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ERICA (Environmental Risk from Ionising Contaminants: Assessment and Management) will provide an integrated approach to scientific, managerial and societal issues concerned with the environmental effects of contaminants emitting ionising radiation, with emphasis on biota and ecosystems. The project started in March 2004 and is to end by February 2007.

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Executive Summary

This report (Deliverable D7d) constitutes a transcript from the third thematic EUG event on "decision-making and stakeholder involvement", which took place on the 29 and 30th September 2005 in the offices of CIEMAT, Madrid. The event involved 14 EUG members, 1 invited speaker and 12 ERICA consortium members. Appendix 1 contains a list of the EUG and ERICA consortium members, and their organisations, who participated in the event.

The meeting had three main objectives:

- to provide general information on the nature of, and reasons for, stakeholder involvement in environmental policy making;
- to determine the range of methods that may be employed and to establish which methods work well;
- to determine how stakeholders may be involved within the ERICA integrated approach and in particular to provide input and advice on the issues that may be encountered, the options available to address these issues, identify particular procedures that may employed at different stages of the integrated assessment and to highlight potential problems that may be encountered.

The EUG participants were asked to provide a short summary of their experience of stakeholder engagement and all summaries were distributed prior to the meeting. The meeting focused on exploring and elaborating on those experiences in order to draw out information under the three objectives listed above. Two keynote presentations set the scene for the group discussions, which were facilitated by using an EUG chosen 'interviewer'. Discussion revolved around who stakeholders were, what methods of engaging with them are available, what methods were successful or not. The group discussions were followed by a plenary session.

The second day was spent examining how stakeholder engagement might be incorporated into the ERICA integrated approach using two scenarios. Following a presentation on the ERICA integrated approach, see Figure 1, issues were explored related to the assessment process and decisions that may need to be made. The group discussions, with a nominated EUG Chair, and a plenary session followed.

The report concludes with a summary of the main points raised by the EUG, together with the points to be considered further by the ERICA consortium. In brief, ERICA should:

- provide definitions related to stakeholders involvement for the ERICA glossary;
- provide a list of potential stakeholders and reasons why they might be engaged with;
- provide a list of methods to involve stakeholders (it is suggested that this should be considered in relation to the tier at which the engagement is being used and/or the purpose of the assessment). It was noted that different tools may be required at different points in the engagement process and advice on their application should be provided;
- should give an overview of how to get the most from the stakeholder engagement process, e.g. what works and what to avoid;
- should consider problem formulation and how stakeholder engagement may be used to define what issues are to be addressed and what assumptions are to be made;
- consider the role of stakeholder engagement within the ERICA integrated approach and how this should be captured. It was generally agreed that ERICA should provide a mechanism for capturing the decisions regarding whether stakeholder engagement was required or not and to

provide an opportunity for the assessor to record in the assessment tool who should be involved, to what extend and what contribution they can provide.

- ERICA should consider the stakeholder processes (some required by national legislation) which will be occurring for other aspects of assessment of permissions for existing or planned licensed sites (to avoid duplicating effort) and should provide guidance on assessing the need for additional stakeholder engagement when considering biota assessments.

This deliverable endeavours to ensure that all EUG comments and suggestions have been included and reproduced accurately. Drafts have been sent to the EUG members present during discussion for comment.

Acknowledgements

In addition to the valuable contribution made by all the EUG participants, the ERICA Consortium would like to thank the main contributors who have helped in generating the D7d text.

- Speakers: Carl-Magnus Larsson, Irene Zinger, Deborah Oughton, Clare Twigger-Ross, Steve Jones, David Copplestone
- Group Chairs: Clare Twigger-Ross, John Holmes, Jill Sutcliffe
- Group and plenary discussion secretaries: Hanne Breivik, Nick Beresford, Justin Brown, Clare Twigger-Ross, John Holmes, Jill Sutcliffe

David Cancio and other CIEMAT staff members are gratefully acknowledged for their practical arrangements and help during the event.

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1 Introduction

The third thematic EUG event on decision-making and stakeholder involvement took place on the 29 and 30th September 2005 in the offices of CIEMAT, Madrid and involved 14 EUG members, 1 invited speaker and 12 ERICA consortium members. Appendix 1 contains a list of the EUG and ERICA consortium members who participated in the event.

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Carl-Magnus Larsson (CML), the ERICA project co-ordinator, introduced the meeting by providing an overview of the ERICA project, its objectives and how the ERICA integrated approach is developing. In addition he provided some contextual information about recent international developments such as the approval of the IAEA action plan and the establishment of Committee 5 of the ICRP. Irene Zinger (IZ) and Deborah Oughton (DO) then provided additional background to the meeting and the procedures to be followed during the event. The procedures followed are described in more detail in Section 1.1. Appendix 2 contains a copy of the agenda for the meeting.

Following this brief introduction, the meeting was split into two parts: first general issues surrounding stakeholder involvement (methods used, how well do they work, lessons learnt and how to improve the stakeholder process) and second how stakeholders might be engaged in the ERICA integrated approach. In addition, EUG participants provided background material prior to the meeting on their own experiences of stakeholder engagement.

This report, D7d, summarises the presentations and the group discussions held during the meeting along with the background material provided by the EUG participants in advance of the meeting. The report will then contribute to engaging with stakeholders within Deliverable D8, which is on "Decision-making guidance". Stakeholder involvement will be a key component of the ERICA integrated approach (Figure 1.1) that is being developed within the ERICA project.

1.1 Procedure

1.1.1 Background material requested from EUG participants prior to the meeting

Each EUG member who wanted to participate in the meeting was asked to provide one to two pages of text stating their organisation's experience with stakeholder involvement and in particular to identify what did and did not work as a starting point for discussion. The following questions were provided to guide the responses:

1. What stakeholder involvement procedures have you, or your organisation, been involved in?
2. What methods were used?
3. What worked and what did not work?

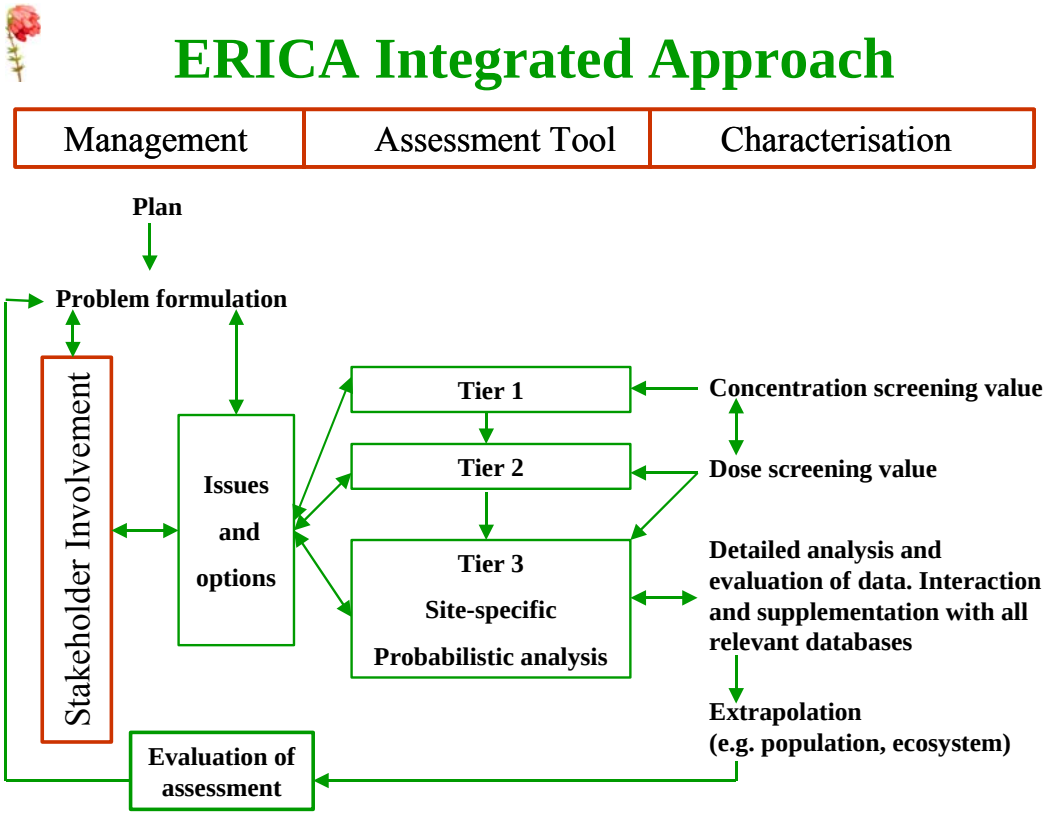


Figure 1.1 Working model of the ERICA Integrated Approach, depicting its three main integrated features: An assessment tool, methodology for risk characterisation and guidance to stakeholder involvement and decision-making (management)

4. What were the lessons learnt and the recommendations?

The information provided by the EUG participants is provided in Appendix 3.

1.1.2 Procedure for the first day

The first day was dedicated to stakeholders' experiences. Clare-Twigger-Ross introduced the day with a lecture on "Stakeholder involvement: legislation and methodology". This was followed by Steve Jones giving a presentation on his experience as a participant within a wider stakeholder dialogue.

Participants then broke out into smaller discussion groups. The groups could use the background material as a basis for discussions, with the focus to elicit additional views or information from the EUG participants.

1.1.3 Procedure to follow during the discussion groups

A general overview of the EUG discussion group procedures was given by DO who highlighted the following points:

- The breakout group discussions were "closed" that is to say *what* was said was to be reported but *who* said it would not. For this part of the dialogue the EUG members could chose to represent themselves or their organisations but the EUG participants were not permitted to attribute an opinion or information submitted by another participant during the discussion. The breakout discussion groups contained a mixture of EUG participants and ERICA consortium members, with

consortium member(s) acting as a scribe for recording the discussions. During plenary discussions, comments were attributed to speakers.

- On the first day, discussion group sessions were lead by John Holmes and Clare Twigger-Ross who were selected in advance of the meeting to act as 'interviewers' whose role was to ask questions directed at the EUG participants about their experiences.
- On the second day, discussion group procedures followed a similar format to that used at previous EUG events with the EUG members electing a Chair from among their number.

1.1.4 Roles

- Interviewer (invited participant): A pre-chosen EUG member to direct questions at the EUG participants to elicit information on particular topic areas of direct relevance to the ERICA integrated approach.
- Chair (EUG Member): A group elected EUG member to guide discussion, keep to time, sum up and report in plenary session.
- Secretary/Scribe (ERICA consortium participant): To take notes during discussion to provide any required support and assistance to the Chair in summing up and to assist in drafting this report.

The name of each person taking one of the above roles for each group and plenary sessions is indicated in Appendix 1.

1.2 Summary of the background material provided by the EUG participants

The following section summarises the information received from the EUG participants (full details given in Appendix 3). The information is summarised under each question asked.

1.2.1 What stakeholder involvement procedures have you or your company been involved in?

- EUG members, participating in this thematic EUG event, or who provided information, were representatives of governmental authorities, NGO, industry, advisory body, academia and international organisation and have been involved in a wide range of stakeholder processes for decisions relating to a wide range of applications. For example:
- Proposed construction of new nuclear facilities;
- Proposed development of uranium mines;
- Proposed facilities for radioactive waste disposal;
- Government or regulatory decisions regarding particular topics (e.g. changes to authorisations for discharges of radioactive substances);
- Participation in the ERICA project as an End User Group (EUG) member.

Participants had experience of both running stakeholder engagement, and participating as stakeholders. In a number of these cases the stakeholder engagement was undertaken because of legal or regulatory requirements which may dictate not only that it must take place but also how it should be undertaken. This determined the role played by the general public within an assessment process (e.g. objections and appeals). In Finland, for example, the law stipulates that the host municipality has an absolute right of veto over the site selection and thereby the possibility to stop the planning process for a new nuclear facility.

1.2.2 What methods were used?

A wide range of methods was described by the various organisations and there were a number of methods common to all. The methods range from passive dissemination of information to formal hearing procedures. The following list reflects the range of methods used. The list is subdivided into sections reflecting the different levels of engagement.

Passive (information dissemination)

- Advertisements in local, regional and national newspapers.
- Printed and on-line information.
- Leaflets delivered to all households in the local area.

Interactive information dissemination and information gathering

- Events and exhibitions.
- Presentations for specific groups.
- Open houses and visits to facilities.
- Setting local offices at all candidate sites.
- Formal hearings with the general public.
- Surveys and theme interviews.
- Referenda - citizens voting.

Consultation and extended involvement

- Co-operation groups with municipality administration and elected representatives.
- Public debate.
- Consultation.
- Public inquiry.
- Presentation and participation in forum and workshop.
- Citizen jury.
- Environmental assessment panel reviews.
- Appointing an expert group to represent public interest.

1.2.3 What worked and what didn't work?

Successful

A number of positive aspects were reported by the EUG:

- early notification entices participation, which allows potential stakeholders to identify themselves and their interest;
- direct and continuous communication with stakeholders;
- use of a fair, open and patient process;
- take rational political decisions and ensure that they adapt to prevailing public attitudes;

- place strong emphasis on local acceptance, without forgetting about the rest of the country;
- allow a continuous "open door" policy so that local people can see for themselves what is going on and at the same time get the latest information on the plans;

From this, it is evident that the most successful methods are those that allow for an ongoing exchange of information between decision-makers and stakeholders during the assessment process.

Problems

A number of areas where the engagement procedures encountered difficulties or did not work particularly well were summarised by EUG members as follows:

- where it takes a long time to build up trust;
- where there is a clash of different values;
- where stakeholder involvement takes a lot of time;
- where people are involved in the process but who are not real stakeholders (stakeholder representation issues);
- where some people retain campaigning hats within the consultation process and become entrenched;
- where it is hard to reach the general public;
- where there may be too much emphasis on consultation.

One example that reflects some of the above points is where “some vocal politicians and NGOs try to discredit the siting projects and disregard public acceptance". Changing policy or/and political unwillingness to make a decision can severely hinder getting and maintaining public trust in the process. This can also be affected where there is a lack of clear policy or the policy changes frequently which makes the voluntary municipalities uncertain, resulting in much more fragile support for the overall process. This could be summed up by a lack of confidence in the stakeholder process and a view that there is little ability on the part of the stakeholders to influence the decision.

1.2.4 Lessons learnt and recommendations

A number of lessons have been learned by those engaging with stakeholders. Some of these are summarised below.

- Lack of trust may develop in public consultation processes that are very institutionalised (i.e. via regulatory regimes) and that leave very little room for flexibility. It is suggested that a better approach would be to engage the public initially in the design of the consultation processes prior to their implementation.
- Acceptance of both the process and eventual decision starts with getting all the relevant information available. It is therefore vital to ensure that information is widely available or can be made available if requested during the stakeholder process.
- A more complex interaction is now taking place among players at national, regional and especially at local levels as large industrial projects are highly dependent on siting and other local considerations, and a broader, more realistic view of decision making is taking shape.
- A keyword in the process is partnership i.e. lay out clearly what the benefits, both social and financial, of engagement are at an early stage to guarantee good faith and commitment. Gaining trust, especially for governmental organisations, is very important.

- Public consultation should be used not only for gaining acceptance but also so that the public can inform the decision-makers about their points of view and arguments. This leads to better-founded decisions which are eventually better accepted.
- Assessments of real case studies are very helpful for formulating practically-applicable procedures for environmental protection from ionising radiation and other contaminants but it should be noted that the public's previous experience with nuclear installations may strongly influence the attitudes encountered.
- Understanding of people‘s values is of paramount importance, and should be articulated as early as possible. This will help to establish a long-term relationship between local communities and those putting forward the agenda.
- Frequently gaining the interest of those who are willing to co-operate and then to maintain that interest will build confidence and develop public support. It should be noted that public support could also be influenced by the provision of benefits for the community, with emphasis on maximising joint gains, which leaves them better off, but without compromising fundamental principles such as safety.
- There will always be dissension irrespective of the public consultation. Public consultation should not be aimed at gaining consent (this may be unrealistic) but at creating discussion of the different views, the results of which can be considered by the decision-makers.

2 Stakeholder involvement: legislation and methodology in a broad sense

2.1 Summary of presentations

2.1.1 Stakeholder engagement: legislation and practice

Two presentations were given to introduce the topic of stakeholder involvement: legislation and methodology. The first was an invited keynote presentation given by Clare Twigger-Ross (CTR) from Collingwood Environmental Planning, UK.

To avoid misunderstandings, definitions were provided (after Institute of Environmental Management and Assessment, 2002):

- **Stakeholder**: *anyone who has an interest in or considers themselves to have an interest in the issue and therefore it goes beyond “representatives” of groups to include “interested members of the public”*; and
- **Engagement:** *a general term to cover information provision, information feedback, involvement and consultation and extended involvement.*

A wide range of issues were covered including:

1. The current status of Aarhus convention and it's integration into EU legislation;

- “The adoption of the Aarhus Convention was a giant step forward in the development of international law in this field….Although regional in scope, the significance of the convention is global. It is by far the most impressive elaboration of Principle 10 of the Rio Declaration…As such it is the most ambitious venture in the area of ‘environmental democracy’ so far undertaken under the auspices of the United Nations” Kofi Annan, Secretary General, United Nations.

- There are three pillar to the convention: the right of everyone to receive environmental information that is held by public authorities ("access to environmental information"); the right to participate from an early stage in environmental decision-making. ("public participation in environmental decision-making"); and the right to challenge, in a court of law, public decisions that have been made without respecting the two above rights or environmental law in general ("access to justice").
- There are now 36 parties who have ratified the Aarhus convention.
- The European Commission has adopted a proposal for a directive to fully address the requirements of the Convention on access to justice in environmental matters also aiming at improving the enforcement of environmental law, not yet in force.

2. Other legislation that may be relevant to the ERICA integrated approach;

- Habitats and Wild Birds Directives;
- Relevant radiation legislation e.g. Convention on Nuclear Safety, 96/29/Euratom Basic Safety Directive.

3. A brief review of methods that can be employed in public engagement appropriate for assessment processes;

- *Information feedback* – the dissemination of information with a request for feedback to supplement knowledge and gain a better understanding of issues (e.g. surveys, staffed exhibits and displays, staffed telephone lines);
- *Involvement and consultation* – formal or informal dialogue to identify issues of concern (e.g. workshops, focus groups, open house);
- *Extended involvement* – participants are able to contribute to the formation of a plan or proposal and to influence a decision through group discussions or activities. Examples include: citizen's juries, consensus conferences and stakeholder dialogue.

4. Case studies as examples of how stakeholder engagement may work (or not). One specific case study included;

- RISCOM – experimented with four different approaches (Discussion group, Future search, Scenarios workshop and Dialogue workshop) to dialogue, between lay public and official stakeholder perspectives, on radioactive waste management. These approaches were evaluated in terms of nine criteria: transparency and legitimacy, equality of access, openness of framing, inclusiveness, deliberative environment, improvement of trust, new meanings and insights generated, shared responsibility and sense of common good, acceptable outcomes.
- The findings of RISCOM generated the following:
  - Establish firm foundations for dialogue in terms of purpose and type of process
  - Focus on tailored information for collaborative learning
  - Understand public capacities and attitudes
  - Upstream involvement in consultations
  - Facilitate official stakeholder learning
  - Tackle institutional issues

References

Institute of Environmental Management and Assessment (2002) Perspectives:Guidelines on Participation in Environmental Decision-Making. Lincoln: IEMA

Petkova, E (2000) Environmental Accountability Beyond the Nation-State: Implications of the Aarhus Convention. World Resources Institute www.wri.org/wri

Wates, J (2004) The Aarhus Convention and the Citizen: NGOs in New Member States presentation at EC conference, Brussels, 2004

UNECE (2005) Conclusions on the reporting process and implementation trends from the Second Meeting of the Parties to the Aarhus convention, Almaty, May 2005.

Beck, 1992

Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information

Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment

Directive 2003/4/EC on public access to environmental information and Directive 2003/35/EC on public participation contain provisions on access to justice

Convention on Nuclear Safety – 1994 –Third Review Meeting of contracting parties in 2005 – notes a discussion around "merits of engaging the public, both in technical and licensing processes" p 3

Council directive 96/29/Euratom basic safety standards

2.1.2 The BNFL National Stakeholder Dialogue: Perspective from a participant

The second presentation was given by Steve Jones (SRJ) who described his experience as a participant in the BNFL national stakeholder dialogue programme. This dialogue was initiated in 1998 with the aim of: "informing BNFL's decision-making process about the improvement of their environmental performance in the context of their overall development". It was convened by the Environment Council, a London based charity, and all meetings were facilitated independently of both BNFL and the Environment Council. Meeting ground rules were basically 'Chatham house' but were refined and developed by consensus as the dialogue proceeded. Over 150 individuals from more than 70 organisations were involved, including local authorities, green NGOs, regulators, industry, trade unions and individual experts.

The Dialogue ran for six years and covered the topics of Radioactive Waste, Radioactive Discharges, Management of Spent Nuclear Fuel, management of Separated Plutonium, socio-economic Issues, Nuclear Security and BNFL's Business Futures. These issues were addressed by working groups of 20-30 stakeholders, reporting to the Main Group of all stakeholders. The topics, which were felt to be 'easiest', were dealt with first. Where necessary, disagreement was reported or disclaimers included in reports. However it proved possible to identify and report substantial areas of agreement in nine principal reports containing 200 recommendations, directed not only at BNFL, but also at Government Departments, the Nuclear Decommissioning Authority, local authorities, regulators, and the ICRP.

Some personal observations about the process were recorded.

- The process was productive but very demanding of both time and commitment for those involved.
- Most individual participants felt they had learned, and gained a lot, in terms of knowledge of the issues, relationships with others, and understanding (without necessarily agreeing with) contrary

viewpoints. All participating organisations therefore gained indirect benefit in terms of personal development of their representatives.

- Evidence of effectiveness at organisational level (in the sense of influencing decisions or policies of BNFL or Government) was key to maintaining commitment of organisations - doubts persisted about this, and effectiveness was hard to prove against the background of major structural change in the industry. Indeed two major NGO groups withdrew from the Dialogue - their stated reason being time commitment in relation to their perception of effectiveness.
- Continuity of representation was important as an aid to progress; individuals joining a working group part way through its work found it difficult to 'catch up' and could even be disruptive through wanting to re-examine areas of agreement. Equally, there was danger of the process becoming 'stale' and it was important to introduce new participants at key stages when major pieces of work were starting.
- Good process planning, effective and flexible facilitation, appropriate ground rules, and good social environment were important in establishing the conditions in which individuals would engage openly and productively.

All the reports from the Dialogue, and more information about the Dialogue process, are available at the website of the Environment Council: www.the-environment-council.org.uk

2.1.3 Clarifications after the presentations

Jill Sutcliffe commented that there appeared to be no overall pattern to stakeholder events in the UK, i.e. no overall strategy. A comment was also made concerning "stakeholder fatigue" – in cases where only a limited number of individuals can be involved; the protracted nature of this type of process can be exhausting.

CML enquired about the efficiency of the process, i.e. tracking the response to dialogue, in the case of the BNFL National Stakeholder Dialogue. *SRJ* replied by explaining that BNFL wanted better consensus with respect to standards for the future. The process had been open for stakeholders to identify topics that they wanted to discuss. Discussion themes were many and far ranging, e.g. environmental management through to business aspects, and thus difficult to appreciate in their full complexity. The fact that external developments led to the transfer of certain responsibilities to the Nuclear Decommissioning Authority rendered the process even more difficult to track for effectiveness.

Patrick Momal (PM) made the general point that it needs to be clearly stipulated at the beginning of a stakeholder process whether decisions can be affected by the process. Furthermore, compensation costs could be an issue. For some stakeholders, e.g. NGOs, local authorities etc., involvement could clearly be a sensible use of time and resources. However, for other groups this might not be the case. In the case of the BNFL National Stakeholder Dialogue, *SRJ* explained that BNFL covered the costs of the organising consultancy, the facilities for the meetings and travelling expenses.

Theo Klomberg asked about the effect on the regulator of the BNFL stakeholder involvement. It was felt that regulators did respond to the recommendations and that there was some feedback. On a more personal note, many of the individuals involved in the process had expressed the view that their experiences had helped with their "day job".

2.2 Group discussions

The aims of the session were:

- To discuss the nature of stakeholders – who they were;

- To discuss why involvement might be carried out;
- To discuss what methods the participants had been involved with;
- To discuss what methods seem to work and what did not work and then to provide some recommendations about good practice.

Group 1

Stakeholders – who are they

The group liked CTR's definition of stakeholders as people/bodies '…with an interest', as defined in Section 2.1.1. The key point here is that there needs to be openness for anybody to participate in the stakeholder process and that the definition includes both public/lay people as well as scientific and technical expertise. However, it was recognised that the process of stakeholder engagement may be restricted by time and resource constraints for the problem owner with regard to how broad stakeholder involvement may be. It was noted that 'stakeholders' is an English word, which has no translation in many other languages.

Stakeholders identified in radiological environmental impact assessments included:

- Risk bearers
- Next generation
- Decision makers (including local and national bodies other than the 'problem owner')
- NGO's
- Media
- Non-human species
- Science/expert community
- People/organisations 'who care'

Exactly who the relevant the stakeholders will be will only become fully apparent once a 'question' is posed. Non-human species would need representation, probably by green NGO's or special interest groups (e.g. RSPB). There was some discussion over two of the potential stakeholders on the above list: the role of the decision-maker was described as 'fuzzy'. The decision-maker is a stakeholder but will also ultimately make the decision and this may lead to friction with other stakeholders if agreement on the decision has not been reached. In addition, some of the group were of the opinion that the media had an interest, and could be impacted by the issue (i.e. sell more newspapers) and so they are not true stakeholders and that their role was more to transfer information. However, it was also felt that the media could detrimentally affect the processes if not involved (or take sides) and some group members had experience of stakeholder groups requesting that media representatives participate in stakeholder dialogues. There was also some discussion (although not general agreement) that there is a differentiation between those with 'an interest' versus those bearing the risk.

It was noted that if any group were to be excluded from being stakeholders a legitimate case built upon agreement would be needed to justify this position.

Why involve stakeholders

The following were agreed upon as reasons for involving stakeholders (in addition to any legal obligations to do so):

- Consideration of many viewpoints helps to develop more informed evaluation.

- Obtain a more founded decision.
- Convey information, e.g. objectives, procedure, risks and benefits.
- Build consensus on the information and procedure BUT recognising that this will not always be possible for the outcome.
- Agree there is an issue to address and how to address it.
- Frame the question.
- Help guide the regulatory/licensing process.

However it is important to note that stakeholder involvement should NOT be undertaken with the objective of to get people to AGREE. As with 'who are stakeholders?' the question of why to involve them will be case specific.

Methods of involvement

The group divided into three sub-groups to develop lists of stakeholder involvement processes they had experienced, shown in Table 2.1. There was much similarity between the lists of each group all containing (and differentiating between) both passive and interactive processes. It was recognised that a toolbox of methods is needed, as the most appropriate methods to use will be time and context dependent.

Post Accident Example

The group decided that it would be easier to continue the discussion by defining a scenario for further discussion. Consequently to facilitate assessing stakeholder involvement the group considered the situation after a large-scale accident with off-site contamination. The potential stakeholders identified were essentially the same as the list above and included local populations and authorities, nuclear and non-nuclear industry (including tourism and farming) representatives.

It was agreed that stakeholder involvement should begin before any actual incident in accident response planning. The focus and level of stakeholder involvement will change during the course of an accident (e.g. soon after the accident many people would be interested whilst later sub-groups may be formed). Similarly the methods used would change and be situation dependent. Initial passive approaches, such of provision of advice using local media, may predominate with more extended involvement evolving over time. The role of locally trusted people (e.g. doctors, teachers, priests) in communicating with local communities was highlighted. The response to recent floods in New Orleans was given as an example of the need for management and co-ordination and ensuring national and local responses are coherent.

The group agreed that people need to be made aware (via stakeholder dialogue) of the potential possibilities of reducing their own exposure (even if not in excess of national limits) should they want to do so.

Summary

Following from the above discussions the group proposed the approach given in Figure 2.1 as a diagrammatic representation of the involvement of stakeholders in the decision making process. The 'problem owner' will have to initiate the process but then questions will evolve from stakeholder feedback. Both the question and problem may change (as exemplified by the BNFL stakeholder consultation) and there needs to be a willingness to re-evaluate as the process proceeds. However, there may also be a need to control feedback, e.g. for legislative reasons there may be little flexibility in the definition of the problem. The ground rules set out at the start of the stakeholder process must

set the boundaries on the degree of flexibility. Otherwise there is a risk of frustration within the stakeholder group as they may feel they are not being listened to.

Table 2.1 Stakeholder engagement processes used by participants in breakout groups

Sub-group 1	Sub-group 2	Sub-group 3
Public presentations	Meetings (T,M,L[+])	Hearings
Open discussions (village for a etc.)	Survey – information gathering (M,L)	Publications + review mechanisms
Exhibitions with possibility to meet experts in public places (e.g. shopping centres)	Information provision (T,M,L)	Correspondence
Cultural programmes – nothing to do with the issue (establish contact)	Assessment groups (L)	Discussion Forum
Open house at facilities	Working groups (L)	Meetings/workshops
Local networking (e.g. employees will interchange information with their neighbours)	Hearings (T,M,L)	Leaflets/web/TV etc.
Co-operation groups (local politicians, industry, regulators etc.)	Citizen juries	Polls
Passive information websites, publicity	Panels	Questionnaires
Active – web & phone lines	Consensus (or disensus) conferences [*] (National/International)	Openness/all information available
Opinion surveys	Referendum (anonymous)	Traceability
Visits to overseas facilities		
Working groups (experts, groups representing stakeholder interests etc.)		
Focus groups		
Invitation letters		

[+]Denotes level at which used L – local, M – middle, T – top (national)
[*]These were described as being widely used and involving lay people, although they mainly involve experts in the USA.

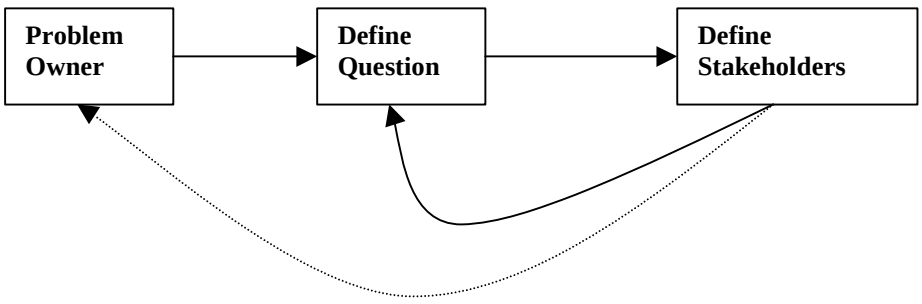


Figure 2.1 Diagrammatic representation of the involvement of stakeholders in the decision making process

Group 2

The definition of a "Stakeholder": the group was generally in agreement with the definition provided in the morning's presentation that a stakeholder was "anyone who has an interest in or considers himself/herself to have an interest in the issue". More specific observations were that stakeholders could include NGOs, interest groups and the public "at large". The latter group was considered to be the most difficult to reach. Stakeholders might also include anyone affected by a present or prospective decision. A comment was made that sometimes the link between the NGO and the people represented by the NGO was tenuous or "under development" and that this could lead to problems of misrepresentation. Nonetheless, it was considered that once the link had become developed the process of representation could work well. A point was made concerning the translation of terminology to other languages. For example, in Russian speaking countries the term stakeholder might be used to define an organiser of common activity. A brief discussion ensued regarding the development of the definition of the term "Stakeholder". The term was also considered to encompass future generations – their interests clearly falling within the broad definition of stakeholder although an obvious limitation is the fact that they could not voice an opinion. Inter and Intra-generational equity also needs to be addressed. Trans-boundary issues were of importance, i.e. the requirement and thereafter mechanisms invoked to involve groups from different parts of the world. Finally, the group agreed that a stakeholder could be a single person representing the views of himself/herself only in addition to those individuals representing larger groups. A key point from the discussion was that it was important to understand the real links between interest groups and those they purport to represent – sometimes there is little relationship between interest groups and members of the public.

The origin of the word stakeholder was discussed briefly – apparently it originates from the betting world referring to the person who is has a put a bet on e.g. a horse and therefore has a stake in the race, but that it also relates to the world of business and is used to differentiate between shareholders and others, the others being people who are not shareholders but have a stake in the business. It was clear that this is a word that has become popular especially in the UK it is not universally understood and therefore should be clearly defined in any document.

In experiences of engagement, who had been stakeholders?

The list included national NGOs and people affected by planned policies/programmes. A point was made that groups affected were not necessarily the same as those who were purely interested. Furthermore, it was considered that events that dealt with one issue at a time were often better attended and that participation of NGOs was beneficial as they are prepared to express their views whereas the general public is often more reticent. Cultural differences were highlighted. For example, in Canada individuals are often encouraged to participate in stakeholder events whereas in the UK there is often scepticism about such involvement. In some cases some evaluation is made of the "nuisance capability" of a particular individual or group. If someone is likely to cause a problem they might be included in the process in order to avoid problems later. Stakeholders have often been classified by "influence" and "interest" in the form of a 2 x 2 matrix; an example is given below. Individuals with low influence and low interest are harder to reach and perhaps need not be involved. The high interest, high influence group is normally automatically included, as their position is, by its nature, interactive. The other 2 groups are often more problematic.

Table 2.2 Example of a 2x2 matrix for defining the level of stakeholder interest

Hi influence/low interest e.g. civil servants	Hi influence/hi interest e.g. the developer/proposer, regulator
Low influence/low interest e.g. members of the public	Low influence/high interest e.g. local NGOs, protest groups

The issue of background knowledge was also discussed. The level of knowledge of stakeholders can vary widely and in some cases education or provision of information at an appropriate level might be beneficial to incite involvement. In this respect, schools were considered to be an important medium for the dissemination of information. In a broader sense anyone who has the power to influence the way people think might be considered important as potential participants. A special type of stakeholder was identified as a media representative i.e. an individual driven by professional duties as opposed to personal interests. This group can have a great influence on the way in which information is conveyed. The dangers of providing information were also explored. Commercially important information could be a source of problems. Some countries tackle this by invoking "commercial in confidence" clauses. Other types of identified important stakeholders might be community leaders such as priests and teachers and that they should be engaged with as they have influence in a community.

Why do we engage?

A distinction was made between risk assessment, knowledge production and risk management, the latter considered as essentially decision-making. It was considered important to include stakeholders in the knowledge production part. Several more terms were defined:

Substantive – not limited to experts, aims to get a range of knowledge (local, regional and national) as required, addressing the most relevant questions, resonance with stakeholder views, utilisation of local insights, tenability of assumptions, review, plausibility of assumptions etc. Further discussions on the substantive part of the procedure led to the following observations: there is a need to improve knowledge, e.g. "front-end consultation". The use of traditional as well as local knowledge was highlighted, which clearly requires a different process of information transfer and elicitation.

Procedural – democracy/normative. Normative processes can be classified as "the right thing to do" because of underlying regulations etc. This was considered to be a dynamic situation as democracy is often in a state of flux. The need to provide an opportunity to engage was also considered important and it has to be shown that the process can be influenced, i.e. that stakeholders can affect the decision and the process under consideration.

Instrumental – increase support for science, robustness. This might be considered a means of decreasing controversy and developing a shared basis for activity, perhaps increasing the realism within the process/decision. However, it was considered that it could often have the opposite effect. A point was made that it was important to engage at an early stage in order to avoid late stage, and often costly, problems.

The issue of legitimacy was explored. A distinction could be made between those putting forward a proposal and those "bearing the brunt" of the decision. For some groups, it is their job to cause problems. Stakeholder processes often take time so it is often a benefit to specify the processes to be used "up-front". The instrumental processes could be considered as the lubricant by which the process can move forward. In some cases these processes can be influenced by cynicism, e.g. original decisions driving the final report writing and whether the process will have any influence whatsoever on final decisions. In some cases there is awareness that the process will have little influence on the final outcome but people/groups still want to be involved.

There is clearly a need for organisations to address why they want to be involved in stakeholder consultation. If normative reasons underpin the involvement, the process can become very limited.

What methods can be used?

Provision of information – Dissemination of information related to the project and associated processes includes the use of leaflets, websites, full campaigns, PR and media, open house, exhibitions, dissemination of project information and of process information, seminars to explain

issues and announcements (in newspapers). An issue was discussed around the care needed in understanding audiences and tailoring information to different audiences.

Information feedback – Allowing comments on documents produced. Methods may involve the use of face-to-face interviews and questionnaires, via websites, electronic boardroom, Internet chat room, electronic forum, telephone consultations, and local authority sessions. A couple of issues were raised around this category: that feedback and comments were difficult to get unless people were engaged with the issue and if the document was too long, and dealt with many consultation responses then it may become a very lengthy process.

Involvement – aims to have focussed projects/work. Methods may involve the use of co-operation groups – different stakeholders coming together around the issues e.g. emergency services, operational stakeholders, public servants. Also use of hearings around new regulations etc. The issue of resources (i.e. how much does all of this cost) was raised.

Extended involvement – may include citizen juries, participation workshops, strategic action planning, community involvement groups, stakeholder dialogue, and organised critical review. An example in the UK is the process being undertaken by the Committee on Radioactive Waste Management (CoRWM).

In addition to the four levels of engagement, methods that were characterised as supporting tools, specifically in the area of Expert Elicitation were also listed. It would be expected that these would be used within an extended involvement process. These were:

Expert elicitation/supporting tools – methods include stakeholder elicitation, cognitive mapping, mental models, Delphi technique, decision explorer (a technique to make explicit the ways different stakeholders conceptualise a problem), repertory grid, progressive disclosure of information (tailored to the audience or provision of layered information), joint fact finding, joint agreed sampling and monitoring.

Petitions were also considered to be another aspect of engagement, which might forces an individual to become more involved.

Examples from each category were then examined in more detail in order to establish what did and did not work.

Key things that are successful or not

It was decided to discuss two methods in terms of who would that method be appropriate /inappropriate for and what geographical scale might it work at best.

Taking the example of the open house event/exhibitions method under the provision of information heading. Open house events include the sort of approach that invites stakeholders into a facility to have a look round and meet key personnel but also, the type of event where displays etc might be taken to shopping centres etc. This method is normally targeted at the local and regional level and often involves local communities as oppose to NGOs. This was felt to be a particularly good means of engaging a wider (public) audience. This type of procedure is not appropriate for special interest groups. In principle, the approach could work at all levels, i.e. municipal, regional and even national.

With regards to extended involvement, stakeholder dialogue was selected for further consideration. This is a technique that has a clear purpose and takes place over a longer period of time – the approach can be used for one off workshops but in this context we are referring to a process that would go on for a number of sessions and could last for months. The procedure is often used when there are contentious issues to discuss. A wide range of stakeholders is often involved and interest levels need to be high. The numbers of participants involved are often limited and at the level of Governmental Departments. The stakeholders with a more limited interest (e.g. the general public) are normally not

part of this type of process. Extended involvement is conducted in most cases at the national level but could in principle work at all levels including locally. The two processes considered above might be considered as complimentary.

Table 2.3 What works and does not work in the stakeholder engagement process

Does work	Does not work
Independent facilitation (safe environment)	Lack of resources
Continuous involvement	Imbalance of representation
Use of trusted, independent experts to represent issues (person needs to be chosen with care though)	Raising expectations or ending process

2.3 Plenary session

Both Interviewers summarised their group findings. No major differences were reported, and overall both groups provided complementary information.

Jill Sutcliffe pointed out that Government agencies as well as NGOs and other concerned individuals have a role in representing non-human species. Furthermore, non-human species may provide a warning signal and so in some cases can be a voice for themselves.

2.4 Conclusions

From the two groups a number of conclusions can be drawn about the EUG members' views about stakeholders, reasons for engaging with stakeholders and the methods that EUG members have been involved with.

Stakeholders

Both of the groups felt comfortable with the definition of stakeholder presented by CTR as:

"*Anyone who has an interest in or considers themselves to have an interest in the issue and therefore it goes beyond "representatives" of groups to include "interested members of the public*". It should be noted that stakeholders should also include those who are affected by the decision.

The participants were in agreement about the inclusive nature of the term stakeholder. The discussions in the two groups served to underline the importance of not forgetting, for example, future generations, people across boundaries, "ordinary" members of the public, and non-human species or of assuming that NGOs automatically "speak" for the ordinary person.

Both groups noted the "Anglo-Saxon" origin of the word "stakeholder", and the lack of a comparable word in other languages. When using this word in an international context, its meaning should be made explicit, as it cannot be taken as given that it is universally understood.

Both groups seem to suggest that there was something qualitatively different about those who are affected by the risk. Although it was not articulated, it might be the fact that the definition as given suggests that a person can choose to be a stakeholder or not, whereas those who are affected by a risk have little or no choice in the matter. Just because someone might be affected by a risk does not mean that they automatically have an interest in it, it may mean they wish to not consider it at all. It might be appropriate to amend the definition to read:

"*Anyone who has an interest in or considers themselves to have an interest in, or* ***is affected by*** *the issue*"

It will be important for the ERICA project to have an agreed definition of stakeholders.

Why engage with stakeholders

A wide range of reasons was given for engaging with stakeholders. The three categories used by Group 2 usefully categorise reasons for engagement as being: normative, substantive and instrumental. In addition, it is useful to distinguish further between:

- Engagement that aims at information exchange, either to provide information to stakeholders or to gain it from stakeholders. In this classification the decision making power remains firmly with the developer/proposer.
- Engagement that aims at building areas of consensus, recognising the importance of agreement around the process of dialogue, and the process of data collection or assessment. In this classification the decision making power still ultimately rests with the developer/proposer but attention is paid to procedural fairness, that is, ensuring that the process that is undergone is fair and recognised as such. In attending to procedural fairness trust is more likely to be developed.
- Engagement that aims at establishing an agreed starting point for an assessment process but focussing on how different parties frame questions and understand issues. Here agreement is sought on the problem, again with the idea that if that agreement is established then discussions further along the process will be more useful and focussed on key issues.

It is clear from the discussions that there are a number of reasons as to why stakeholders would be engaged, and that it varies amongst EUG members. It was also understood that there needs to be clarity around the reasons for engagement in the minds of those doing the engagement and also in terms of communicating to stakeholders otherwise misunderstandings and distrust can quickly arise.

Given this, it would be worth giving advice on the purpose of engaging stakeholders within the ERICA integrated approach.

What methods to use?

From the discussions in the two groups it is clear that there are firstly, many methods existing to engage stakeholders in all manner of ways and secondly, that the EUG as a whole possess a wide range of experience. In addition, it was made clear that there is a need to tailor approaches to different contexts, that one size does not fit all, a toolkit of approaches was requested. A list of methods is presented in Table 2.1, which draws on the discussions by participants at the workshop and considers what methods might be useful for the ERICA approach.

3 Stakeholder involvement in the context of the ERICA integrated approach

3.1 Summary of presentations

David Copplestone (DC) presented an overview of how the ERICA integrated approach will work and discussed the tiered assessment approach. Essentially the ERICA integrated approach works in three parts, as follows:

- Part 1: management/decision-making. This may involve stakeholder engagement and the full range of issues and options available to decision-makers (to be reported further in D8);
- Part 2: the assessment tool, which is a dedicated software along with a handbook, (part of D-ERICA) describing how the tool works and what steps to take during the use of the software;

- Part 3: Risk characterisation, which includes how to derive screening concentrations/dose rates, detailed analysis and evaluation of data, guide to extrapolation of the data to populations and ecosystems (to be reported further in D5).

DC then went on to describe how the tiered approach works and what information/evaluations are required at each tier:

Problem formulation	determines the scope of the assessment, what endpoints can be used, what the purpose of assessment is, all relevant site information, what level of stakeholder engagement may be required, and whether there are source-pathway-receptor linkages;
Tier 1	considers the risk of impact using a conservative approach, e.g. may use the maximum measured or modelled environmental media activity concentrations;
Tier 2	considers transport modelling techniques, site-specific data, radiation weighting factors, information on biological effects;
Tier 3	considers/requires new research/gathering additional data, background radiation levels, probabilistic techniques, effects gathered from the FREDERICA database, no defined prescribed screening levels, stakeholder agreement on acceptability of practice.

To try to illustrate how this would work in practice, DC presented two example scenarios:

Scenario 1 (new build facility with sea discharge)

Problem formulation – i.e. the need to consider predicted discharges, can the site be relocated, what are the predicted or measured highest media concentrations, where are the locations of freshwater, marine and terrestrial Natura 2000 sites.

Scenario 2 – (existing build facility with sea discharge)

Problem formulation – i.e. the need to consider the measured discharges, what are the predicted or measured highest media concentrations, where are the locations of freshwater, marine and terrestrial Natura 2000 sites.

Tier 1 – compares the predicted or measured activity concentrations around site to the pre- determined screening activity concentrations.

Tier 2 - required if the outcome of Tier 1 suggests that there may be a risk then you need to consider dispersion modelling, whether you need to determine, or improve predictions of, concentrations in biota/media, the doses calculated to the organisms of interest are compared with the screening level doses.

Tier 3 – needed to undertake full extensive study around the facility.

3.1.1 Clarifications after the presentation

Ted Lazo: The stakeholder box on the left (of the schematic representation of the ERICA integrated approach) covers the whole assessment? So is it the intention to have stakeholder involvement throughout the process? Is this something we'll be considering in the case studies tomorrow?

DC: Yes. The aim today was to get your opinion on how and when to involve stakeholders and to keep in mind the figure for the tiered approach during discussions tomorrow. For the discussions tomorrow there will be two specific scenarios to consider in more detail and what we need to know is who decides on whether the assessment is needed, how stakeholders might be involved at the different tiers, what are the key issues for consideration, are there are differences in the way stakeholders may

want to be involved or are the methods for involvement different between Tiers 1 and 2? At Tier 3, problem formulation should be revisited and this is the point at which stakeholders should be deciding what constitutes an endpoint to the assessment?

3.2 Group discussions

Group 1

Group 1 were allocated the new nuclear site build scenario. It was suggested that they should take the role of the management group of the regulator licensing construction and operation and that rejection of planning/licensing was a possible outcome on the basis of the environmental assessment (definition of whether rejection was an outcome or not was noted as being important from the perspective of stakeholders).

It soon became clear (in part based on experience and prior knowledge within the group) that application of the ERICA approach would not be conducted in isolation. In reality it would be an integral part of the environmental impact assessment (EIA) which would be required before a site was selected and also linked to the human exposure assessment.

Many stakeholders would therefore be the same for both the environmental and human assessments although not all (e.g. those concerned about property, schools and grandchildren etc. might not be the same as those concerned with protection of the environment). However, all potential stakeholders should be allowed the opportunity to participate. Potential stakeholders included: farming & fishing communities or their representatives; local environmental groups; green activists; schools; political groups; national protection charities; energy; neighbouring authorities; other regulators; experts ('academics'); labour organisations. Many stakeholders would be 'self identified' mostly during the site selection procedure and associated EIA procedure.

The early stages of the engagement process would be to provide information in the locality via e.g. community centres, local representatives, local media, and schools (this general information would be available from the proponent). This would be very broad discussing the risks and benefits, and addressing the issue 'why here'. However, it was recognised that this could be a national and not only local issue.

There was considerable discussion of what the role of the ERICA integrated approach within this process was and when there were links between the ERICA assessment methods and stakeholder involvement. The opinion was expressed that ERICA is a tool, which would need to bring transparent assessments to the table for discussion (and that it cannot be expected to do more than this). The tool needs to be able to look at the impacts of changes in response to the views of interested parties and it should be assumed that initial assessments might change once local knowledge was included. The EIA would be expected to address both routine discharges and accidents. However, the latter is estimation of the probability of various accident scenarios and not their environmental impact. ERICA could however be used as a tool to help guide decisions on the authorisation (i.e. set discharge limits).

The benefits of stakeholder involvement were thought to be:

- Local knowledge, focussed at the problem formulation stage
- Development of mutual understanding and learning
- Identification and discussion of local concerns
- Acceptance of the procedure and assessment (although not necessarily the decision)
- Validation of assumptions (re what people value & why)

The establishment of effective engagement with stakeholders during the build phase was recognised, as also being of long-term value once the plant is operational.

An opinion was expressed that ERICA should not put stakeholders into boxes. Stakeholder dialogue should be explained as an integral part of virtually all stages of an assessment.

There was concern that 'stakeholder fatigue' may develop if too much is asked for too soon especially if it is then not used. The value of the time and effort stakeholders would be contributing needs to be recognised and the extent of their involvement during various stages of the assessment carefully thought through. ERICA should not promote a process which is additive to other processes (otherwise it may become an overwhelming burden). ERICA has a specific focus on radiation and the protection of the environment, and there is a clear need to consider how this is integrated into the rest of the EIA process.

Group 2

The group was given the following scenario: "A hospital located on the outskirts of a major city discharging to a river via a sewer to a Natura 2000 saltmarsh area" and the task was to discuss and decide who, when, how and why they would involve stakeholders in the process.

The group felt the need to establish a more detailed scenario to be able to handle the problem. The group began by fleshing out the details of the scenario. It was decided that the hospital was going to be increasing its discharge volume, and because of this a review of the authorisation was required and that was where ERICA would fit in. It was decided that this was not in an accidental situation but under normal routine operations. It was also decided that the hospital was on an island (thus solving the issue of whether it was a local or a national issue). Whilst discussing the scenario a number of issues emerged, which were of general importance for ERICA.

- It became clear that any stakeholder engagement process developed for ERICA would need to be embedded into the different regulatory regimes in different countries and because of that ERICA stakeholder engagement process would have to be around principles and tools, rather than a specific procedure to follow. Therefore ERICA should not be too prescriptive in its approach.
- The separation of assessment of people and biota was seen as artificial and it was suggested that they must/would be done together. The ERICA integrated approach would deal with the biota part of the assessment.
- Geographical scale influences whom to contact – there was a discussion about whether this was an issue for all hospitals in the scenario or just this one.
- It is important to build on earlier consultations – not to re-invent - but at the same time it was felt important to be proactive about engagement.

Who would be involved?

The group brainstormed a list of possible people, some of whom would identify themselves, some would be statutory consultees (or equivalents) and some would have a long-term relationship with the regulators. The list included:

- Director of the hospital
- Local councillors/Local MP
- NGOs
- Wildlife organisations
- Seafood collectors/people who fish

- Tourists
- Unions
- Media (find a friendly one!)
- Workers at the hospital
- Sewage utility workers
- Farmers who use the sewage sludge

The discussion quickly moved into the importance of spending time analysing stakeholders and a number of tools were discussed. Firstly it was felt that the **HI/LO influence HI/LO interest table** (refer to Table 2.2) discussed in the previous session was a useful way of thinking about stakeholders. Secondly, ways of thinking about stakeholders were presented. These were in terms of understanding where disagreement might lie between stakeholders, that understanding where stakeholders are coming from in terms of their and includes their ideological view, problem setting and goal setting, problem solving, outcomes and fairness.

Understanding what role the stakeholders can play in the assessment process is therefore important and can be evaluated using the following approach summarised in Table 3.1, to document the interests of the stakeholders.

Table 3.1 Matrix for stakeholder analysis (including example of potential stakeholders)

"RIVM/MNP Guidance for Uncertainty Assessment and Communication Series, Volume 1". RIVM/MNP guidance for uncertainty assessment and communication mini-checklist & quickscan questionnaire, Petersen AC, Janssen PHM, van der Sluijs JP, Risbey JS and Ravetz JR, ISBN 90-6960-104-4, Bilthoven, 2003.

Stakeholders	**Has the issue been recognised as a problem?**				**Co-defining role/ Problem framing**	**Source of knowledge and/or data, info**	**Evaluation – extended peer review of assessment**
	Hardly	**Partly**	**Mostly**	**Elaboration**			
Director of hospital				X	X	X	X
Wildlife organisation with interest in biota	Varies, might need briefing				? possibly	X	
Citizen e.g. seashell collector	X					X	
					Want a simplified view of a complex problem – progressive disclosure of information at variety of levels		
International/national NGO e.g. Greenpeace	X				Would be good to let them know of the issue and perhaps have them as a corresponding member (receives info only) but unlikely to want to get involved at such a local level.		

It was generally felt that completing a matrix such as this one could save time and effort later and helps with both the transparency of the process and highlights issues that may need to be addressed during the process.

There was a discussion around the relationship between how much engagement you might carry out and the level of detail of the assessment. It was agreed that at each level of assessment there may be more or less engagement, so it is important in ERICA to decouple the level of engagement from the complexity of the assessment. In terms of why involve stakeholders, it was thought that different stakeholders have different knowledge that can be important for an assessment and also different values, which is important to discuss within the process. In addition, the point was made about the issue of trust: will stakeholders accept the result from the ERICA assessment?

The group spent some time on the Problem Formulation for the scenario. It was acknowledged that it is a difficult issue and that the problem can always be wider in context, but that it is important to consider what is the decision level involved, what is the extent of influence of the stakeholders on the decision and what are the range of possible decisions allowed within the process? For example, it is not possible to affect the emission standards but it may be possible to influence the authorised emission levels.

There was quite a discussion around the relationship between the problem formulation stage and Tier 1. It was suggested that the hospital director (or his/her director of safety) would want to run an initial assessment before engaging with anyone – thus suggesting that a Tier 1 process might be done at the same time as the problem formulation. Issues of trust etc were discussed, that is, if the hospital director carried out a screening assessment but did not reveal that until later in the process, that could be damaging. It was also discussed that another group might come with a screening assessment. The discussion emphasised the iterative nature of the process.

It was acknowledged that the use of the ERICA integrated approach is quite context-specific and that it will be important to ensure that the level of information is right for the stakeholders and that the difficulty of having an expert-only discussion should not be underestimated in terms of loosing trust or being seen to be secretive. But given that ERICA is a technical process it is important to understand how to present technical information simply.

A number of methods that could be used for problem formulation were identified as follows: questionnaire, round table, and a focus on "What are the central options" and “What are the alternatives?”

Finally there was a discussion on carrying out a better characterisation of Natura sites. However, it was discussed that there was a resource issue associated with this together with the fact that there is currently no firm methodology/criteria for assessing if a site is protected. It is understood that the ERICA integrated approach will produce some benchmarks.

3.3 Plenary Session

Jill Sutcliffe and John Holmes presented the summaries of both their group discussions.

IZ: The groups seem to have come to similar conclusions. The last point is interesting. ERICA is part of a wider context but we want to highlight how we could involve stakeholders at different stages.

DC: With regard to not being an additive process, ERICA has to take on board that it is an interactive process. So should we adopt the following based on the discussions? Within the ERICA approach we should have the potential to interact with stakeholders at every assessment stage (problem formulation, Tier 1, Tier 2 and Tier 3) - should the tool prompt the assessor to consider stakeholder involvement at the start of each stage with a Y/N option and justification for choice? Surely we would not want to have intensive stakeholder interaction for authorisation of, for instance, small discharges from a

research laboratory? At the end of a Tier 1 or Tier 2 assessment we could consult appropriately to see if everybody is happy with the assessment? For example a new build assessment then ERICA is in effect a bolt on tool in the overall assessment process. Is this a better approach?

Clare Twigger-Ross: I think this is a very useful approach. But it is too bold to simply say 'yes' or 'no'. If the answer is 'no' and then the assessor is not going to think about it I have concerns.

DC: There would be a 'yes' somewhere.

Clare Twigger-Ross: Yes, but you need to think about stakeholder involvement at the beginning even if you do not do anything.

Theo Klomberg: I agree. It depends on who does the assessment. An assessor may go to a regulator who then decides on stakeholder involvement.

IZ: We are not suggesting being prescriptive. For example, as said in the letter distributed from the French EUG members, you do not need to use stakeholder involvement to use the ERICA tool. But justification of this needs to be provided.

Jill Sutcliffe: We found a role for stakeholder involvement in the problem formulation phase. There may be other roles for specific interest organisations than will be happening within the wider EIA process.

SRJ: If you do not involve stakeholders at the problem formulation stage or during Tier 1 but then you do at Tier 2 they may want to go back to the problem formulation.

DC: You would ask whether stakeholders should be involved at the problem formulation stage, if the answer is 'no' then this would have to be justified. At some stage all the information would need to be presented to stakeholders. If 'yes' then you could use something like the matrix tables (see Group 2 discussion summary) as a way of highlighting those to be involved. It is a way of guiding the assessor through the process. The tool will capture the decision-making and the reasons behind the decision to ensure that the process is transparent.

Ted Lazio: Decisions are made by the decider. Tools fit inside the regulatory and legal framework, which will tell people if consultation is needed. The tool presents effects and needs to highlight assumptions made to the decider.

DC: It is not a linear process, numbers can be changed. Deliverable 8 guidance will list issues, for instance other types of assessment note that ERICA has selected a tiered approach and why. The assessor could select a different approach. With regard to 'numbers' we will provide guidance on how to get to different values and the assessor could use these if they wanted to. However, the ERICA project has to decide on some default approaches and values.

IZ: Deliverable 8 will provide alternatives if people do not want to use the 'ERICA integrated approach'. Stakeholder involvement has not been described. Your input will help us to address how the tool incorporates consideration of stakeholder involvement.

Jill Sutcliffe: There was good stakeholder involvement and discussions in West Sussex Agenda 21. But now another group has been formed with no prior notice/reference to the original stakeholders. I feel that I wasted my time and that we did not get the 'right answer'. Stakeholders should be involved early to avoid this situation.

DC: We could have an upper level of stakeholder consultation. For instance, we can agree that the ERICA tool is used? Or we could consult on all hospital assessments at the same time. Could still subsequently have local involvement when it comes down to specific issues but this would address the wider picture.

Ted Lazio: There are tons and tons of information of stakeholder involvement. The ERICA tool will meet the needs it is designed to with flexibility. If go to stakeholders once developed they may ask for another module. As long as I know, as a potential user, that it is a flexible tool it is a very good thing.

DC: Are we happy to have consideration of the use of stakeholders with a prompt and capturing of the decision within the tool? Everybody seems to be in agreement?

SRJ: The EIA is already in place. The question is do you need to do anything extra?

Clare Twigger-Ross: Ask if the question you want addressed is being considered in consultations being done by others.

3.4 Conclusions

The two groups did not arrive at the point where they had specified the who, what, when and how of stakeholder engagement for each tier of ERICA. However, using the two different scenarios was a useful in highlighting key issues for ERICA to address with respect to stakeholder engagement. One major issue that emerged was that of the "place" of ERICA with respect to three areas:

- it was agreed that ERICA would always be part of a wider assessment process e.g. an EIA;
- it was agreed that given the above it would be unlikely for biota to be assessed independently of humans;
- it was agreed that the way ERICA would be used would be different in different countries because of legislative and cultural contexts (e.g. countries vary in their experience with stakeholder engagement, the role of NGOs varies from country to country).

It was also concluded that, given ERICA is likely to be embedded within other assessment processes, there will be overlap between stakeholders for ERICA and stakeholders for other parts of the assessment process. Understanding the relationships between the differing needs from engagement (for different parts of the assessment) will be important if 'stakeholder fatigue' is to be avoided.

Group 2 especially favoured the use of different tools to help understand stakeholders and it would be useful to have a number of tools for stakeholder analysis at the disposal of those using the ERICA integrated approach.

An important point was made with respect to the relationship between the level of engagement required at different levels of assessment. There seems to be an implicit assumption within ERICA that, as the assessment becomes more detailed, there should be more, or more in-depth, stakeholder engagement. However, this does not take into account the engagement needs of different stakeholders at each level. It might be that there is a national NGO who would like to be kept informed throughout the assessment process whereas there is an eminent professor who will have a detailed engagement only at Tier 3 when his specialist subject is being discussed. Members of the public might wish to be engaged interactively at the beginning of the assessment so as to be able to help with respect to problem formulation but after that they may only want to be informed of progress. A local NGO might wish to have a detailed engagement throughout the project.

Additionally engagement might take place at different levels, e.g. locally or nationally. For 'typical' issues, for example, the need for and issues associated with assessments of the impact of ionising radiation on non-human species from hospitals might be defined at a national level which engages with a range of interested parties but then the assessments are conducted and reviewed at a local level. Consequently, it will be important for those using ERICA to understand the different levels of engagement preferred by different stakeholders.

4 Overall Conclusions and issues for ERICA to consider

It is evident from the range of EUG inputs that the extent to which stakeholders should or may be involved first depends on each country's legal framework and then how each country's experience with stakeholders has evolved through trial and error. It is also important to recognise that the scale of stakeholder involvement should be appropriate to the size of the project/decision to be made at hand. How this fits with the ERICA integrated approach has been questioned as it is likely that the ERICA tool will be used within a wider environmental impact assessment process. Having said that stakeholder involvement within environmental assessment processes often does not specifically address the protection of humans, or biota. Some countries have already adapted the process of stakeholder involvement to address protection of biota from ionising radiation. It should be noted however that there are now legal requirements for engagement now. For example, for any environmental policy, the Aarhus convention would demand the provision of information to the general public as an absolute minimum of stakeholder involvement, i.e., that the general public is informed about the issues, the decisions taken and why, and that the information was freely available.

It was clearly recognised that stakeholder involvement is becoming more important nowadays and is already part of some regulatory frameworks. In general the direction and concerns of the stakeholders should be allowed to develop over time and it is important for ERICA to recognise that their interests may not specifically cover protection of the environment. The ERICA integrated approach should therefore allow for the assessor to choose whether or not to involve stakeholders. If chosen, then the ERICA integrated approach should provide guidance as to how stakeholder involvement may be approached and which methods would be the most appropriate at the different stages of the assessment process.

Given the wide range of methods that can be used for stakeholder involvement, from passive dissemination of information to extended engagement processes, there is a need to recognise that, whilst the process can be very productive, the time and resources involved in particular methods can be very demanding, so a balance must be reached.

While the definition of a stakeholder was generally accepted, it was clear that this was a term that could cause confusion. One of the most common misunderstandings is when the term stakeholder, or stakeholder engagement, is taken as being synonymous with PUBLIC consultation only (i.e. the provision and gathering of information with the general public); whereas other persons use the term to refer to non-lay people and the elicitation of expert opinion such as committee consultation or expert review. Furthermore, cultural differences may make it even more difficult to define and in some cases there is no translation of the word stakeholder. The meeting participants agreed that stakeholder can be defined as: "*anyone who has an interest in or considers themselves to have an interest in the issue and therefore it goes beyond "representatives" of groups to include "interested members of the public*". It should be noted that stakeholders should also encompass those who are affected by a decision. The participants also agreed that stakeholder categories (additional to those who are affected by a decision) could be summarised as follows:

Hi influence/low interest e.g. civil servants	Hi influence/hi interest e.g. the developer/proposer, regulator
Low influence/low interest e.g. members of the public	Low influence/high interest e.g. local NGOs, protest groups

ERICA therefore needs to be clear that stakeholders can include a wide range of groups and that engagement can vary according to the group in question. Although extended stakeholder engagement needs not necessarily include the general public (bearing in mind that public participation methods are

available). It was recognised that cost constraints may limit participation in extended procedures, and the question of representation and selection of participants needs to be addressed. Therefore ERICA could provide some guidance on the selection of stakeholders and appropriate methods to use.

A number of lessons have been learned by those engaging with stakeholders. Some of these are summarised below.

- Lack of trust may develop in public consultation processes that are very institutionalised (i.e. via regulatory regimes) and that leave very little room for flexibility. It is suggested that a better approach would be to engage the public initially in the design of the consultation processes prior to their implementation.
- Acceptance of both the process and eventual decision starts with getting all the relevant information together and making it available. It is therefore vital to ensure that information is widely available or can be made available if requested during the stakeholder process.
- A more complex interaction is now taking place among players at national, regional and especially at local levels as large industrial projects are highly dependent on siting and other local considerations, and a broader, more realistic view of decision making is taking shape.
- A keyword in the process is partnership i.e. lay out clearly what the benefits, both social and financial, of engagement are at an early stage to guarantee good faith and commitment. Gaining trust, especially for governmental organisations, is very important.
- Public consultation should be used not only for gaining acceptance but also so that the public can inform the decision-makers about their points of view and arguments. This should lead to better-founded decisions that are eventually more acceptable. It is therefore important, before beginning to involve stakeholders, to recognise how much influence the stakeholders can have in the assessment and the decision-making process.
- Assessments of real case studies are very helpful for formulating practically-applicable procedures for environmental protection from ionising radiation and other contaminants but it should be noted that the public's previous experience with nuclear installations may strongly influence the attitudes encountered.
- Understanding of people‘s values is of paramount importance, and should be articulated as early as possible. This will help to establish a long-term relationship between local communities and those putting forward the agenda.
- Frequently gaining the interest of those who are willing to co-operate and then to maintain that interest will build confidence and develop public support. It should be noted that public support could also be influenced by the provision of benefits for the community, with emphasis on maximising joint gains, which leaves them better off, but without compromising fundamental principles such as safety.
- There will always be dissension irrespective of the public consultation. Public consultation should not be aimed at gaining consent (this may be unrealistic) but at creating discussion of the different views, the results of which can be considered by the decision-makers.

Pulling this together suggests then that any stakeholder engagement within the ERICA integrated approach needs to consider when stakeholders should be engaged with, how they should be engaged with (and at what level) bearing in mind that there may be other wider stakeholder engagement processes ongoing associated with the planned development. The issues need to be identified and recorded. Early notification should be used to entice participation and thus allow potential stakeholders to identify themselves and their interest. In this way, providing a fair, open, continuous

and patient process will help to develop trust, promote local acceptance and support for implementing the results and decisions made from the assessment process.

An assessor using the ERICA integrated approach may not consider that a full stakeholder/public consultation is needed for each and every assessment but there is a need to ensure that the assessment process is transparent and that all the necessary information has been provided and the justification of decisions made recorded. In this way, the question of stakeholder engagement may become how much and who should be involved within a given assessment. Flexibility would appear to be key to this approach. ERICA should provide some guidance on these issues.

There will always be dissension irrespective of the public consultation - thus the public consultation should aim not at gaining unrealistic consent but at creating diverse discussion with different views for the consideration of decision-makers. Understanding of people‘s values, and trying to illustrate by example, will help facilitate communication.

4.1.1 Implications for ERICA

A number of key issues for consideration within the ERICA integrated approach have been identified and are summarised as follows: ERICA should:

- provide definitions related to stakeholders involvement for the ERICA glossary;
- provide a list of stakeholders (e.g. Table 2.2) and reasons why they might be engaged with;
- provide a list of methods to involve stakeholders (it is suggested that this should be considered in relation to the tier at which the engagement is being used and/or the purpose of the assessment). It was noted that different tools may be required at different points in the engagement process and advice on their application should be provided;
- should give an overview of how to get the most from the stakeholder engagement process, e.g. what works and what to avoid;
- should consider problem formulation and how stakeholder engagement may be used to define what issues are to be addressed and what assumptions are to be made;
- consider the role of stakeholder engagement within the ERICA integrated approach and how this should be captured - generally there was agreed that ERICA should provide a mechanism for capturing the decisions regarding whether stakeholder engagement was required or not and to provide an opportunity for the assessor to record in the assessment tool who should be involved, to what extend and what contribution can they provide.
- ERICA should consider the stakeholder processes (some required by national legislation) which will be occurring for other aspects of assessment of permissions for existing or planned licensed sites (to avoid duplicating effort) and should provide guidance on assessing the need for additional stakeholder engagement when considering biota assessments.

5 Final session: next steps

IZ gave a presentation to explain the process to get inputs from EUG members prior to the delivery of the deliverable D7d. In brief to:

- compile all notes from discussions and plenary sessions, to be ready by 7th October, i.e. receive notes ASAP;
- distribute to EUG chair persons, EUG interviewers and note takers by the 17th October to be returned by the 28 October;

- add analysis, conclusions and recommendations by the end of October;
- circulate final draft by the 3rd November for return by 14th November; and
- publication on the website by mid November.

A reminder was also given to fill in the feedback questionnaire and instructions given to the EUG members for claiming repayments for attending the event. The Third thematic EUG event was then concluded with an invite to the EUG members to join the ERICA project during the week commencing 27th March 2006 at the Fourth Thematic EUG event: Scientific Uncertainties Workshop in Ljubljana, Slovenia and/or at the Second Generic EUG event: Consensus conference 28-30th June 2006 near Oslo, Norway.

5.1 Feedback questionnaire

The EUG participants were also asked to complete a feedback questionnaire to help the ERICA consortium improve future events. The questionnaire is similar to those used at previous EUG events and can be found in Appendix 4. Participants were asked to evaluate statements from "excellent" to "good", "satisfactory", "below average" and "poor". All the participants, including the two facilitators, present at the EUG meeting answered the anonymous feedback questionnaire. Figure 6.1 summarises the responses from the questionnaires and Appendix 5 contains a full breakdown of the results.

5.1.1 Summary of feedback

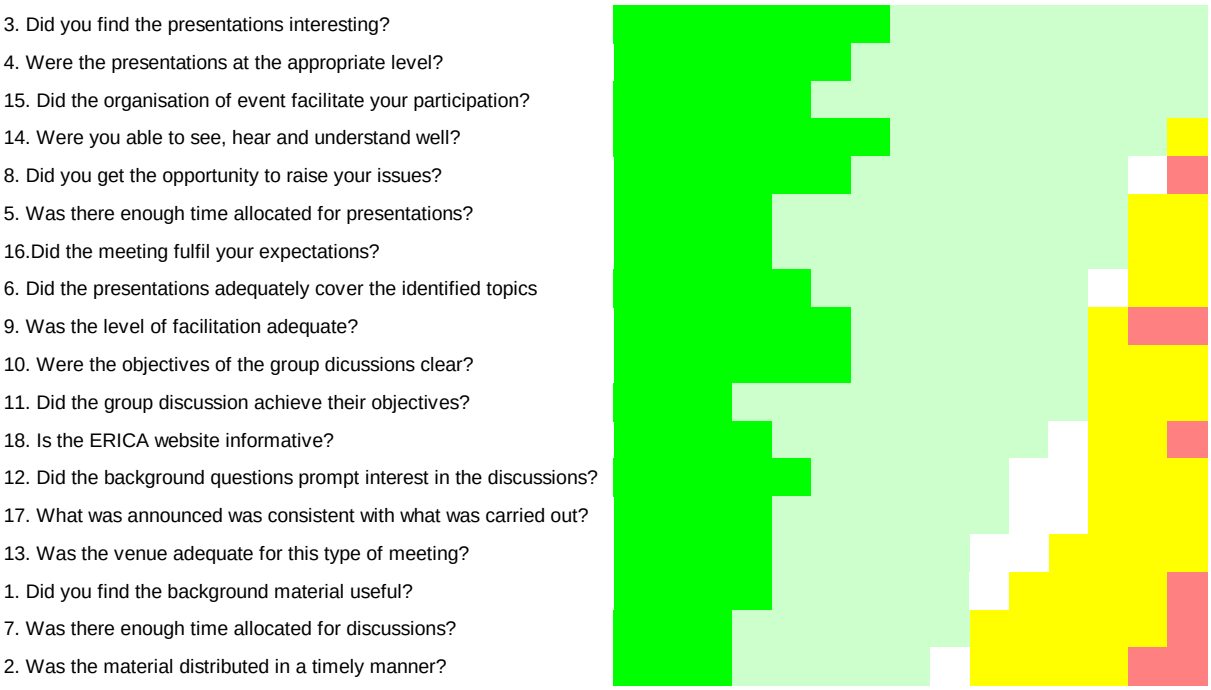
The overall picture is quite positive: summarizing individual participants' feedback, 11 participants globally answered "excellent", 4 answered "good" and 1 answered "satisfactory".

Looking at individual answers through a calculated group summary, 12 statements appear as "excellent" and 6 appear as "good". There was general agreement that the presentations were interesting and set at an appropriate level and that the event organisation helped to facilitate the participant's involvement.

The following six statements appeared less than "excellent".

- Did the background questions prompt interest in the discussions?
- What was announced was consistent with what was carried out?
- Was the venue adequate for this type of meeting?
- Did you find the background material useful?
- Was there enough time allocated for discussions?
- Was the material distributed in a timely manner?

The three latter items are the less well ranked. However, they are also the more controversial ones. This feedback could be interpreted as follows: the participants may have felt the meeting was fairly intensive and that not having had enough time to read the bulk of the supporting material supplied prior to the meeting, they may not have perceived its usefulness during it. The last point regarding the distribution of the background material has been raised previously and is something the ERICA consortium are working to improve to ensure that there is adequate time between the material arriving and the meeting itself.



Legend:	**Excellent**	**Good**	**Satisfactory**	**Below average**	**Poor**	**Blank**
	Green	Light green	Orange	Light red	Red	White

Figure 6.1 Summary of the responses from the questionnaires.

Appendix 1: List of participants

EUG Members

Surname	First name	Organisation
Golubev	Alexander	International Sakharov Environmental university (Belarus)
Henrich	Eberhardt	European Commission DG TREN.H.4 (EC)
Holmes	John	University of Oxford (UK)
Ikonen	Ari	Posiva Oy (Finland)
Kanyar	Bela	University of Veszprem (Hungary)
Klomberg	Theo	Ministry of Housing, Spatial Planning and the Environment (The Netherlands)
Krajewski	Pawel	Central Laboratory for Radiological Protection (Poland)
Lazo	Edward (Ted)	OECD Nuclear Energy Agency (International)
Malmelin	Miliza	Ministry of the Environment (Finland)
Ormai	Peter	Public Agency for Radioactive Waste Management (Hungary)
Riverin	Guy	Canadian Nuclear Safety Commission (Canada)
Sazykina	Tatiana	SPA "TYPHOON" (Russia)
Sutcliffe	Jill	English Nature (UK)
Twigger-Ross	Clare	Colingwood Environmental Planning (UK) - guest speaker
Van der Sjuis	Jerone	Utrecht University (The Netherlands)

EUG members that registered but could not attend:

Simon Carroll (Greenpeace International), Marianne Calvez (CEA, France), Sylvain St-Pierre (World Nuclear Association)

ERICA Consortium Participants

Surname	First name	Organisation
Beresford	Nicholas	NERC
Cancio	David	CIEMAT
Copplestone	David	EA
Momal	Patrick	IRSN
Breivik	Hanne	NRPA
Brown	Justin	NRPA
Kautsky	Ulrik	SKB
Larsson	Carl-Magnus	SSI
Zinger	Irene	SSI
Hanninen	Riitta	STUK
Oughton	Deborah	UMB
Jones	Steve	WSC

Division of discussion groups for each day

Thursday 29th September

Group	Interviewer	EUG Members	ERICA participants
1	John Holmes	Ari Ikonen	Carl-Magnus Larsson
		Miliza Malmelin	David Copplestone
		Peter Ormai	Deborah Oughton
		Tatiana Sazykina	Nicholas Beresford (scribe)
		Ted Lazo	Riitta Hanninen
		Theo Klomberg	Ulrik Kautsky
	Clare Twigger-Ross	Alexander Golubev	David Cancio
		Bela Kanyar	Hanne Breivik (scribe)
		Eberhardt Henrich	Irene Zinger
		Guy Riverin	Justin Brown
		Jerone Van der Sjuis	Patrick Momal
		Jill Sutcliffe	Steve Jones
		Pawel Krajewski	

Friday 30th September

Group	Chair	EUG Members	ERICA participants
1	John Holmes	Alexander Golubev Bela Kanyar Guy Riverin Miliza Malmelin Ted Lazo Theo Klomberg	David Copplestone Deborah Oughton Nick Beresford (scribe) Ritta Haninnen
2	Jill Sutcliffe	Ari Ikonen Eberhardt Henrich Jerone Van der Sjuis Jill Sutcliffe Pawel Krajewski Peter Ormai Tatiana Sazykina	Hanne Brevik (scribe) Irene Zinger Patrick Momal Steve Jones

Appendix 2: Final agenda for EUG event

Thursday 29th September

0900-0930	Introduction
0930-1030	Keynote lecture: Stakeholder involvement: legislation and methodology (Clare Twigger-Ross)
	The BNFL National Stakeholder Dialogue: Perspective from a participant (Steve Jones)
1030-1100	Coffee
1100-1300	Focus group discussion
1300-1430	Lunch
1430-1500	Focus group discussion and summing up
1530-1600	Coffee
1600-1630	Plenary feedback
1630-1700	Introduction to the ERICA tiered approach (David Copplestone)

Friday 30th September

09:00-09:15	Introduction to task
09:15-10:00	Focus group discussion
10:00-10:30	Coffee
10:30-12:00	Focus group discussion
11:00-13:00	Final plenary session and close of meeting
13:00-14:30	Lunch

Appendix 3: Information provided by EUG participants prior to the meeting

EUG Contributions were received from the following EUG members, and got incorporated in this report if permission to publish was received.

- Marianne Calvez, CEA, Patrick Devin, AREVA, Marie-Odile Gallerand, ANDRA, and Valérie Moulin, CEA
- Alexander Golubev, International Sakharov Environmental university (Belarus)
- Eberhardt Henrich, European Commission DG TREN.H.4 (EC)
- Ari Ikonen, Posiva Oy (Finland)
- Bela Kanyar& Janos Somlai, University of Veszprem (Hungary)
- Theo Klomberg, Ministry of Housing, Spatial Planning and the Environment (The Netherlands)
- Pawel Krajewski, Central Laboratory for Radiological Protection (Poland)
- Edward (Ted) Lazo, OECD Nuclear Energy Agency (International)
- Miliza Malmelin, Ministry of the Environment (Finland)
- Peter Ormai, Public Agency for Radioactive Waste Management (Hungary)
- Guy Riverin, Canadian Nuclear Safety Commission (Canada)
- Tatiana Sazykina, SPA "TYPHOON" (Russia)
- Jill Sutcliffe, English Nature (UK)
- Jerone Van der Sjuis, Utrecht University (The Netherlands)

Marianne Calvez, CEA, Patrick Devin, AREVA, Marie-Odile Gallerand, ANDRA, and Valérie Moulin, CEA

A report was received from Marianne Calvez, CEA, Patrick Devin, AREVA, Marie-Odile Gallerand, ANDRA, and Valérie Moulin, CEA whose document covered the French context about decision-making and stakeholder involvement and our point of view in the scope of the ERICA project considering this context. The full version of this document is available from the EUG protected area of the ERICA website.

Alexander Golubev, International Sakharov Environmental university (Belarus)

From 1986 to 2001, I as the researcher of the Institute of Zoology of the National Academy of Sciences of Belarus was Principal Investigator of the several research projects on the evaluation of biological consequences of the Chernobyl atomic disaster on the aquatic ecosystems and water organism populations. I took the immediate part in the investigations within the 30-km exclusion zone of Chernobyl atomic station. During these investigations the extended data on the long-term observational series on the perennial dynamics of radioactive contamination of bottom sediments, water and water organisms in water bodies within this zone have been studied. The data of the β- and γ-activity in human foodstuff objects, fish and crayfish from the exclusion zone have been obtained too. All these data were included in final reports and practical recommendations of the Institute of Zoology for several government organizations - the Ministry of Natural Resources and Nature Protection, the Committee on Overcoming the Consequences of the Accident on Chernobyl Atomic Station.

Along with, I headed the surveys on the biological and ecological features of the spring ecosystems (outflows of the groundwater) in Belarus. We investigated more than 200 springs in different geographical regions of Belarus. The species structures of their biota, the chemical composition of spring water have been examined. We elaborated the general concept of spring conservation in Belarus in condition of increasing of anthropogenic pressure. On the base of our backgrounds several unique springs were proclaimed as the natural monuments of national and local importance and were taken under the protection by local authorities.

In 1997 we presented the proposals for spring protection for Parliament of Belarus. They have been taken into account in new edition of Water Code of Belarus.

Since 2001 I am working at the International Sakharov Environmental University (ISEU). There along with teaching, I continue my own scientific investigations in Chernobyl exclusion zone. I take part in carrying of summer field practice of students on the specialty "Radioecology". They are organized at the ISEU station in Khoiniki, a small town that is located in 20 km from the border of the 30-km Chernobyl exclusion zone. The program of practice includes adoption by the students the theoretical knowledge and practical experience on the following matters:

- Estimation of levels of β- and γ- radiation in different landscapes - in forests, fields, bogs, shores of water bodies, on agricultural lands, etc.
- Estimation of levels of β- and γ- radiation in residential buildings and working areas;
- Distribution of radionuclides (namely, ^{137}Cs and ^{90}Sr) in depth in soils of different types and their absorption by plants;
- Estimation of the levels of radioactive contamination of the mayor components of environment - air, soils, water, bottom sediments in water bodies, as well as the living organisms -mushrooms, plants, invertebrates and fish;
- Estimation of the levels of radioactive contamination of vegetable foodstuff (grain, vegetables, fruits) which have been grown in large collective farms, as well as in individual homestead lands.

The studies are carrying out at the different training areas, among them there are several monitoring sites within the Belarusian sector of the 30-km Chernobyl exclusion zone. Each student or small groups of them (3-4 persons) take the individual task. The most important of them are:

- Measurements of activity of ^{137}Cs and ^{90}Sr in soils on different sections of agricultural grounds, and in the agricultural products which have been grown on them;

- Levels of exposure doses of γ- radiation in working areas of agricultural enterprises, forestries, etc.

At present (2005) in Belarus farming industry carries out at the 1.3 million ha agricultural lands with ^{137}Cs activity more than 37 kBq m^{-2}. Besides there are 0.37 million ha with ^{137}Cs activity within the limits 185-1480 kBq m^{-2}. There are 0.458 million ha with ^{90}Sr activity within the limits 6 -111 kBq m^{-2} too.

Predominant proportion of such lands is located on the south-east of Belarus, i.e. in region of the state with the most favorable climatic and soil conditions. Getting the non-contaminated agriculture production on such lands is a very difficult problem. Therefore agricultural products, grown up at the large proportions of agricultural lands in Khoiniki district often have increased activity of ^{90}S as compared with the Maximal permissible concentrations for radioactive isotopes (MPC) adopted in Belarus in 1999. At the same time, excesses of MPC for ^{137}Cs activity do not registered, as a rule.

It is necessary to underline, that the Belarusian MPC for ^{137}Cs and ^{90}Sr activity in foodstuff and drinking water (see Supplement) are much more strict in comparison with the analogous MPC in Russia and EU states. On the one hand it contributes to decrease of radiation absorbed doses of human population in radiocontaminated areas. On the other, it creates definite problems for agriculture and forestry in regions situated close to Chernobyl exclusive zone, as getting of non-contaminated production there is very difficult.

Agriculture and forestry are the single sources of revenue for the majority of population in radiocontaminated regions of Belarus. Furthermore, sale of agricultural production with increased ^{90}Sr concentration is not only economic, but also a serious social problem. It is forbidden by the law for food and wood processing enterprises to buy the agricultural products and wood with ^{137}Cs and ^{90}Sr activity higher than MPC.

The data gathered are using not only for preparation of the students' degree theses. They are presented free of charge to these enterprises, as well as to the local authorities of Khoiniki district. This information is of great importance for them, because small enterprises have not installations for the measurement of β- and γ- activity of samples. The possibilities of district Sanitary–epidemiologic station (SES) in this respect are very limited due to small staff. Above all, SES conducts radiometric measurements for state and private enterprises for definite tax. It may be additional limiting factor for small enterprises, therefore their profits are low, as a rule.

Certainly, our radiometric measurements have not juridical validity, as the measurements of SES have. But they give valuable information to the heads of local enterprises. It helps them to adopt the optimal solutions on realization of their agricultural and forest products, changes of rotations of the crops, improvement of labour conditions on enterprises.

Supplementary information received 24 October 2005

The term “stakeholder” is out of use in Russian transliteration, in contrast to rather similar terms as “manager”, “VIP-person”, etc. Its meaning in “Russian Vocabulary of Foreign Words” is “Organizer of common activity”. Who is this Organizer in the context of ERICA project? Leader of any government or non-government organization, scientific group?

Of course I examined carefully all the materials which you have sent me. On my opinion the “Overview of the ERICA tiered approach” for stakeholder activity in decision-making is interesting and right. But for it one indispensable condition is needed. It is the highly developed civil society with influential public opinion, mighty political parties, non-governmental organisations in nature protective area (“Greenpeace”, etc.), powerful free press, which create effective feedback mechanisms between society and power in decision-making process. This situation to a greater or lesser extent takes place in states with long and established democratic traditions.

Belarusian provisional Maximal permissible concentrations (MPC) for ^{137}Sc and ^{90}Sr in foodstuff and drinking water (adopted in 1999).

For ^{137}Cs

NN	Product	Specific (volume) activity, Bq kg^{-1}, Bq l^{-1}
1	Drinking water	10
2	Milk and whole milk production	100
3	Milk concentrated	200
4	Crud and crud product	50
5	Cheese and melted cheese	50
6	Butter	100
7 7.1. 7.2.	Meat and meat products, among them: Beef, mutton, and their products; Pork, poultry and their productsx	 500 180
8	Potatoes	80
9	Bread and bakery products	40
10	Flour, cereals, sugar	60
11	Vegetable fat	40
12	Adipose and margarine	100
13	Vegetables and roots	100
14	Fruits	40
15	Horticultural berries	70
16	Tinned foodstuff from vegetables, fruits and horticultural berries	74
17	Wild berries and tinned products from them	185
18	Mushrooms fresh	370
19	Mushrooms dried	2500
20	Particularized products of children nutrition	37
21	Other foodstuff	370

For ^{90}Sr

NN	Product	Specific (volume) activity, Bq kg^{-1}, Bq l^{-1}
1	Drinking water	0,37
2	Milk and whole milk production	3,7
3	Bread and bakery products	3,7
4	Potatoes	3,7
5	Particularized products of children nutrition	1,85

Unfortunately, civil society in the former USSR republics is on the first stages of formation. Belarus is not the exception, but the situation there has own features. On the other hand there are highly elaborated nature conservation legislation. Among them there are some laws on regulation of residence of population and economic activity on radiocontaminated areas

On the other, society in Belarus shows low interest in questions of nature protection in general. The reason is that the standards of well being of the majority of population in Belarus are low. Therefore people there are concerned mostly by problems of their own survival but not the public activity. Influential political parties, even supporting the power, there are absent. They even are not represented

in Parliament. All the activity of public institutions existing in Belarus is under the strict control of power structures. These organizations are small in number as a rule. In the streamline of ERICA the activity of the majority of them is limited by organization of summer holidays of children from radiocontaminated areas of Belarus in West European countries and allocation of humanitarian aid from abroad.

Eberhardt Henrich, European Commission DG TREN.H.4 (EC)

Preliminary remarks:

This reflects my experience gained in the work for the Austrian federal ministry responsible for radiation protection. In the 60ies this was the Ministry for Social Affairs, later the Ministry for Health and the Environment, later – due to re-organisations and re-shuffling the political landscape – the Ministries for Health, the Federal Chancellery and the Ministry for the Environment. As since 1 July 2002 I am working as a seconded expert for the European Commission I do not know if since then the method of 'stakeholder involvement' has changed.

In Austria - being a federal state - quite a bit of legislation and most of the implementation of legal matters lies with the federal provinces (9 altogether). Radiation protection – being seen as part of public health – is on central federal level, however. Thus, laws and ordinances are issued by the federal parliament/government. In most cases implementation is on provincial or district level. Large scale environmental radioactivity monitoring is managed centrally.

As the protection of the environment against radiological effects is 'new' and may be seen as competence of the provinces, it seems not yet clear who will be responsible for any legal aspects.

1. What stakeholder involvement procedures have you or your organisation been involved in?

Since most of the implementation of legal matters is on provincial or district level, any new legislation is discussed in working groups that comprise experts from the provincial governments. In addition – since Austria has a long-standing tradition of involving the social partners (trade unions, professional boards) – these are also involved. The public at large (e.g. via NGOs) is rarely involved in the basic designing of legislation. NGOs may however participate in working groups in preliminary phases.

My personal involvement was in working groups drafting the radiation protection law and ordinance and several regulations to be used in radiological emergency situations. These working groups generally comprised experts from national and provincial governments and academia.

I do have the feeling that on higher decision making level – in particular on parliamentary level – the scope is much wider and – besides having the political parties influence any legislation – also the impact of NGOs and local groups is larger.

2. What methods were used?

Participation in working groups. Usually an official from the federal government chaired the group but frequently the chair was supplied by an expert from a provincial government.

3. What worked and what didn't work?

Input into working groups from participants was rather small. Most work relied on the chair/secretary. 'If you want something to be done you have to do it yourself'.

On other (more political) levels it seems that the intention of politicians to accept (government) experts' opinion is rather limited whereas they seem to strongly believe whatever is said by NGO experts.

Generally, on a technical level discussion among experts from different origin was good and very often showed agreement (Austria being a small country and everybody knowing everybody quite well). Differences arose in communication of the not-so-technical consequences.

4. Lessons learnt and recommendations

Taking the little new experience I have I wouldn't dare to give any…

Ari Ikonen, Posiva Oy (Finland)

1. What stakeholder involvement procedures have you or your company been involved in?

- Political decision making, leading to the decision-in-principle for the proposed repository at the selected site
  - for existing reactors 1999-2001, for 5th reactor under construction -2002
- Environmental Impact Assessment procedure for a deep geological repository of spent nuclear fuel
  - 1997-1999, 4 candidate sites, just prior to site-selection
- In general, gaining and maintaining public acceptance to nuclear waste management

2. What methods were used?

Political decision

The Nuclear Energy Act stipulates that the selection of the repository site requires *a policy decision of the Government, ratified by the Parliament*. Posiva filed the application in May 1999, proposing Olkiluoto in the municipality of Eurajoki for the repository site. In order for the Government to decide in favour of the policy decision, the Finnish *authority on radiation safety (STUK) had to support* the project and the municipality where the repository is to be built had to approve it. In other words, the *host municipality has an absolute veto right over the site selection* and thereby the possibility to stop the deliberations for the nuclear facility.

EIA procedure

- public presentations on different aspects of the programme
- open discussion sessions
- other public events and exhibitions
- local offices at all candidate sites
- surveys and theme interviews
- co-operation groups with municipality administration and elected representatives

Public acceptance in general

- presentations for specific groups
- open houses and visits to existing nuclear facilities
- tabloids delivered to all households in the local area
- advertisements in local, regional and national newspapers

3. What worked and what didn't work?

Working things

- Long tradition of nuclear waste management and planning already since the construction of the reactors (late 1970s - early 1980s)
- Rational political decisions and their adaptation to prevailing public attitudes
  - Government decision on waste management strategy already in 1983

    - Amendment of Nuclear Energy Act excluding the export (and import) option in 1994 practically "officially opting" for deep geological disposal
- Strong emphasis on the local acceptance, but still not forgetting the whole country
- Long site investigations programme at the candidate sites, continuous "open doors" policy allowing local people to see themselves what is going on and at the same time get information on the plans
- Justification of the significance of the political decision (better to proceed with preparations than rely on continuing the interim arrangements)
- Listening to people introduced the retrievability issue into the discussion, finally enabling the positive decision that future generations can reconsider

Not working things

- Hard to reach the general public - on the other hand decision-makers and local public were reached well, or, people in general do not have very much interest in nuclear waste management as long as somebody (else) will handle and accept the waste

4. Lessons learnt and recommendations

- Local level acceptance plays a key role: if the municipality has a veto right, it is easier to get the acceptance also from the general public trusting the judgement of the local people.
- Achieving even a local level acceptance takes a long time
- Convincing people about the safety is important, but there are also other factors
- Early commitment to active waste management by the authorities and policy makers has been the primary driver - Finns trust their authorities
- Public's previous experience with nuclear installations guides strongly the attitudes
- There will always be dissension irrespective of the public consultation - thus the public consultation should **aim not at gaining unrealistic consent but at creating diverse discussion** with different views for the consideration of decision-makers

Bela Kanyar& Janos Somlai, University of Veszprem (Hungary)

Introduction and special issue

The natural radionuclide contamination from the non-nuclear technologies (mining, aluminium production, coal power plant etc.) provide an elevated exposures to the population living in the North Region of the Lake Balaton / Hungary. Due to the industrial activities in the regions of the cities Ajka and Várpalota hills of coal slag and red mud have been analysed with respect to the radiation dose contribution before any remediation actions.

The concentrations of ^{226}Ra are between 500 - 2000 Bq kg^{-1} in the coal mud. The slag derived from the coal burned in stoves and boilers have been used by a lot of people as filling, insulating material under the floor and in the ceiling. The concentration of ^{226}Ra measured in the slag built in provided a range of 500 - 2600 $Bq.kg^{-1}$. The high concentrations result in a significant increase of external dose rate (200 - 800 $nGy.h^{-1}$) depending on building technology used. Additional radiation pathway of the slag built in might be the emanation of radon gas from the slag and growing concentration of radon daughters in the rooms with less ventilation. In some dwellings the radon concentration might be extended to 200 - 800 $Bq.m^{-3}$.

During years of 1966 - 1990 the flying ash exhaled by the power plant was 756,532 tons and mostly deposited in the neighbourhood (last year the coal power plant turned to use biomass). In the city Ajka has been operated bauxite processing industry since 1943 and the red mud deposited near the plant is situated on 204 ha, mass of 34 - 35 million tons including 610 tons uranium and 1860 tons thorium. In the neighbourhood of the - last year already - closed power plant of city Várpalota situated approximately 60 km-s from Ajka. There are two waste hips of coal slag of volume 6.7 million m^3. The ^{226}Ra activity takes about 200 $Bq.kg^{-1}$ with high variations depending on the origin of the coal used.

The remediation of the coal slag and red mud hills has to be taken into consideration both of radioactive and chemical contaminants.

In Hungary there are no action levels for radon concentrations in dwellings.

Due to the mainly local problems the “group of stakeholders” involves:

- mayors of the settlements
- representatives of the communications near to the sites of contamination
- representatives of regional authorities and national institutes involved in environmental protections
- heads or/and representatives of the technological facilities involved in the environmental contamination
- owner of dwellings, representative of families with elevated radon in dwellings.

What stakeholder involvement procedures have you or your company been involved in?

- Planning environmental monitoring systems mainly for nuclear emergency taken into consideration countrywide and local viewpoints (national system following the Chernobyl disaster and extension of the system around the nuclear facility, NPP of Paks).
- Planning environmental remediation of the site of uranium mine “Mecsek”/Hungary.
- Introduction radiation protection actions to reduce the radiation impact from the radon and daughters in dwellings and other buildings, near to the northern part of Transdanubia/ Hungary.

What methods were used?

- Taken part in dose assessments in environment and cost-benefit analysis for remedial actions.
- Introduce the interested inhabitants in monitoring radiation (e.g. radon concentration) in the special sites, including dwellings, kindergarten buildings, spas, drinking mineral water with elevated Ra-concentration etc. (Direct contact to the inhabitants)
- Transform and rewrite special documentation to be understood by the proper groups of inhabitants, municipal leaders and politicians involved in local decision.
- Introduction university courses and issuing manuscripts for students and special groups involved in:
    - Environmental radiation protection/radioecology
    - Nuclear emergency
    - Disposal of radioactive wastes

Lessons learnt and recommendations

The information of the advisors of the stakeholders is important, namely most of the stakeholders – directly not involved in the special problems – are better influenced by their close advisors and are less susceptible to the knowledge in engineering and natural sciences. In general the proper information of the advisors is more effective than the direct information, especially for long-term (non-acute) problems.

The information and spreading of knowledge are to begin in schools, among youth, adjusted to the proper level of ages.

In contrary to the West-European countries in most of the East European ones the public don't trust their authorities, in general.

The direct and near-future benefit plays an important role in decision making. Therefore the information of the stakeholders are to be supplied by a cost-benefit analysis.

It should not be kept back that there are still problems not yet solved in relation of the risk of ionising radiation, there might be a high uncertainly in assessment of impact etc.

Theo Klomberg, Ministry of Housing, Spatial Planning and the Environment (The Netherlands)

1. What stakeholder involvement procedures have you or your company been involved in?

- Licensing procedures for nuclear installations as well as for practices with radioactive substances.
- A licensing procedure sometimes includes an Environmental Impact Assessment procedure
- Public involvement in general for specific items like exposure to electromagnetic fields.

2. What methods were used?

Licensing procedures

The basic legislation governing nuclear activities is contained in the **Nuclear Energy Act**. The Act sets out the basic rules on nuclear energy, makes provisions for radiation protection, designates the various competent authorities and outlines their responsibilities. Licences for nuclear facilities are granted jointly by the Minister of Housing, Spatial Planning and the Environment, the Minister of Economic Affairs, and the Minister of Social Affairs and Employment (plus, where relevant, some other ministers whose departments may be involved). The Minister of Housing, Spatial Planning and the Environment acts as the co-ordinator.

The **Environmental Protection Act**, in conjunction with the Environmental Impact Assessment Decree, stipulates (in compliance with EU Council Directive 97/11/EC) that an Environmental Impact Assessment must be presented when an application is submitted for a licence for a nuclear installation This means that an EIA procedure is always part of a licensing procedure in the Netherlands. In the case of non-nuclear installations, the EP Act regulates all environmental issues (e.g. chemical substances, stench and noise); in the case of nuclear installations, the Nuclear Energy Act takes precedence and regulates both conventional and non-conventional environmental issues.

The **General Administrative Law Act** sets out the procedure for obtaining a licence, and also describes the role played by the general public in this procedure (i.e. objections and appeals). In short this means the competent authorities announce by means of advertisements in local, regional and national newspapers that the application together with a draft decision and, if applicable, an EIA are deposited on certain locations for inspection by the public. For a period of 4 weeks it is possible to make objections to the draft decision. After this a definite license will be drafted, in which also a motivated reaction to the objections is given. The persons or organisations who have made allegations to the draft decision are entitled to make an appeal to the Council of State (the highest administrative court in the Netherlands), if they think the motivation of the reaction to their objection in the final decision is unsatisfactory.

An example of a licensing procedure which includes an EIA is the siting and building of the COVRA facility. The COVRA (Central Organisation for Radioactive Waste) facility is the only facility for the long-term storage of spent fuel and high level radioactive waste in the Netherlands. The storage pools at the research and power reactor sites are not intended for long-term storage and are consequently not considered in this report.

The site selection procedure for COVRA followed two separate routes:

1. The first step in the procedure for a selection of a potentially suitable location was the formulation of selection criteria for the facility. The selection criteria for candidate sites for the COVRA facility were mainly based on considerations of adequate infrastructure and the site had to be situated at an industrialised area. Many sites complied with these rather general criteria. Twelve of these were selected by the commission as being suitable in principle. For the selection of the preferred sites the co-operation of the local authorities was sought. In order to facilitate the negotiations with the local authorities in the case of COVRA a site-independent Environmental

Impact Assessment (EIA) was performed. This demonstrated hardly any adverse effect on the environment. However, this conclusion did not lead to an offer from local administrators. Although there are in principle legal procedures for overruling a refusal by a local or regional authority to accept a potentially suitable storage or disposal site, as a rule the consensus model is followed for the allocation of a site. In practice this limits the number of available sites to just a few, since most municipalities consider the presence of a radioactive waste management facility as undesirable. Consequently, the preferred sites are basically selected on the basis of willingness of local authorities to co-operate in the establishment of such a facility. Only two municipalities were willing to accommodate a facility for storage of spent fuel and radioactive waste. COVRA expressed a preference for the present location in the Sloe industrial area in the South-West part of the country close to the NPP Borssele.

2. The second route towards the selection of a site was an assessment of the possible environmental effects from a spent fuel and waste storage facility for a generic site. The Environmental Impact Statement was published in 1985. The EIS was re-written for the specific location in the Sloe area and submitted as part of the license application to the competent authority. This location-dependent Environmental Impact Assessment (EIA) was performed by considering three operational alternatives (the proposed facility, a facility with maximum volume reduction and a facility with a maximum reduction of handling operations). Both the EIS and the license application were made available to the public for comment. International notification is required in relation to any plan for the disposal of radioactive waste, according to a procedure established in Article 37 of the Euratom Treaty. Since most spent fuel management facilities give rise to discharges of radioactive material and hence could possibly affect other countries, information of such plan is provided to the European Commission, which will have an assessment made by experts.

Public involvement in general

- hearings with the general public (High Voltages Lines)
- presentations for specific groups
- research projects which involved the general public (UMTS stations)
- open houses and visits to existing nuclear facilities

3. What worked and what didn't work?

Working things

- Direct contact and communication with stakeholders
- The use of the consensus model in the co-operation with local authorities.

Not working things

- Hidden agendas.
- In recent years licensing procedures are facing a declining public involvement. This may have to do with decreased controversy of nuclear energy with the general public. In earlier licensing procedures several hundred up to a thousand persons or organisations filed objections to a draft decision. Nowadays this is rarely the case.

4. Lessons learnt and recommendations

- Acceptance starts with getting all the relevant information on the table. If this not the case acceptance is far away.
- Trust in governmental organisations is very important.
- Public consultation should be used not only for acceptance but also for the authorities to get informed by the public about their arguments. This leads to decisions, which are better founded and accepted.

Pawel Krajewski, Central Laboratory for Radiological Protection (Poland)

1. What stakeholder involvement procedures have you or your organization been involved in?

Since 1957, based on its statutory duty, the activity of Central Laboratory for Radiological Protection (CLOR) has been focused on protection of general population and occupationally exposed persons against the hazards of ionizing radiation. The CLOR is not generally directly involved in discussions with stakeholders, this duty lies on National Atomic Energy Agency (NAEA) in Poland, nevertheless CLOR's the Center of Information is involved in publication of scientific reports, guides, training materials, popular papers on radiation protection, and in exchange of materials between information centers in Poland and abroad. In 2002-2003 the Scientific and Technical Information Center of CLOR provided about 3000 consultations for mass media, governmental, municipal, scientific and private institutions, and for members of public. The questions of various matters generally express public concern about risk of exposition. The replays are given by phone or email, seldom by letter considering that the important role plays direct and personal contact with anxious interlocutor.

Since 1999, as other Scientific Institutions in Poland, CLOR has participated in September Science Festivals – having so called open days with expositions and lectures for individuals and organized groups.

CLOR cooperates with National Food and Nutrition Institute and participates in Conferences on Food Safety and Quality. Our experts explain extended scientific as well as food producers forum the general aspects of radiation hazards with respect to food contamination.

With the assistance of the European Institute for Transuranium Elements (ITU) in Karlsruhe, under the PECO (Pays Europe Centrale Orientale) project of the EC Joint Research Centre (JRC), CLOR has elaborated the handbook and organized in 2004 a demonstration exercise of the response system to incidents of illicit trafficking or inadvertent movement of nuclear and radioactive materials in Poland. This exercise engaged number of state and public services and yielded experience and knowledge on radiation safety view by peoples not necessarily professionally combined.

CLOR experts are routinely involved in seminars devoted to the Requirements and Countermeasure Evaluation Techniques in Nuclear Emergency Management that normally focus extended range of government and local government representatives. The last event occurred in November 2003 in a frame of EVATECH exercise.

In connection to the protection of biota against radioactive contaminants since 2000, informative actions about the problem have been undertaken, by means of articles in popular journals ("the Progress of Nuclear Techniques- Journal of NAEA targeted to the public") and seminars for scientific community. Seminar on Comments to the Draft of ICRP Recommendation (2005) gave opportunity to exchange opinions on the protection of non-human environmental species conducted by extended scientific panel.

Recently, regarding protection of environment against ionizing radiation, the informative pamphlet together with questionnaire has been sent by e-mail to the different organizations including governmental, councils, and societies. This is considered as the first, preparatory step of public participation in acceptance of new framework for assessing and managing radiation exposure in non-human species.

The similar screening type assessment is continuously conducted by NAEA (since 1994 every two years) with regard to public concern about development of nuclear energy in Poland[1]. In comparison with previous years, the last investigations (November 2004) indicated on growing percentage of

[1] In 1990 Polish Parliament canceled The Project on building of the First Nuclear Power Plant in Żarnowiec, and suspended any activities connected with Development of Nuclear Energy in Poland up to 2007.

responders in favor of NPP (42%). The report can be found at http://www.paa.gov.pl/pentor/pentor.pps.

2. What methods were used?

- direct e-mail, phone consultancy,
- open days, other public events and exhibitions,
- education program on radiation,
- screening type assessments,
- organization and participation in Forum Dialogue Seminars,
- interviews on TV and other media,
- co-operation groups with multidisciplinary representatives
- Action Planning exercises.

3. What worked and what didn't work?

Working things:

- direct contact and communication with stakeholders,
- open doors and visits to existing facilities,
- poll
- Action Plan exercises, involving number of state and public services,
- seminars work partly as some people are not designed to take part in such events.

Not working things:

- involvement of public media (TV, press) – as they tend to search for sensations, and very seldom perform balanced transmission.
- education of society about ionizing radiation at basic level (no programmes and resources)

4. Lessons learnt and recommendations

a) The most important thing is to build up or rebuild the trust to independent authority (authorities) that might help to gain public consent or at least similar point of view. It used to be long time process, particularly, when publics previous experiences with nuclear installations yields to fear and anxiety.

b) Clear, non-gibberish and convincing information as well as educational program at basic level.

c) Patient in listening to public groups introduced the dissent irretrievability issue into the discussion, it can not be ignore, at least final decision might be reconsider in the future.

Edward (Ted) Lazo, OECD Nuclear Energy Agency (International)

Although the NEA is not generally directly involved in discussions with stakeholders, we have done extensive studies and discussions about how our member governments could better integrate stakeholder involvement aspects in their decision-framing and decision-making processes. Concretely, this has taken forward in three workshops taking place in Villigen, Switzerland, in 1998, 2001 and 2003. Using case studies the basis for discussions, we have looked at how stakeholders can contribute to identifying RP issues of concern, to characterising radiological situations, and to identifying possible solutions. These workshops have been summarised through a series of documents, and case studies have involved all the significant types of situations (operational emissions, material release, site release/decommissioning, and accident situations) relevant to having significant stakeholder involvement. Reference details and executive summary for the report on the third workshop are provided at the end of this summary[1].

In addition to these rather policy-level discussions, the NEA has conducted a few real stakeholder discussion events. In the context of the evolution of the ICRP RP recommendations, the NEA has held two, and will hold two more in the future, stakeholder fora to identify and discuss issues, exchange ideas, and to find a way to move forward. In the area of radioactive waste management, the NEA, through its Radioactive Waste Management Committee, has organised the Forum on Stakeholder Confidence, in the context of national development of high-level waste management programmes. The FSC has held several national meetings, with all levels of national stakeholders, to discuss these issues.

So, in summary, although the NEA is not directly involved in stakeholder involvement at the core of its activities, we have gathered significant experience in this area.

[1]Stakeholder Participation in Radiological Decision Making: Processes and Implications: Summary Report of the 3rd Villigen (Switzerland) Workshop, October 2003

(OECD 2004; NEA No. 5368, pp 35, ISBN 92-64-02079-9)

(Added after the meeting): Summary Report of the 3rd Villigen (Switzerland) Workshop, October 2003; Executive Summary

It has now been a decade since the CRPPH published its collective opinion paper entitled *Radiation Protection Today and Tomorrow* in which it was significantly observed that the social dimension would play an increasing role in the work of radiological protection specialists. The mid-1990s saw a growing expectation on the part of the public that it would be more directly involved in decision-making about technology in general. This of course represented a clear challenge to the way in which such decisions had traditionally been taken. In liberal democracies, duly elected governments had been understood to have a mandate to take those decisions and to delegate authority to a whole range of expert bodies to oversee the implementation and operation of technologies. Consultation with interested parties was always a part of this overall process, but the complex nature of many of the issues at stake made it natural that much would remain the realm of the experts in the various fields. The notion, therefore, that a broad range of "stakeholders", many perhaps without any expertise in the field in question, should be involved in decision making raised apparently difficult questions. The Villigen workshops set out to explore these in the context of radiological protection.

The first Villigen workshop in 1998, entitled "The Societal Aspects of Decision Making in Complex Radiological Situations" (NEA, 1998), focused on the particularly difficult question of contaminated areas and their restoration to a point were people could continue to live there. The broad, and influential, conclusion emerging from the discussions was that radiological protection must adapt to meet the needs of society and not the reverse.

The second workshop in 2001, entitled "Better Integration of Radiation Protection in Modern Society" (NEA, 2001a; NEA, 2001b), sought to make some preliminary suggestions in this regard. The workshop considered a range of initiatives in a number of countries which exemplified a desire to change the way that radiological protection policy was developed and implemented.

The third Villigen workshop had as its aim a much broader understanding of how stakeholder participation in decision-making can be appropriately integrated in national and international radiological protection decision making.

In preparation for this, three in-depth analyses of specific case studies (NEA, 2004a) were conducted with a view to providing a means by which workshop participants could identify commonalties in stakeholder involvement processes and their possible implications, and to facilitate discussion of the key issues. The three situations were:

- Stakeholder Involvement in the Canadian Review Process for Uranium Production Projects in Northern Saskatchewan;
- The ETHOS Project for post-accident rehabilitation in the area of Belarus contaminated by the Chernobyl disaster;
- The Rocky Flats Controversy on Radionuclide Soil Action Levels.

Miliza Malmelin, Ministry of the Environment (Finland)

1. What stakeholder involvement procedures have you (or your organisation) been involved in?

In connection to the ERICA project we have established a national end-users group. The invitation to participate was sent to different stakeholders: representatives from industry, NGOs, university, research institutes and the authorities. Most of the invited showed interest to participate.

It is common at the Ministry of the Environment (and at other Ministries in Finland) that stakeholders are involved in preparing new (or renewed) laws and regulations. This can be done either by giving the task to an already assigned working group (committee or board), which at some Ministries work continuously with matters connected to a specified topic, or by assigning a working group for the specific task.

2. What methods were used?

The national end-users group has so far met once before the EUG meeting in Aix-en-Provence and once before the EUG meeting in Freising. The third meeting will convene after the EUG meeting in Madrid. In between meetings I have been in contact with the national end-users group by email, sending out information on how the ERICA project is proceeding. The members have of course also been able to contact me with comments and questions.

In this kind of working groups usually the chair and the secretary are employed by the Ministry and arrange with regular meetings for the whole group where the problematic issues are put to the table. At the meetings all group members are able to give their view on the issue and consensus is strived for (but of course not always found).

To complete the work done by the working group a circulation of proposal for comments is always arranged. The proposal is usually circulated for comments to all the stakeholders already taking part in the working group as well as to other stakeholders.

3. What worked and what didn't?

The national end-users group and its meetings were intended to work two ways: to inform stakeholders in Finland about the ongoing ERICA project and its proceedings, and to give me as a member of the international EUG ideas and comments from a broader Finnish group to bring to the ERICA project.

The two first national meetings were arranged just ahead of the international EUG meetings with the aim of being able to use the international material and discuss topics that will arise at the international EUG meetings. This has not worked out very well, as the material has not been available early enough to be used at the national meetings and my own capability of bringing the current topics to discussion has been limited. Therefore it has now been decided that the next national end-users group meeting will convene after the EUG meeting in Madrid, with the idea that then for sure material will be available and I will be better prepared to discuss the current topics and bring up issues that have been debated. This way I hope to activate the national end-users group meetings to be events with real two-way communication and input.

The above-described practice is very much used, and as such has established itself as a working method. Especially where the work can be undertaken by an already existing working group (committee or board) where the members know each others points of views (and ways of arguing) it

works well. By assuring everybody the possibility to emphasize their dissent during the circulation of proposal for comments it also makes the work in the group easier.

4. Lessons learnt and recommendations

It is a little bit too early to draw conclusions from the experience of the national end-users group. So far it is at least clear that a group of people with different types of expertise that gets together rather seldom (approx. 2/year) will need some specified questions thrown on the table to get discussion started.

Very much is dependent on the abilities of the person chairing the working group.

Peter Ormai, Public Agency for Radioactive Waste Management (Hungary)

CURRENT STATUS

What the recent past experience indicates is, using a fair, open and patient process, NIMBY can overcome. Currently a majority of the local public around the candidate L/ILW site is supporting, and this support appears to be durable as we approached them some 8 years ago. On July 10, 2005 a local referendum was held in the village (Bátaapáti) the candidate site for the repository. The question the citizens had to vote on was whether they were willing to accept hosting the repository. 75 % of the eligible citizens cast their ballots. **90 % was supportive**. The mayors of neighboring villages (representing 11 364 people) also expressed their support in realizing the investment. The regional acceptance - based on the regular opinion polling - is around **60 %**.

Concerning the HLW project, we are only at the beginning of a long and bumpy road. Thank to our previous PR efforts, at present the local municipalities accept the preparatory work for establishing an URL for HLW disposal.

APPROACH AND METHODS

Basically four areas of the communications include:

- Directly informing stakeholders
- Local governments: continuously inform the population about the research, plans, and possibilities.
- Information Associations: Group of municipalities in the vicinity of the potential sites. The main task of these associations is to inform the stakeholders, opinion leaders, and companies working in the region.
- Local media

Goals of communications:

- Stakeholders must see clearly what the aims of the research are, what the government want to build there.
- The amount of knowledge must grow continuously, its quality must be better.
- Everybody must be informed.
- The extent of tolerance, acceptance or spiritual assistance must be grown.

The ways to reach people and engage in communication are as follows:

Exhibitions: Exhibition halls in the PURAM headquarter and at the potential sites provide a comprehensive overview about the international experiences and the domestic approaches. An open-air exhibition (information park) at the HLW investigation area has proved to be very useful way for disseminating information.

Professional visits: To get the people better acquainted with the ways the wastes are generated, and how they are treated, visits are organised regularly to the NPP and operating waste storage and disposal facilities. These visits have a specific role in building confidence, since the reality could be much better presented than by any kind of theoretical lecture. Seeing is believing. In these facilities visitors meet those who work there, and see that they are the same kind of men as themselves. This experience could help to banish mystical ideas related to nuclear technology. Mayors of the Information Associations organisation visited several repositories in Europe.

Open day: PURAM is always ready to attend the village meetings, public hearings or organised open days for providing direct information to the public on our waste management programs.

Printed and on-line information: PURAM has an information newsletter that is published quarterly. Local newspapers are distributed to all households in the municipalities around sites free of charge. This is complemented by information transmitted through local press or cable TV programs. From time to time other pamphlets are distributed containing information about the most recent events in the site investigation and about our results and plans. Up-to-date information about the on-going site investigation is posted on PURAM website.

Cultural and information programs: Cultural programs are organised that have no direct relation with the repository implementation program but helped to deepen the relations with the local communities, and enhanced the confidence of the individuals.

LESSONS LEARNED

Our past experience has taught us that when developing siting strategy, understanding of people‘s values is paramount of importance, and should be articulated as early as possible. Regarding the local public relations activities, the fundamental aim of all actions, events and programmes has been to establish a long-term relationship between the local communities that are willing to co-operate, and to continuously keep the local residents interested and confident in the development. The lessons we learnt during some previous abortive projects are: public support depends upon the continued provision of non-nuclear benefits for the community, and that a win-win situation should be offered with emphasis on maximizing joint gains which leaves them better off.

In short, our strategy has been: to turn NIMBY into FLIMBY (For as Long as it Improves My Back Yard). That is the base fore co-operation. But we never compromise the fundamental principle that is safety first. Consequently volunteerism is searched for after identifying potential suitable areas. Two main stages: outreach and maintain relation (confidence) requires different PR strategy and tools. The key word is partnership: the local communities must be ensured that there is a long-term commitment to interaction otherwise they might fear that once the repository has been filled up, they will be left to themselves with the wastes.

It is important to be continuously present in the partner’s area find the balance of not to interfere with their everyday life but make them feel that the implemeter is a stable, reliable partner.

A repository has social and economic dimensions that will seriously affect the quality of life in the adjacent communities. It has the potential to stigmatise communities, making them less attractive to residents, businesses, visitors etc. The need to lay out **a clear package of benefits**, both social and financial, at a similarly early stage, in addition to early guarantees of good faith and commitment. These are of course what are referred to as ‘volunteer incentives’ in the classification and whilst these are sometimes called “bribes” by opponents of facility siting, it is generally thought to be essential that volunteer and potential-volunteer communities are as fully aware of the possibilities at as early stage as possible. Indeed, it is considered by many people that these could, and should, merely be opening offers, and that benefits should be adapted to suit the particular local situation. Of course financial incentives are not the answer in every situation. Any agreements as regards incentives, whether financial or otherwise, must be entered into in good faith by all parties.

The Hungarian law established the legal basis of providing financial incentives for the supportive group of municipalities. According to the Act on Atomic Energy, in order to regularly provide information to the population of the communities in the vicinity of the facilities, the licensee of a radioactive waste disposal facility shall promote the establishment of a public control and information association and can grant assistance to its activities. Currently 5 % of annual investment costs (the

cost of site investigation) are being distributed among the municipalities form Information Association.

It appears to be a rather promising situation but there are some serious concerns:

- Some vocal politicians and NGOs try to discredit the siting projects and disregard public acceptance.
- Changing policy or/and political unwillingness to make decision hinder to maintain public trust.
- Either lack of clear policy, or often changing policy would make the voluntary municipalities uncertain, and their supports become much more fragile.

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.

Guy Riverin, Canadian Nuclear Safety Commission (Canada)

Canadian experience with stakeholders involvement.

Canada's experience with stakeholders' involvement in environmental assessment started in 1975. One of the fundamental principles of environmental assessment in Canada is public participation as a means for citizens to influence decision-makers early in the planning cycle.

Canada's initial experience with public participation was through public reviews conducted by independent environmental assessment panels for projects having the potential to cause significant effects on the environment. Approximately 55 proposals were subject of public reviews between 1975 and 1995. The projects listed below are some of the projects from the nuclear sector that were subject of such reviews during that period.

1. Proposed construction of a CANDU 6 reactor at Point Lepreau in New Brunswick in 1975;
2. Proposed construction of a uranium hexafluoride (UF_6) refinery in Ontario (Panel reports in 1978 and 1979) and a uranium refinery in Warman Saskatchewan (Panel Report in 1980);
3. Proposed development of 5 new uranium mines in Northern Saskatchewan resulting in 3 Panel reports from 1990 to 1997;
4. Proposed concept for disposal of nuclear fuel waste in deep geological formations of the Canadian Shield started in 1989 and ended with Panel report in 1998.

Information on these reviews can be found on the Canadian Environmental Assessment Agency website at http://www.ceaa.gc.ca/010/panels_e.htm#comp. For information on older projects, such as Point Lepreau and uranium refineries, request for documents will probably have to be made through the Agency's publications service.

These assessments were conducted under the two environmental assessment regimes that preceded the 1995 Canadian Environmental Assessment Act. The proposals mentioned above and many others were subject of public hearings where the public was consulted on the preparation of environmental assessment (EA) guidelines (scoping hearings), review of the assessment documentation for its conformity to the EA guidelines and public hearings to provide their views on the acceptability of the proposal. Public hearings are institutionalized and formal processes although they allow certain flexibility.

As environmental assessment evolved in Canada, public consultation was extended to other types of assessments defined in the 1995 Canadian Environmental Assessment Act (CEAA), such as environmental assessment Screenings or Comprehensive Studies. Under the current Canadian legislation public consultation is compulsory for Comprehensive Studies and discretionary for screening assessments. The Canadian Nuclear Safety Commission (CNSC) has however integrated stakeholders involvement in all of the environmental assessments it is required to conduct under CEAA whether they are Screenings or Comprehensive Studies. EAs conducted or being conducted by the CNSC include among others:

1. Restart of reactors at Pickering A and Bruce A Nuclear Generating Stations (NGS) (screening EAs);
2. Decommissioning of Cluff Lake Uranium Mine (Comprehensive Study);
3. Refurbishment of Bruce A NGS and of Gentilly NGS for continued operation beyond the planned life of the reactors (screenings);

4. Expansion of nuclear waste management facilities at Pickering NGS, Darlington NGS, Lepreau NGS, Gentilly NGS and Western Waste Management Facility in Ontario (screenings);
5. Expansion of uranium production facility and fuel production facility in Port Hope Ontario (screening);
6. New developments at uranium mining facilities in Northern Saskatchewan;
7. Life extension of National Research Universal (NRU) Reactor at the Atomic Energy of Canada Ltd. (AECL) Chalk River Laboratories (screening).

Information on these reviews can be found on the CNSC website at http://www.nuclearsafety.gc.ca/eng/assessments/.

For all of these, public participation tools developed over the years are being used. Besides consultation tools used for EAs, the Canadian Nuclear Safety Commission also uses its own hearing process to make decision on most of EAs conducted by the CNSC. Hearing procedures can be found at http://www.nuclearsafety.gc.ca/eng/commission/.

Canada has also conducted major consultation processes with regard to nuclear issues outside of the EA process. One is a Siting Task Force established in 1988 to find a site for disposal of Low Level Radioactive Wastes resulting for operations at the uranium hexafluoride refinery in Port Hope, Ontario. This Siting Task Force lasted 10 years. Information about the history of that initiative can be found at http://www.llrwmo.org/en/porthope/history.html. The other, resulting from a recommendation of the Panel that reviewed the proposed nuclear fuel waste disposal concept, was that of the Nuclear Waste Management Organisation formed to make recommendations on the best alternative for disposal of nuclear fuel waste in Canada. The NWMO Draft Report is currently the subject of public review. The report and other information about this process can be found at http://www.nwmo.ca/.

Tools used for consulting the public.

A) Screening type assessments

1) Notification of commencement of assessment including project information through:

Direct mailing to households in project area including identified interest groups outside of project area.

Advertising in local and regional newspapers providing notification.

Development of project specific stakeholders list.

Open Houses held by proponent in project area providing information on project and EA process to be used.

2) Consultation on Draft EA Guidelines (Scope of Project and scope of assessment):

Distribution of Draft EA to identified stakeholders for written comments and invitation to intervene at public hearing by CNS Commission before decision on finalisation of Guidelines document.

Notice of availability of Draft EA Guidelines posted on web site.

Workshop on identifying Valued Ecosystems Components to be used in Environmental Assessment Study Report (EASR).

3) Technical reviews of Environmental Studies

Draft of environmental studies prepared by proponents in response to EA Guidelines are peered reviewed by specialists in various departments of government for their conformity to the guidelines

including the adequacy of the information provided in the studies. The results of these reviews are annexed to the final EA Studies which are made available to the public and are used for the preparation of reports (such as Screening Reports, Comprehensive Studies and Panel reports) to be used by decision makers.

4) Consultation on Screening Reports and Comprehensive Studies.

These reports are used by CNSC to summarise the results of the assessment and make decisions on the significance of environmental impacts (For comprehensive studies these decisions are made by the Minister of the Environment). These reports are generally prepared in Draft form and submitted to stakeholders for review before being submitted to the Commission or the Minister of the Environment for decision. As mentioned above the Studies used for the preparation of these reports are usually available to stakeholders as well.

Open Houses are used to offer the public an opportunity to seek clarification on contents of reports and question experts on issues of contention in the EA before they are asked to comment in writing on the adequacy of the Draft Screening report and intervene at public hearings to be held by the decision-maker in CNSC's case, the Commission. Such a meeting was recently held in Port Hope with regard to the proposed expansion required for blending Slightly Enriches Uranium (SEU) at the Port Hope Hexafluoride Uranium Refinery.

5) Documentation

Documentation available to the public include EA Guidelines, Technical Studies, Results of technical reviews by experts, Screening Reports including public comments received and the manner in which they are addressed.

B) Environmental Assessment Panel Reviews.

A panel is usually formed of 3 to 5 independent members and is supported by a secretariat, which advises on procedures with responsibilities for developing logistics for the conduct of the reviews. Similar tools as those identified above are used in panel reviews. A variation of these tools has been used by Panel secretariats depending on the complexity of the proposal being reviewed and includes the following:

1. Information bulletins and newsletters distributed through direct mailing to keep participants informed of the public review.
2. Open houses held in the communities to be visited by the Panel using various venues such as; public libraries, subway stations, shopping centres, community centres and hotel meeting rooms to inform the stakeholders and the public about the public review and the process. The proponent has often been invited to be present at these open houses to respond to questions concerning the project under assessment.
3. Production of thematic papers on various issues to stimulate discussion.

The Panels receive intervention through various types of meetings or hearings:

1. Scoping hearings – to receive views of the public on EA Guidelines including the scope of the assessment.
2. Community meetings to receive the views of interested parties on the proposal and its impact on the environment.
3. Technical Hearings which consist of discussions of technical topics relevant to the proposal under assessment.
4. Thematic sessions on various societal issues which are relevant to the proposal under assessment.

Both the Panels reviewing the concept for disposal of nuclear fuel wastes and uranium mines in Northern Saskatchewan have modified their procedures to host special meetings in First Nations communities with a view to obtain traditional knowledge. The format of these meetings has often been modified to suit consultation approaches used by First Nations. Traditional Knowledge is now a factor being considered in environmental assessments in Canada.

Panels have also hired independent technical specialists to prepare critics of environmental assessments and present independent expert advice at public hearings. These experts have also often been asked to provide answers to questions raised by stakeholders and the public.

Intervenor funding is also made available in the context of public reviews by independent panels and reviews of Comprehensive Studies. This funding is used to assist stakeholders in reviewing documentation and prepare interventions to be presented to Panels. Stakeholders have to apply for this funding and their application is reviewed by independent funding allocation committees on the basis of criteria that are publicly available. Only the applicants that meet these criteria are allocated funds.

Successes and Failures

It is clear that early notification entices participation. At a minimum it allows potential stakeholders to identify themselves and their interest. For project specific located in a very defined region direct mailing to households in the area followed by open houses in communities strategically located are generally successful in making people aware of the proposal about which consultation will take place. For concept or policy reviews, which have a broader implication for the citizens, direct mailing is not as successful. A good advertising campaign followed by direct contacts with service organisations such as local, provincial and federal government representatives, chambers of commerce, industrial and professional organisations, educational institutions and school boards, non government organisation, public interest groups etc. is the most appropriate way of reaching out. This, however, requires a concentrated effort and a substantial level of resources with no guarantee of reaching the general public.

The Environmental Assessment Panel review process with its formal hearing procedures has been very successful in Canada. Through the use of its secretariat Panels have been able to design public information and participation programs that would reach a broad spectrum of participation. The choice of venues to host open houses, meetings and/or hearings have an influence on the level of participation. When panels choose facilities used by the community at large, the level of community participation is higher. Because of logistics, there are situations when the only accommodations possible are hotels. These are more out of reach to the general public as they are more detached from the community.

Open houses are a very successful tool to disseminate information and reach out to the public. They provide for an opportunity to have direct contact with stakeholders in a less formal setting. Those held in subway stations, shopping centres, local libraries, universities community centres and similar type of venues have been very successful in raising the level of awareness of people. However, they have marginally increased the level of participation in the outcome of the reviews, particularly in nuclear related projects as only the individuals and interest groups committed to the nuclear issues tend to participate in the full process.

Use of web sites is also a successful tool. It should, however, be noted that although the use of computers has increased over the years, not every household is connected to the internet.

The environmental assessment panel reviewing the concept for disposal of nuclear fuel wastes has used a lot of flexibility in its hearing procedures and in fact used a number of initiatives which were considered avangardiste at the time of that public review. For example it divided its hearings in three phases.

The first phase (duration of 2 weeks) focussed on broad societal issues associated with such a proposal. Invited speakers were invited to present their views, in a balanced rather than partisan and provocative manner, on a number of topics related to broad societal issues. They were not asked to provide an assessment of the quality or the conclusion of the EA Studies but rather to provide general and background information on societal issues, explicitly without the affiliation of participating groups. Round table discussions were also used to discuss these topics. These round tables discussions were meant to provide the panel with a deeper understanding of the views and concerns of the public on nuclear fuel waste disposal. An evaluation of this method demonstrated that few, if any new ideas originated from this approach.

The second phase of hearings (also of a two-week duration) focussed on the technical issues addressed in the EA Studies.

Finally the Panel travelled to 16 communities (over a period of 3 months) to receive the views of the public on the proposal being assessed. For these community hearings the public had advanced access to all the documentation produced as a result of the other two phases of hearings held earlier. A contractor hired by the panel secretariat used a number of tools to reach as broad a public as possible in the various communities to be visited and to encourage their participation in the hearings. An evaluation report of the notification and information program to enhance participation was provided to the Panel. The most pervasive conclusion is that it did not inspire the participation of anyone who was new to the issue simply by providing them with information and assurance that their views were welcome.

Intervenor funding assisted interest groups and individual to prepare presentations to the Panel. However, participants generally find the amounts of money to be insufficient to counter the representation made by professional and industrial organisations who use paid professionals with unlimited resources to make their views known. No intervenor-funding program exists for screening environmental assessments conducted by CNSC, hence the level of participation often consists of the organised pro and anti-nuclear groups.

Lessons learned

Public participation has made an important difference in EA decision-making concerning specific projects. It has assisted members of the public in obtaining information about projects they would not have otherwise obtained and hence, if those projects had a direct impact on them, it provided them with an opportunity to provide their views about them. Among the 55 projects that were reviewed by environmental assessment panels less than 5% were refused approval, while others were modified substantially on the basis of contributions made by participants through the public review process. The experience gained through the EA public consultation process has often been used in guiding other organisations in developing stakeholders involvement program for other sectors such as policy development and program reviews.

This is not to say that this process has been perfect and absent of criticisms. For instance, with regard to the public review of the concept for disposal of nuclear fuel wastes, it has been observed that after 8 years of public consultation, participants in the public review were still expressing their lack of trust in decision-makers, the nuclear industry and scientists. Although suspicious of the outcome of that review, they recognised the efforts that had been done to provide them with an opportunity to debate publicly, perhaps for the first time many issues relevant to them regarding nuclear waste management. Although the report of this Panel was made public in 1998, the results of this review are still being used today in other processes.

One of the major reasons for this lack of trust is that public consultation processes are generally institutionalised and leave very little room to flexibility. Although EA is used as a planning tool, the beginning of the EA process is often related to a regulatory regime with time constraints on it. People

are then asked to participate in a process that was designed without public consultation during which process they are inundated with information about a proposal, which is at time highly scientific with few or no resources to assess this information. Many of these processes also use procedures, which are intimidating to general members of the public.

Efforts in trying to convince anyone who is new to an issue simply by providing them with information and assurances that their views are welcome is not sufficient to inspire them to participate. Experience has been that interest groups have developed knowledge about issues they focus on, have access to specialised expertise and have experience with environmental review processes. The public supports a wide range of these groups through membership and contributions and could be considered thereby to have a certain degree of confidence in those groups.

Conclusion

After 30 years of experience with stakeholders involvement in environmental assessments related to nuclear projects the level of public participation is still polarised and consists of organised groups which are in favour or against nuclear energy. Only a few individuals who are informed and interested on certain issues and or are directly impacted by a proposal tend to participate.

What is needed to ensure broader public participation is to engage members of the public in the design of the consultation processes prior to implementation instead of inviting them to participate in a formal process designed by institutions through existing regulatory regimes. The nuclear fuel waste panel for instance had suggested that an aboriginal consultation process be designed with contribution of First Nations prior to its implementation by the Nuclear Waste Management Organization to be formed at an ulterior date.

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CANADIAN ENVIRONMENTAL ASSESSMENT AGENCY, *Report of the Nuclear Fuel Waste Management and Disposal Concept Environmental Assessment Panel*, Minister of Public Works and Government Services Canada, Catalogue No: En 106-30/1, 1998E; ISBN: 0-662-26470-3, February (1998).

RIVERIN G., *Retrievability – A Matter of Public Acceptance? Reflections on the public Review of the Proposed Nuclear Fuel Waste Disposal Concept in Canada*, published in – *Retrievability of High Level Waste and Spent Nuclear Fuel* – Proceedings of an international seminar organized by the Swedish National Council for Nuclear Waste in co-operation with the International Atomic Energy Agency and held in Saltsjöbaden, Sweden, 24-27 October 1999, IAEA-TEC DOC-1187, December (2000), pp 91 to 103.

RIVERIN, G., ROY LOUISE, *La participation et la consultation publique sur des questions où les opinions sont polarisées – Réflexions au sujet de l'examen public sur le concept de gestion et de stockage de déchets de combustibles nucléaire au Canada*. Compte-rendu du 3^{ième} colloque international des spécialistes francophones en évaluation environnementale, Montréal, Mai (1998).

WILES, A., *Environmental Review of the Concept for the Disposal of Nuclear Fuel Waste. Report to the Environmental Review Panel on the Notification and Information Program to Enhance Public Participation in Phase III hearings.* Prepared for the Environmental Assessment Panel, Canadian Environmental Assessment Agency, Hull (March 1997).

WILES, A., *Evaluation of the Process Innovations Used in Phase I Hearings on Broad Societal Issues March 11-15 and 25-29.* Prepared for the Environmental Assessment Panel, Canadian Environmental Assessment Agency, Hull (May 1996).

WILES, A., *Environmental Review of the Nuclear Fuel Waste Management and Disposal Concept. Public Hearings, 11-15 March and 25-29 March 1996: Participants Views on Broad Social Issues Related to Nuclear Fuel Waste Management.* Prepared for the Environmental Assessment Panel Secretariat, Canadian Environmental Assessment Agency, Hull (April 1996)

Tatiana Sazykina, SPA "TYPHOON" (Russia)

Examples of experience in the stakeholder involvement projects.

MARINA II Project (2001-2002).

Update of the MARINA Project on the radiological exposure of the European Community from radioactivity in North European marine waters

The primary objective of the MARINA II study was to provide an input from the European Commission into the work of the OSPAR Commission in implementation of the OSPAR strategy with regard to radioactive substances and the work of the European Commission in respect of this strategy. The project provided information on radioactive discharges, concentrations and an assessment of their impact on humans and marine biota. It follows an earlier MARINA I study, which considered data up to the mid-1980s. The OSPAR Strategy places particular emphasis on the radiological impacts on man and biota and requires contracting parties to develop further scientific tools for assessing radiation exposure and risk especially to marine organisms. Dr. Sazykina T. has participated in the MARINA II Project with the specific task of assessing the dose rates to, and estimating the possible radiobiological effects on, representative non-human organisms, inhabiting the marine waters of the North-Atlantics within the OSPAR area.

The MARINA II report (subgroup D*) "Assessment of the impact of radioactive substances on marine biota of North European waters" summarizes the methodology and results of the radiological assessment for marine biota at the industry-impacted zones of the North-East Atlantic.

What worked and what didn't work?

OSPAR Commission required clear answer to the question "Do the existing levels of radiological exposures within the OSPAR area produce harmful effects on marine organisms, or not? The main problem with the assessment of radiological impact to marine biota was the situation that there was no internationally agreed methodology for such assessment at the time of the MARINAII project. (In 2005, this methodology is still under development!). So, there were many discussions within the subgroup D*, some reviewers tried to restrict the task with only calculation of doses without any conclusions about effects; however, this would not be not acceptable for OSPAR and public.

Lessons learnt and recommendations

Social requests in the environmental protection are currently going ahead of the development of assessment methodologies and regulations. Assessments of real case studies are very helpful for formulating practically applicable procedures for environmental protection from ionising radiation and other contaminants.

References:

Sazykina, T.G. & Kryshev I.I. (2002). Assessment of the impact of radioactive substances on marine biota of North European waters. Report of Working subgroup D*. In: *MARINA II. Update of the MARINA project on the radiological exposure of the European Community from radioactivity in North European marine waters.* European Commission (available at the Internet site http://europa.eu.int/comm/environment/radprot).

Sazykina, T.G. & I.I.Kryshev (2002). Assessment of radiological impact on marine biota in the OSPAR region (MARINA Update project). In: Proceedings of the International Conference on Radioactivity in the Environment, 1-5 September, 2002, Monaco. Eds. P.Borretzen, T.Jolle, P.Strand. PP.565-569

Establishment of permissible low-level releases of radionuclides into the marine environment (Russian project, 1999-present time)

The existing permissible activities of radionuclides in drinking water established by the radiation safety standards are unusable for seawaters, since the major pathway of exposure for seawaters is not water drinking, but seafood consumption by the population.

The task was evaluation of permissible levels (control concentrations) of radionuclides in seawaters ensuring the radiological protection of the human population, as well as marine biota. The methodology of radioecological assessment has been developed for radionuclides permissible levels in seawaters. The control concentrations were calculated under hygienic and radioecological criteria. Hygienic criteria were shown to be more rigid than radioecological ones for most radionuclides. Existing background concentrations of radionuclides (^{90}Sr, ^{137}Cs, ^{239}Pu, ^{240}Pu and some others) in seawaters were shown to be considerably lower than control concentrations. The proposed control concentrations have been approved by Russian Scientific Committee of Radiation Protection, MinAtom, passed the procedure of ecological expertise. Currently, the document is in the process of final approval in Russia.

What methods were used?

Original methodology for assessment has been developed.

What worked and what didn't work?

Application of standards for drinking water to releases of radionuclides in the sea caused many problems for industry. So, the development permissible levels specifically for seawaters was of great practical interest.

Lessons learnt and recommendations

The developed methodology can be used as an example of the protection both man and biota in the regulations of low-level radionuclide releases into the marine environment

References

Sazykina, T.G., Kryshev, I.I. (2002). Methodology for radioecological assessment of radionuclides permissible levels in the seas-protection of human and marine biota. Radioprotection-Collogues, Volume 37, C1, pp. C1-899-C1-902. ECORAD 2001. Volume II. Proceedings of the International Congress. Aix-en-Provence, France, 3-7 September, 2001. Edited by: F.Brechignac.

Kryshev, I.I., Sazykina, T.G. (2002). Assessment of permissible low-level releases of radionuclides into the marine environment. International Conference on Issues and Trends in Radioactive Waste Management. Vienna, Austria, 9-13 December 2002. Contributed Papers. Vienna: IAEA-CN-90. – P.17-20.

Jill Sutcliffe, English Nature (UK)

Background – international policies

- The need for public participation appeared in the World Health Organisation/EURO (1985 and 1993) focussing on ***health*** issues;
- In The Rio Declaration established a global commitment to the principle of ***sustainable development***. 27 principles accompanied the declaration including the "need to involve key **stakeholder groups** such as women, young people and indigenous groups in environmental management" and in turn in the associated Agenda 21 (1992).

Recognises the importance of public participation and the need to widely involve the community.

- In the Brundtland report 1987 (World Commission on Environment and Development, WCED 1992) and Rio declaration with regard to the ***environment***.

Environmental Impact Assessment EC directive included public participation.

- And, in the WCED concerning ***health and environment***.

UK national policies

- ***Health*** issues in the Health of the Nation, a strategy for England (DoH, 1992) – limited.
- ***Sustainable development***, Sustainable Development: the UK strategy, CM2426, HMG 1994 - partial.
- ***Environment*** This Common Inheritance , DoE, AR96, Technology and Environment, Policies to promote technologies for cleaner production and products : guide for Government self-assessment, OECD 1995. Limited.

Environmental Impact Assessment UK Not included within national legislation originally.

- ***Health and environment*** (EHAP 1995) Not mentioned

Development of methods for public participation in decision making on ***radiation*** issues in Environmental Health Action Plan for Europe (WHO/CEC, EHAPE 1994)

In summary there has been a contradiction within the UK concerning ***public participation***. UK documentation stresses the need for "all" to be involved and then presents a policy for the public to respond "positively" to i.e. rather passive interpretation of the concept. Lacking a tradition in informed public participation, many tools have been introduced and tried out including Citizen's Juries, Consensus for a, Conflict resolution or science shops alongside opinion polling or public meetings. One approach was pioneered by the Norfolk Broads Authority to bring in the views of people no traditionally heard with the UK system of consultation (O'Riordan, 1996).

1. What stakeholder involvement procedures have you or your organisation been involved in?

Organisation

- Staff trained in stakeholder involvement.
- Conference on Radiation and Health organised by NRPB and FPOE, Barts Hospital 1987 (Proceedings published by Wileys).
- Participated in the Environment Council stakeholder consultation on nuclear power (1996-7).
- Participated in FSA and CEDA consultation (2000).
- Participated in Food Standards meeting on dose (2002).

- Participated in EU stakeholder conference Luxembourg (December 2-3, 2002).
- Participated in workshop on Pathways for radioactive dispersal, Environment Agency (2003).
- FASSET workshop Bath (2003).
- CERRIE stakeholder workshop Oxford (July 2003).
- Participated in session on stakeholder dialogue, Radioactivity and wildlife conference Stockholm (October 6-10, 2003).
- Participated in Magnox Decommissioning Stakeholder dialogue (2002-05).
- CoRWM: Long Term Radioactive Waste Management: public and stakeholder engagement April 4-June 27, 2005.

Attended presentation at NRPB on Stakeholder dialogues given by BNFL staff member responsible for dialogues (Might be the sort of person who could present a paper – Grace McGlynn).

Personal:

- Agenda 21 local authority on biodiversity.
- Energy consultation for Agenda 21 Local Authority.
- Citizen Information Group member representing Wildlife Trust for Local Authority stakeholder event on managing waste (1996-7).
- Renewable Energy consultation for DTI/Dept of Energy (1997).
- Range of ordinary Public Inquiries – Thurso (1986), Hinkley Point (1988), windfarm (Manhood Peninsula, West Sussex, 1998).
- Low Level Radiation and Health Conference – addressed by Alan Urwin from Brunel University on citizen participation (UWE, Bristol, 1997).

2. What methods were used?

- Citizen jury.
- Presentation and participation in forum Dialogue Conference and workshop.
- Participative workshop.
- Strategic Action Plan.

3. What worked and what didn't work?

- Takes a long time to build up trust.
- Some people not designed to take part in such events.
- Some people retain campaigning hats within the fora.
- Stakeholder involvement takes a lot of time and that needs to be made available and programmed in.
- Some talk of "Death by consultation"!
- Need to consider funding for participants.

Lessons learnt and recommendations.

- Requires excellent independent facilitation.
- Need to consider funding for participants.

Key outputs

- Plutonium working group produced fine report arising from the National dialogue on nuclear power (UK).
- Magnox dialogue continued and produced set of recommendations for the NDA (2005).

Jerone Van der Sjuis, Utrecht University (The Netherlands)

1. What stakeholder involvement procedures have you or your organisation been involved in?

- Experiments in the Utrecht Policy Lab with stakeholder groups.
- Workshops with scientists and stakeholders critically reviewing assessment studies of environment and health risks (Craye et al., 2005).
- Development of a Guidance for Uncertainty Assessment and Communication for the NetherlandsEnvironmental Assessment Agency, which includes a section on Stakeholder Involvement. (Van der Sluijs et al., 2005).
- Development of a Style -guide Uncertainty communication to assist the Netherlands Environmental Assessment Agency in avoiding pitfalls in communication of risk and uncertainty and in maximising relevance, clearness and transparency of communication of uncertainty information.
- Comparative analysis of 4 different Participatory Climate Risk Assessment projects (Kloprogge et al., in press).
- Stakeholder surveys to map information needs regarding climate risks (Wardekker, 2005)
- Evaluation from a stakeholder perspective of match and mismatch of supply and demand of climate risk assessment (Van der Sluijs et al, 2002).

2. What methods were used?

- Utrecht Tools for Stakeholder Analysis and Argumentative Mapping/Discourse Analysis:
- http://www.rivm.nl/bibliotheek/digitaaldepot/Guidance_MC_QS-Q.pdf, see page 10 and 11
- http://www.nusap.net/downloads/detailedguidance.pdf, see page 23-26
- http://www.mnp.nl/guidance
- Surveys
- Utrecht Policy Lab (Group Support System/Electronic Board Room)
- Repertory Grid method
- Back casting
- Workshops / organised critical review
- Expert elicitation /Stakeholder elicitation / Pedigree analysis

3. What worked and what didn't work?

- Utrecht Policy Lab worked very well
- Pedigree analysis is a good way to structure and organise critical review of research results, increases social robustness of findings.
- Repertory grid in the end requires a lot of interpretation and requires well-developed skills to do it properly.

4. Lessons learnt and recommendations

- Involve stakeholders as early in the process as possible. Invest a lot in the problem definition phase of a risk assessment study. Organise extended peer review processes involving stakeholders

in 3 roles: co-framer of the problem to be assessed, co-producer of knowledge in the risk assessment, quality control through critical review of assumptions and knowledge base.

- Stakeholders have difficulties with engaging in technical debates over risks. Therefore, allow stakeholders to appoint a trusted expert that can participate in the scientific peer review of risk assessment studies.
- Trust is crucial, openness about uncertainty and risk helps to increase trust.

All references can be downloaded from my homepage or I can mail them j.p.vandersluijs@chem.uu.nl

http://www.chem.uu.nl/nws/www/nws.php3?pp=sluijs_a

Appendix 4: Feedback questionnaire

3rd Thematic EUG Event: Decision-making and stakeholder involvement

29th-30th September, Madrid, Spain

In order to help us improve our future EUG events, would you please rank your answers to each question as follows:

1. poor 2. below average 3. satisfactory 4. good 5. excellent

Preparations

Q1. Did you find the background material provided for this event useful?	1	2	3	4	5
Q2. Was the material distributed in a timely manner?	1	2	3	4	5
Comments:					

Plenary sessions

Q3. Did the find the presentations interesting?	1	2	3	4	5
Q4. Were the presentations at an appropriate level?	1	2	3	4	5
Q5. Was there enough time allocated for presentations?	1	2	3	4	5
Q6. Did the presentations adequately cover the identified topics?	1	2	3	4	5
Were there any particular issues that were missed?					
Comments:					

Group discussions

Q7. Was there enough time allocated for discussions?	1	2	3	4	5
Q8. Did you get the opportunity to raise your issues?	1	2	3	4	5
Q9. Was the level of facilitation appropriate?	1	2	3	4	5
Q10. Were the objectives of the group discussions clear?	1	2	3	4	5
Q11. Did the group discussions achieve their objectives?	1	2	3	4	5
Q12. Did the background questions prompt interest in the discussions?	1	2	3	4	5
Comments:					

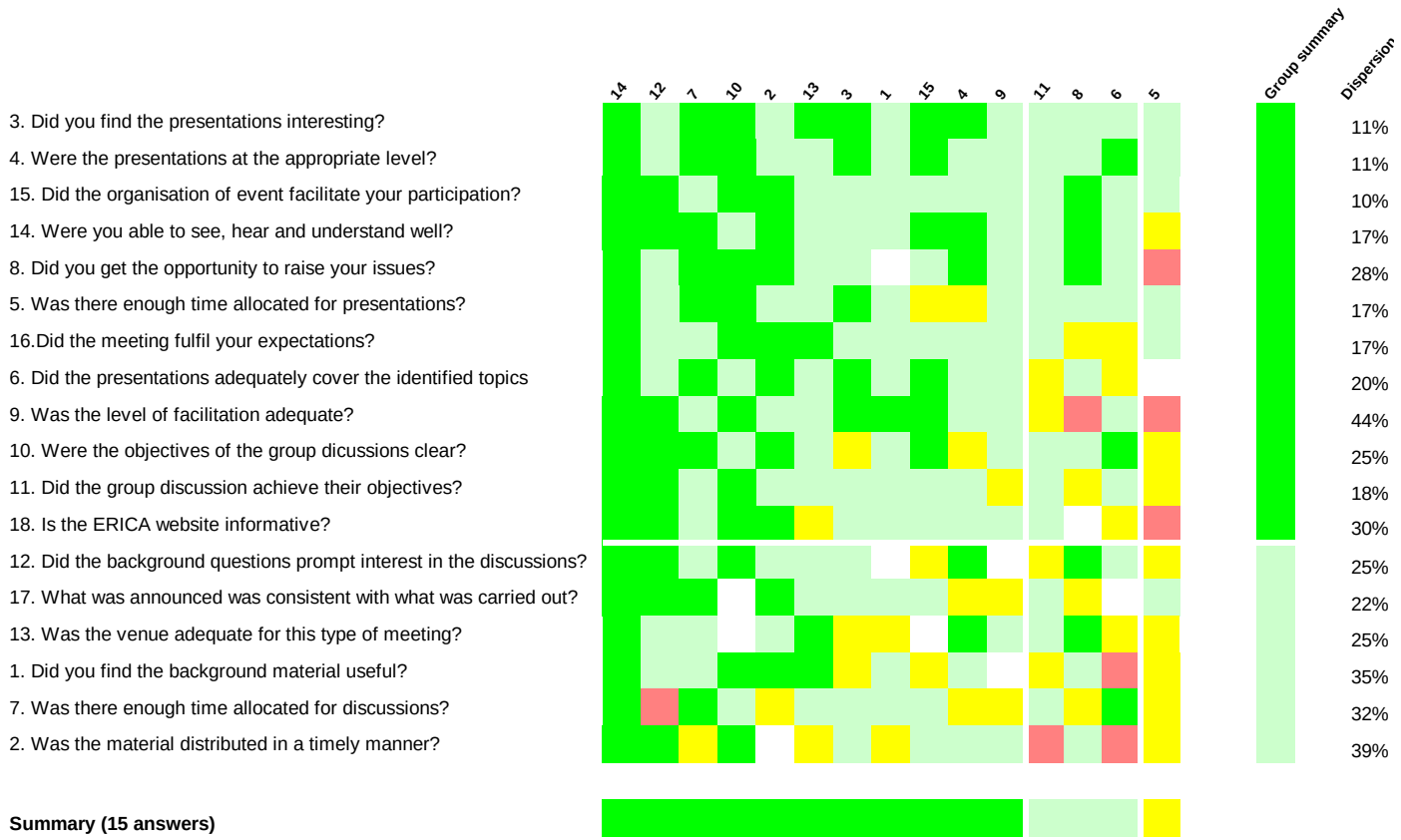
Organisation

Q13: Was the venue adequate for this type of meeting?	1	2	3	4	5
Q14: Were you able to see, hear and understand well?	1	2	3	4	5
Q15: Did the structure and organisation of the event facilitate your participation?	1	2	3	4	5
Comments:					

General feedback

Q16: Did the meeting fulfil your expectations?	1	2	3	4	5
Q17: Was there consistency between what was announced and what was carried out?	1	2	3	4	5
Q18: Is the ERICA website informative?	1	2	3	4	5
Comments:					

Appendix 5: Feedback questionnaire results



Legend:	Excellent	Good	Satisfactory	Below average	Poor	Blank
	Green	Light green	Orange	Light red	Red	White