider and consistent step-wise process with clear defined steps will strengthen the robustness of nuclear waste management siting.

Conclusions and perspectives

The COWAM European concerted action carried out a collective and pluralistic reflection on the way to improve the decision-making processes related to nuclear waste management facility siting and operation. It looked at the local and regional levels while taking into account the specific national, cultural and historical contexts of European member states. A characteristic of COWAM was to base its approach to this problem at first on the point of view of the local and regional communities currently or potentially concerned by the siting and the operation of nuclear waste management facilities. A pluralistic and interdisciplinary European COWAM network has thus been created involving key local and regional actors, as well as a panel of implementers, regulators and experts in the field.

Implementers and regulators have since long well established fora for exchange and they also participate in co-operative projects. Regional entities and local communities subject to siting considerations or site investigations for waste management facilities in Europe did not have such exchange and co-operation and one key contribution of the COWAM project has been to bring regional and local representatives together and contributed to sharing of experience and ideas between these bodies. The work achieved in COWAM so far has shown that local people and representatives are interested in playing an active role in the discussions over nuclear waste management issues. Thirty local communities have participated in the network, and some of them have made a direct contribution to the programme by hosting and co-sponsoring a seminar. The views brought in by the local involved people highlighted the fact that the usual technical divisions between types of waste or between options are not so much relevant, when trying to understand the issues faced by communities. Questions about local participation, about the relation to the national players and national policy, about the criteria for site selection, or the contribution of expertise in the local dialogue, are equally significant for a surface storage or a deep disposal, for low level or high level waste. Moreover local communities often meet these questions with the same type of concerns, no matter which country they live in.

The value of the dialogue between communities also draws from their coming from different countries. There is strong interest in learning how others deal with some crucial practical questions one is faced with in one's own region (for instance how to build local dialogue with citizens, how to interact with national authorities, implementers...) and conversely to inform others about one's own experience in nuclear issues. This sharing of experience points out good practices which can be adapted from one country to another or used to stimulate local empowerment. This experience sharing is first and foremost developed by and benefits the local involved people.

In a broader perspective, this experience is shared with representatives of national authorities, implementers and experts. The emphasis put on the participation of local people in COWAM enabled members of this network to overcome distrust and to build a common reflection beyond usual stakeholder positions. Credit was given to the process and its ability to bring out sensible propositions which are both based on local experience and aiming at an improvement of the national decision-making process. Strikingly, working groups quickly agreed on the characterization and framing of the most salient topics. The dialogue in recommendation groups was intense and made it possible to bring out common lessons and views on the way to improve the decision-making process.

Major issues were identified which cannot be dealt within a strictly technical approach. Among others, questions such as the practicalities of dialogue to involve the public, or the relation between the local government and the national level, need to be further investigated. During the seminars, some questions were also raised which could not be addressed within the scope of COWAM, for instance the long term management of nuclear waste facilities, or the comparison of technical options from the local communities' viewpoint. There is interest from a broad range of COWAM members to carry on these discussions on more specific topics according to their own interest and concerns in a pluri-disciplinary and multi-stakeholder approach. Various initiatives were taken following the COWAM seminars. In some communities this European experience has favoured self-awareness and local governments have developed reach out and dialogue programmes. In some countries this was a positive context for local and national actors to start a dialogue. Links were established between local communities from South, North, West and East Europe which were not aware one of the other before the seminars. Whatever the influence of COWAM on these local and national networking processes there is a continued interest for participants from most countries to go a step further in a plural and multidisciplinary network at

European level to bring out a broader common view on nuclear waste management from a local perspective.

B - COWAM process and work programme

During the 1990s, when looking for political support on a technical project, nuclear waste programmes in nearly every concerned country met many difficulties. Nuclear waste management was seen as a technical issue, and the local communities were only involved in the last stage of the decision-making process where almost all components of the decision were already fixed. The management of high level radioactive waste is now recognised as a complex decision-making process entailing technical, ethical, social, political and economic dimensions where no solution can be reached on the basis of sole technical considerations. While this issue is acknowledged as a problem for the community as a whole, a major dimension in radioactive waste remains the fact that waste management is a *global problem looking for a local solution*. For this reason, there is an increasing need to have society, and notably directly concerned local people, involved in the decision-making process. Now it is recognized that those living in the facility vicinity are primarily concerned by the decision-making process. Therefore the involvement of the regional and local communities in the decision-making process appears more and more to be a key dimension. For any solution, as a pre-requisite lies a sound contract between the national community and a local community. To reach such a contract there is a need for mutual trust between the two entities.

B-1. Building the project : meeting a growing need for local involvement

Starting from this view, a group composed of representatives of a local community (Oskarshamn, Sweden), national authorities (HSK in Switzerland and the special advisor to the Swedish Government on nuclear waste issues), the French nuclear implementer (ANDRA), and also experts from Belgium (SCK·CEN), France (Mutadis, CEPN) and UK (NRPB) prepared and proposed a project to the EC Research Directorate in 1999 with the objective: to improve the decision-making process in nuclear waste management at the local and regional levels. The project was named COWAM which stands for *Community Waste Management*. It was accepted as a European Concerted Action within the 5th Framework Programme of the European Commission. It was designed as a 3 years collective reflection process (2000-2003) to be developed in 4 seminars, each one being located in a local community involved in COWAM, with co-ordination by Mutadis.

Once the project was validated by the European Commission, the COWAM Steering Committee first met in September 2000. A deficit of networking of local communities in nuclear waste management at the European level was highlighted. The Steering Committee felt that there was a real need to address the issue of decision-making processes regarding nuclear waste management directly from the local point of view. It was therefore decided to make a specific effort to give European local communities and NGOs the opportunity to represent their own views in COWAM, and to create favourable conditions for local communities to network at the European level. The first year of the programme was devoted to the setting up of the network. The second year started in September 2001 with a seminar in Oskarshamn which was the first *European platform of dialogue* for local communities and NGOs involved in or concerned by nuclear waste management. Other seminars followed : Verdun (France) in February 2002, Fürigen (Switzerland) in September 2002, and Cordoba (Spain) in March 2003.

The seminars were co-organized and co-sponsored by the COWAM European project and the hosting local government or organisation (namely : Oskarshamn municipality for the first seminar; Conseil Général de la Meuse and CLIS⁴ for the second one; GNW⁵ for the third one; AMAC⁶ for the fourth one). About two-third of the seminars budget⁷ were supported by the hosting organisation with an

⁴ Comité Local d'Information et de Suivi

⁵ Genossenschaft für nukleare Entsorgung Wellenberg

⁶ Asociacion de Municipios en Areas de Centrales Nucleares

⁷ Except for the Cordoba seminar fully supported by Spanish funds.

additional contribution from national sponsors (SKI, SSI, Swedish Ministry of Environment, SKB, ANDRA, Swiss Federal Office of Energy, ENRESA, CSN)⁸.

B-2. COWAM Objectives

The general purpose was to set up a collective learning process based on existing experiences of decision-making processes with regard to nuclear waste management in Europe with a pluralistic set of European participants, all concerned by or involved in nuclear waste management: local communities and NGOs, implementers, national authorities and experts.

The initial objective of COWAM was first of all to contribute to the improvement of the quality of decision making at local level in nuclear waste management. The purpose was not to determine which technical option is the best for a particular type of waste, but to discuss the quality of the decision-making process from the local level viewpoint. The relevance of technical options was considered as a matter for discussion in each national context⁹. Decision-making processes were assessed in the context of different types of waste and different technical options.

Taking into account the shift toward a stronger involvement of local communities (local representatives and NGOs), the COWAM project more specifically aimed at :

- Creating a network of local people from communities involved in nuclear waste management, thus contributing to their empowerment;
- Gathering and discussing the available experiences of decision-making processes at the local level in Europe;
- Creating the conditions for a fair dialogue of local people and NGOs with regulators and implementers;
- Holding seminars in local communities concerned by nuclear waste management;
- Producing a Framework expressing the views of the participants at the end of the COWAM exercise in order to bring about important questions for decision-making in nuclear waste management and to open up the way to wider reflections and actions in the future.

A major task for COWAM was to bring out among the participants a shared understanding of the issues at stake in the decision-making processes as regards nuclear waste management and to identify possible ways forward for its improvement. This report proposes concrete recommendations in order to improve the quality of decision-making related to nuclear waste management facility siting.

⁸ SKI and SSI are the Swedish Authorities, respectively for nuclear safety and radiation protection; SKB, ANDRA and ENRESA are the nuclear waste management operators respectively for Sweden, France and Spain; AMAC is the association of Spanish municipalities with nuclear power plants; CSN stands for Nuclear Safety Council in Spain.

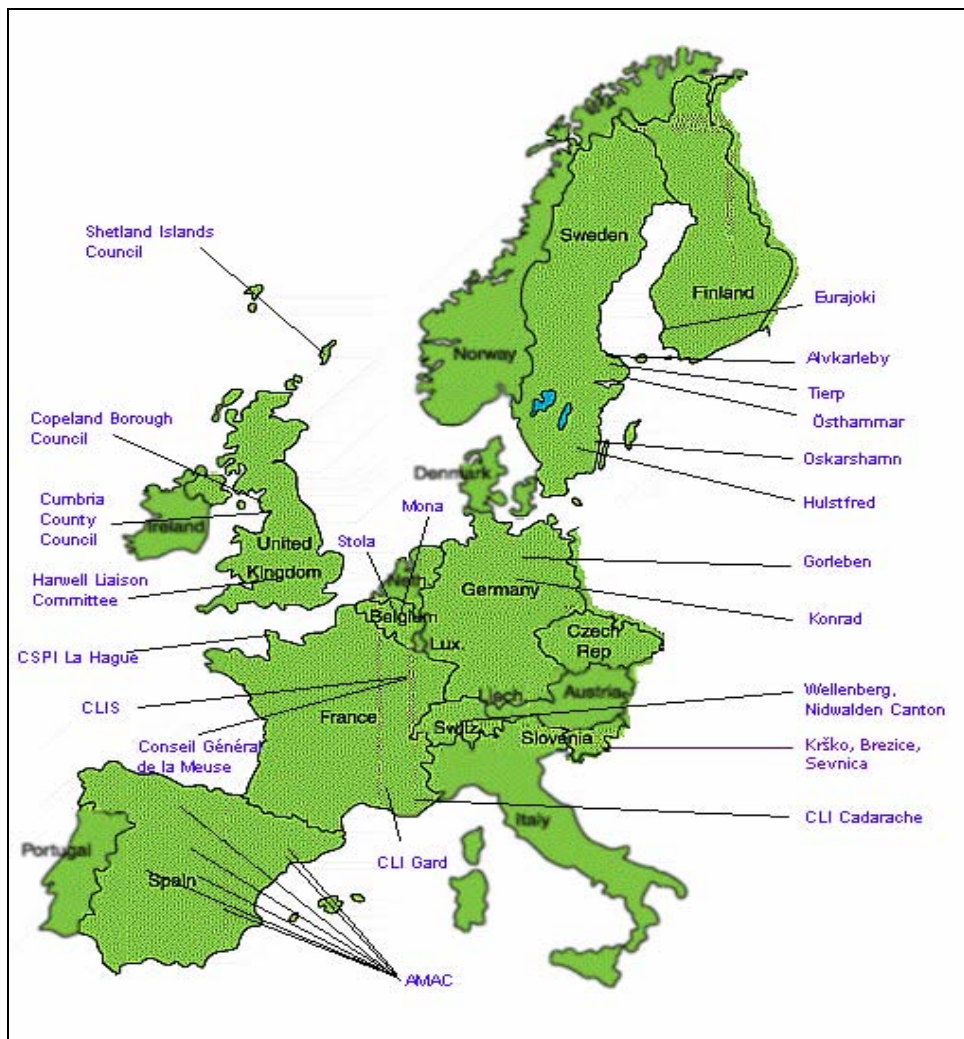
⁹ Nonetheless, a discussion in the network developed on the room given to alternative options in the decision-making process.

B-3. COWAM Network

COWAM network comprised 230 delegates from 10 European countries : Belgium, Czech Republic, Finland, France, Germany, Slovenia, Spain, Sweden, Switzerland, UK. Thirty local communities¹⁰ were involved in the network (see figure 1). Local communities and NGOs represented 65% of the audience, which also comprised national authorities (10%), implementers (18%), experts (7%) (see figure 2).

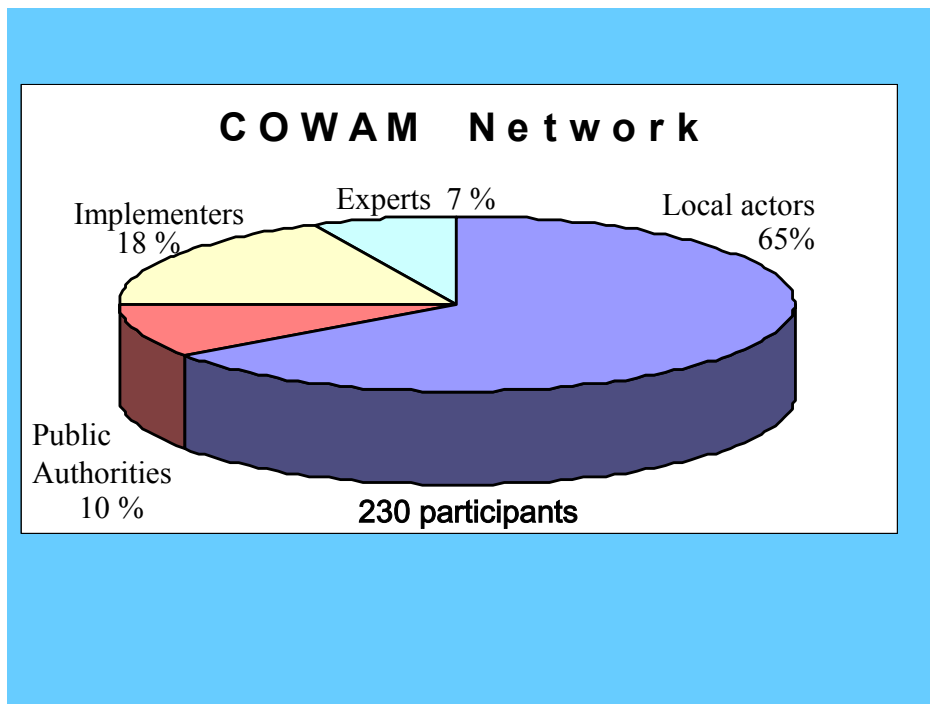
This network was designed in order both to strengthen local players' involvement in nuclear waste management, and to build shared understanding with others, i.e. national authorities and implementers.

Figure 1 - COWAM Network : Countries and Local Communities



¹⁰ "Community" here is used in the general sense of the word and refer to the local population of a given area. The communities in COWAM are represented either by local governments (municipalities, cantonal, district or regional government), by local commissions or local groups (quite often gathering elected representatives, citizens, representatives of local industry, trade-unions, and experts), or by citizens.

Figure 2 - COWAM Network : plurality of members



B-4. Methodology

Building on the experience of the TRUSTNET concerted action¹¹ (1997-1999) the COWAM activities were based on a two-step structured dialogue methodology. In the first step participants convened in ten small groups according to their category (most groups gathered local involved people and NGOs; one group was composed of regulators; implementers met in two additional groups). The purpose of these *single-interest working groups* was to assess case studies and to enable the participants to network. In a second step, participants met in mixed groups with representatives of all categories (recommendation groups) to elaborate conclusions and proposals.

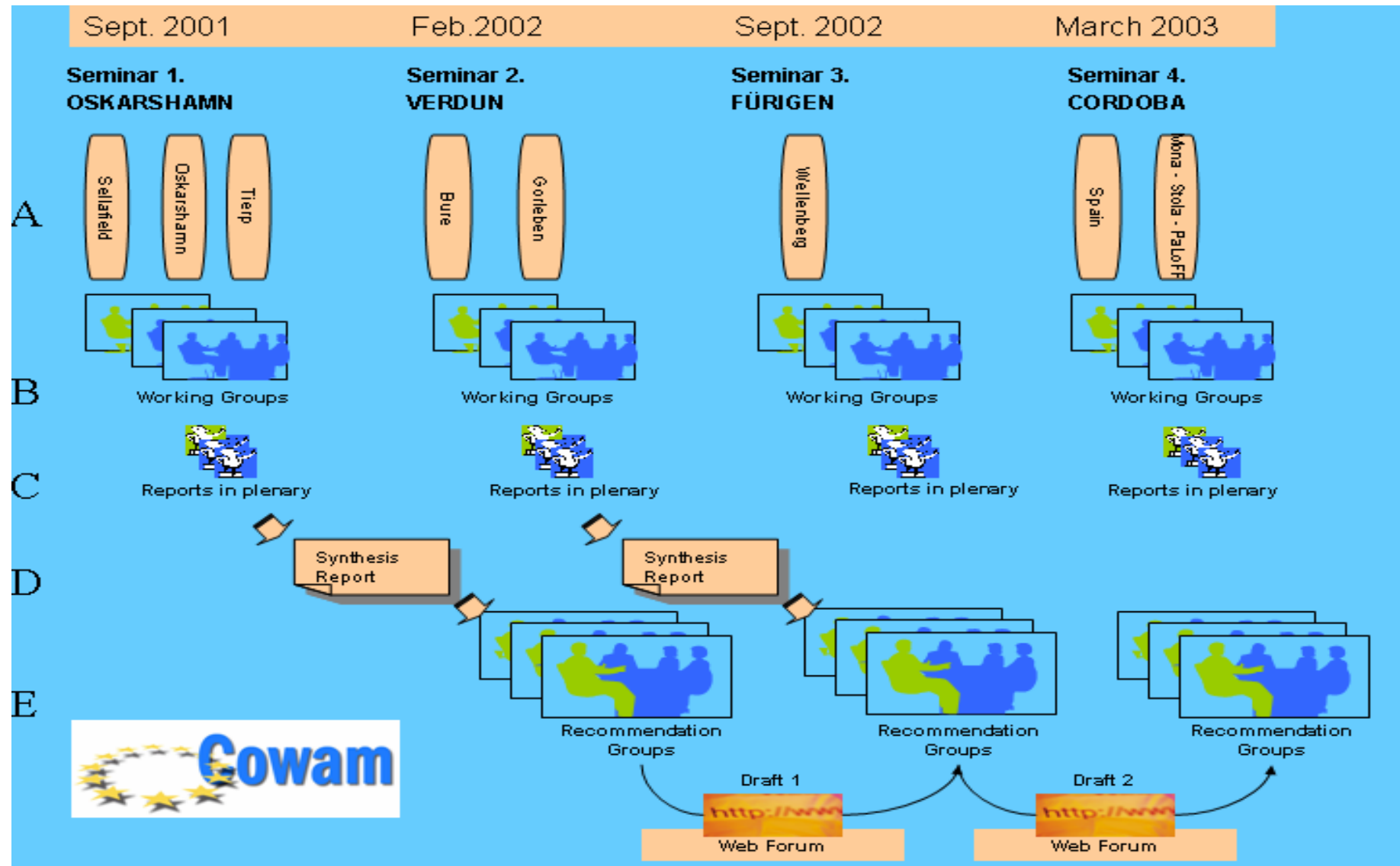
The case studies provided information about various local experiences from the complementary views of different stakeholders. The meeting of single-interest working groups provided room and time to analyse the case studies and share experience among peers – notably for local communities and NGOs. The recommendation groups built on the analysis carried out throughout the four seminars to bring out pluralistic conclusions through direct discussions between local players, national authorities, implementers and experts.

Beside this structured methodology, face to face contacts and discussions off the sessions were a significant aspect of COWAM. The four seminars took place within a time scope of a year and a half, thus enabling participants to build close and lasting relationships.

The methodology is summarized in Figure 3 below.

¹¹ TRUSTNET is a concerted action carried out under the aegis of the European Commission Research Programmes (<http://www.trustnetgovernance.com>). It builds on the sharing and plural analysis of actual case studies by a European network of experts, researchers, representatives of regulators, industry, NGOs and elected representatives.

Figure 3 - COWAM Process



B-4.1 Case studies

The COWAM seminars were a major opportunity to review actual case studies (A on Table 3 above) in different local and national contexts : Sellafield in UK, Tierp and Oskarshamn in Sweden, Görleben in Germany, Bure in France, Wellenberg in Switzerland, the Spanish situation, and Mona, Stola-Dessel and PaLoFF in Belgium.

In order to grasp the complexity of each context, case studies were all presented by a panel of speakers with different positions and playing different roles in the decision-making process: local communities, NGOs, implementers, experts, and public authorities.

Each case study pointed out the salient features of decision-making process in siting and/or managing a nuclear waste facility. Moreover, these case studies enabled the COWAM network to learn lessons and identify possible ways to improve future strategies, while acknowledging the specific cultural and institutional aspects of each situation.

A striking characteristic of these case studies is that the issues raised as regards the decision-making process were very close from one case to another, irrespective of the differences in the type of waste and in technical option (see table 1).

Table 1 - Case studies¹²

| Local site | Country | Type of Waste | Technical option |
|--------------|----------------|----------------------------|---|
| Sellafield | United Kingdom | Intermediate level | Deep disposal (URL ¹³) in Volcanic Rock |
| Oskarshamn | Sweden | High level | Deep disposal (URL) in Granite |
| Tierp | Sweden | High level | Deep disposal (URL) in Granite |
| Görleben | Germany | High level | Deep disposal (URL) in Salt |
| Bure | France | High level | Deep disposal (URL) in Clay |
| Wellenberg | Switzerland | Low and Intermediate level | Underground disposal (exploratory drift) in Marl |
| — | Spain | — | — |
| Mona | Belgium | Low level | Surface disposal or deep disposal in Clay |
| Stola Dessel | Belgium | Low level | Surface disposal or deep disposal in Clay |

A summary of each case study is presented in Section C.

¹² The type of waste and technical options mentioned here refer to the ones discussed in the case study presentations. They relate to a decision-making process concerning a local site at a particular moment in the history of nuclear waste management in a given country. The table doesn't necessarily report the latest options and sites under consideration in these countries.

¹³ URL stands for Underground Research Laboratory

B-4.2 Single-interest working groups

The case studies were discussed in ten single-interest working groups (B on Figure 3 above). *Single-interest* means that at this stage local communities and NGOs were not mixed with public authorities and implementers. Representatives of local communities and NGOs met in seven working groups. Representatives of national authorities were gathered in one group. The implementers worked in two other groups.

The working groups had a meeting after each case study session. They were proposed to assess the quality of decision-making processes presented in the case study according to their point of view. From the information provided by the speakers, they were requested to answer the following questions:

- Which parts of the decision-making process in each case do you find worth criticizing and which part do you find positive?
- Do you find the decision-making process in each case satisfactory or non-satisfactory? Why?
- What are the main differences, according to your opinion, between the decision-making process in your country/project and the one presented in each case study ?

The groups reported their conclusions before the wide audience at the end of each seminar (C on Figure 3 above). These conclusions were viewed as an important feedback for the speakers : this analysis of their situation from the outside often brought out positive and negative aspects they were not aware of. The working groups were also an important moment for local communities and NGOs to make acquaintance, to share peer experience and learn from each other by listening to and comparing concrete examples from different countries. They progressively identified common concerns and developed shared views on specific issues.

Although the various stakeholders were not mixed in these groups, the conclusions made by the local communities and NGOs when assessing the quality of decision-making processes in the given case studies were often the same as those made by public authorities on the one hand and implementers on the other hand.

B-4.3 Recommendation Groups

Building on the shared understandings developed throughout the four seminars, the aim of the COWAM network was to propose recommendations. The purpose of these recommendations was to characterize the *issues at stake* identified in the case studies, the *lessons learned* and the *way forward* to improve the management of nuclear waste, taking into account the local players' viewpoint. Following the first seminar a Framing Paper (D on Figure 3 above) was prepared by the COWAM co-ordination team in interaction with the Steering Committee¹⁴ on the basis of the reports presented by the working groups. This document aimed at reflecting accurately the extensive views of the working groups and to identify the important topics that had arisen in the discussions. The topics identified in the Paper are :

- Local democracy
- Expertise in the local decision-making process
- The site selection process
- Influence of the local people on the national nuclear waste management framework.

A similar process was followed after the second seminar. The synthesis report of working groups' conclusions from the second seminar brought out two additional issues :

¹⁴ The Steering Committee comprises the group which proposed the project to the European Commission, and additional delegates notably from countries who were not first represented in the Committee, as permanent guests (*). The Steering Committee are : Harald Åhagen (Oskarshamn, Sweden), Detlef Appel* (PanGeo, Member of AkEnd, Germany), Thomas Flüeler* (ETH-Zurich, Switzerland), Gilles Hériard Dubreuil (Mutadis, France, co-ordinator), Neale Kelly (EC DG RTD), Emil Kowalski* (GNW, Switzerland), Yves Le Bars (ANDRA, France), Shelly Mobbs (NRPB, UK), Bernard Neerdael (SCK•CEN, Belgium), Serge Prêtre (formerly HSK, Switzerland), Thierry Schneider (CEPN, France), Olof Söderberg (Special Advisor on nuclear waste to the Government, Sweden), Mariano Vila d'Abadal* (AMAC, Association of Municipalities with NPP, Spain). The Steering committee was assisted by Serge Gadbois (Mutadis, COWAM secretariat).

- Regional development policy
- Alternative options in the decision-making process

Eight mixed groups – each comprising representatives of local communities, NGOs, implementers and regulators – met a total of three times: in Verdun (march 2002), Fürigen (September 2002) and Cordoba (march 2003). Each group was requested to address at least two specific issues among the four topics identified in the Framing Paper. They issued recommendations which as far as possible reflected shared views among the various members of the group (E on Figure 3 above). The full reports of the recommendation groups are available at : <http://www.cowam.com/final.htm>. The synthesis of each individual report prepared by the Chairpersons are proposed in section D. The general summary of these reports as prepared by COWAM Steering Committee is included below (section E).

C - Case studies

C-1. Sellafield

The case study was presented by Mr John Hetherington, planning manager at Cumbria County Council, Dr Rachel Western, Friends of the Earth, and Mr Chris Murray, Managing Director of NIREX.

In 1997 a public inquiry was held to scrutinise the proposal by NIREX to build a Rock Characterization Facility at Sellafield, close to the BNFL reprocessing plant and surface stores for intermediate and high level waste.

The inquiry was held in two parts. Part A dealt with the impact of service development on the countryside and the national park which is adjacent to the proposed site, and part B dealt with the technical issues, the geology and the safety assessment and site selection. During the process the local authorities – Cumbria County Council and the concerned district (Copeland Borough) – got deeply involved in technical arguments. While accepting the fact that Sellafield could be mentioned in a list of several potential sites, the local governments made the view that Sellafield was “a poor site chosen for the wrong reasons”. It was suspected that NIREX had focussed on Sellafield from 1991 because of an expected local support from the community which is familiar with nuclear industry. The concept of a Rock Characterization Facility introduced late in the process was viewed as a Trojan horse so that a repository could be built there. Friends of the Earth hired several experts to review the planning permission files and built a case that developed from site specific Sellafield issues to generic issues that would apply whatever site was chosen. From the local authorities and the NGOs’ viewpoint, the difficult point in this process was the limited resources compared to the proponent’s and the lack of involvement from the regulator. Nonetheless, the UK confrontational planning inquiry system with its independent inspector brought all the basic background and issues out into the open, and provided an almost complete review of what NIREX had done up to that point.

The Secretary of State’s decision to refuse NIREX planning permission following the inquiry was announced on the 17th of March 1997. This refusal referred to poor design, layout and adverse impact on the national park, but was mainly related to the geology, the safety assessment and site selection aspects. In his statement, the Secretary of State noted with some concern that the site selection process had singularly failed to impress the Inspector in terms of its transparency and the rigor of its scientific logic. He accepted the need for full disclosure of site selection in any future rock characterisation facility stage.

For the UK nuclear waste management system, and more particularly for NIREX, the refusal made clear the cost of failure to engage local communities effectively, but this was equally an opportunity to stop, draw back and learn essential lessons.

A study group of the two advisory bodies to Government on radioactive waste management (RWMAC/ACSNI) had already produced in 1995, before the inquiry, first reflections on how to open the process and introduce a step-wise approach. The House of Lords Select Committee on Science and Technology issued a report on March 1999 on the general question of the management of nuclear waste. The latter report prompted the Government to start to develop a comprehensive policy that would be subject to wide consultation and requested that a nuclear waste management commission be set up with an open approach. The Government released a Consultation Paper “Managing Radioactive Waste Safely” in September 2001.

As far as NIREX is concerned, following the result of the 1997 public inquiry, the organisation went through important management and objectives changes. It was asked to try and learn the lessons of what was recognized to be a huge policy failure in the UK. As regards the process, it came clear that there were no clear road marks or decision points that people could refer to. Moreover there was a low involvement from regulators which can be explained by the very conceptual nature of NIREX project at the time of the inquiry. From the NIREX perspective a stepwise process needs to be identified up-front and published. A policy framework is required which would embrace both national and local issues. There is equally a need for checks and balances, and for a review of options. Stakeholders should be involved in setting up the criteria by which any site would be chosen, at the beginning of the process. In terms of behaviour, it was acknowledged that the

programme was driven too quickly with a 'just in time' approach to the science, and a questionable separation between the Rock Characterization Facility and the repository. The lack of openness in publishing the results and lack of dialogue meant that there was insufficient clarity over what was being done, and made NIREX appear as an element of the problem, rather than as a solution provider. Since then NIREX took a commitment to achieve transparency in the organisation, notably by introducing traceability of decisions and involving a transparency panel. The structure of the nuclear waste management system is also an important aspect: the insufficient differentiation between NIREX and the nuclear industry and the low involvement of the regulators were damaging the clarity of the system and of the process. This question is to be addressed in the consultation process and will result in new nuclear waste management structures.

As a stakeholder in the 1997 inquiry and because it hosts surface stores for intermediate and high level waste Cumbria County Council has also developed its own views on the strategy for nuclear waste management, and intends to get involved in the consultation process started in September 2001, together with other local constituencies such as Copeland Borough Council.

C-2. Tierp and Oskarshamn

Mr Olof Söderberg, special advisor to the Government on nuclear waste issues, and Mr Claes Thegerström, vice-president of SKB, introduced the Swedish case studies with a general background presentation of the Swedish context. Bengt Leijon (SKB), Krister Hallberg (Oskarshamn) and Olov Holmstrand (The Waste Network - a national NGO) presented the Oskarshamn case. Saida Engström (SKB), Lars-Peter Hollstrand, Erland Olsson, and Torbjörn Lennartsson (Tierp), and Jenny Lundström (SOS Tierp- a local NGO) presented the Tierp case.

The Swedish Nuclear Waste Management process

The site selection process in Sweden is carried out under the responsibility of SKB, a company owned by the nuclear power plants operators. But the actual siting and construction of a repository will require a formal permit by the Government including a formal consent by the concerned municipality.

SKB is to present to the Government, every third year, its programme for research and development (*RD&D-Programme*; *Research, Development and Demonstration*). These programmes are thoroughly reviewed by the nuclear regulatory authorities. Comments are also invited from a broad range of organisations including the municipalities that are directly concerned by the work of SKB and from environmental organisations. Based on recommendations by the authorities and ministerial advice, the Government states its opinion about the general direction of SKB's work as described in the *RD&D-Programme*. These recurrent government statements have an important influence on the work of SKB.

In the 1990s following desk siting studies at the level of the whole Sweden, feasibility studies were carried out in eight municipalities. Two initial feasibility studies in remote municipalities in northern Sweden ended up with negative votes in local referenda. SKB decided not to continue any work relating to siting in those municipalities. SKB's analysis of the developments concludes that these municipalities experienced a lack of national and regional support. SKB also had a feeling that safety regulators were not yet in phase and ready for full participation in the process. As a result of these experiences, the siting process developed and became more defined. Starting in the middle of the 1990's, six more feasibility studies were carried out in municipalities hosting nuclear reactors or in neighbouring municipalities. The Government took some important measures like, for instance, deciding that local municipalities should get funding for their participation. A real local involvement in dialogue was noted as well as a clearer national and regional support.

Feasibility studies comprised two parts. One was a fact-finding part, putting together information about geology, technical aspects regarding transportation, the technical feasibility of constructing and operating a repository, land use aspects, environmental impact and societal aspects. The other part was an active dialogue with the municipality, the local interest organisations and the public initiated by the company from the start. SKB also had formal consultations with the actors of the programme on both the regional and national levels.

In December 2000 SKB announced that the company would like to start site investigations in three identified areas, one of which is situated close to the nuclear power plant of Oskarshamn and the

other two in the part of Sweden where the Forsmark nuclear power plant is operating (Alvkarleby/Tierp and Östhammar). In return, the municipal elected councils declared that the issue of 'allowing' a site investigation within a certain area of the municipality will not be discussed unless both the regulatory authorities and the Government reviewed the basis for SKB's proposals and publicly stated that they find SKB's proposals well founded. This review was under study within the Ministry of the Environment when this case was presented.

One underlying and important assumption behind SKB's site selection activities is that the selected site should be suitable for deep geological disposal (in hard rock at around 500 m depth) according to the KBS-3-method. Both the Government and the regulatory authorities have accepted the KBS-3-method as a main alternative for site investigations when reviewing SKB's research and development programmes. It should be noted, however, that even if the Government follows this recommendation, neither the Government and regulators nor SKB have taken a final position on the issue whether final disposal is to be carried out according to the KBS-3-method, or if any other strategy or method should be applied. This will be decided during the review of the licence application.

Important also in the Swedish process is that according to the environmental legislation municipalities have a veto right as regards nuclear installations projects.

Oskarshamn

Oskarshamn is familiar with nuclear energy since it hosts three OKG nuclear reactors, and three SKB facilities: a central interim storage for spent fuel (CLAB), the Äspö Hard Rock Laboratory, and a Canister Laboratory located in the city harbour area.

Because all Swedish spent fuel is being transported to and stored in Oskarshamn there is an awareness that like it or not the municipality must engage itself in how to finally solve the spent fuel issue. When Oskarshamn was asked to participate in a feasibility study there was no or little discussion about if to engage or not. Rather the discussion was about how an acceptable democratic decision-making process with local influence would be designed to be acceptable to the municipality.

During the feasibility studies SKB made active communication to reach out to people and discuss the possible siting of a repository. All the topical reports were presented by the experts to the municipality and the public. The final report was also subject to a comprehensive review process by the municipality. In order to answer the local community's questions and request, several changes were made all the way from details to complementary studies. From SKB's viewpoint, these questions and these requests for clarification benefited to SKB project and the programme as a whole.

When solicited, Oskarshamn municipality made two requests: that it should be provided with financial resources in order for the local people to become a competent actor in the dialogue; that the study could be discussed in a forum where the nuclear power company SKB, the county council and the municipality but also the national nuclear safety authorities, should be represented. Following this request, legislation was enacted to enable the Government to provide for an annual grant for all municipalities involved in feasibility studies. The grants were financed from the assets of the national Nuclear Waste Fund (which had been set up much earlier in order to secure the financing of costs in connection with permanently taking care of Swedish spent nuclear fuel etc.) A forum, that adapted international best practice for an EIA process, was set up at the regional level.

The municipality set up three working groups with 15 members each. The purpose of these groups was to increase competence among the public and the decision makers, to provide channels for dialogue, to find out citizens' attitude to continued site investigation in Oskarshamn, and to review SKB's choice of methods and sites for the feasibility studies in order to arrive at the basis for the municipality council decision. The reference group was the council with the 51 elected politicians. The working groups comprised local politicians, members of organisations, neighbours, representatives from neighbouring municipalities and also municipal civil servants. The parties that voted no to a feasibility study in Oskarshamn were also part of the working groups, and their critical attitude in the nuclear waste issue was considered to contribute considerably to the work, stretching¹⁵ the issues and delving deep into the different aspects. A project management served

¹⁵ The concept of stretching was emphasized in the RISCOM pilot study, funded by SSI and SKI. In this context it means that the procedures have to ensure that the environment of regulators and implementers is sufficiently demanding, that questions are put forward from different angles and that these questions will be answered in a

the working groups, giving access to expertise and other resources. Hundreds of education meetings were organised from radiation matters to legislation. The local people were informed of the work and were involved in discussing the nuclear waste issue.

Oskarshamn experience is that a traditional political structure is more than sufficient, but new methods are required to adapt this structure to the needs of today. Citizens can be solicited to participate and their contributions entail a better base in making decisions.

From a NGO point of view, although the Oskarshamn experience is valued, there are concerns about the general design of the Swedish decision-making process for nuclear waste management. According to this view, the nuclear issue is not discussed at the national level, except for a successful dialogue in 1990-1992 with the different stakeholders. Hence, the environmental NGOs feel they do not have opportunity to get involved, other than to act through local groups in the concerned communities. The national NGOs also consider that they lack the necessary resources to act independently, to keep up with reports and meetings, to hire their own experts, who could increase their knowledge and competence, and could contribute to the process. As regards the process itself the NGOs view that the choice of method should be taken before the choice of site, otherwise it could be suspected that the choice is based on political acceptance and not primarily on environment and safety considerations. The methodology should be discussed widely beforehand. Eventually the view is made that an independent body not linked with the nuclear operators should lead the process.

Tierp

Unlike Oskarshamn Tierp hosts no nuclear facility but the community felt concerned by the feasibility studies conducted in the neighbouring town of Östhammar, and decided in 1998 to get also directly involved. For the municipality, there was an ethical choice to take responsibility for the waste resulting from the use of electricity, as well as an interest to have planning material brought up through the studies.

SKB opened an office in Tierp in 1999, and proposed a feasibility study working plan for review to the municipality the same year. Once agreed, the plan was implemented. A particular issue, which was looked at as regards technical aspects, was transportation since Tierp does not have a direct access to the sea. As studies were carried out, SKB went to people in small markets, in working places, to meet them, present methods about the technology, the laws governing its work, the ethical as well as the democratic aspects. The preliminary final report, summarising all the findings from the feasibility study was released for municipality review and scrutiny in February 2000. In November 2000 the municipality made a statement on the report, and came up with a demand for additional investigations from transportation to socio-psychological aspects related to a future deep repository.

The municipality saw the benefits of having a reference group with a very wide range in representation but not too many people involved: one representative from each party in the municipality council and a few representatives from different interest groups (environmental movement, parents with small children, SOS-Tierp, unions and representatives from private enterprise). Comprehensive information about the issue was disseminated to the inhabitants and the reference group was in return provided with feedback from the inhabitants, their opinions and their views. Furthermore, the reference group participated in SKB reviews to accumulate the necessary knowledge. The municipality was also present at markets and local events.

As a result of its work the municipality developed a vision for its future, and compared it with a situation where the community would host a repository in order to bring forward its possible impact. On the whole, it was considered that the repository in Tierp fitted well in the municipality vision. Specific work was also carried out on the impact of the repository on people's health and quality of life and, in the reverse, on the impact of attitudes and concern on the society's development.

During the preparation of the reference group, the municipality realized that a local NGO, SOS-Tierp, was already ahead in disseminating information. After discussion, the municipality decided to grant the NGO an annual funding of 200,000 SEK.

clear and understandable way. See : Andersson, Espejo &Wene 1998. Building channels for transparent risk assessment, RISCOM Final Report SKI TR 98:6

SOS-Tierp is a citizen organisation founded in 1998 to make a critical review of the nuclear waste issue and to increase the debate on these questions. The views made by SOS-Tierp are mostly questioning the national decision-making process. Legal requirements will only occur when an application is made for the construction of a facility. In SOS-Tierp's view this results in the implementer being the main designer of the siting process, and acceptance considerations overriding safety concerns: the focus on three sites makes the implementer dependent on communities and doesn't favour the discussion of controversial issues. SOS-Tierp considers that conflict areas need to be more investigated because they would increase the debate and improve the outcome. The NGO feels it is often thought to be irresponsible because it opposes the given technical project whereas it would like to take responsibility for nuclear waste, e.g. by getting involved in a discussion on selection criteria.

Note

In March 2002 the municipal council of Oskarshamn almost unanimously voted to 'allow the start of a site investigation' within a certain area of the municipality. In April 2002 the municipal council of Tierp, with a narrow majority, decided to say NO to a site investigation and SKB subsequently stopped all activities in that municipality. In Östhammar, the third municipality where SKB wanted to start site investigations, the municipal council voted YES with a solid majority in December 2001. As a result, SKB is currently carrying out two site investigations (in areas close to the NPPs in those two municipalities).

C-3. Gorleben

This case study was presented by Mr Detlef Appel (PanGeo, member of AKEnd), Mr Helmut Röthemeyer (Federal Office for Radiation Protection, BfS, and member of AkEnd), Reverend Eckhardt Kruse (Protestant Church of Lüchow-Dannenberg), Mr Albert Lennartz (WIBERA), Mrs Christine Mussel (University of Kassel).

Gorleben was introduced after the early steps of the German selection process when in 1973-75 the search for a host site for a National Waste Management Center started. Three salt domes were considered in Lower Saxony, but not Gorleben. Following local opposition on the three sites the Minister-President of Lower Saxony suggested Gorleben as an alternative site. In spite of Gartow local community's opposition and of the organisation of a Citizens' Action Committee (Bürgerinitiative) that proposal was accepted by the Federal Government. Under the 1976 Atomic Energy Act, the federal administration BfS is responsible for the application and operation of waste management.

As early as 1977 the County Council ("Kreistag") requested that a commission with members of the local communities, representatives of the county and the state and federal government should follow up the activities regarding waste management in Gorleben. From 1978 to 1991 this Gorleben Commission met with the citizen initiative, land owners, the applicants, politicians and administrators on State, Federal and European Level and experts at various nuclear facilities. During these years the involvement of the Lüchow-Dannenberg Church has been constant to raise and discuss ethical issues as well as to play a role of local mediation between the various involved actors.

In 1979 the State Government organized a hearing as a result of which the Minister-President of Lower Saxony concluded that Gorleben should not become a waste management center but investigation for its feasibility as a repository site should be started. While above ground and then underground investigations were carried out, meetings were held to try to address the dissent. In the meantime a license was granted for a central interim storage facility for spent fuel and vitrified reprocessing waste, and a Pilot Conditioning Plant for spent fuel was built on the site. Gorleben became a focus point for demonstrations against nuclear waste management and more widely nuclear energy policy, particularly when reprocessed waste was being delivered.

In 2000 the "June Agreement" between the nuclear utility companies and the Federal Government to phase out nuclear energy stated that all exploration in Gorleben to study the feasibility of the salt dome repository should stop. During this moratorium, waste is to be stored on site while new directions are sought to manage waste on the long term.

In this perspective the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) set up a Committee, AkEnd to develop a new siting procedure. The Committee's mandate is to develop a procedure for the selection of a repository site for the disposal of all kinds of radioactive wastes in Germany, ready for operation in 2030. The principal objective of the procedure is to identify potential disposal sites in a comprehensible and reliable way and with well founded criteria and broad public participation. It is not the task of the Committee to carry out the procedure and to select or evaluate further sites, nor to apply the selection criteria to the existing disposal projects. The Committee comprises 15 members of widely different views on nuclear energy in general and nuclear waste management in particular.

Regarding the structure of the selection procedure the Committee has defined the following basic requirements:

- A clear and transparent structure is needed in order that progress, fairness and objectivity of the selection procedure can be easily followed and respective decisions are understood in the general public.
- Evaluation basis and criteria associated with the selection procedure must be fixed beforehand to avoid decisions which the public may perceive as not sufficiently justified or even arbitrary.

AkEnd has divided the "way to the repository" into three phases. The present phase aims at specifying the criteria and procedure by AkEnd. This encompasses dialogue with experts, environmentalists and other stakeholders. During phase 2 the proposals of the AkEnd group will be discussed nationwide. The completed and possibly modified master plan will then be implemented in phase 3 by a high ranking institutional body. Afterwards the site selection process actually unfolds. In the different phases the involvement of stakeholders is a key element which is expected to strengthen the reliability of the whole process. The siting process includes several steps from national screening to site characterization. Beside geoscientific and social-scientific criteria, one important dimension is that the site selection process should include regional development considerations. The facility has to fit into the future prospects of the region and this needs to be carefully built in and investigated throughout the third phase.

C-4. Bure

This case study was presented by Mr Stéphane Grit (Ministry of Industry), Mr Rémi Herment (former President of Meuse General Council), Mr François Dosé (former member of Meuse General Council, currently Member of French Parliament), Mr Jean-Marc Fleury (association of Meuse elected representatives against underground disposal), Mr Yves Le Bars (president of ANDRA), Mr Bertrand Pancher (President of Meuse General Council), Mr Robert Fernbach (Mayor of Houdelaincourt), and Mr Jack-Pierre Piguet (Director of ANDRA Bure Laboratory).

Following intense contestation around potential host sites, a law was issued in 1991 to define a national research policy which would prepare the long term management of French nuclear waste. Three research axes are to be investigated : 1. separation and transmutation; 2. geological repository; 3. long term storage. As regards the second axe, the law details the rules for the siting and operation of an underground laboratory which should precede any repository : consultation is required before any work is conducted; a local information committee needs to be set up on any site; in the process of information, elected delegates and local population need to participate. The bill also sets a legislative "rendez-vous" in 2006 to have the Parliament review the progress made in research and take new steps.

According to the law, Member of Parliament, Christian Bataille was appointed in 1993 to carry out a dialogue process with local authorities and representatives of business industry and social organizations in order to collect candidatures and explain the Underground Research Laboratory project. At the outcome four departments were pre-selected according to their geological characteristics : Gard in south France, Haute Marne and Meuse in east France for clay, Vienne in the West for granite. Following geological studies above ground and public inquiries, the East site (in the meantime Meuse and Haute-Marne sites were joined in one site) was approved while the search for a granite location failed in the absence of any local support.

In Meuse the members of the General Council voted unanimously to authorize applications by municipalities of the Département. As argued by the General Council, this was an unexpected

opportunity for a severely de-populated area to develop its local economy. The decision was made under the significant reservation that disposal, if any, should be reversible. Despite the unanimous vote, it was recognized that the participation of citizens and NGOs should have been more extensive, taking into account also the fact that the project was not on the agenda during the preceding election campaign and couldn't be discussed by political candidates at that time.

The Meuse Département (as well as the Haute-Marne) was granted with specific funding for the application. The purpose and justification of this grant remains an important matter for discussion. The rules and means of funding were unclear which raised suspicion of bribery from the implementer. Some view that there is nothing wrong with the fact that the siting of a laboratory is associated with economic effects for the hosting region. Others consider that the question of funding showed that the process as a whole was giving more emphasis to acceptance than to safety. In retrospect, local authorities consider that the expected development opportunities announced in 1993 were not met, and little investment was actually made in the region.

The monitoring of the process is essential to all local actors whatever their position. This is achieved mainly through the Comité Local d'Information et de Suivi (CLIS) where local elected authorities, local State administration and representatives of business industry, social and environmental organizations convene. Its role is to collect information, to raise questions in order to progress in the understanding and review of the project locally. Recent questions raised by the Committee are, for example : Should the disposal be at considerable depth in the earth? Should the disposal be reversible ? Is this an area of seismic activity? Would there be water in underground galleries ? In 2006, are those responsible for creating the disposal sites going to have all the elements of information at their fingertips to operate this? CLIS carries out a dialogue with the various actors in charge of the research programme, at first ANDRA, to get answers to these questions. There is discussion on the chairmanship of this Committee : in accordance with the 1991 law, the CLIS is under the responsibility of the Prefet, who appears to be representing the central State at the local level. Nonetheless, the monitoring achieved by the CLIS is considered an important guarantee for transparency. The General Council, member of the CLIS, as an elected local assembly, also intends to develop its own programme of information and expertise.

The setting up of a new management team in ANDRA from 1999 and the signature of a four-year contract with the Government which sets goals for the organisation also contribute to clarify responsibilities of the different national actors in the process.

Eventually, local people are concerned that the Meuse site in Bure remains the only Underground Research Laboratory (URL) in France and the implementation of the 1991 law is being delayed : because the Bure URL cannot be compared with another site, and the investigations are getting late, research activities are unlikely to provide definite results by 2006. In the local view, the 2006 deadline should be considered as a meeting point and a transient stage rather than as a final decision phase.

C-5. Wellenberg

This case study was presented by Mr Auguste Zurkinden (Swiss Nuclear Safety Inspectorate: national authorities), Mr Emil Kowalski (GNW: proponent), Mr Peter Steiner (MNA: regional critics, NGO), Mr Thomas Flüeler (KFW - Cantonal Expert Group Wellenberg: advisory to the potential host canton).

The Swiss regulation requires that all waste, including low-level and short-lived intermediate-level waste (L/ILW), should be disposed of in a deep geological repository on the long term. Nagra is the private competence centre responsible for waste management, with a shared participation from the operators (5/6) and the Confederation (1/6), this being responsible for the waste from medicine, industry and research. Nagra first started the site selection process for a long term LLW and (long-lived) ILW repository with a list of 100 sites. This list was reduced to 20 and then 3 sites. After 1985 Wellenberg, situated in the Canton (Swiss member state) of Nidwalden, entered the procedure and, in 1993, came out top of the now 4 priority sites. This direct comparison—and result—is expedient and traceable whereas the inclusion of Wellenberg constituted a divergence from the original selection procedure. In 1988, Nagra announced to exclude long-lived ILW from the inventory envisaged. The 1993 decision was approved by the Federal authorities and expert bodies. In 1994 the siting community Wolfenschiessen voted positively on hosting the company responsible for constructing and operating the repository: GNW – Nuclear Waste Management Cooperative Wellenberg. Although nuclear issues are regulated at the federal level, the canton seized the

opportunity provided by mining law for a special underground concession. The mining licence was granted by the Cantonal Government in January 1995. This decision, however, needed to be endorsed by a cantonal ballot. On 25 June 1995 the voters rejected GNW's application by some 51.9%.

The negative vote of the Canton created a politically difficult situation. From the proponent's viewpoint, as well as for the Federal level, there was a dilemma: Should a site, likely to be geologically suitable, be abandoned for political reasons? At federal level the submission of licensing procedures to a cantonal say regarding nuclear facilities started to be questioned: Can and should the Federation override a canton using federal law? Could a repository be constructed against the will of the local/regional population even if this were legally possible? Or should the project be adapted and submitted to another cantonal vote? If yes, how should the project be adapted in order to improve its chances in the coming vote? From the opponent's view "a democratic decision is a guarantee for the better option".

The reasons for the negative vote were thoroughly analysed. Several initiatives were taken at national and cantonal levels to review the project. It became clear that the safety of the project was not contested at that stage, but the repository concept and the selection process needed substantial corrections. The Cantonal Government of Nidwalden adopted the criticism raised in the run-up to the 1995 vote (which was, by the way, validated by an opinion poll commissioned by GNW immediately after the vote): a stepwise approach and a concept change towards controllability and retrievability.

Thereupon, in 1999, the Federal Government appointed the so-called EKRA expert group who compared the various disposition concepts. In January 2000, EKRA released its report recommending the development of a monitored long-term geological disposal and the continuation of investigation in Wellenberg, with an exploratory gallery in a first stage. After the EKRA Report the Federal and the Cantonal Governments decided to proceed further with the project Wellenberg. The Canton established several conditions to be fulfilled before a mining concession could be granted, e.g.:

- Restriction of the concession to the exploratory gallery,
- Definition of clear negative (exclusion) criteria for gallery results, leading to either continuation or abandonment of the project,
- Adaptation of the repository concept to monitored long-term geological disposal as proposed by EKRA,
- Clear definition of the waste categories to be emplaced (with an emphasis on the "short-lived" character of the repository).

An independent Expert Group (KFW) was established by the Canton in June 2000 to review the work of GNW and its adherence to the conditions set by the Government, *i. a.*, by on-site controlling during gallery construction. The group was funded by the canton with resources provided by the proponent. KFW organised several hearings with the concerned parties and reviewed the thoroughly revised project of GNW. The group considered that, given the existing studies and the work programme on the exploratory gallery, it was possible to step to the next phase since the geological evidence so far was positive. KFW, however, prepared a report on the site selection procedure and put forward a series of proposals to improve the process, ranging from a clear separation of roles for involved stakeholders, funding issues, to transparency, traceability of argumentation, transparent formulation of criteria, controllability and retrievability, and stepwise approach. It also insisted on the need for a back-up alternative option in case of a failure in the single-option process.

The federal authorities formulated exclusion criteria to help in assessing the results of observations in the exploratory gallery. The criteria would allow, based on the observations, a decision on whether to continue or abandon the project.

Given this new context the Cantonal Government granted the gallery concession in September 2001. The regional opposition was pleased with the participation of KFW experts who heard them, and reported their independent and critical views. It, however, opposed the government decision on the basis that the site was not providing the necessary guarantees to continue the qualification process. Among the arguments is the fact that because of seismicity a repository should not be sited in the Alps. The funding received by the local community also raised concerns that the population was granted compensation for a risk. Finally the role of Nagra having a leading role in the process was a source of distrust due to historical evidence. An additional matter for argument between proponents and opponents was that the result of the cantonal vote would be influenced by or would in-

fluence the oncoming federal referendum on the phasing out of nuclear energy in 2003 (propositions, incidentally, rejected).

The Cantonal Government decision was to be submitted to popular vote a week after this case study presentation. The vote on 22 September 2002 was negative, this time even by 57.7%, and led to intense discussions at local and federal levels on most of the issues presented above. With no thorough analysis at hand, and acknowledging the substantial improvements since 1995 as well as the anti-campaign of fear, one may postulate that four factors played a paramount role in rejecting (as appraised by T. Flüeler and S. Prêtre): 1. The process for the selection of the Wellenberg site was not transparent and presented a hindrance to a well-founded decision because people couldn't understand "why just here?". 2. The institutional system with all its traditional rivals was—apart of the expert group KFW—still the same. 3. There was a lack of leadership in political governance, especially at the national level. 4. No tangible benefit in saying "yes" was perceived, and in this situation of doubt it was easier to say "no". At any rate, the Cantonal Government concluded that, upon this repeated negative vote, Wellenberg is "definitely out" as a repository for radioactive waste in Switzerland. The responsible parties in Switzerland will have to re-evaluate the situation.

C-6. Nuclear Waste Management in Spain : El Cabril and on site storage

This case study was presented by Mr Jorge Lang Lenton (ENRESA), Mr Francisco Castro (Ecologistas en accion) and Mr Mariano Vila d'Abadal (AMAC).

In the 1950s, the El Cabril uranium mine was shut down and started to be used for storing low and intermediate level waste. In 1984 the Spanish Parliament created a public company - ENRESA - to manage low, intermediate and high level nuclear waste. In 1986 ENRESA took responsibility for El Cabril facility and moved the waste from the mines to new built buildings on the same site. In 1987 the Andalusian Parliament issued a resolution against the extension of El Cabril facility. The national Government informed it would provide compensation to local communities. ENRESA eventually reached an agreement with Hornachuelos, the hosting community, and applied for the necessary permits. The central government and the Andalusian government started to negotiate, and the municipality of Hornachuelos and the Andalusian Government finally accepted the extension. Meanwhile ENRESA implemented an openness policy and started to organize visits to El Cabril. Environmentalists started demonstration. Since may 1989 low and intermediate level waste from nuclear power plants are sent to El Cabril. Two information centres were set up in El Cabril and Cordoba. A contentious point is currently that some municipalities have asked to benefit from compensation and have threatened to block the way of trucks to El Cabril if their request was not met. They are opposed in this by municipalities which already benefit from the national compensation fund.

In 1996 the Senate set up a working group to prepare a specific regulation to nuclear waste management. Despite a long and constructive dialogue between the various stakeholders, the issue was still a matter for conflict between the two main Spanish parties and no consensus was reached. As regards high level waste specifically, according to the existing regulation Spain will make a decision in year 2010 about the technology to be used for the final management of spent fuel. In the meantime, the Government made decisions to extend the on-site storage capacity of nuclear power plants.

It was stressed that in Spain the discussion on radioactive waste is closely linked with the debate on nuclear power itself. The construction of nuclear power plants was planned and adopted at the time of dictatorship : every struggle for democracy always took an anti-nuclear stand. This opposition has persisted until today when 60% of the population remains against nuclear power. For the environmentalist movement, there is no experience of long term governance as the one requested for radioactive waste. Probability and calculation are viewed an insufficient basis for decision since they cannot match with the time dimension of radioactive waste. Nuclear waste management concepts are a matter for discussion within the environmental movement but there is no consensus so far on any particular option because each one is associated with advantages and drawbacks which are difficult to balance. Moreover, the position of environmental groups is to oppose any kind of high level waste policy as long as nuclear power plants are in operation, but to contribute to identify the "least bad solution", as soon as plants are closed. Three fundamental requirements are put forward by NGOs : possibility to monitor the status of the waste inside the cask; retrievability; transportation risk mitigation.

In 1988, following conflicts about construction projects on Trillo and Vandellos sites, several municipalities with nuclear power plants joined in an association, called AMAC (Asociación de Municipios en Áreas con Centrales Nucleares). Today, AMAC covers 67 municipalities representing 80 000 inhabitants. The municipalities request a greater participation and public involvement in nuclear issues i.e.: safety and emergency management, on site storage and socioeconomic development. AMAC actions strive towards permanent relations with the Nuclear Safety Council, the inclusion of municipalities in the protocols of information on impacts, in the preparation and implementation of the nuclear emergency plans, and the establishment of economical compensation for municipalities with nuclear installations. AMAC also works on local development issues to prepare the future of the Spanish municipalities when nuclear power plants are decommissioned. In 1991, the fourth national plan for nuclear waste management announced major changes from AMAC's viewpoint. The plan intended to extend the on site storage capacity in each nuclear power plant. The municipalities opposed the plan which they consider to be a *fait accompli* policy and AMAC sued the government. AMAC claims for the construction of a centralized temporary storage. The suit was rejected but AMAC have appealed the decision. The outcome is still pending.

After the failure of the Senate initiative to build dialogue on nuclear waste management policy, and taking into account the situation of the various actors concerned, AMAC found itself in a position to propose a new framework for discussions. This proposal is based on the following :

- Each actor must assume its political responsibility;
- public confidence on the issue must be increased.
- structures need to be set up for debate (task forces, working group...)
- transparency and participation must be put into practice
- long term governance must be determined

Based on this, AMAC promoted an Act on transparency and participation on nuclear issues before the national and regional governments, Parliament, ENRESA and the regulator, CSN. The proposal includes :

- Right of citizens to information
- Creation of local information commissions
- Creation of a national board for nuclear information

Local commissions operate since 1999 but from the municipalities' viewpoint, they have proven their inability because of a lack of pluralism and diversity. The receptiveness to this Act proposal was varying. AMAC decided to carry on pressure on Parliament and meanwhile cooperates with CSN and ENRESA to set up a national work group in order to prepare waste policy in Spain.

C-7. The Belgian local partnerships (Mona, Stola, PaLoFF)

This case study was introduced by Mr Bernard Neerdael (SCK.CEN) and presented by Mrs Evelyn Hoofdt (ONDRAF/NIRAS), Mrs Anne Bergmans (University of Antwerp), Mrs Kathleen Derveaux (Stola-Dessel), Mrs Liesbet Vanhoof (Mona) and Mr Marc Mormont(FUL).

In 1990 ONDRAF/NIRAS, the public agency responsible for nuclear waste management in Belgium, issued a report concluding in favour of surface disposal for the long term management of low level waste after examination of three options. In 1994 98 potentially suitable zones were identified on the base of technical criteria. All concerned municipalities wrote motions to reject the proposal. In 1995 the Government made a national policy statement and prompted ONDRAF/NIRAS to study alternatives to surface disposal. Following a 1997 report from the Agency, the Government opted for a disposal that would be reversible, progressive and flexible. The technical decision between deep and surface disposal was not yet made but the disposal option was chosen with regard to long term storage. It was agreed that the selection process would focus on existing nuclear sites or on candidate sites, and develop in close cooperation with the local people to integrate the disposal in the socio-economic structure. ONDRAF/NIRAS worked out a new methodology with the Universities of Antwerp and Arlon to meet this latter request. The Agency contacted the existing nuclear sites and presented the methodology. The nuclear power plants sites (Doel, Tihange) declined the proposal, but three partnerships were established in Dessel (September 1999), Mol (February 2000)

and more recently Fleurus-Farciennes (February 2003). The three communities already host nuclear research laboratories, waste management facilities, or isotope production units.

The methodology is aiming at a better integration of technical and social aspects to find a safe solution. It relies on a continuous interaction with the public through a partnership. Before the partnerships were formally set up, a consultation process was carried out by a team from the Universities : the various actors in each community were met to get feedback on the proposed methodology, and to reach a common definition of the problem at the local level. This process equally ended up with a specific structure for the partnership as regards management, and composition.

The structure and operation of the partnerships in Dessel (Stola – “Study and Consultation Group Low Level Waste”) and in Mol (Mona – “Consultation on Nuclear Waste Category A”) is quite similar. The partners work out a disposal project on the one hand, a social project on the other hand. These two projects will be evaluated separately. If one of the two is considered unfeasible the whole project will end. If both of them are considered feasible they will be integrated in a global project. This integrated project will be submitted first to the general assembly of the partnership, then to the municipal council, and eventually to the Federal government. At any of these steps, if the project is disapproved the project will be stopped. These clear rules were viewed essential to provide clarity on the implications of each step and on the overall direction of the process. What remains unclear at this stage is the possible position of the Federal Government if the project is approved locally.

The partnerships are independent decision-making bodies. Their independence stems from the diverse background of their members. Both organisations dispose of a 250000 € yearly budget, which they use according to their convenience. The partnerships consist of a general assembly (30 members) with a broad representation of the local community (political actors, delegates from socio-economic, environmental, cultural and other locally based organisations) and a representative of ONDRAF/NIRAS; a management committee (10 members), appointed by the general assembly; two full-time project coordinators; and four working groups (15 members each) : “siting and design”, “environment and health”, “safety”, “local development”. Each working group comprises representatives of the political, economical and social organisations that founded the partnership and individual citizens who took an interest in the debate. All participate on a voluntary basis. The technical project is worked out by the first three working groups. They build on the reference repository concept of ONDRAF/NIRAS as a starting point. The technical project is then progressively specified according to the request of the partnership members and the local setting. The social project is prepared by the “local development” working group which develops social conditions for the integration of the technical project in the community. In the four working groups, all relevant research is given consideration. Interested parties are invited to express their interests and concerns through dialogue. The need for additional studies is evaluated. Independent experts are introduced in the debate. There is a positive attendance in the working groups, but the wider public has a limited knowledge on Mona and Stola. In this respect, the partnerships have made significant communication efforts to make the broader population aware of their activities. The decision by the municipalities will be made in 2004.

The Fleurus and Farciennes municipalities first refused to establish a partnership in 1999, and requested proofs of technical feasibility to ONDRAF/NIRAS. They however accepted the setting up of an information forum to convey information to the people. This forum was led by a University team with ONDRAF engineers. PaLoFF partnership (Partenariat Local Fleurus-Farciennes) is a result of this three year open forum. Specific factors have contributed to this new development. In the forum ONDRAF/NIRAS experts were open in sharing uncertainties and doubts which made it possible to integrate in the concept definition all questions, doubts and concerns also expressed by the local population. Moreover the population had valuable information about past mining activities, soil and water courses which were relevant as regards the technical conditions for the project. Little by little interests converged, technical concepts and local concerns integrated in a shared understanding of the problem. A new concept emerged : the facility would be a more open structure which can be accessed, controlled and monitored. This concept could address the initially opposed visions of safety : one based on technical uncertainties, the other on uncertainties stemming from a potential interaction between the waste and the social environment. In a new framework technical uncertainties would be acceptable if social uncertainties can be dealt with. The creation of the partnership was also dependent on the capacity of the forum to encourage the expression of a diversity of interests and views in the discussion over the project, while fostering social cohesion and mitigating internal divisions.

D - Recommendation Groups reports

D-1. Recommendation Group 1

Chairperson : Mr Jean-Claude Dougnac CLI Cadarache France
Vice-chairperson : Mrs Saïda Engström SKB Sweden

In order to select a site for a nuclear disposal in the future, an involvement of all concerned stakeholders is of a great importance. Looking at the experience of most countries, it is obvious that the local communities in dialogue with the implementer play a central role in whether the siting work is successful or not. The local communities have to be empowered to take part in the siting process in a constructive manner. The working group 1 within COWAM discussed what are the overall good practices in involving the local communities, being however aware of the fact that each member state has their own administrative traditions and cultural background.

The following has been found to be important when involving local communities and enhancing local democracy:

1. In addition to possible national institutions in charge of the nuclear waste policy, each Member State should arrange a local body with representatives from the community concerned on foreseen or existing sites for nuclear waste management. This local committee would advice the decision makers and ensure local views are taken into account before decision on technological, economic and social topics.
2. The national regulation should define basic criteria concerning ethics, proceeding, rights and duties for local authorities, individual access to information, public health and environment protection. These criteria may be subject to development and revision if necessary.
3. Regional elected representatives, regulatory bodies, the implementer, economical regional forces, local trade unions and community representatives from the public at large take part in local committees.
4. Some of the main tasks for such a local committee are for example the formation of the members, reviewing documents, arranging local debates, summarising argument synopsis, making proposals to be looked at, following the process of decision making and taking on some part of public communication. The local committee informs and consults the population at each step of the process. Elected representatives shall take into account the advice of the local committee before deciding.
5. A national dedicated fund pays for these actions. It is of course important to finance the contribution of the local involvement if there is a genuine will to empower the community to take part in the decision-making process.
6. Confidence in decision-making process is successful by voluntary bearing of each participant, by shared knowledge of stakes, risks and benefit, and by transparency in proceedings.

The local community will need the support of experts when there are reviews needed on different matters. This will be of course possible only if there is a good funding available.

D-2. Recommendation Group 2

Chairperson : Mr. Thierry Schneider CEPN France
Vice-chairperson : Mr. Mariano Vila d'Abadal AMAC-GMF Spain

Topic 3 - The Site Selection Process

1. National Strategy and Site Selection Process

- Before to start the site selection process, the first step: Definition of a project for waste management at the national level
- This is not the responsibility of the local communities, but they should be involved
- Key step to be sure that in the following steps the local community will not be alone but will act in the framework of a national project
- This strategy has to accommodate the interest of the different levels of the society (e.g. national parliamentarians, local elected people, operators, NGOs,...)
- The efforts made by the local community have to be recognised and acknowledged
- Safety is paramount
- The strategy must address the sustainable development of the local community, taking account of: social, economic, environmental, health issues
- There is a danger that a local community might promote itself as a candidate only to get financial compensation without considering seriously the responsibility in long term perspective
- As part of the discussion on sustainable development, alternative economic solutions for the area should be considered

2. Relationship between National and Local Communities

- Conditions for succeeding in the process responsive to the local communities and the national needs:
 - Necessity to establish a clear contract between all the partners and acknowledge the common concern on nuclear waste management
 - Provide the possibility for regular revisions of this contract
 - A clear decision-making process at the beginning of the site selection process :
 - clarification of the link between the different researches
 - who is in charge to decide what?
 - the objective of the technical researches
 - ...
 - Quality of information provided to the local communities and the promotion of dialogue forum, exchange of experiences...
- The concepts defined at the national levels will have to be discussed again at the local level during the implementation process and could be changed or improved
- Increasing role of the European Union: Aarhus Convention, Preparation of European Directive... (to be further investigated)
- Case of several candidates: competition is likely, but each local community should be encouraged to cooperate with the others

3. The role of Local Communities and Veto

- The role of the local communities and their interaction with other parties should be clearly defined
- The process of site selection process would be made easier if the local communities have a veto
- Importance of introducing a stepwise process where all the partners have some obligations
 - evolution of the veto according to the steps of development of the project
 - when, how and for what purpose the veto could be used?

4. Proposals for Monitoring in all phases with the Involvement of Local Communities

- Need to address the question of who will be involved and which pluralistic expertise will be available
- Provide training to the local stakeholders in order they get enough background to have a grip on the situation
- Local communities need:
 - to be informed
 - to have access to the information but have not to be considered as responsible of the management of the waste
 - to be able to inform the local population
 - to be involved in forum and consultation process
 - to give their advices on the management of the waste

5. Financial Compensation

- Need to define a framework for financial compensation which is ethical and which provides a long term legal guarantee
- This framework must be acknowledged and shared by all the stakeholders
- Necessity to state how will evolve the financial supports at each phase of the project
- Need for the financial arrangements to be externally audited and transparent

6. Sustainable Development

- Impossibility to set a nuclear facility without specifying what kind of advantages it will bring to the concerned territory
- Reflection on the future and sustainable development of the area has to start quite early in the process
- For nuclear waste, the question of compensation is of different nature than in the case of other nuclear installations
- Need to consider not only the operation phase but also the surveillance over long periods
- Site acceptance must not become a "handicap" for the territory: this is a national challenge

Topic 4 - Influence of the Local Actors on the National Nuclear Waste Management Framework

1. Type of Actors

- Local actors are all the communities who consider themselves concerned with the management of radioactive waste
- Need to involve different types of actors:
 - local politicians and elected people
 - local citizens concerned by the key issues on environment and local economic activities
 - experts mandated by local communities
 - ...
- Plurality of the local stakeholders will be a key component: they will provide a pluralistic expertise on the different dimensions at stake: safety, environment, economic, political,...

2. Type of Decisions

- Importance to allow the local communities to have an influence on the different options considered at the national level
- As soon as the option is selected, provide flexibility to the local communities for influencing the technical concepts:
 - for example, give room to the local communities for the organisation of the retrievability concept

3. "Tools" for Participation

- Two main tools were identified:
- There is a need for the local communities to be organised in a national/or EU network:
 - key element for favouring the participation of the local communities in the more general debates
 - ensure that their concerns will be considered
- Importance of the involvement of the Parliamentarians representing the local communities concerned by the nuclear waste management

D-3. Recommendation Group 3

| | | |
|--------------------------------------|--------------------------|--------|
| Chairperson : Mr. Olof Söderberg | Special advisor | Sweden |
| Vice-chairperson : Mrs. Iris Hawkins | Shetland Islands Council | UK |

Local democracy

It might be possible to identify *principles and/or best practices* for the involvement of the concerned local population when deciding on nuclear waste management issues. But the *implementation* has to be adapted to the traditions and the constitutional structure of a particular country.

The concept of 'local government' has different meanings in different countries. The same concept also has different meanings for different actors on the local scene.

The following observations reflect some of the many aspects that should be taken into account.

The policy adopted on nuclear waste management should in theory reflect the attitudes of a majority of the population of the country. If there is a clear majority behind the policy on nuclear waste management, the policy is legitimate, even if there is strong criticism. However, this may be difficult to take for granted, as nuclear waste management does not seem likely to be a major issue at general elections at the national level. If a policy is clearly supported by a majority on the national level, but meets strong opposition by a majority on the local level (in communities that will be affected by that policy), there is a democratic dilemma to be solved.

Principles for the decision-making process on the national level should also contain clear principles for local participation in this decision-making process.

Principles for local participation in this decision-making process should contain some minimum requirements, for instance stating that the 'normal' locally elected representative body (a municipal or a corresponding body) should always have a decisive role.

If possible, a local community should be able to work out its own decision-making process, e.g. about the use of local referenda .

Much more than lip service has to be paid to concepts such as transparency, openness and dialogue.

A situation has to be avoided where the local actors experience a lack of principles or are given the impression that they are in the hands of the main actors on the national level, such as the Government, its regulating agencies or the implementer.

Efforts are expected by the local authorities to involve the silent majority in decision-making processes in order to overcome democratic gaps.

Influence of the local actors on the national nuclear waste management framework

General

A desirable basis for local involvement is the existence of a clear national policy. Such a national policy should contain answers to at least four basic questions:

- Where does the power rest to decide on the policy and the principles for carrying out the policy (National government, Parliament)?
- Who is responsible for regulating this policy in detail and what exactly does this responsibility mean?
- Who is responsible for implementing this policy and what exactly does the responsibility of the implementer cover?
- How is the implementation of the policy going to be financed?

Respective roles of the different local actors

The existence of different local actors working in different ways when influencing national nuclear waste management framework must be acknowledged and regarded as an asset. Major features should be the following:

Local involvement in nuclear waste management issues should be based on usual democratic rules that are used for decisions on other issues of major importance for a local community. However, given the often deep concerns and involvement of local NGOs and many individuals among the population on matters concerning nuclear waste management, 'ordinarily' elected officials and bodies should consider the significant potential contribution by concerned individuals when democratically elected representatives of the municipality have to make a decision which they believe is in the interest of the municipality and its inhabitants. Thus, local opposition and local NGOs should be regarded as an asset.

To take part in a dialogue also means taking on a responsibility. At some point, decisions have to be made by institutions that have been given such powers through a democratic process.

Local competence and resources

The participation of local communities in the decision-making process requires that they develop some competence and that they have access to resources that enables them to do so.

The key issue is that concerned municipalities have access to funding mechanisms that allow them both to inform their inhabitants and to develop a competence of their own that provides them with the tools for meaningful participation.

Funding mechanisms should be constructed in a way that guarantees an independence from the implementer concerning the use of money for different purposes.

D-4. Recommendation Group 4

Chairperson : Mr. Thomas Flüeler ETH-Zurich Switzerland

Propositions regarding an inclusive/integrated expert system (Topic 2)

(Sufficient) knowledge is a prerequisite to an informed judgement which itself is the basis for a decision. Goal-oriented knowledge (information) reduces decisional uncertainty. Because disposal of radioactive waste is a complex socio-technical problem embedded in a highly politicised debate on energy options, several aspects of knowledge or expertise are pivotal: the type and quality of knowledge, its origin (the sender) and the access to it.

Since expertise by external experts is necessary, the public has to gain trust in the scientific-technical community. The public's judgement base, therefore, does not solely rest on expertise but is also - if not primarily - process-based. Consequently, not only is confidence in technical performance assessments needed but also trust in the persons and institutions in charge and participating in the procedure chosen. In complex technical domains, trust (in experts and their work) is a key notion in the transfer of knowledge. Particularly when dealing with radioactive waste, one cannot rely on known techniques (state of the art and heuristics) but has to compensate ignorance (*i. e.*, the absence of knowledge) by trust in the specialised institutions (regulators, safety authorities, applicants, "independent" scientists). Their relevance is increased in authoritarian procedures (Decide-Announce-Defend, DAD, strategies) where little active public participation exists and the public increasingly seeks trust in diverse information holders (authorities, applicants, experts, "counter experts", NGOs, *etc.*). The following aspects were judged to be decisive:

Type and quality of expertise: Complex multidisciplinary topics require broad-based approaches to the solving of controversial problems, with interactions on various levels (ethical, societal, technical, *etc.*). The various target groups have to be supplied with appropriate information. Because knowledge does not just exist "objectively" but is interest-bound, expertise independent of the applicant has to be built up in order to attain a pluralistic perspective.

Origin/sender of expertise: Differences in perspective or focus is due to the distinct nature of the various stakeholders. On the one hand the particular knowledge and competence of experts has to be recognised, on the other hand the local and regional population are the most knowledgeable about their local affairs (as if to say "lay people are the experts of everyday life"). Certain national and international NGOs are oriented towards a "global view" and federal stakeholders think "nationally"; however, the citizens in the vicinity of a potential site would normally maintain a local perspective. The "hidden agendas" of some NGOs and experts have to be brought into the open; and in this respect it should be realised that the "(in)dependence" of experts might be compromised.

General framework: access to knowledge, resources: Decision-makers depend on knowledge from diverse sources to reach an inclusive judgement considering all relevant aspects. Sufficient resources can be crucial. Good practice is found in Sweden where potential siting municipalities may build up expertise or consult experts on their own. Financing is secured through a state-administered fund and following unified rules. How the money is used is left up to the local communities. According to the polluter-pays-principle the fund is accumulated by the waste producers (*i. e.*, the NPP operators). In Belgium the local committees (MONA at Mol and STOLA at Dessel), assisted by a secretariat as well as a technical and a social scientist, are directly reimbursed by the applicant (ONDRAF-NIRAS). In Switzerland the Government of a potential host canton (Nidwalden) appointed a special expert group, KFW, who was solely answerable to the Cantonal Government. The issue of a critical mass of "local expertise" was only touched upon, *i. a.*, in the context of the creation of an "independent" international expert pool.

In response to the issues raised in the Framing Paper the following is postulated:

- An integrated expert system¹⁶ will ensure that sufficient expertise can be accumulated in order to help the local decision-making process.
- Local/regional stakeholders consult, where necessary, experts of their own choice who are paid through an independent fund provisioned according to the polluter-pays-principle. The local stakeholders are also paid for their efforts.
- The system is established and kept functioning by way of a transparent, comprehensible scientific (and societal) discourse and debate, (mutual) minimal trust in the stakeholders, confidence in the pre-defined but consensually modifiable procedure, as well as a common understanding with regard to the political conception (“common ground“: sustainability of waste disposal, passive safety combined with control and retrievability, *etc.*).
- A stepwise and recursive procedure should help ensure the quality of expertise and decisions.
- The fundamental aim in the acquisition of knowledge in this context must be the enhancement and improvement of long-term safety of the disposal system and the reduction of related uncertainties. Everything and every type of knowledge have to be considered against this background and yardstick.

Propositions regarding the site selection process (Topic 3)

- A site-selection process may be based neither on purely technical criteria nor “voluntarism” alone.
- For “voluntarism” to work, a procedure needs to be fair and seen to be fair. It also requires intensive public involvement at the local level. Linear decision-making strategies such as “Decide-Announce-Defend” are unlikely to succeed. The defined criteria and guidelines must allow for flexibility within a procedure. Existing environmental legislation (*e. g.* environmental impact assessment - EIA) provides a framework for assessing all impacts on health and the environment of a particular project as well as the modalities of public involvement and participation.
- A high level of passive safety (both now and in the future) is the overriding requirement of any disposal system. Crucial in fulfilling this requirement are transparency, accountability and traceability of arguments, scientific discourse (see Topic 2), early involvement of the concerned stakeholders, iterative procedure, confidence and trust in the stakeholders. In addition, it is important to define clear criteria beforehand and to stick to them (with regard to definition of safety, ethical basis, *etc.*).
- All relevant interim steps should be made visible and reinforced by decisions taken on the basis of the available knowledge at the time (see Topic 2). Only then is it possible to set up relatively realistic timetables and to stick to them. Even then disposal projects are still uncertain, long-term pilot undertakings.
- Changes of criteria and - more importantly - of the concept have to be substantiated and carried out through consensus (among the main stakeholders). Since failure of the proposal is a possible outcome of the procedure and decisions need a choice of options, alternatives have to be considered as contingencies.
- When assessing site selections made in the past there should be a distinction made between the site-selection methodology, the implementation and result of the process. What is important, after all, is whether long-term safety can be demonstrated at an actual site.
- Site-selection criteria can be formulated in the framework of an integrated expert system mentioned in Topic 2, which is accompanied by a national instead of a local debate. Only then will the actual site selection procedure be appropriately instituted.
- Conventional financial compensation is to be avoided. Factual compensation or regional development planning, however, should be considered.

¹⁶ Here an “expert system“ refers to persons and not technical infrastructure (computers, *etc.*).

D-5. Recommendation Group 5

Chairperson : Mrs. Lorraine Mann

Scotland against Nuclear Dumping

Vice-chairperson : Mr. Kaj Nilsson

Oskarshamn Sweden

Local Democracy

Within a national process

Local democracy operates most effectively where the national process is also operating effectively.

- There must be no single European solution - no country should be expected to take others' waste
- Artificial time constraints cannot be applied - each country must be able to spend time reaching such important decisions
- There can be no uniform solutions because each nation has its own laws, national and local government structures and culture
- Imposition of uniformity can harm the existing and ongoing process to such an extent that solutions become impossible and unattainable

National differences - general rules

- National and local players must work together to take responsibility for their own waste
- Local democracy requires a defined democratic process to work within at National level
- National, regional and local levels must work together
- It must be clear from the start who takes the final decision, and on what basis

National Debate

Local Democracy can work better within the context of full and open debate at national level :

- Local democracy is vital but can never be a substitute for national debate. The national government must accept political responsibility and stimulate real, wide-ranging national debate
- If national debate doesn't run in parallel with local democracy there is likely to be conflict between national and local levels which will form an impediment to action

National debate should play the main part in determining :

- Levels of acceptable risk
- Overall waste management policy
- Siting process for nuclear waste facilities

Partnership working

- There should be the opportunity for all to take part
- interest should be the only criterion for involvement
- BUT final decision making must rest with the elected representatives at either local or national level

Resource for partnership working :

- The process is not there to collect opinions but to allow people to discuss and establish their interest
- Resources must be provided to allow full and realistic involvement in the decision-making process
- Resources must be managed by an independent fund-holder

Allowing time for a step-wise approach

- Step-wise approach is very important - each step must follow from the previous one
- Time must be allowed to enable local communities to be comfortable in taking the next step
- Time is one of the main tools for building trust and confidence

Influence of the local actors on the national nuclear waste management framework

Long-term issues

- Long-term planning is always uncertain. Future generations' desire to take their own decisions must be considered
- Each generation must take responsibility for their own decision-taking
- The right of future generations to disagree with the decisions of our generation must be provided for in terms of flexibility and provision of resources

Involvement of local actors

- If there is no involvement there is no influence
- Local actors have a responsibility to search for areas of agreement and seek to debate areas of disagreement in as productive a way as possible
- Direct communication must be carried out in as many ways as possible so that all citizens can become fully involved
- Local media are important in helping or hindering the decision-making process. The media is one of the local actors and must be fully involved

Socio-economic issues

- Two guarantees form the basis for involvement of local actors
 - Safety - must be assured as far as it is possible to do so
 - Opportunities for economic development must be provided and discussed

Discussions on overarching principles

- Local actors should be part of the national debate in establishing views on risk, waste management options, and development of the siting process
- Local people must be able to negotiate constraints

Definitions of "local"

- Are not possible to make because :
 - Differences in local government structures in different countries
 - Differences in levels of interest between communities affected by nuclear waste facilities or communities affected by transport
 - Differences from time to time and issue to issue
- All interested parties should be able to be involved in the national debate

The participatory process requires capacity for the local community and NGOs to participate. If subject to limited resources it will be difficult for the community and the NGOs to make their voice heard.

National provisions for the local debate: One important issue is to make sure that the local communities will not be left alone with the waste management issue and that national institutions, notably the central government and such bodies as the Parliament will maintain involvement in the decision-making process.

Role and missions of the different actors involved at the national and local level

The national framework should include a clear definition of the role and responsibilities of the various actors involved in each relevant context (national and local), as well as a clear definition of the relationships between them.

This includes the role of public authorities. National regulators should be involved throughout the decision-making process as an independent authority. Their responsibility is to ensure that the waste operators achieve their task in a safe way and that their economic structures are safe. This role of guardian of the process should be defined in each national context.

There are many questions to be raised in discussing how to set up the decision-making process and the role of the key players such as:

- What is the overall responsibility of the public authorities in the decision-making process?
- Who does what in the national policy implementation?
- Should the designer of the policy and the implementers be the same ?
- What are the links and relationship between the industry (producing the waste) and the waste management agency?
-

Structures for policy implementation

Of importance to the clarity of the decision-making process are the type of structures used to implement the national policy. Implementation based as much as possible on established existing structures and decisions made within the normal regular framework in order to avoid any dispensation from the usual democratic decision-making processes is suggested. The example of Environmental Impact Assessment (EIA) was cited which is used as a general EU policy tool for environmental issues.

D-7. Recommendation Group 7

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ABSTRACT

Recommendation Group 7 worked on expertise, the site selection process and compensation.

At the local level, there is a need for access to independent wide ranging areas of expertise. The funding of this expertise should come through a clearing house mechanism but be spent transparently, as locally agreed. There should be a clear communication strategy implemented at the local level.

The decision-making process for site selection should be transparent and structured in a series of stages with clear criteria defined. Methods should be reviewed before focussing on sites. A number of sites should be considered initially with local stakeholders involved from the outset. Trust is an important factor. Therefore the process should appear to be fair to all stakeholders. The purpose and objectives should be clear in order to avoid suspicion of a 'Trojan Horse'. Rock characterisation facilities are very expensive and therefore should only be developed at likely repository sites to confirm strong candidates.

Compensation is a difficult issue and needs to be faced. It needs to be linked with sustainable development of the region.

TOPICS

The COWAM approach was to identify 4 discussion topics from the issues raised at the first seminar in Oskarshamn. Eight recommendation groups were then formed and each one was asked to discuss two topics at the three subsequent seminars (Verdun, Wellenberg and Cordoba). The topics chosen for Recommendation Group 7 were:

- Topic 2. Expertise in the local decision-making process
- Topic 3. The site selection process

The recommendation groups were also free to identify other issues that they wished to discuss and in the course of the discussions Recommendation Group 7 decided that the question of compensation was an issue that they also wanted to consider.

A framing paper was provided at the Verdun seminar that contained a list of questions to be used as a starting point for the discussions of the recommendation groups. Recommendation Group 7 met three times (at the Verdun, Wellenberg and Cordoba seminars) to consider these questions, to debate the issues and to work towards agreed recommendations. The following report was agreed as a summary of the main issues and conclusions arising from the discussions of the Group.

Topic 2 : Expertise in the local decision-making process

The Recommendation Group 7 agreed that local stakeholder engagement should be defined by a nationally agreed framework. The stakeholders on the local and regional level need access to many types of expertise to complement the existing expertise within the group. This expertise is not just technical expertise but includes socio-economic, legal, public health, environmental and decision-making expertise. This is important as it contributes to local stakeholder independence and aids empowerment. The recommendation group felt that it was important that social and economic issues should be taken into account in the decision-making process, not just technical issues. Experience at MONA shows that it is difficult to get social issues discussed and this may be partly due to the lack of suitable experts and partly due to the emphasis on technical issues.

Therefore the local stakeholders need to find specialists and need funding to enable this to happen. The recommendation group agreed that the source of funding should not come directly from the operator or organisation dealing with the waste but through a clearing house mechanism; examples are in Sweden where the money comes from a waste management fund and in France where the CLIS is government funded. The way money is used should be agreed among the local stakeholders in accordance with nationally agreed principles. The Group felt that a good way forward was to set up a special organisation mandated by the group of local stakeholders whose job is to scrutinise the waste management decision-making process. The organisation should be well defined, with representatives from all interested parties, although they need not be elected representatives. It is important that the way in which the funds are used should be transparent. Examples of such organisations are the Oskarshamn and Östhammar reference groups for feasibility studies and MONA/STOLA/PALOFF. These groups can use the funds to hire experts to advise them and it is important that they include experts from opposition groups as well as supporting groups so that a healthy debate can occur.

The recommendation group felt that it was important that the organisation held regular debates and disseminated information. In order to do this the Group suggested that they should develop a communication strategy that could include a forum every few months or so, leaflets containing information agreed at the forum, and use other means of communication eg newsletter, website, and providing information at local events. Examples are the communication methods used by MONA/STOLA.

The recommendation group felt that it is often difficult to find independent experts in their own country, so the solution is to find experts from other countries that have the appropriate knowledge. In the UK, in the 1990s, a safety expert was invited from the US because UK experts were all involved in the preparation of the safety case. Similarly, in Sweden, when the municipality of Arjeplog was to decide if it should use the veto against uranium mining in 1981 a hearing was organised with invited experts. The proponents and opponents agreed to invite a "neutral" expert from abroad, Joseph Wagoner, a working health expert from the USA. He also made a written statement.

Topic 3 - The Site selection process

The recommendation group felt that the decision-making process should be transparent and structured in a series of steps or stages. Criteria for go/nogo decisions should be defined in advance for each step and there is a need for clear and definite alternatives if the application fails; an example is the new German approach proposed by Akend. The Group felt that peer review of the criteria would lend confidence in them. The process should begin with a review of methods of waste management before focussing in on identifying sites appropriate to any one method, as now proposed in the restarted UK programme. The process should be acknowledged as being fair by the potential stakeholders.

It is clear that people believe that any site is a potential site once it appears on the initial selection list, even if this is clearly the start of a long site selection process. Therefore the recommendation group felt that it is important to start with more than one site on the list and to involve local actors from the beginning by raising the question nationally first.

One issue of concern is the generally held suspicion that a site originally selected for LLW disposal may quietly become the site for ILW and HLW also. Therefore, the recommendation group felt that it is important that the type of waste that will be disposed of at the site is clearly defined at the outset, at the start of the site selection process. Similar concerns apply to the waste management concept e.g. will it change from laboratory to disposal site, or from storage to disposal? In UK and Belgium it was felt that the rock characterisation facility was a 'Trojan Horse'.

Trust is an important factor. Reliability, responsibility and fairness are attributes that foster trust between the participants in the decision-making process. Sometimes this may involve difficult decisions and require determination to follow up alternatives in the face of opposition. However, if this does not happen, then trust is destroyed and the local community feels betrayed and victimised. Once this occurs, then it is difficult to build up confidence in the decision-making process. Examples are Bure in France and Wellenberg in Switzerland.

It is important that the information should be freely available and transparent, and that understandable language should be used wherever possible. This applies equally to the company proposing the repository, the opposition groups and the government. The way that information is exchanged should follow an agreed and fair process.

Appropriate investigations should be agreed, for example to ensure long term safety is demonstrated. This may be through borehole programmes and a rock characterisation facility, where appropriate. It should be made clear to all stakeholders what purpose is envisaged in each case: is it generic investigation or characterisation of a proposed site?

A rock characterisation facility is a good way to obtain more data on a potential site, however it is very expensive. Hence the recommendation group was concerned that there was a possibility that money could be wasted if too many rock characterisation facilities were set up or if they were set up at sites that could not be repository sites. The Group agreed that if a rock characterisation facility is to be set up to obtain data and perform research on the characterisation of a possible site, then it should be clearly understood from the very start that if the research showed that the site was acceptable then the repository could indeed be sited there. The Group is not aware of any examples in Europe.

Extra topic: compensation

Compensation is a difficult issue and needs to be faced. The recommendation group felt that since a repository was a long term feature it was important to consider the needs of future generations as well as those of the current generation. The Group agreed that it is important that compensation is not linked with bribery and therefore it should have a different basis. The Group liked the German vision of compensation in which the development of a repository at that location should be a positive idea linked in with the future and long term sustainable development of the region as a whole. Therefore local stakeholders should be consulted on their view of the future of the region; for example MONA/STOLA have a specific working group on local development to address the issue of development of the region. In addition, local stakeholders will need to participate in and have control over the way in which the repository develops. One suggestion from Germany is to link the repository in with the development of a centre of excellence and hence the local community should be able to develop pride in the development of a national facility. Therefore there needs to be a good vision for the region, one that will get support because it is of benefit to the nation and the local economy.

D-8. Recommendation Group 8

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Local democracy

The practice of local democracy requires a decision-making process which the actors are aware of. This approach is all the more requested in the nuclear field where the decision to carry out a civil nuclear program was made 40 years ago without any prior consultation for a majority of countries.

In respect of pluralism, the elected authorities, the representative bodies and the citizens must always be consulted during decision-making processes especially when it comes to nuclear waste management. The local actors must assume their role of information and organization of local debates and report to the national level.

The local level must be involved sufficiently early in the process in order to reach a decision that builds on a basis as broad as possible. Moreover, if local involvement is introduced too late, the citizens will not feel concerned by a decision that they will be likely to consider arbitrary since they were unable to contribute.

The national level must take on several responsibilities to make the local debate possible, i.e. :

- widening the scope of debate to national energy policy which conditions the types and quantities of waste;
- developing an accurate inventory of waste (nature, quantity, origin, destination, conditioning...)
- designing the overall nuclear waste management policy and the technical options considered, under the various aspects concerned;
- delegating responsibilities to the local level with matching resources;
- creating a local body

The local authorities in charge of the local debate and local body must get guarantees that:

- local questions and comments will be given due consideration at national level and will not remain without effect;
- at any rate, a clear and explicit answer will be given.

The national level must provide financial support to allow municipalities and groups of municipalities concerned with a potential site to face their responsibilities as regards information, expertise and follow-up. The management and use of these resources shouldn't be dependent on the operator.

The local body should include a membership that reflects the local realities. It will carry out :

- during site characterization : technical, financial and social analysis of the project;
- after siting : follow-up and information

Its composition depends on the local environment. Prior to its setting up, a sociological survey would help to prepare the most representative body possible. This local organisation must comprise elected officials, representatives of associations, consular Chambers, experts, citizens... Its statute should enable members to file a law suit.

The operator should never be a leader in this local control and information body : however he is expected to bring information and answer questions. Following local debate, it is likely that he needs to modify his project.

Members of the local body dispose of their own expertise. As an additional support, external scientific experts will be consulted on specific issues that request attention. The local body provides

local elected representatives with its reports in order for them to carry out a dialogue with the national authorities.

Expertise

Expertise in the decision-making process must:

- help the local body to raise questions, to ask for further information, and prepare comments;
- help with the examination of the technical files, and their possible modification
- allow a better appraisal of the limits of the file as regards technical as well as social, environmental and economic issues

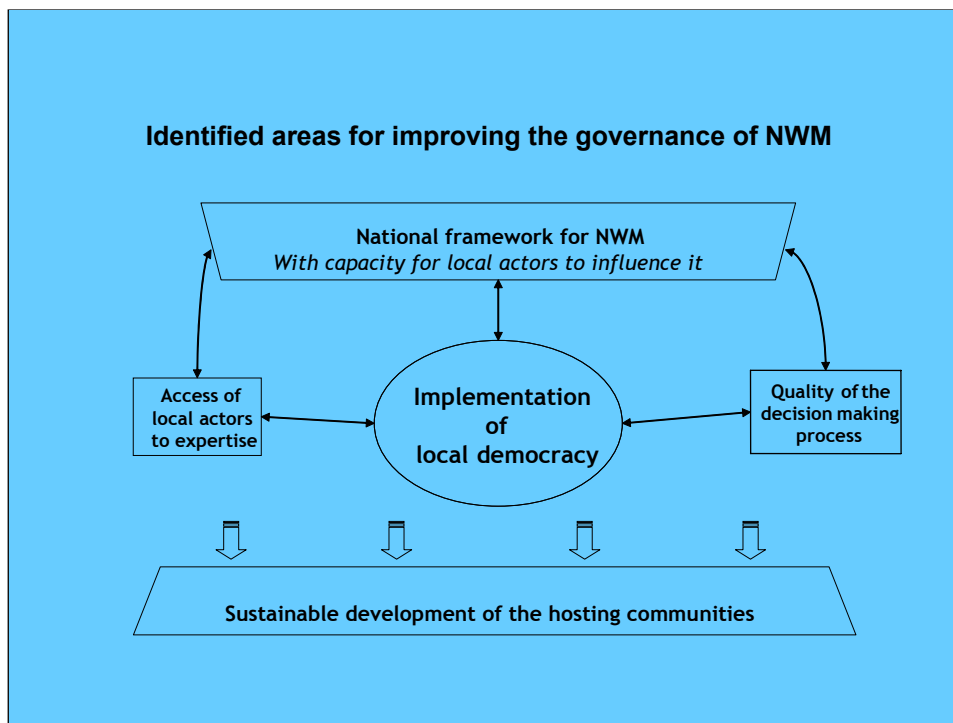
Consequently, the local body must be able to call upon experts from different backgrounds. These experts should not be linked with the proponent and must be able to express themselves with complete freedom.

E - Synthesis of Recommendations

The recommendation groups reports above bring forward a number of converging views among participants. This reflects the fact that beyond the differing interests of stakeholders, nuclear waste management is a common concern for all. This also reveals that despite a variety of experiences and contexts, despite some specific difficulties in local and national situations, there is a wide area of common questions. Around these common issues there is an opportunity to continue collaborative work in order to develop a better understanding of the underlying issues and a sharing of best practices.

COWAM discussions were focussed into five issues : the implementation of local democracy, the access of non-experts to expertise in the decision-making process, the influence of local people on the national nuclear waste management framework, sustainable development in regions hosting facilities, the quality of the decision-making process. However, there are obvious connections between these questions (as shown on Figure 4 below). The key matter for COWAM is the *implementation of local democracy* : this is the place where local involvement takes place and where the conditions for its effectiveness need the most to be worked out. In the meantime, local democracy depends partly on the *national framework set for nuclear waste management*, and a major question pointed out in COWAM relates to the influence local democracy may have on the national policy framework. The *quality of the decision-making process* embraces what happens both at local and national levels. The *access of local people to expertise* is equally relevant at these two levels. Eventually the long term reliability and robustness of the decision-making process shows in the development of the hosting communities and in the extent of its sustainability. The scope of expertise and more generally the issues discussed at national and local levels are all important to prepare the long term perspective of nuclear waste management, taking into account *the local development of hosting communities*.

Figure 4



Issues about local participation, about the relation of the local authorities to the national players and national policy, about the criteria for site selection, the contribution of expertise in the local dialogue, or local development are significant in all the different parts of Europe, although each issue would be more emphasised or less important in each of the different countries, with respect

to the institutional and cultural context. Based on local experience, the recommendations address the sensitive areas where most difficulties in nuclear waste management lie.

For each issue the recommendation groups were presented with a number of questions, and analysed lessons learnt and proposed recommendations.

E-1. The implementation of local democracy

Questions at stake

For a long period of time nuclear waste management was viewed as a mere technical issue, in the hands of national authorities and experts. The growing difficulties met in siting facilities revealed a lack of local support and resulted in strong opposition towards radioactive waste projects. These situations were equally met for storage, disposal or laboratory, for high level, intermediate or even low level waste. The local level was identified as the weak point in the decision-making process, and the main obstacle in attempts to move forward.

As a result, local involvement is often called for to try and find "acceptance" on a given project in accordance with "good standards" of democracy. One may argue why local democracy should effectively improve the decision-making process.

Behind this first question lies another one : what is the purpose of local involvement ? Does it aim at a better acceptance of ready-made technical solutions ? It can be viewed that participation of the local community, as a potential host to the facility, will enable inhabitants to bring to the project their local concerns. Does this mean that the technical project is adapted or is completed with additional technical and economic measures to meet local claims ? Or would local actors get involved in the very technical discussions of the facility ? What are the consequences of local concerns being taken into account : would this improve the project or conversely weaken safety considerations ? How to address the technical project and safety on the one hand, and local development on the other hand ? Are these discussions likely to improve the quality of the decision-making process ? How ?

The meaning of local democracy is not self-evident. The word "local communities" was regularly used to identify the local representatives, but what does it stand for : is this the local government with its elected representatives, or more widely the active organisations and individuals, i.e. NGOs, trade unions, local industry ? What about the citizens, and the so-called silent majority ? A major concern raised when it comes to defining local democracy in practice was to specify the respective role of elected representatives and non-elected participants (NGOs, trade-unions, industry).

Lessons learned

The development of local democracy is seen as a necessary step for improving the governance of nuclear waste management. This includes the empowerment of local people and an active participation of the wider population.

Local involvement was discussed as a means for the local government, local organisations and citizens to improve their understanding of the nuclear waste issue and its implications for the local community. Their participation is equally requested to raise awareness among representatives of national authorities, and implementers about local concerns and projects. The purpose of local democracy is however not just to explain technical issues to the local community, and to listen to its interests. It should aim at bridging the two dimensions and at making the local community a genuine partner in dialogue. Local involved people are concerned with safety which remains the primary consideration in a siting process, but they are eager for a discussion on a wider scope of issues, covering among others the socio-economic impact, the criteria in the decision-making process, their relation to the national level, the long term perspective of the facility operation... Moreover it appears that the appraisal of technical questions makes more sense to local actors when they have the opportunity to relate them with their daily environment.

The presentation of several case studies from various European countries illustrated that local democracy takes different forms according to each country's laws, national and local government culture. The development of local democracy in nuclear waste management will necessarily take

different forms across Europe. It is acknowledged that there is no one best solution to make local involvement effective. Indeed, imposition of uniformity could on the contrary harm the existing and ongoing process to such an extent that solutions become impossible and unattainable. Nevertheless COWAM views as a primary task the identification of principles and/or best practices for the involvement of local population which can guide decision-making processes regarding nuclear waste management, in all countries concerned. These are developed below.

Ways forward

Increasing clarity and transparency

To make sure local democracy is given due consideration as the process unfolds, there is a strong request that clear rules of the game are specified and followed. It must be clear from the start who takes the decision and on what basis.

A transparent and defined democratic process is required at national level, as a framework for local democracy. This question was emphasized and addressed as a topic of its own (see section E.5). The process should give local actors guarantees that :

- their comments and questions will be listened to
- the project is likely to be modified and influenced by them
- the decision will be eventually explained and justified

Local democracy in practice

It is the democratic duty of elected representatives to take a stand on difficult issues. The 'normal' locally elected representative body (a municipal council or a corresponding body) should always have a decisive role. If possible, a local community should be able to work out its own decision-making process, and for instance to make use of local referenda if this is considered a useful tool in the decision-making process (on this particular issue see section E. 3).

In the meantime, there should be opportunity for all to take part and interest should be the only criterion for involvement. The process is not there to collect opinions but to allow people to discuss and establish their interest. Plurality of views, including opposition, should be regarded as an asset. Local representatives should take responsibility in enhancing local dialogue, keeping in view also the silent majority. Given the complexity of nuclear waste management issues, before making any decision the elected representatives need to value the contribution concerned individuals and organisations can provide.

Local partnership : enhancing local dialogue

Local involvement in nuclear waste management issues should be based on usual democratic rules and structures that are used for decisions on other issues of major importance for a local community. Nevertheless new tools may be required to inform and improve traditional local democratic processes. The uniqueness of nuclear waste management facilities comes from their duration and technical complexity which require new approaches to local development and monitoring (see section E.4 on sustainable development). Long before the decision is made, local democracy should be developed through the creation of a *local partnership* embodied by a local organisation involving the various categories of the community representatives and other local concerned actors. The role of this partnership consists in :

- Gathering information from various viewpoints
- Training its members
- Informing the public about the arguments and propositions
- Leading and structuring dialogue at the local level
- Interacting with the available sources of expertise (see section E.2)
- Striving to involve the silent majority
- Dialoguing with and informing the regional and national levels
- Formulating the local requirements on the project

The composition of the partnership should reflect the diversity and plurality of the local community. The implementer and the regulator should participate in providing information and answering questions.

Local partnership should take place at an early stage of the site selection process. Moreover, if siting is agreed, the partnership should remain active for purpose of information and local monitoring throughout the operation of the facility and possibly after site closure on the medium and long term.

Funding : giving matching resources to the local development plan

Local democracy on nuclear waste management requires dedicated resources in order to :

- Inform and involve inhabitants through local participatory processes (with structured dialogue methodologies and mediation) and communication
- Provide capacity building and training for local involved people (a competence of its own that gives the local community the tools for meaningful participation)
- Give opportunities for additional expertise and means of local monitoring (see section E.2)
- Dialogue with national, regional and local levels

These resources must be provided according to clear funding rules. A national framework is valuable to specify the origin as well as the use of the devoted funds. Neutrality of funding should be guaranteed. In accordance with the polluter-pay principle, resources should be drawn from the operators, while a clearing mechanism would ensure transparency, and autonomy of the funded communities.

E-2. The access of non-experts to expertise in the local decision-making process

Questions at stake

Among the issues to be considered in nuclear waste management are the more technical ones, as for instance, the performance and safety assessment, the impact assessment, the details of the technical options, etc. Long-term disposal of radioactive waste is a complex technical and also social problem embedded in a polarised political landscape. Several aspects of knowledge or expertise are decisive: the type and quality of knowledge, its origin (the sender) and the access to it. Knowledge is indeed a prerequisite to an informed judgement, which itself is the basis for a decision.

In the past years, nuclear waste management was essentially addressed as a narrow technical issue. This resulted in technocratic approaches to decision-making. The role of the experts was emphasised and the non-technical dimensions were neglected or dealt with by experts and decision-makers without being explicitly exposed and debated. As a result, expertise typically remained an exclusion zone for the democratic process.

Because technical issues in nuclear waste management were usually addressed by technical and scientific experts, as soon as the decisions were contested, the different interested parties hired experts. It resulted in open controversies among experts. Experts' accountability and trustworthiness were questioned. The discussion turned into a dispute on who's right, who's wrong from a narrow scientific and technical view. Public confidence and social trust was affected. Excluded from technical discussions local players could be tempted to think of themselves as "victims".

Expertise is often presented as exclusively fact-based. However the technical assessments and nuclear waste management concepts are in practice filled with many other than scientific dimensions such as values, ethical positions, cultural presuppositions, trade off, etc. The challenge is therefore to bring the necessary expertise into the decision framework without impeding the democratic process. It is also to make sure that the concerns and non-technical dimensions are properly taken into account in the expertise. Do non-experts have the necessary skills to take part in the discussions? Do they have to become experts for entering the expertise? Is the public a threat to expertise or a possible resource? Is it possible to bring the non-experts in the expertise? How to make explicit the non-scientific dimensions necessitating a democratic debate (as well as other types of expertise)? How can the non-experts appropriate the available knowledge? How can experts assist the democratic process while not hijacking it?

Lessons learned

The groups came up with a shared view on the goals of expertise in the governance of nuclear waste management.

The primary goal of knowledge generation is the enhancement and improvement of the management of nuclear waste and the reduction of related uncertainties. In this respect a fundamental contribution of expertise is that it makes apparent what is known and what is unknown in a given context. It reveals the boundaries of knowledge which it is essential to be aware of in view of making an informed decision.

The focus on expertise is due to the fact that it often raises suspicion from the participants not directly involved in assessment studies. Hence there is strong expectation that it can be improved in such a way that it would convey trust in the decision-making process. Trust is a result of confrontation of views within a transparent clearly defined dialogue framework. It is the result not only of impact and performance assessment. It is even more the outcome of a process where trustworthiness of the persons and institutions in charge and of the procedures has been experienced through.

Pluralism of views and their integration in expertise are key elements in this perspective. Because knowledge does not just "objectively" exist but is interest-bound, expertise independent of the

applicant has to be built up to reach a pluralistic perspective. Plurality increases trustworthiness since it gives guarantees that the review of the project and/or policy will be as extended as possible, and will cover the largest possible scope of uncertainties, interests and issues. Not the least, it gives local stakeholders independence and aids them in reaching empowerment.

Ways forward

Multidisciplinarity and plurality

The expertise involved in nuclear waste management shouldn't be limited to geological studies and safety assessment. Complex topics require various and diverse approaches to problem solving. The various dimensions of the issue, be they technical, social, ethical, related to law, public health, or decision-making expertise should be unveiled. Likewise, as expertise unfolds, the various viewpoints on each issue should emerge, reflecting the concerns of the different actors. The coming forth of multi-disciplinarity and plurality of views in nuclear waste management should significantly contribute to the quality of the process by laying down and mapping all the different aspects of the issues that request attention.

Making expertise a support to local democracy

A specific role of expertise was highlighted in supporting local democracy and local actors' involvement in nuclear waste management. Expertise is expected to help local actors in:

- Analysing impact and performance assessment
- Raising questions and making comments on these assessments and other relevant issues (notably non technical)
- Identifying remaining questions as regards technical data, as well as social, environmental and technical issues

This of course increases their level of understanding and their ability to interact with other involved people. Furthermore, this access to knowledge enables them to gain autonomy, self-confidence and awareness, and to develop their *own* understanding of the relevant available knowledge. Thus they can effectively participate in framing the technical and non technical dimensions of the project, and raise relevant questions to "*stretch*¹⁷" implementers and public authorities.

Plurality can be achieved in two ways : through the confrontation of various experts' views, and through the integration of local people's "lay" expertise. First, expertise remains primarily a delegation of knowledge embodied by experts. Thus, it should involve experts originating from different organisations (public bodies and agencies, regulators, so called independent experts, implementers). In order to ensure an as broad as possible diversity of views, experts from abroad who have no link whatsoever with the local and national situations may also be called for. Secondly, the involvement of non-experts in expertise is essential to link the technical project with an existing natural and social setting. Inhabitants have a local knowledge of their land since they live more closely to a given reality in a given place, and they are able to complete the technical expertise with data which are specifically known by the community, and are relevant for the development of the project in that particular place.

Partnership : enhancing local scrutiny

The local partnership, introduced as a core element of local democracy in nuclear waste management (see section E.1), was found an appropriate tool to implement, enhance and control pluralism in expertise. Through this partnership, local involved people should actually be given the opportunity of discussing issues of dissent continuously and in a competent manner since they will be directly concerned with their impact. This special local organisation would be given the mandate to scrutinise the waste management decision-making process, i. e. by holding regular debates, hiring experts, and disseminating information. Specific funds would be allotted for it. Its functioning and funding should be defined by a nationally agreed framework.

¹⁷ See note on page 18.

E-3. Influence of the Local Actors on the National Nuclear Waste Management Framework

Questions at stake

Local communities aim primarily to discuss and influence the impact of and conditions for the siting of a nuclear waste management facility on their land. Should their participation in nuclear waste management however be limited to discussing local matters? As citizens of the nation, and equally as potential concerned individuals, don't they have actual interest and legitimacy to take part in framing the decision-making process at the national level?

What is the purpose of the local actors' involvement at national level? Is this to contribute the specification of site selection criteria? The impact of the national policy framework at the local level depends also on the technical option, and on a series of elements contained in the policy, such as the nature and volume of waste, or waste ownership related issues. Their participation could contribute to specify the purpose of the site selection process: what types of facilities are requested and what does the policy target at? Does this imply that local involved people should have a say on the principles and orientations of the national policy framework? There is a thin line between waste management and energy policy. To what extent could local involved people be entitled to influence these policies?

In order to influence the national policy framework the local communities would be involved at an early stage. How early is early enough? Moreover, there is a number of practical difficulties to involve local actors in a dialogue at the national level. How to solicit communities identified as potential suitable sites after a first technical screening when they refuse to step into the process? How to solicit the wide range of communities which are not technically suitable when these don't necessarily feel interest or concern in the discussion?

This inclusive discussion of the national policy framework with local communities is expected to avoid conflicts when the process moves to selection and siting at particular places. Nonetheless this doesn't prevent from the occurrence of diverging views between the local and national levels when a final decision is to be taken on a site. What are the respective possibilities for the local level to oppose a veto to a decision made by the national authorities or the Parliament, and for the national institutions to overrule a local veto? Is a local veto a mere refuge for NIMBY attitudes? Is a national predominance a threat to democracy?

Lessons learned

Since nuclear waste management is a national issue looking for a local solution, cooperation is most requested between the different levels of governance. National and local players must work together to take a shared responsibility for their waste.

Because local people are directly affected by the decisions, they need to partake in the preparation of the national policy. Moreover local democracy operates most effectively where the national process is also operating effectively, i.e. within the context of a full and open debate at national level. The discussion of the national policy will frame the whole process both at local and national levels. If national debate doesn't run in parallel with local democracy conflict is likely to occur between national and local levels which will form an impediment to action. The involvement of local actors should begin as early as a national policy is being discussed, even before the site selection process starts. To put it briefly: the later involvement is initiated the more difficult the decision-making process will be. The extent the local people can influence the national decision-making process should contribute to the consistency and practicability of the overall waste management policy.

A major issue is to get interest from local communities and a public which is not directly affected by the future decision-making process on nuclear waste management. Secondly the relevance of the findings from a national dialogue may be challenged once the process reaches actual siting phase. There needs to be flexibility when the community and the public directly concerned enter the process.

Ways forward

A National Framework : main chapters

The definition of a national framework for waste management is a pre-requisite to a fair site selection process. The national actors are expected to involve local people in the preparation of the national nuclear waste management framework. Conversely local actors should be ready to get involved at the national level.

The existence of a national framework for nuclear waste management is viewed as an essential basis for decision-making processes at the local level for several reasons. It should :

- establish a clear contract between all the partners and acknowledge the common concern with nuclear waste management
- offer opportunities for local communities to influence a decision which will have a direct impact on their social and economic life
- give guarantees to local communities that they will act in the framework of a national project, and provide guidelines for local democracy on nuclear waste management
- bring visibility to the decision-making process : it provides local communities with a road map and it gives guarantees to local communities that they will not be abandoned.

This national framework should work out :

- a set of principles and means throughout the different stages of policy implementation, notably regarding : procedures, ethics, protection of health and the environment, access right to information and participation of local actors
- a clear definition of the problem : what are the types of waste and volumes involved ? What is the background energy policy?
- a step wise process (including the site selection process)
- identification of accountable key players (e.g implementer, regulator, energy producer...) with *a clear definition of roles and responsibilities* in each relevant context (local and national) as regards policy regulation, implementation, funding and review
- Basic standards to be met for health and safety
- Concepts and technical options

Drawing up the national framework : the involvement of the concerned actors at local and national levels

The preparation of this framework is not the responsibility of the local communities but they should be involved. It is indeed important to start with more than one site on the list and to involve local actors from the beginning by raising the question nationally first.

There is no definite answer to the difficult question identified above, regarding the early involvement of local actors who don't feel enough or conversely feel too heavily concerned to take part in a dialogue. However several key principles are identified which will ensure the development of a fair dialogue process between the local communities and actors and the national constituency. Among others :

- the local communities need to be provided with channels to government and waste organisations to make the local involvement possible and effective.
- the discussion need to be carried out as a two-way communication : the purpose of dialogue is not to explain the national policy to potential involved communities, but to provide opportunities for actors of both levels to inform each other of their specific concerns.

- Local involvement at an early stage should not necessarily focus on potential hosting sites but rather provide opportunities for local representatives to include their perspectives and concerns in the preparation of a national policy.

At this stage, the involvement of local people will inform the national strategy about generic local concerns, without getting into details about specific concerns in given communities. The national strategy has to accommodate the interests of the different levels of society (e.g. MPs, local elected representatives, implementers, NGOs...) into a consistent project that ensures an accountable management of radioactive waste. Although not candidates for siting, some local communities have a particular interest to play the role of representative for the local level at the national level. This is for instance the case of communities storing nuclear waste, communities having experienced a former siting process, communities hosting industrial facilities, or communities formerly considered as potential sites but abandoned since then. All these communities have a capacity and a possible willingness to share their experience and to contribute a better appraisal of local concerns in future site selection processes and in the broader decision-making process

E-4. Sustainable development in regions hosting nuclear waste management facilities

Questions at stake

The socio-economic dimension of the siting of a nuclear waste management facility in some countries is seen as an issue of compensation. There is a quite different use and various rationales for compensation in the different national experiences that were reviewed in COWAM. The views are also wide-ranging as regards the relevance of compensation : should this be considered as “bribery” or a “risk-premium” for undesirable hazardous activities ? Or shouldn’t compensation be viewed as a national contribution to local territories for hosting a nuclear waste management facility in relation to their future and long term sustainable development ?

It seems difficult to site a nuclear facility without considering the positive and negative impact it will have on the concerned territory. Hosting a nuclear waste management facility must not become a handicap : isn’t the local economy likely to suffer from the perception by potential investors that compensation is given because the community is at risk ? Conversely it should not be a source of dependency for the hosting community : isn’t the community likely to get dependent if it fully grounds its development on the resources associated with the facility ?

Should the project support the local development, or should it be integrated in a wider development perspective? Compensation appears as a narrow approach to the siting issue when it comes to local development. How to build more ambitious socio-economic projects to integrate the technical facility in a regional development policy?

Lessons learned

Some participants consider that compensation may be viewed as a means to overcome NIMBY arguments but that it should not compromise on safety issues : a payment must never be regarded as a compensation for any risk beyond strict tolerance levels. A facility must be safe and must not represent a danger. For others since every payment could be regarded as bribery, there is a strong argument against any compensation : even without “official” compensation schemes the region gets benefits from the facility because of the contribution to the local employment situation and the local economy.

Another view is that a hosting community provides a valuable service to the whole nation, and such service should be paid for. Such types of funding are common in other areas, *e.g.*, hydropower plants, mining companies. Moreover there are actual problems which a waste facility may cause to the hosting community. For instance, during the construction phase there will be additional (conventional) traffic and noise, or an otherwise picturesque landscape may become “industrialised” by the facility. This is another reason why funding allocation may be justified.

Additionally, as shown by the work of the AkEND group on site selection procedure in Germany, when considering the siting of a nuclear waste management facility, the way the project is inserted in a broader regional social and economic project for the local community is of primary importance. The unique feature of nuclear waste management is indeed its duration, and the uncertainties regarding technical, environmental, economical, social and political evolutions. New accompanying measures need to be invented to enhance and support the long term development of the hosting community. According to this view, compensation, should it remain, would only be a part of a broader global development plan aiming at a better integration of the facility in the local economy.

It is actually possible to delineate these different types of funding : from the one provided for mere compensation for possible damage associated with the siting and operation of a facility on the one hand, to resources devoted to develop a regional project on the long term on the other hand. Compensation practices are specific to each country, but the questions they raise are well known. Conversely, the long term regional development is stressed as an important new issue which deserves greater attention since there are very few – if any – hazardous facilities which are already associated with such a long term dimension.

Ways forward

The integration and development of the site within a regional development policy which encompasses a prospective view on the future of the area is seen as a key factor to improve the governance of nuclear waste management in the short as well as in the longer term. The development of a facility should be seen at local level as a positive project linked in with the future and long term sustainable development of the region as a whole. Therefore local stakeholders should be consulted on their view of the future of the region and will need to participate in and have control over the way in which the facility develops. A good vision for the region would be one that will get support because it is of benefit to the nation and the local sustainable development.

Ethical concerns require a framework which sets out clear guarantees to local stakeholders. This framework must be acknowledged and shared by all the stakeholders. It should build on a sustainable development approach, taking into account :

- alternative or complementary economic activities
- the long-term monitoring and awareness of hosting communities
- social, economic, environmental, health and legal issues
- not only the operation phase but also the surveillance over long periods
- sustained capacity to take action in the future (e.g. retrievability)

This framework needs to state how the financial supports will evolve at each phase of the project.

E-5. The quality of the site selection process

Questions at stake

As pointed out in section E.2, many siting approaches in the past appear to have failed either because they were based on technical criteria alone and didn't consider economic, social and political aspects, or because they dealt with these economic, social and political aspects but without sufficient transparency.

In some experiences, site selection was considered as part of a technical process. Every site was analysed according to the same geological criteria : the selection was viewed as equitable by the implementer and the selection result was only disclosed at the very end. However, this technical approach proved to be a failure: even if the selected site met safety requirements, it was rejected in most cases once made public because it had seldom or never been discussed with the local population. Moreover, the lack of public participation raised suspicion that the technical criteria, often not disclosed, were an umbrella for political motives in the selection process.

More pragmatically, some other experiences have at first looked for volunteer sites. Some communities already hosting nuclear activities have been involved in this perspective. In this case the chance of success looked higher, but a strong concern was expressed by local actors and NGOs that safety could be balanced with so-called "acceptance".

What are the legitimate principles that should guide the decision-making process, and more specifically the site selection ? Is it possible to strike a balance between safety and acceptance ? Is it possible to unveil and discuss the non-technical criteria that lie behind the word "acceptance" ?

Another concern which deserves clarification is the articulation of the different steps of the decision-making process. For instance, a frequent concern is the generally held suspicion that a site originally selected for low level waste disposal may *mutatis mutandis* become the site for intermediate level or high level waste also, or a rock laboratory turn into a storage or disposal. What does the process aim at ? Can there be a global objective in a process that runs step by step ? Which kind of guarantees can be given to local people that when they step into a decision-making process for a specific project, they don't eventually get committed for broader or different projects?

A reliable selection process should involve two or more sites in the first stages. This creates a situation of competition between communities which could be positive but could also damage the quality of the whole process. What are the possibilities that "rival" communities cooperate to better contribute the selection process ?

Lessons learned

A site selection process based on a pure technical approach is felt inappropriate to take into account local concerns of potential sites. On the other hand the discussion of non-technical selection criteria should clearly not compromise basic requests of safety. The experiences presented in the seminars have shown that though geology remains a main selection criterion, economic and political factors need to be considered. The view is made that economic and political considerations are unavoidable and important factors in the decision and they shouldn't remain "hidden motives".

The site selection process is questioned because of a lack of transparency, but also because some problems were not addressed or solved in the early phases of the decision-making process. The difficulties met in site selection point at the interaction between this phase and the earlier preparation of the national policy framework on the one hand, and the subsequent steps which are expected to take place after site selection on the other hand.

As a general lesson, it was also pointed out that a main component to strengthen the quality of the process is that there is sufficient time to progress. The complexity and the political sensitiveness of the issue make it very necessary not to speed the decisions, and to allow time for local and national actors to dialogue and grasp the technical questions, as well as the economic, political and social interests at stake.

Ways forward

Criteria, methods and rules in the site selection process : ensuring transparency and accountability

Site selection may be based neither on purely technical criteria nor “volunteers” alone. Long term safety is indeed paramount, but – as stressed in the previous section on expertise – ethics and social considerations are also to be discussed during the selection. Transparent criteria should be made public to explain how these “non-technical” considerations are brought into and weighed in the decision. A first step to address them in a transparent way would be to openly discuss their relevance and weight in the process. A preliminary discussion on site selection criteria – both at national and local level – should make clear how economic and political factors are included in the decision beside safety.

The definition of *methods and rules* are also a strong request to improve the understanding, clarity and trustworthiness of the site selection process. These will depend on the national context (legal framework and political structure) and the type of decisions to be made. Nevertheless, whatever the situation, the definition of methods and rules should make clear how the following principles are put into practice :

- transparency, accountability, traceability of arguments
- iterativity and consistency
- early involvement of local and national stakeholders

It is viewed that it may be more comfortable for local communities that have a veto right to participate effectively in a site selection process. This would significantly ease the site selection process because it will ensure that local communities are considered as a genuine partner in the dialogue and their concerns are effectively addressed and answered.

Step-wise approach : checking progress in an open process

The definition of rules and siting criteria are essential, but it might however be that these elements are insufficient to bring trustworthiness and robustness to the decisions. They would preferably be included in a dynamic and global process, which first starts with a national strategy announcing a project for waste management at the national level (see 5.3), and which is then implemented and reviewed through a step-wise approach, providing for regular updates and decision alternatives at key stages.

The continued relevance of the process standards depends on their being checked against the evolving local and national situations. The decision-making process should be structured in a series of stages to make transparent its rationale and the articulation of steps. Criteria for go/no-go decisions in the site selection process should be specified in advance for each step. As the implementation progresses and criteria are confronted with the actual conditions of selection, and not the least with the technical information emerging from studies and site investigations, they should be discussed and reviewed at national and local levels. If they can be modified or specified, their review and change have to be substantiated and carried out consensually. Each step has to be made visual and backed up as interim decisions on the ground of the knowledge available at the time. At each stage, time must be allowed to enable local communities to be comfortable in taking the next step. In this respect it is also essential that different alternative options remain available at the outcome of each step. If not, the process is likely to come to a dead end as soon as the single available option fails.

Each stage should also define the role and responsibilities of the concerned actors notably:

- the role of local communities and their interaction with other parties
- the role of other actors (namely : the implementer and the regulator)
- the use and purpose of a veto right for the local community

F - Conclusions and perspectives

COWAM European concerted action carried out a collective and pluralistic reflection on the way to improve the decision-making processes related to nuclear waste management facility siting and operation at the local and regional levels. In this effort, COWAM took into account the specific national, cultural and historical contexts of European member states. A characteristic of COWAM was to ground its approach to this problem on the point of view of the local and regional communities currently or potentially concerned by the siting and the operation of nuclear waste management facilities. A pluralistic and interdisciplinary European COWAM network has thus been created involving key local and regional actors, as well as a panel of implementers, regulators and experts in the field.

Implementers and regulators have since long well established fora for exchange and they also participate in co-operative projects. Regional entities and local communities subject to siting considerations or site investigations for waste management facilities in Europe did not have such exchange and co-operation and one key contribution of the COWAM project has been to bring regional and local representatives together and contributed to sharing of experience and ideas between these bodies. The work achieved in COWAM so far has shown that there is interest for local people to play an active role in the discussions over nuclear waste management issues. Thirty local communities have participated in the network, and some of them have taken a direct contribution in the programme by hosting and co-sponsoring a seminar. The views brought in by the local actors highlighted the fact that the usual technical divisions between types of waste or between options are not so relevant, when trying to understand the issues as they are faced by communities. Questions about local participation, about the relation to the national players and national policy, about the criteria for site selection, or the contribution of expertise in the local dialogue, are evenly significant for a surface storage or a deep disposal, for low level or high level waste. Moreover local communities often meet these questions with the same type of concerns, no matter which country they live in.

The value of the dialogue between communities also draws from their coming from different countries. There is strong interest in learning how others deal with some crucial practical questions one is faced with in one's own region (for instance how to build local dialogue with citizens, how to interact with national authorities, implementers...) and conversely to inform others about one's own experience in nuclear issues. This confrontation of experience points out good practices which can be adapted from one country to another or stimulate local empowerment. This experience sharing is first and foremost developed by and benefits the local people.

In a broader perspective, this experience is shared with representatives of national authorities, implementers and experts. The emphasis put on the participation of local actors in COWAM enabled members of this network to overcome distrust and to build a common reflection beyond usual stakeholder positions. Credit was given to the process and its ability to bring out sensible propositions which are both based on local experience and aiming at an improvement of the national decision-making process. Strikingly, working groups quickly agreed on the characterization and framing of the most salient topics. The dialogue in recommendation groups was intense and made it possible to bring out common lessons and views on the way to improve the decision-making process.

Major issues were identified which cannot be dealt with within a strictly technical approach. Among others, questions such as the practicalities of dialogue to involve the public, or the relation between the local government and the national level, need to be further investigated. During the seminars, some questions were also raised which could not be addressed within the scope of COWAM, for instance the long term management of nuclear waste facilities, or the comparison of technical options from the local communities' viewpoint. There is interest from a broad range of COWAM members to carry on these discussions on more specific topics according to their own interest and concerns in a pluri-disciplinary and multi-stakeholder approach. Various initiatives were taken following the COWAM seminars. In some communities this European experience has favoured self-awareness and local governments have developed reach out and dialogue programmes. In some countries this was a positive context for local and national actors to start a dialogue. Links were established between local communities from South, North, West and East Europe which were not aware one of the other before the seminars. Whatever the influence of COWAM on these local and national networking processes there is a continued interest for participants from most countries to go a step further in a plural and multidisciplinary network at

European level to bring out a broader common view on nuclear waste management from a local perspective.