

## Recommendation/Reflection Group # 4

Members from Belgium (2), Germany (4), France (2), Slovenia (2), Sweden (2), Switzerland (7) and the United Kingdom/Scotland (1), European Commission (1). See annex 1.

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# Recommendations/propositions/reflections of Group # 4

Below the Group has developed reflections on two topics (nos. 2 and 3) rather than “recommendations”. These reflections are based on the case studies presented in the Seminars as well as on the experience of the Group members; finally they are condensed to “propositions”.

## Topic 2 “Expertise in the local decision-making process”

(Sufficient) knowledge is a prerequisite to an informed judgement which itself is the basis for a decision. Goal-oriented knowledge (information) reduces uncertainty with regard to a decision. 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 alternative model of “engage - interact - co-operate” (wording by NEA Forum on Stakeholder Confidence) allows a more inclusive expertise – with pluralistic view(s) and, by definition, more public and others’ participation. Thus, information for decisions is based on a wider range of perspectives than in the DAD strategy. With DAD, however, the roles of the relatively few, highly selected experts are more dominant.

The following aspects were judged to be crucial:

### 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. Making one single option available is insufficient (of the type “a choice of one is no choice”). Decision science commends to

develop options (*i. e.*, more than one) to really have an "informed choice" for a decision. "Options" can, furthermore, only be options if they are principally at a comparable stage of development.

### 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. The "applicant's expertise" as well as "counter expertise" have to be traded off prudently. Decision-makers on the spot—*in situ*—should be given the opportunity to discuss controversial issues on a continuous basis and in a competent manner. Information must not be withheld deliberately.

Good practice with regard to the general framework is demonstrated by Sweden where the municipalities of potential sites can 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 communities. According to the polluter-pays-principle (PPP) 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 but whose expenditure was covered by the applicant GNW (in the meantime the group was dismissed following a negative referendum result in September 2002, and the plans to develop the site were abandoned). In both countries, again according to the PPP, the costs have to be borne by the waste producers or the electricity consumers. 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.

### Propositions regarding an inclusive/integrated expert system

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

- An integrated expert system<sup>1</sup> 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, and
- comprehensible scientific (and societal) discourse and debate;
- (mutual) minimum guaranteed level of trust in the stakeholders,

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<sup>1</sup> Here an "expert system" refers to persons and not technical infrastructure (computers, *etc.*).

- confidence in the pre-defined but consensually modifiable procedure, as well as a
- common understanding with regard to the disposition concept (“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.

Trust is a complex phenomenon and cannot be dealt with in any detail in this contribution. It is, however, essential in establishing credibility and achieving acceptability of waste management systems. In addition it is—in the context of expertise—a substitute for personal knowledge. Trust has to build on credibility, authenticity, consistence and coherence of argumentation as well as respective action (evidence, performance) by the groups and institutions in charge.

### **Topic 3 “Site selection process”**

Site selection can be visualised on three levels, each represented by two extremes:

- On one level there is the contrast between selection on a purely “technical basis”, where safety as defined by experts is given top priority, and the selection through volunteerism where financial compensation is of high relevance.
- On another level there is the contrast between the lay people’s demand for “absolute” safety and the risk-oriented expert concept of “sufficient” safety.
- On a third level there is the insistence that the “best site” be identified as opposed to a site resulting from competing interests and financial compensation.

Hence, “absolute” statements exist with lay persons as well as experts. “Absolute” in this context means that in each judgement one dimension dominates all others.

In analogy to the issue of knowledge generation, the following aspects are relevant to the site selection process: transparency, accountability and traceability of arguments, early involvement of the concerned stakeholders, iterative procedure, trust in the stakeholders. In addition, it is crucial to define clear criteria beforehand and to stick to them (with regard to safety, ethical basis, *etc.*).

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. It is important to situate historical opinions and decisions in their temporal context without whitewashing them, *i. e.*, criticism must be formulated in a validated time-immanent manner rather than at the level of *ex post* arguments. In a specific case it can be queried whether at a particular point in time additional knowledge might have been available, or whether all possible avenues for interaction and dialogue open to the principal stakeholders—mainly the applicant or the authorities—were adequately explored and implemented.

Changes of criteria and—more importantly—of the concept have to be substantiated and carried out through consensus. All relevant partial steps have to be made visible and backed up by interim decisions. Otherwise—as has happened in nearly all national disposal programmes—delays are inevitable (though delays may still occur no matter what the process

is). 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.

If an issue becomes too politicised, not even a minimum level of consensus between the main stakeholders (see Topic 2, Expertise) can be reached. As a consequence there is a risk that demands to modify the concept are blocked and guidelines are watered down. Even attempts to instigate a rational discussion about all relevant dimensions and issues<sup>2</sup> may be seriously hampered through the formation of political blocs.

Compensation has only been touched upon. It is beyond the scope of the present paper to make a detailed analysis of benefits or services directly related to a disposal project, such as the funding of communal liaison committees. Nonetheless, the following comments on the issue of compensation were made:

- The case against financial compensation: Since every payment could be regarded as a sort of bribery, there is a strong argument against any such compensation. For instance, in Sweden there is no discussion whatsoever about financial compensation for municipalities hosting a waste management facility. Although the waste management company pays taxes, these go to the State—not directly to the community. However, because of the contribution to the local employment situation and due to orders to local industry and services, even without “official” financial compensation the region benefits from the facility.
- The case for financial compensation: According to the contrary argument, a host community/region provides a valuable service to the whole nation, and such a service should be rewarded. Such a compensation is common in other areas, *e. g.*, hydropower plants pay local taxes and licence fees for the use of water and landscape to produce electricity; mining companies pay licence fees for the exploitation of underground resources; regional railway companies receive subsidies for providing necessary public transportation in areas where it is economically disadvantageous. In Switzerland, communities hosting (or in the vicinity of) interim storage facilities are reimbursed for so-called “gemeinwirtschaftliche Leistungen”, *i. e.*, a service to the public; the Canton of Nidwalden declared the use of the sub-surface would be subject to a “mining licence” for which a substantial fee would have to be paid, in the event that the repository had been constructed. In addition to the NIMBY issue (“not in my back yard”) there are real problems that 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 compensation may be justified.
- Factual compensation in environmental context<sup>3</sup>: In principle, only those who have to bear a risk should be compensated, *i. e.*, anyone exposed to unduly increased levels of radiation as a result of a disposal facility. If the risk is considerable, no financial discounting is allowed, and the fund for a “risk premium” should, consequently, be enormous; if, however, the risk is negligible, no compensation is necessary. Factual compensation in related domains (*e. g.*, the remediation of conventional contaminated sites, the inventory of wells and aquifers in the potentially affected area) would avoid the dilemma as well as provide benefits to present and future generations.

In any case, there was strong opposition by the Group to the idea of regarding compensation as a “risk premium”. A payment must never be regarded as a compensation for any real risk

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<sup>2</sup> The complex issue of radwaste is multi-dimensional. An (ethical) trade-off is made through the disposal facility design (technical dimension) along a number of other dimensions – the ecological (protection of the environment), the social and political (society and political power determine acceptance), and the economical (cost of disposal and institutional arrangements). This decision has an eminent spatial (site, location) and a temporal dimension (period of isolation and concern and risk bearing, respectively).

<sup>3</sup> “Factual” in this context means substantive, hardware, not “just” financial compensation. There is the dilemma of intergenerational (in-)equity in case of monetary compensation: Present-day generations would benefit whereas future generations would (potentially) suffer from releases of radioactivity. There is no point in giving money to the bank so that the potential risk bearers might/could use it in case of need. With “factual” compensation future generations would benefit, too.

beyond very strict tolerance levels. A repository must be safe and must not represent a real danger. However, even in the case when the facility is perceived as safe, the question arises “OK, it’s safe. But why must it be here, and not somewhere else?” This, of course, is the usual NIMBY argument. Compensation may be considered as a means to overcome such NIMBY arguments but never to compromise on safety issues.

### **Excursus: Analysis of the German case study**

Below are the five most relevant questions identified from the Framing Paper and responded to on the basis of the German situation. The topics are divided into:

- Gorleben, and
- the new approach in Germany proposed by AkEnd (Committee on a Selection Procedure for Repository Sites, appointed by the Federal Ministry for the Environment).

#### Questions

##### **1. Which one of the three internationally used approaches is adopted?**

- Site selection on a pure technical basis
- Pre-selection according to technical criteria accompanied by an early publication of potential sites
- Search for volunteering sites (“volunteerism”), under consideration of or in compliance with the safety requirements

##### **2. With volunteerism is there a “fair dialogue”, *i. e.*, a “fair” procedure, among regulator, applicant/operator and other stakeholders?**

##### **3. What is the emphasis placed on criteria other than “safety”?**

##### **4. Who is the author of scientifically correct “site selection criteria”? May the applicant/operator alone be responsible for developing these?**

##### **5. Compensation**

- “Buying” of site acceptance/tolerance?
- Rewarding a service?
- Might remuneration be accomplished other than by money (*e. g.*, “regional development planning”)?

#### The Gorleben case study

##### ***ad 1.***

The site was apparently selected on the basis of technical criteria (*i. e.*, suitability or rock salt) though the precise reasons why the salt dome of Gorleben in particular (as opposed to other possible sites) was chosen for investigations are unknown.

##### ***ad 2.***

There was neither voluntarism nor official dialogue that would result from it.

##### ***ad 3.***

It is assumed that the proximity to the border with the former GDR played a part in the decision (as “additional criterion”, resulting in a region peripheral to both states).

**ad 4.**

Safety criteria were defined by expert bodies (Reactor Safety Commission/Radiation Protection Commission) and implemented by the Federal Ministry for the Environment in charge (cf. presentation by Mr Röthemeyer in Verdun).

**ad 5.**

There existed investment subsidies to the immediate local community. This was refused by the administrative District of Lüchow-Dannenberg and opposed by the citizens' initiatives.

The new approach in Germany

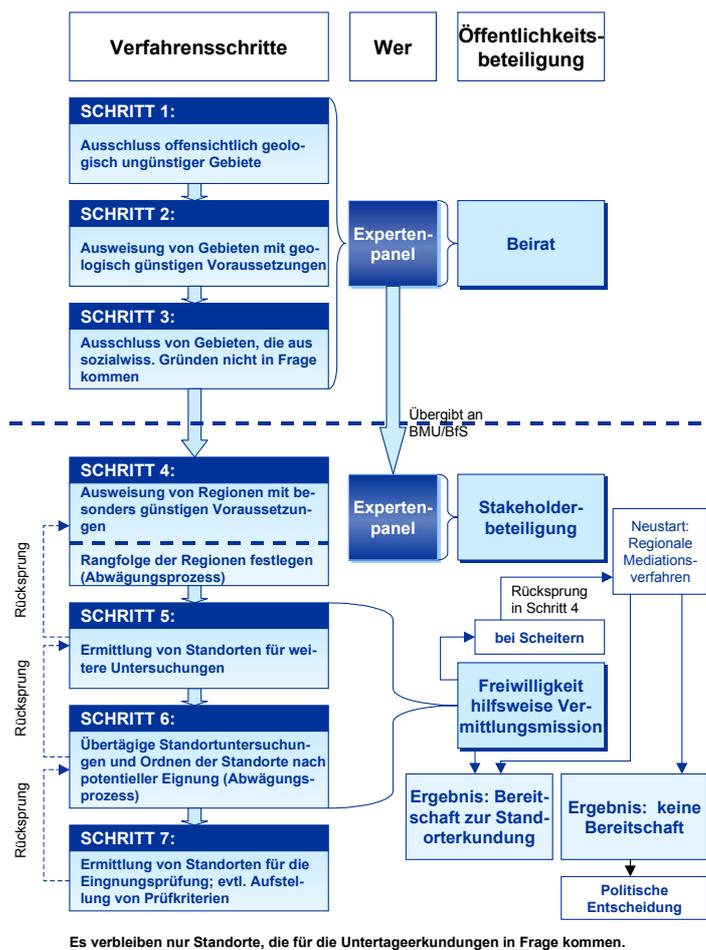
**ad 1.**

Among the three methodical principles identified the second approach is adhered to:

1<sup>st</sup> step ("SCHRITT 1"): Pre-selection on the basis of technical criteria = identification of possible sites (for investigation)

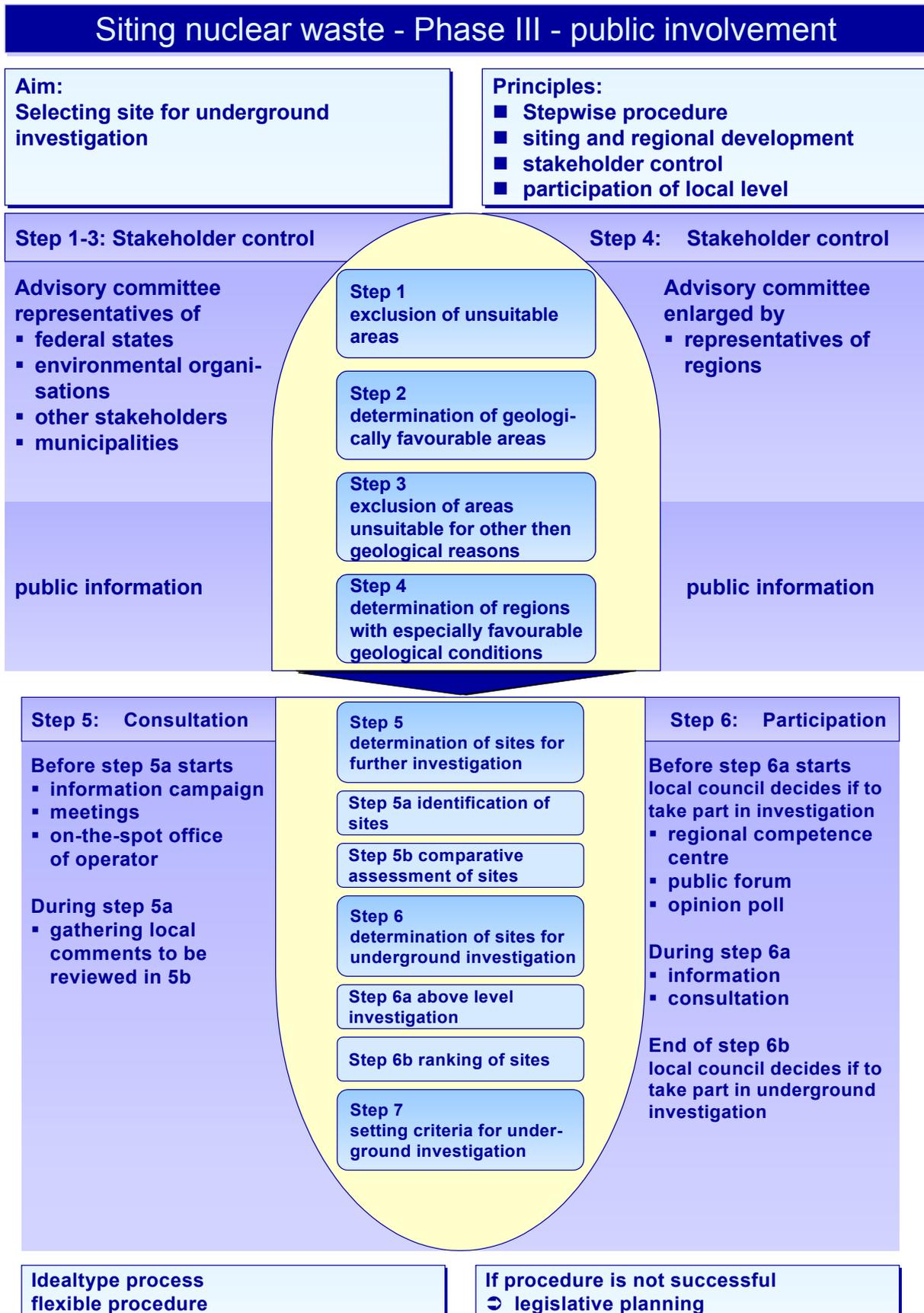
2<sup>nd</sup> step: Calling-upon of the involved communities to–voluntarily–participate in the procedure.

An overview of the recommended procedure ("Verfahren") shows as follows:



**ad 2.**

A “fair procedure” and process is a prerequisite of the success of “voluntarism”. It requires an intensive public involvement on the local level as depicted below in “Phase III”:



**ad 3.**

Top priority of AkEnd, the Committee on a Selection Procedure for Repository Sites, is (passive) safety. At this time social science criteria are being defined which shall be applied jointly with the technical ones.

**ad 4.**

Formulation:

1<sup>st</sup> step: AkEnd (expert body) develops criteria and procedures. The Final Report is available since the end of 2002 (see short version in English under [http://www.akend.de/englisch/aktuell/index\\_1024.htm](http://www.akend.de/englisch/aktuell/index_1024.htm)).

2<sup>nd</sup> step: A National Debate on the results of AKEnd (Phase II, to be finalised by 2004)

3<sup>rd</sup> step: Site selection procedure itself starting (Phase III, AkEnd recommends to explore at least two sites underground)

Users:

Current legal situation: Federal Office for Radiation Protection BfS

Suggestion of the consultant WIBERA: Independent experts to make proposals to BfS. Afterwards it is up to BfS to decide.

**ad 5.**

“Classical” financial compensation is not envisaged. “Regional development concepts” shall be formulated and implemented. The issue is a “positive regional development in a region of a repository”.

**Propositions regarding the site selection process**

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

- 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. In the case of plans and programmes, strategic environmental assessment, SEA, also has an increasing role to play in the assessment of potential environmental impacts.
- 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.

## Annex 1 – Participants in Recommendation/Reflection Group # 4

|                                 |   |                |
|---------------------------------|---|----------------|
| Mrs. Bächler, Martha            | Community Council (local Parl.) Engelberg                             | Switzerland    |
| Mrs. Bazile, Fanny              | Commissariat à l'Energie Atomique CEA/DEN                             | France         |
| Mr. Bombaerts, Gunter           | SCK CEN (Nuclear Research Centre)                                     | Belgium        |
| Mrs. Dacinger, Renata           | RTV Slovenia (TV station)   | Slovenia       |
| Mr. Drobnic, Matej              | Municipality of Krško   | Slovenia       |
| Dr. Felber, Paul                | KFW (Cantonal Expert Group Wellenberg)                                | Switzerland    |
| Dr. Flüeler, Thomas (chair)     | ETH Zurich/KFW  | Switzerland    |
| Mr. Frohn, Axel                 | DBE (German Corporation for Construction & Operation of Repositories) | Germany        |
| Mr. Johansson, Sven-Åke         | Municipality of Oskarshamn  | Sweden         |
| Dr. Kowalski, Emil              | GNW (Cooperative for Nuclear Waste Management, Wellenberg)            | Switzerland    |
| Mr. Kruse, Eckhard              | Protestant Church (Evangelische Kirche)                               | Germany        |
| Prof. Dr. Lennartz, Hans-Albert | Wibera/Price Waterhouse Coopers                                       | Germany        |
| Mrs. Love, June                 | UKAEA (Atomic Energy Agency)  | Scotland       |
| Mr. Nässén, Carl Johan          | Municipality of Östhammar   | Sweden         |
| Mrs Pfeifle, Gabriela           |   | France/Germany |
| Prof. Dr. Röthemeyer, Herbert   | formerly with the Federal Office for Radiation Protection (BfS)       | Germany        |
| Mrs. Schäli, Heidi              | Advisory Committee GNW (Beirat)                                       | Switzerland    |
| Mrs. Scheurer, Marie-Theres     | Community Council (local Parl.) Engelberg                             | Switzerland    |
| Mrs. Stillhart, Marlis          | Advisory Committee GNW (Beirat)                                       | Switzerland    |
| Mr. Verbraeken, Hermes          | Local Commission Mona   | Belgium        |
| Mr. Webster, Simon              | European Commission, DG Energy & Transport                            |                |