OECD

Stakeholder Participation in Radiological Decision Making: Processes and Implications

Third Villigen Workshop
Villigen, Switzerland
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Radiation Protection

STAKEHOLDER PARTICIPATION IN RADIOLOGICAL DECISION MAKING: PROCESSES AND IMPLICATIONS

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

The original member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became members subsequently through accession at the dates indicated hereafter: Japan (28th April 1964), Finland (28th January 1969), Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995), Hungary (7th May 1996), Poland (22nd November 1996), Korea (12th December 1996) and the Slovak Republic (14th December 2000). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1st February 1958 under the name of the OEEC European Nuclear Energy Agency. It received its present designation on 20th April 1972, when Japan became its first non-European full member. NEA membership today consists of 28 OECD member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, Republic of Korea, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

In these and related tasks, the NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has a Co-operation Agreement, as well as with other international organisations in the nuclear field.

FOREWORD

Contemporary society has become increasingly interested in participating more actively in public decision making regarding health, safety and environmental protection issues. As governments have tried to understand these interests better, and to integrate societal needs in their decision-making processes more adequately, it has become possible to glean some common policy-level issues and lessons from the wide variety of situations in which stakeholders have participated effectively in the elaboration of decisions.

The trends in the nuclear industry mirror those in other broader governance areas, and public interest in some situations can be extremely high. In the field of radiological protection, stakeholder issues have moved steadily to the forefront of policy discussions, and clearly form key elements in decisions regarding the development and implementation of radiological protection policy.

The NEA Committee on Radiation Protection and Public Health (CRPPH) has explored the details and implications of stakeholder involvement in decision-making processes over several years. The roots of this interest are found in the Committee's 1994 Collective Opinion, Radiation Protection Today and Tomorrow. On the basis of this reflection, the Committee organised the 1st Villigen Workshop held in January 1998 on Societal Aspects of Decision Making in Complex Radiological Situations, which reached the broad conclusion that radiation protection must adapt to meet the needs of society, and not the reverse. To deepen the understanding of this important subject, the CRPPH launched further studies that resulted in the organisation of the 2nd Villigen Workshop held in January 2001 on Better Integration of Radiation Protection in Modern Society. This workshop concluded that although broad stakeholder participation was not needed to reach agreement on the vast majority of regulatory decisions, it can be the best and sometimes only way to achieve agreement in certain, blocked situations. In addition, the workshop showed that it is important to develop a common understanding of stakeholder roles and responsibilities, to distinguish clearly between scientific knowledge and social judgement, and to foster an atmosphere of mutual learning.

Processes and Implications of Stakeholder Participation

There is currently a broad recognition of the value, in some circumstances, of stakeholder participation in decision-making processes. However, the understanding of the implications of such participation is only beginning to emerge. A key point that is clear from the CRPPH and other discussions of stakeholder participation is that the inclusion of stakeholders has had a significant impact on how decision-making processes are developed and structured. The emerging distinctions between concepts such as decision framing, decision aiding and decision making are also important aspects of these discussions. These raise several policy-level questions, the answers to which should be clearly understood by all decision participants before entering into specific discussions. For example:

- What are the roles, and limits of the roles, of each stakeholder involved in the decision-making process?

- How should any bounds placed on the possible outcomes of stakeholder discussions be defined and agreed upon?

- Can case-specific lessons learnt be relevant and applicable under other circumstances?

- How should scientific uncertainty, particularly with regard to the assessment of absolute levels of risk, be best presented and taken into account by stakeholders in the decision-making process?

- What are the respective roles of international and national norms and standards, and of stakeholder involvement in the context of decision-making processes?

The 3rd Villigen Workshop

In order to address these, and other issues, the CRPPH organised the 3rd Villigen Workshop. Presentations and discussions explored these implications, and related them to policy choices, regulatory application, and to the practical implementation of radiological protection.

In this context, the objectives of this workshop were to:

- Identify the benefits and pitfalls of stakeholder involvement;

- Identify generically applicable lessons and experience that can be of use to the NEA member countries in their own decision-making processes involving stakeholders; and

- Identify the policy-level implications of stakeholder participation in radiological protection decision making.

As a result of the discussions in Villigen, a much broader understanding was reached of how stakeholder participation in decision making can be more fully understood and appropriately integrated in national and international radiological protection decision making.

As a key part of the preparation for this workshop, the CRPPH conducted three in-depth analyses of specific case studies. The workshop used these case-study analyses as a vehicle to identify commonalties in stakeholder involvement processes and their possible implications, and to facilitate a broad stakeholder dialogue of key issues. The discussion of each of these case-study analyses was moderated by a small panel of experts, and included active participation of workshop attendees.

In order to focus discussions on the details of stakeholder involvement processes, and not on the cases themselves, the case study reports, including executive summaries of each case, were sent in advance to all registrants. A list of concepts, questions and processes was also sent in advance to registrants to stimulate thinking in preparation for the moderated discussions.

The workshop ended with an interactive round table discussion, aimed at summarising the key issues and concepts, and providing information for the workshop's policy-level summary report. This summary report will be published separately by the NEA. Consensus on issues was sought, but all stakeholder views will be represented.

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WELCOME ADDRESS FROM THE NEA

Kazuo Shimomura
Deputy Director for Safety and Regulation, OECD Nuclear Energy Agency

Friends and colleagues, I would like to welcome you to this third Villigen workshop on behalf of the OECD Nuclear Energy Agency. For the third time, the Swiss Nuclear Safety Inspectorate, HSK, has kindly provided an excellent venue for our meeting, and I am sure that these discussions will be as interesting and useful as those of the two previous Villigen workshops. I would specifically like to thank Dr. Ulrich Schmocker, Dr. Johannes Hammer, and Dr. Serge Pretre for their support and hard work in preparing this important seminar.

The broad subject that will be discussed here during the next days is that of risk governance. This is a topic that is becoming increasingly important to governments and government agencies, and has thus unsurprisingly found its way into the work programmes of many organisations. Both the NEA, and our parent organisation the OECD, have for some time been studying these issues. Later in this conference, you will hear about stakeholder involvement studies that are being developed within the NEA in the areas of radioactive waste management, nuclear regulation and nuclear development, as well as about a recent OECD study addressing large-scale risks that are emerging in the 21st century, partly as a result of our modern society's growing interdependencies.

The significance and strategic importance of these studies lies in their relationship to the development of decisions that are sustainable. Increasingly, modern society is asking, if not demanding, to take part in governmental decisions that affect public health and safety, and environmental protection. Governments are working hard to understand the implications of such participation, to define mechanisms to allow participation, and to understand who should be involved, when they should be involved and how they should be involved. The details of such participation vary from case to case, from country to country, and from region to region. For example, in Japan, my home country, the cultural and historical evolution of society have resulted in approaches to public interactions with the government that may be significantly different than would be found in Europe or North America. Yet, in spite of these case-specific and cultural differences, we have found that the exchange of experience among experts such as yourselves can lead to the identification of commonalties, to the extraction of lessons, and to the useful sharing of experience. THIS is the important work that you will be doing here in Villigen. Having pioneered the work in this area in the NEA through the first two Villigen workshops, you will now carry it a step further, in support of governments wishing to make better, more sustainable decisions. I am sure that this workshop will contribute to this objective, and I look forward to our discussions.

Ladies and gentlemen, again, thank you for your interest in this important subject, and I wish us all the best for these next days of interesting work in this pleasant, stakeholder environment.

Thank you for your attention.

STAKEHOLDER PARTICIPATION IN DECISION MAKING INVOLVING RADIATION: EXPLORING PROCESSES AND IMPLICATIONS

Serge Pretre
Switzerland

> The Villigen Story started with a provocative statement !
>
> "Rather than seeing policy decisions as fundamentally technical with some need for public input, we should see many more decisions as fundamentally public with the need for some technical input"
>
> And the story told us that this could be also valid in the field of radiation protection
>
> Villigen3 – Pré-1

By coming to Villigen, we accepted to look at the world upside down – and question the role that was imparted to us through our training and through the traditional decision-making processes of our institutions.

> ## Processes of stakeholder participation
>
> **traditional**
> e.g.
> - public hearings
> - public comment procedures
> - votes
>
> -
>
> **new**
> e.g.
> - policy dialogues
> - negotiations
> - stakeholder advisory committees
> - facilitated mediations
> - citizen panels or juries
> - agreements among interest groups
> - consensus seeking committees
>
> Villigen3 – Pré-2

Of course we were not unfamiliar with receiving or soliciting public input. The traditional tools are in place and are needed, but are they optimal in every situation? What kind of tools could help us organise and benefit from deeper stakeholder participation, and from more adapted public input to radiation protection situations when they are not clear cut?

Taking a hint from other environmental sectors, we discovered a myriad of methods to become involved with the people affected by radiation protection decisions.

The 3rd Villigen Workshop:

- What makes some processes successful and others not?

  And what is meant by success?

- Is Radiation Protection a special issue requiring particular processes?

  And if yes, which ones?

It is not sufficient to "apply a method" – it must be placed in context and that context includes the goals of involvement and the needs to which it is meant to respond.

What do concerned people want?

1. To be listened to
2. To express their concerns
3. To have their concerns being acknowledged by a competent and sincere official

After this phase has been successfully passed, a rational argumentation becomes possible. The public can then be very pragmatic and propose reasonable solutions.

Whatever the instrumental goals of gathering public input to decisions, there will always be the dimension of human interaction. There is no reason to deny or put this aside. Why would policy making be so different from other problem solving interactions in society? As in any other relationship which it is important to nurture, let's start by showing respect for the different perspectives held by the participants in a dialogue.

Society's expectations about what stakeholder participation should accomplish

- Ensure that government agencies are acting in the public interest

  But ⟶ it is necessary to discuss what the public interest may be.

- and Lead to a wiser and more robust implementation

Concepts such as "the public interest" demand justification and validation. In this area, agencies can no longer act alone – if ever they were able to in the past.

The proof is in the pudding: however "good" a decision, we must assemble the conditions for its actual, sustainable implementation. Stake-holder involvement is one route to that goal.

Alongside reaching a shared view on a course of action, stakeholder participation brings a broad range of macro-level benefits. The hard job of managing stakeholder involvement can make other parts of our job easier.

The organising institution or an outside auditor can evaluate the success of participatory initiatives on a range of goal-related criteria. It will be important to learn from stakeholders what are their own criteria for success – these may be very different from institutional aims – and whether these have been satisfied.

Note that reaching consensus is not a universal goal, nor always a realistic one. Resolving conflict by e.g. finding an agreement to disagree, may be an excellent outcome. Sometimes, even just managing conflict through consenting to a shared examination of the problems at stake, can contribute to serving the other criteria listed above.

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Practical Questions

- What type of stakeholder participation process is adequate?
- Who should participate?
- How much influence should stakeholders have?
- What role should the regulator play?
- Is there a broad consensus on a shared set of values?
- What can the final product be?

Villigen3 – Pré-8

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Some situations make us scratch our heads, mulling over how to find a new route to decision. We when we realise that stakeholder involvement in a decision is needed, we have to sit down and... start scratching our heads about how to implement it.

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Choice of participants

- Representative of interest groups
- Strong motivation
- Fairness
- Sincerity
- Share a basic set of values
- No hidden agenda
- Capable of accepting a consensus

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One of the first steps is to identify whose knowledge and interest should be called in to contribute to the deliberation, and to ensure in this way an appropriate decision. Then, it is not dishonest to seek individuals who are capable of participating in a joint endeavour and seeking a solution rather than an impasse. This goes for the organising party as well: remember that the technically "best" solution is not always the socially optimal solution, and that experts "who know best" are not always perceived as fair, sincere, open and ready to accept a group approximation of best…

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Sincerity of the lead organisation

- The officials of the organisation leading the stakeholder participation process must sincerely believe in the benefits of this process.

- If the stakeholders get the impression that this process is a masquerade or an alibi or just a pretence of public participation, then the process has already failed. It is not possible to simulate sincerity!

Villigen3 – Pré-11

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As we were saying...

> ### Depth of stakeholder involvement
>
> 1. "The stakeholder participation process must be done"
> 2. "The stakeholder participation process must be seen to be done"
> 3. "The results of the stakeholder participation process must be considered"
> 4. "The results of the stakeholder participation process must be integrated in the decision making"
>
> Villigen3 – Pré-10

If stakeholders are to accept to share their time, wisdom and effort to sort out a complex radiological protection situation, organising parties must be committed to the process – and make it very clear to all their partners.

> ### Values similarity
>
> 1. Identify, clarify the values of each stakeholder (beliefs, intentions)
> 2. Discuss these values and understand them
> 3. Build a minimum set of common values (common denominator)
> 4. Make sure that there is a broad consensus on this shared set of values
> 5. Only then: The stakeholder participation process can be successful
>
> Villigen3 – Pré-12

Case studies suggest that dialogue among different stakeholders – like social dialogue in general – is facilitated by, or indeed possible only with a minimal set of shared values. This is the common ground on which the dialogue can stand. Values is an umbrella concept: its meaning is diverse. Shared values can signify a common belief in what is right and just (moral values), or in what types of behaviour and attitudes we reject or like to uphold (social values). Shared values can also mean a shared practice, as when stakeholders with very different interests all attribute value to and pursue the scientific method of enquiry. Shared values can signify a common interest in protecting some feature of the environment, or some way of life.

If there is no such common ground, or if the shared values are completely irrelevant and therefore cannot support the decision process at hand, it is unlikely that the process will be sustainable. To work together over time addressing a radiation protection issue requires some value capital. It is worth building into the process, the discovery and elaboration of the shared values that will carry it through to completion.

What could the final product be?

Fairness, tolerance and a consensus which
is wiser, more robust and can be
implemented -
whether or not the final decision is the one
expected at the outset.

Accepting, once again, to look at the world upside down… to take a new perspective on what is the optimal decision, and what kind of outcomes are desirable.

Decision Making Process
e.g. in Radiation Protection

Traditional: **Decide → Announce → Defend (DAD)**

New
paradigm: **Announce → Discuss → Decide (ADD)**

(The decision has not been made in
advance and the central element is
mutual trust.)

For those who share the value attributed to alphabet soup, here is a handy mnemonic. It should make it easy to remember the stakeholder involvement process preached here. Let's just call it… ADDed value for decision making involving radiation.

ENVIRONMENTAL DECISION MAKING: WHAT DOES PUBLIC PARTICIPATION ADD?

Thomas C. Beierle and Jerry Cayford
Resources for the Future, Washington, USA

The role of public participation in environmental policy making has led to much discussion in recent years, accompanied by some cheering, some hand-wringing, a great deal of speculation, and always recognition of its growing importance. Over the past 30 years, participation has moved to centre stage in the play of influences that determine how the environment will be protected and managed. In doing so, it has evolved considerably. Traditional public hearings and public comment procedures have been joined by a broad array of more intensive approaches to participation that emphasise face-to-face deliberation, problem solving, and consensus building. Policy dialogues, stakeholder advisory committees, citizen juries, formal mediations, and a variety of other processes are now familiar components of the public participation mix. The amount of influence the public can wield has changed as well. In the United States, agreements made among interest groups in regulatory negotiations, for example, actually determine the content of proposed environmental regulations.

Describing how well public participation has performed in its central role in environmental policymaking is the topic of our book, *Democracy in Practice: Public Participation in Environmental Decisions* (RFF Press, 2002). In the book, we evaluate the success of 239 cases of public participation undertaken in the United States over the last 30 years. Our primary objective was to develop an understanding of the social value of public participation by evaluating cases against a set of social goals, such as conflict resolution, trust formation, and education. Our second objective was to understand what made some processes successful and others not. We were particularly interested in how different approaches to public participation – from public hearings to formal mediations – differed in their accomplishments.

To develop the case database, we searched for case studies in journals, books, dissertations, conference proceedings, and government reports, and identified 239 cases that met basic screening criteria (e.g. occurred in the United States since 1970 and contained sufficient information). Data from the cases were derived using a "case survey" methodology in which we read case studies and coded information on over 100 attributes of each one. The cases covered a wide variety of planning, management, and implementation efforts carried out by environmental and natural resource agencies at many levels of government. They involved a wide variety of participatory processes, roughly a quarter falling into each of four categories: public hearings and meetings; advisory committees not using consensus; advisory committees using consensus, negotiations and mediations.

Defining success

The criteria we used to evaluate the cases derived from the increasingly high expectations about what public participation can accomplish in the modern environmental management system. As

participation has become more integral to the substance of environmental decision making, it is also being called on to achieve a variety of social goals on which traditional approaches to decision making have fallen short.

The goal of *incorporating public values into decisions* is fundamental to democracy and has been the driving force behind challenges to a more managerial, expert-led model of decision making. The risk perception and communication literature, for example, outlines dramatic differences in the way that the lay public and experts view risks. Differences between experts and the public over values, assumptions, and preferences imply that direct participation by the public can better capture the public interest than can traditional bureaucratic processes alone.

The second goal, *increasing the substantive quality of decisions*, recognizes the public as a valuable source of knowledge and ideas for making decisions. The public may improve the substantive quality of decisions in a number of ways, such as identifying relevant information, discovering mistakes, or generating alternative solutions that satisfy a wider range of interests.

The third goal is *resolving conflict among competing interests*. The environmental regulatory system in the US was born of conflict between environmental and industrial interests, and conflict has persisted as the system has matured. Substantial amounts of money and energy have been consumed by court battles and other kinds of conflict while environmental problems are not being solved. Collaborative, rather than adversarial, decision making may result in better and more lasting decisions.

In addition to resolving conflict, public involvement can create opportunities for *building trust in institutions*. This fourth goal is based on the need to address the dramatic decline in public trust of government over the last thirty years. It recognizes that such a loss of trust is a legitimate reaction to government mismanagement and that a healthy dose of scepticism is important for assuring government accountability. As trust in the institutions responsible for solving complex environmental problems decreases, however, the ability to solve those same problems is seriously limited. One of the few ways agencies may be able to rebuild trust is through greater public involvement and influence over decision making.

The final goal, *educating and informing the public,* addresses the need to build capacity by increasing public understanding of environmental problems. Education here should be interpreted as something more than science lessons. It is a more fundamental education that integrates information about the problem at hand with participants' intuition, experience and local knowledge in order to develop shared understandings and a collective perception of solutions.

Results

The majority of the public participation cases were highly successful in achieving the five social goals. In these cases, public participation was not only making decisions more responsive to public values and more substantively robust, it was also helping to resolve conflict, build trust, and build public knowledge about the environment. Although the conclusions were not without important caveats, public participation appeared to be meeting the challenges laid out for it by the modern environmental management system. Some of the results included:

- the public created or substantially changed decisions in 58% of the cases;

- the process of participation resolved conflict in 61% of cases and increased trust in lead agencies in 45% of cases; and

- in 77% of cases, the process of participation significantly increased participant's understanding of the issues.

These benefits of public participation did not come at the price of decision quality, as some critics have charged. We found that public input improved the quality of decisions – measured in terms of cost-effectiveness, expansion of joint gains, or added information and ideas – in 68% of cases. Also contrary to some criticisms, participants had a relatively high level of internal technical capacity and access to external technical resources in 74% of cases. Overall, deliberation and technical analysis appeared to be complementary: technical analysis sketched out plausible options and narrowed the terrain of dispute, while debates among opposing views put a premium on well-supported, complete, and unbiased information.

More intensive participatory processes – such as negotiations, mediations, and consensus-based advisory committees – were clearly more effective than less intensive processes at achieving all of the social goals. Decisions in these processes were often very responsive to participants' values and more substantively robust; such processes were more likely to resolve conflict among participants, build trust between participants and agencies, and increase participants' knowledge about the environment.

However, more intensive processes were less successful than other forms of public participation, such as public meetings, hearings, and non-consensus advisory committees, in engaging or representing the wider public in decision making. Participants in more intensive participatory processes were more likely to be socio-economically unrepresentative of the wider public. More significantly, efforts to draw wider public values into decision making or provide educational outreach were more limited in more intensive processes as well.

Participants in more intensive processes sometimes reached their goal of consensus by excluding certain parties and leaving out particularly contentious issues. This problem can be averted through the use of a formal "convening" process, common in regulatory negotiations but less prevalent in more ad hoc consensus-based efforts. Convenings are conducted prior to the start of formal negotiations in order to identify all of the interests affected by the decisions to be made and to identify the particular issues that need to be addressed.

Regardless of the overall type of process used, some specific process features played a strong role in determining how successful participation would be. Cases were most successful when lead agencies were responsive, demonstrating active commitment to the process and fluid communication with its participants. The motivation of participants, encompassing the optimism and ambition they carried into the effort, also played a large role in success. Finally, high quality deliberation among participants generally led to a successful process.

Surprisingly, public participation was successful in even the most challenging decision-making contexts. Success was not consistently related to the type of issue under discussion, the pre-existing relationships among the parties involved, or the institutional context. Project planners appeared to be adapting processes to meet challenging contexts. For example, cases in which there was a history of conflict among interest groups or a high degree of mistrust of government were more often addressed with more intensive mechanism types, such as mediations.

Despite the success of many participation cases in achieving the social goals, there was only weak evidence linking good public participation to more effective implementation. Moreover, the link weakened as implementation progressed from changes in laws and policies to actual actions on the ground. Public participation is clearly a part of the mix of what determines whether programmes are

implemented or not. But it is a complicated mix, and the degree to which public participation is an important ingredient may be small.

Based on our results, it would be inappropriate to provide prescriptions about the "best" type of participation for planners to pursue. Rather, the design of public participation programmes should follow three steps that adapt the participation process to the situation. The first step involves identifying the dominant rationale for participation in a particular case. Is it an instrumental rationale, in which participation is necessary to facilitate policy formation and implementation? Is it a substantive rationale, in which the public is likely to bring valuable information, a deeper understanding, or creative thinking to bear in solving a particular problem? Or, is it a normative rationale, in which traditional decision tools are not likely to capture the range of public values in play? In many cases, more than one rationale will be important.

The second step involves identifying specific goals that are responsive to the rationale. What do decision makers want to get out of public participation? What does the public want to get out of it? When a process is over, how will "success" be defined? Any process is going to have some specific goals, such as solving a particular problem or producing a set of recommendations, but some or all of the social goals discussed here are also likely to apply.

The third step is designing a process that meets the goals. This requires answering four questions:

- Who should participate; representatives of interest groups or "average citizens"?

- What type of engagement should there be; information sharing or more active deliberation?

- What kind of influence should the public have; consultative, advisory, or decisional?

- What role should the lead agency play; observer, partner, or leader?

The answers to these four questions will dictate what types of processes are most appropriate, whether it be a public meeting or a formal mediation. Project planners are likely to find that no single type of participatory process suits all of their needs. Fortunately, participation processes are not cast in stone, they are simply conglomerations of different design choices. They can be modified or combined in ways that can help meet all of the goals of the participatory effort.

Conclusion

Overall, our analysis produced a positive view of public participation. As viewed through the case study record, most cases of public participation generated quality decisions in which public values and knowledge made important contributions. In most cases, participants were able to resolve conflict, increase trust, and increase their knowledge of the issues under discussion. The nature of the participatory process – from the type of approach to more subtle procedural features – played a lead role in determining success in achieving the social goals.

It is unlikely that resolving environmental problems is going to get any easier in the future or that the participation of the public will become any less prevalent. In that light, the findings of this report are, for the most part, good news. The picture of public participation that emerges is of a complex social process that, while often frustrating and time-consuming, is a potent tool for making good decisions and overcoming the contentious politics of environmental policy making.

STAKEHOLDER INVOLVEMENT IN THE CANADIAN REVIEW PROCESS FOR URANIUM PRODUCTION PROJECTS IN NORTHERN SASKATCHEWAN

Dr. Douglas Underhill
Canada

Over the last quarter of the 20th century there was increasing concern among Canadians regarding the environmental including socio-economic, impacts of industrial development, and the need to reduce these impacts to acceptable levels. This led to the evolution of Canada's and Saskatchewan's legislation and institutions for protection of the environment, including an Environmental Impact Assessment (EIA) process for new developments. Democratic participation was strengthened through laws passed in the 1980s and the 1990s by introducing open, transparent public hearings that assure access of all stakeholders to the EIA process. The public became an important stakeholder in the EIA process through these hearings. The licensing and permitting process, however inter-related, still maintained an independent role.

Because of the public's concern for radiation protection, development of uranium mining has always been a particularly contentious issue. Within the EIA framework the governments appointed a *Joint Federal/provincial panel on Uranium Mining Developments in Northern Saskatchewan* (the Panel) to review six new mines. The Panel met from 1991 to 1997 with the mandate to: "*…review the environmental, health and safety and socio-economic impacts of the proposed uranium mine developments in Northern Saskatchewan and assess their acceptability.*" The mandate further stated "*However, concerns may be raised by the public which extend beyond the impacts of* direct *concern to the Panel, and in such cases the Panel will ensure that the public is provided a reasonable opportunity to express these concerns.*" The Panel was also directed to provide full opportunities for public consultation and review.

Using public hearings, scoping sessions and other consultative processes specifically intended to encourage public participation, the Panel conducted its EIA through a consensus building-management approach, rather than a technocratic-regulatory one. This was achieved by placing emphasis on values, theological and spiritual beliefs, morality and fairness, rather than considering only technical issues. A government funded support programme provided C\$ 420 000 to assist stakeholder participation. Project proponents, government departments and agencies, aboriginal leaders, labor unions, non-governmental organizations and individual stakeholders took part in the public hearings process.

Following lengthy hearings and analysis of each project the Panel presented its conclusions and recommendations in a series of reports directed to the governments. In making its decisions to recommendations or oppose approval of each project the Panel weighed the environmental risks versus socio-economic gains. A recommendation not to proceed with on project was made when the gains were judged to not justify the risks. (This project was later approved under a revised plan resubmitted by a new proponent.)

In interim and final reports of its conclusions and recommendations the Panel made substantial reference to the concerns and input of the public. Responding to anti-development activists, the Panel wrote "the 'deep ecologist' view would suggest that a moratorium on all such activity be instituted; persons should strive to live in harmony with the pristine environment, avoiding any potential for disruption. On the other hand, the 'pragmatic' view suggests that poverty is currently a greater threat to health of Northerners than is radiation." In 1997 the Panel wrote: "Because it is the people of northern Saskatchewan who will experience the greatest impacts of these projects, we have paid particular attention to their concerns. After listening carefully, reading widely, and debating at length, we have concluded that the best course is to recommend that the mines be allowed to proceed under (project-specific) conditions that would limit environmental damage and enhance northern benefits."

To reduce environmental, health and safety impacts, the Panel recommended improved technical designs and practices, as well as proposing initiatives to improve communication and increase involvement of the aboriginal community in project monitoring and decision making, and increase the economic benefits of uranium mining to these communities, including greater employment and business opportunities.

In responding to the Panel's recommendations for each project, both the governments of Canada and Saskatchewan addressed every item in writing. In authorizing the respective projects to progress licensing phase, the government of Canada instructed, "The AECB and other federal regulatory agencies will ensure that the Panel's recommendations related to environmental, technical and safety issues are fully considered as the, projects move through each stage of the approval process". The *Occupational Health and Safety Division* of the Ministry of Saskatchewan Labour indicates it implemented every Panel recommendation regarding worker health and safety. The Saskatchewan government also adopted many of the Panel recommendations in issuing project licenses and permits. Both governments addressed broader issues, such as socio-economic concerns for the people most impacted by the mining, through other actions.

While the governments accepted many of the Panel's recommendations, it was not bound by them. This took place with the understanding that "In making their decisions, the responsible authorities, including Ministers with jurisdiction, must consider the panel report, but are free to consider other sources of information and to make different value judgments."

The general conclusion of a workshop held in Saskatchewan in 1998 to evaluate the process of the Joint Panel Uranium Review was "… that several benefits arose directly out of the review process in Saskatchewan, and it is probable they would not have occurred without the public review." Cited examples include health, socio-economic and environmental benefits.

Since the early 1990s several major changes were implemented, some of which may have been at least partly in response to the Panel's hearings. For example: in May 2000, the Canadian Nuclear Safety Commission (CNSC) replaced the Atomic Energy Control Board (AECB) under new legislation providing a more modern and effective regulatory framework. There has been an extensive and comprehensive reform of Saskatchewan's legislative health and safety standards. The ICRP-60 recommendations on radiation dose limits for workers were incorporated into Surface Lease Agreements, as well as becoming the Canadian standard. A long-term epidemiological study of the province's uranium miners was initiated. New environmental regulations require financial assurances for decommissioning and long term monitoring of all mines and tailings.

A particularly outstanding effect was the implementation, for the first time, of a cumulative environmental effects monitoring programme for mining facilities. Community-nominate Environmental Quality Committees (EQC's) were established to facilitate communication among the

northern communities, mining companies and governments. The community also works with representatives of the proponents and regulators through EQC's to monitor effects that may potentially impact the health or living conditions in the vicinity of the uranium projects. In support, the Government of Canada directed that regulatory agencies support EQC activity and invite their participation in, and observation of regulatory activities; and, that the AECB should be more active in its EQC support and participation. The potential for socio-economic benefits was increased by creating a Multi-party Training plan to train and employ Northerners in 60% of all new jobs in the northern mineral industry, as well by increasing business opportunities for Northerners and northern joint business ventures.

Several other outcomes may have (at least in part) resulted from the public hearing process:

1. with four new uranium mining projects now operating in northern Saskatchewan, the results of opinion polls indicate uranium mining has had a high level of public acceptance (i.e. about 70%) since the early 1990s;

2. development of northern mines monitoring secretariat to support aboriginal stakeholder organizations increased aboriginal consultation with both proponents and governments in several areas of information exchange, monitoring and research, this has left to increased mutual understanding and trusts between proponents, governments and stakeholders;

3. the number of Northerners employed in the mining industry doubled between 1992 and 1997, and business opportunities for Northerners has greatly increased;

4. both governments implemented programmes to increase the level of employment of Northerners within their own agencies (See Annex 3); and

5. the mine operators, Cameco, appointed Chief Harry Cook off Saskatchewan's largest Woodland Cree First Nation band to their board of Directors in 1992. In 2003 he continued in this capacity.

In summary, it appears that the open and transparent character of the environmental assessment process was instrumental to its political success. This gives background to the sentiment expressed by a former Saskatchewan Minister of *Environment and Resource Management* who wrote, "the environmental process must not only be done, it must be seen to be done."

This case provides an example of how stakeholders are included in a formal hearings process established to evaluate the risks associated with the development of projects judged to a have potential significant environmental consequences. This is a case where stakeholder involvement has developed at both the national and provincial level and is institutionalized in laws and regulations. While this case relates to issues and questions regarding radiation protection associated with uranium mining, it also shows how concerns regarding radiation protection are extended to socio-economic issues as well as broader societal concerns for the rights of individuals, nuclear non-proliferation and disturbing a pristine wilderness through industrial development.

It is generally agreed by most participants in the uranium mining review process that stakeholder participation led to positive results including improved monitoring, socio-economic opportunities for impacted communities and enhanced communication and understanding between project proponents, governments and public stakeholders. It may have resulted in improving projects and developing other benefits that may not have otherwise occurred.

Conducting the process within a governmental context extends the democratic involvement of individuals beyond traditional voting rights in a representative democracy, Furthermore, providing for stakeholder involvement in the ongoing monitoring and oversight of projects may also strengthen the democratic process and add transparency to projects.

However, the 6-year-long Panel review, extending from August 1991 to November 1997, was a lengthy and cumbersome process adding to the cost of review and delaying project development. Furthermore involving the stakeholder in project monitoring also incurs costs and complicates the process. It also appears to duplicate activities normally conducted by licensing and other agencies. It further reduces the flexibility and independence of project proponents.

It must also be recognized that while the stakeholder has an important, vital position in the EA process in Canada stakeholder input is only one of the several sources of information used in making final decisions regarding radiation protection and the environment. Recommendations developed by a panel are only *advisory* to the governments and regulatory agencies. It is therefore necessary that stakeholders understand the limitations of their input, otherwise they may be disappointed by the results.

It would appear that the process of stakeholder participation described in this paper must be well founded by law, or formally recognized in some way. A concerted effort is required to both elicit stakeholder input, and then assure that it is taken into account in making final decisions.

An important outcome of the Canadian case has been the implementation of new stakeholder-based organizations that take part in monitoring, as well as serving to educate the public. They also form a communication link between the public, proponents and governments. This appears to be a useful mechanism for developing trust and understanding between all parties. It is important to note, however, that these activities do require financial and leadership resources.

THE ETHOS PROJECT FOR POST-ACCIDENT REHABILITATION IN THE AREA OF BELARUS CONTAMINATED BY THE CHERNOBYL DISASTER

John Paterson
University of Westminster, United Kingdom

The Chernobyl Nuclear Accident in 1986 had a significant impact locally, regionally and, indeed, globally. At each level, this took the form not only of tangible radioactive contamination of varying degrees of severity, but also of a less tangible, but no less real, breakdown in public confidence in the nuclear industry and the authorities charged with regulating it and responding to any problems. Nowhere was this more acute than in the regions of Belarus, Russia and Ukraine most directly affected by the contamination. In the context of such a breakdown in confidence the authorities here faced an unprecedented task as they sought to develop and implement rehabilitation programmes.

This case study begins by examining the reaction of the people in a number of villages in southern Belarus to the efforts of the authorities over the years since the accident and finds that, despite an extraordinary expenditure of resources, there is widespread criticism by those whom the interventions were intended to help. The problem appears to stem in no small measure from the fact that the authorities sought to respond to the accident and its aftermath on the basis of a *top-down bureaucratic model*. While this possessed all the virtues of centralised control in the face of a problem on a vast scale, it nevertheless lacked the ability either to capture the real concerns of people at the local level or to encourage and make use of the sorts of coping mechanisms that the people had previously developed in the face of natural hazards. As a consequence, people not only felt that those who were supposed to be in charge had lost control at the highest level, but that they too now had no way to regain control of their daily lives at a local level. In short, faced with a crisis of confidence the authorities failed to realise that their response had to be such as would allow social trust to be rebuilt.

In contrast, the ETHOS project, operating at local level and setting as a primary objective the need to understand the impact of the accident and its aftermath from the perspective of the local people, offered significant opportunities to build social trust. Instead of a top-down approach, the concrete guidelines for the project included a determination to achieve a *strong and genuine local involvement* so as to allow people to regain control over their lives; an *interdisciplinary* approach in order to cope with the complexity and interdependence of problems and to maintain a clear and strong link between the technical and social dimensions; and an aim to *integrate radiological safety* into the concrete issues of daily life rather than to see it as something separate – and perhaps even the responsibility of others.

Adopting this approach, the ETHOS team quickly discovered that the key question for local people was quite simply whether it was possible to stay in the area in the long term and to bring up children there. Despite years of interventions by the authorities, this was not something the people felt they had a clear answer to. While stressing that this was not a question the ETHOS team could answer

for the people, they indicated that they could help those who wanted to stay to improve safety and quality of life. On that basis, it became clear that anything the project did must have clear practical objectives. Consequently, six Working Groups were established which sought to develop solutions to problems that the people themselves had identified. These dealt with radiological protection of children; production of clean milk; marketing of privately produced food; radiological culture through education in school; involvement of young people in rehabilitation; and management of domestic radioactive waste.

Drawing on interviews conducted in the villages concerned, the case study seeks to draw out lessons from the undoubted success of the ETHOS project. A striking finding is the extent to which the people stress the importance of *trust* as vital to that success. As the project got under way, people were still sceptical and uncertain about the future, but at the very least they recognised a qualitative difference in the way they were treated by the ETHOS team in contrast to the attitude of the authorities previously. The factors mentioned by interviewees as contributing to the building of trust and thus to the establishment of a productive project included: active involvement or inclusion of stakeholders; personal engagement and perseverance of foreign experts; tangible objectives identified and aimed for; a real effort to help people understand the position they were in; improved contacts with the outside world and an understanding of the problems as common to many people; and a contextual approach that sought to identify and solve real local problems.

The issues facing radiological protection specialists are many and varied and few are as severe as those encountered in this case study, but the lessons drawn may well be of relevance in a much wider range of situations where public confidence in experts and authorities has been strained or lost in the event of accidents or other problems.

STAKEHOLDER INVOLVEMENT – A JAPANESE PERSPECTIVE

Sadayoshi Kobayashi
Honorary Researcher, National Institute of Radiological Sciences, Japan

Summary

Traditional societal and cultural background of Japanese in general indicates the intrinsic difficulty in involving the public as stakeholders in the process of any type of decision making in policy matters. It is characterized by the long-taught virtue of harmonization and obedience to others. In addition, characteristic system of Japanese traditional industrial society, such as lifetime employment, seniority-based wage system, and enterprise-based labour union, encourages the loyalty to the employer/company, but not to the public. The public or ordinary citizens would seldom come out as stakeholders and express their true feelings or real opinions, even though younger generation is notably getting out from such a trend. On the other hand, it is a common practice in Japanese society for any business or administrative transactions to try to obtain "consensus" among relevant parties concerned (stakeholders) by negotiations behind the curtain prior to the formal discussion. In this sense, "stakeholders involvement" is accepted and practised as a matter of course, but mostly for actions between parties of equivalently influential status levels or between "directly relevant" parties such as those between the different government agencies, between regulators and industries. The concept of "Involving the public in decision making as stakeholders" is not yet fully understood nor accepted in Japan both by regulators and by the public so far as the issue of radiation protection is concerned. These situations are explained with some examples.

Social and cultural background of Japanese: Wa (Harmony) and "Nemawashi" (Root binding)

Japanese has long adhered to the teaching of Prince Shotoku who set the first Japanese Constitution in the year 605 that is called Prince Shotoku's 17 Articles. Of these 17, the most popular one is its first article saying "Harmony is to be valued, and avoidance of wanton opposition honoured". It is complemented by the Article 10, which says, "though we may be in the right, let us follow the multitude". In essence, harmonisation with, and obedience to others (i.e., the majority) are considered the most important virtue for the people. The idea of "obedience to others" gradually transformed since 7th century into the understanding as "obedience to the authority or to the regulator". Another example to be noted here as one of the many Japanese behaviours that puzzles Westerners is, "Hon-ne (real, unexpressed opinion or feelings) and Tatemae (opinion or feelings that are expressed as judged right by social norms, or expressed in order to be in harmony with others)". It means that what one expresses is, in many cases different from what one really thinks, or feels. What one expresses is so done to be in harmony with the social norms or as a token of respect for others' opinion. From the sociological point of view, Japanese industrial society is characterised by (1) lifetime employment, (2) seniority-based wage system, and (3) enterprise-based labour union. These bring forth a strong

motivation for the loyalty to the employer/company, but not to the public. It is so understood that this has been the reason why whistle-blowing from inside the organization is very rare, almost none, in Japanese industries until it becomes too late to take rectifying action to prevent the occurrence of grave results that have been seen in so many cases in recent years including those in nuclear power industry.[1]

Under these situations, the public or ordinary citizens would seldom come out as stakeholders and express their opinions. It is because "a stake that is standing out from others gets hard hit on the head", or "a tall tree gets stronger wind". This is shown by the results of a survey by means of questionnaire on the public response to the idea of public involvement in decision-making processes by the government. Some 50% of the public agreed as in principle that the public should be involved in the decision-making processes, while almost none indicated their willingness to participate as for him/her-self personally (Figure 1).

On the other hand, it is a common practice in Japanese society for any business or administrative transactions to try to obtain consensus among relevant parties concerned by negotiations behind the curtain prior to the formal discussion. This is called "Ne-mawashi", which literally means a procedure of "Roots binding" or "Roots trimming" for transplantation of a tree.[2] Digging around the tree that is to be transplanted and trimming off its roots some months prior to the action of transplantation induces growth of dense fine roots that enables easy settlement of the transplanted tree. It is then used as meaning "prior, informal, negotiation for the consensus in order to ensure a smooth transaction". This is the "must" procedure in Japanese society to be followed prior to the initiation of any action that affects others. "Stakeholders involvement" is often understood in this sense, and accepted and practised as a matter of course and as a routine procedure. It is, however, mostly for actions between parties of equivalently influential status levels or between "directly and visibly relevant" parties. General public is seldom considered as a target of NE-mawashi.

Perception of "Stakeholders" by NSC members and the public

John E. Till explained that "Stakeholders" are individuals who have a personal, financial, health or legal interest in policy or recommendation that affects their well being or that of their environment (Till, E.J. 2002).[3] Rathbun and Frant illustrated an example of "enhanced participation" of stakeholders in the programme by Office of Nuclear Materials Safety and Safeguards (NMSS) of US Nuclear Regulatory Commission, indicating that their "internal and external stakeholders" were general public, Congress, NRC licensees, other Federal agencies, States, Indian tribes, local government, industry, industry workers, technical societies, the international community, and citizen group (Rathbun, P.A. and Frant, S.M. 2002).[4] In particular, they invited risk communication specialist, Union of Concerned Scientists (UCS), public interest group, public citizen, and general public for

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1. JCO Tokai criticality accident, 2001; Tokyo Electric Power Co (TEPCO) falsified reporting of plant check that resulted in stopping of its all nuclear power plants, 2002-2003.

2. "Ne" in Japanese means root, "mawashi" means do things around a certain matter.

3. Till, E.J.; Stakeholder involvement in developing environmental radiation protection policy and recommendations, Proceedings of the NEA Forum on Radiation Protection of the Environment, The Path Forward to a New Policy? Taormina, Sicily, Italy, 12-14 Feb. 2002.

4. Rathbun, P.A. and Frant, S.M.; The role of effective communication in risk–informing nuclear materials and waste regulations, PSAM 6 (Probabilistic Safety Assessment and Management), San Juan, Puerto Rico, 24-28 June 2002.

comments, consultation and communication, in addition to the Federal and State authorities. OECD/NEA Expert Group on the Process of Stakeholder Involvement (EGPSI) understood when it started discussion on this subject in 2001 that "involvement of stakeholders" meant "active participation of civil society".

Our survey in terms of questionnaire revealed that NSC members, its staffs and some selected group of the public perceive "stakeholders" as wide range of interested groups in the same way as US NRC does, but placing more emphasis on licensees, industry, industry workers and technical experts rather than on citizens and general public.

Figure 1. Perception of "stakeholders" by NSC members and officials

Results of Questionnaire Analysis (No.=228)

Class of Stakeholders
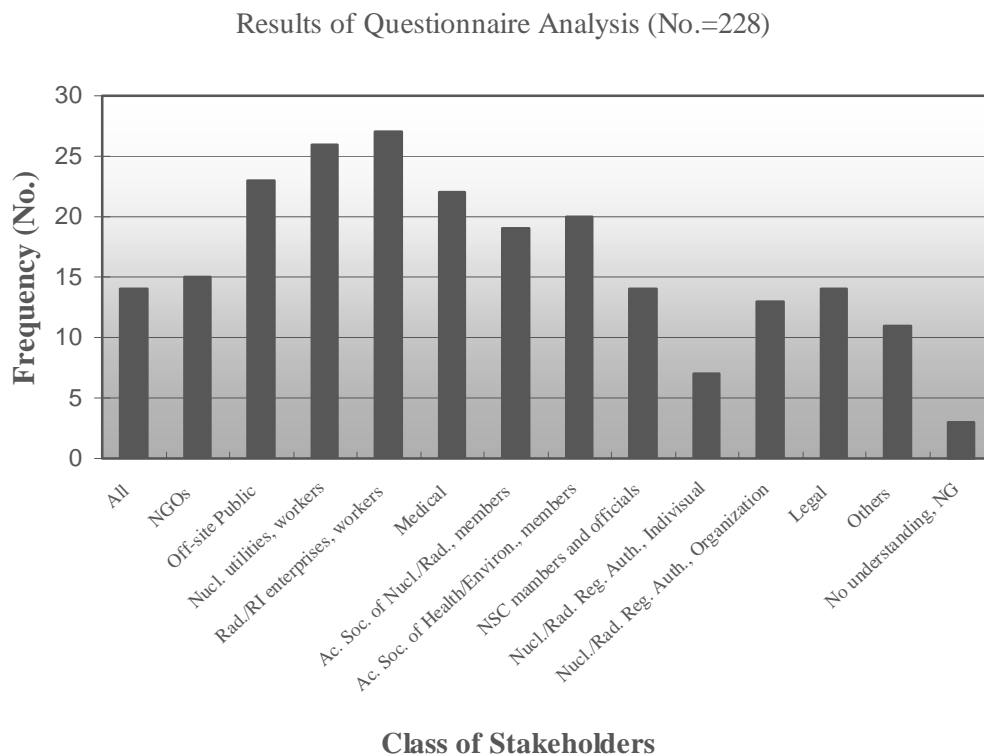
Public interest in radiation-related subjects: Views of Asian high school students

Recently in 2003, the Forum for Nuclear Co-operation in Asia (FNCA), which is consisted of 9 member countries in Asia, namely, Australia, China, Indonesia, Japan, Korea, Malaysia, Philippines, Thailand and Vietnam, conducted a questionnaire survey on the perception and understanding by high school students of the use of radiation and nuclear technologies in industry and human welfare (FNCA News Letter).[5] The sample size was about 1 000 in each country consisting of about equal number of boys and girls, and 7 762 in total (Figure 3). One of the 11 main items of questions asked for the

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5.   FNCA News Letter No. 7, September 2003, Exploring the perception on radiation by young generation.

subjects of interest among 10 subjects related to radiation (Table 1). The results showed that they are most concerned about the safe level of radiation exposure, followed by emergency preparedness, safety measures, and medical application (Figure 4). This indicates their potential to be involved as stakeholders in decision making in radiation protection as to the dose limits/dose constraints, intervention dose levels, and safety goals, among others.

Programme activities of government agencies involving stakeholder participation in decision-making processes for the subjects of relevance to radiation protection

Currently there are several operational systems by which Japanese government authorities of relevance to radiation protection such as NSC, Atomic Energy Commission (AEC), Ministry of Education, Culture, Sports, Science and Technology (MEXT), and Nuclear Industrial Safety Agency (NISA) of Ministry of Economy, Industry and Trade (METI), etc. invite participation of various classes of stakeholders in the process of decision making, or for the purpose of providing information/communication. They include such activities as follows:

1. Various types of meetings that are open to the public, or with public participation:

   a) For the purpose of keeping transparency, all the meetings, e.g. Commission meetings, expert advisory meetings, safety review meetings, etc. are open to the public.

   b) For the purpose of providing information to or communication with the stakeholders in general, symposium, workshop and some Commission meetings are held rather frequently including those held at local sites. Examples of recent implementations by various government agencies are listed in Table 2.

2. Public comments system:

   It is a mandatory step in the process of formulating laws, regulations, guidelines, recommendations, and reports. The comments and the responses by the responsible office are also made open to the public. Some examples of reports are listed in Table 3 as extracted from the experiences of NSC.

In spite of the intentions by the government authorities in carrying out these endeavours, the outcomes have been mostly much limited as judged by the statistics on the number of participants, comments and commentators and also by the qualitative analysis as regards to the levels of public participation. Participation of the public have been at the level of "Information acquisition/provision", or at best, "Consultation", and remained far from "Involvement", "Collaboration" or "Empowerment" levels. "Dialogue" and "Communication" have been also insufficient. In many cases it remained at the level of one-way explanation. However, when industry, industry workers and technical experts were "stakeholders", the process is much better, reaching sometimes at the levels of "Involvement" and "Collaboration" and can be deemed rather successful, Such is the case, as for example, with the on-going MEXT's programme for the inclusion of IAEA Basic Safety Standards[6] on international exemption levels of radioactive substances as well as those of naturally occurring radioactive materials (NORM) into the national regulation.

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6. International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No. 115, IAEA, Vienna (1996).

Conclusion

Stakeholder involvement in the process of decision making on radiation protection is yet in an infantile stage in Japan. Especially, the concept of "Involving the public in decision making as stakeholders" is not yet fully understood nor accepted in Japan both by regulators and by the public itself.

Greater efforts are needed on the side of national and local administration to fully understand its necessity and usefulness, and to develop and practice means that enable easier public participation, and hence contributing to the solution of long-standing or newly arising issues such as those with uranium mine residues, selection of final disposal site for radioactive wastes, and etc. The first step would be the practice of good communication with the public, making the best use of currently employed systems of public comment, open symposium, panel meeting, and etc. It is considered most important to have the firm commitment from the side of government/regulators to pay due respect to the processes and results of public participation. Without such commitment, any of their endeavours will be perceived by the public only as a gesture and formality, and will vanish into thin air.

Figure 2. Public response to public involvement

1. Should the public be involved?   2. Do you personally participate?
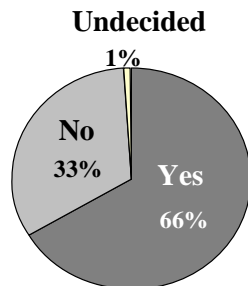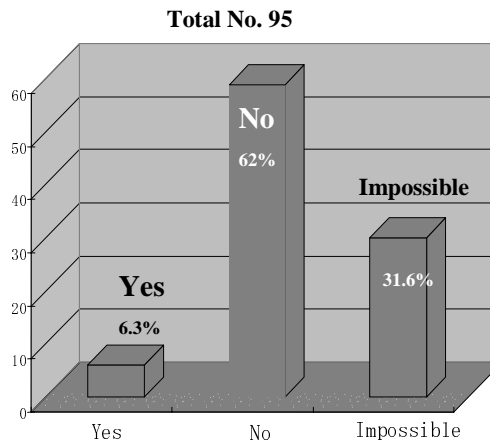
Figure 3. Radiation-related subjects of interest by high school students in 7 Asian countries sample size 7 762 in total
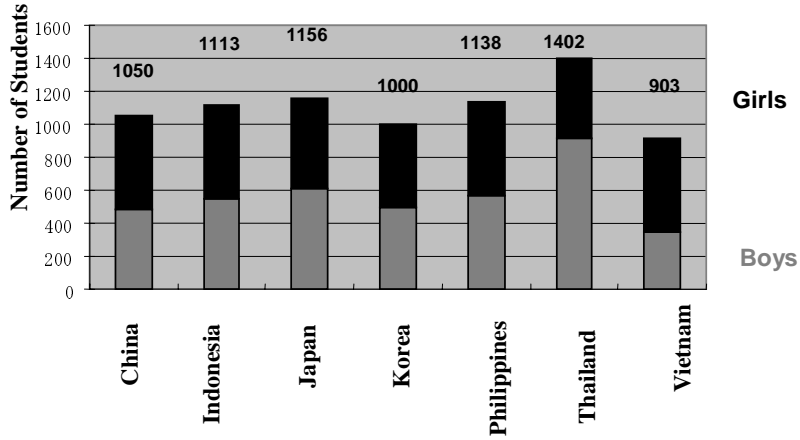
Figure 4. Radiation-related subjects of interests by high school students in 7 Asian countries
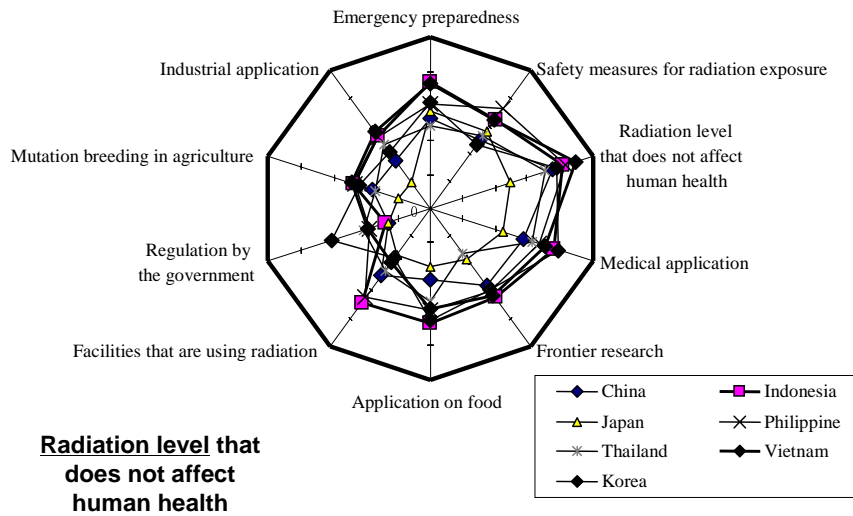
Table 1. Q: What do you want to know about "radiation"?

1. Radiation level that does not affect human health;

2. Safety measures in managing radiation exposure;

3. Emergency preparedness in radiation accidents;

4. Facilities that are using radiation;

5. Application in food;

6. Mutation breeding of crops;

7. Industrial application;

8. Medical application;

9. Regulation by the government;

10. Frontier research.

Table 2. Recent meetings with public participation

No.	Organisation	Title/subject of meeting	Date/ frequency	Number of participants	Target stakeholder
1	NSC	Panel discussion on safety goals	2/yr July 13, '03 Oct. 5, '02	205 106	Interested specialists, some citizens
2	NSC	Workshop high level wastes safety research	2/yr Feb. 15, '02 June 29,'03	230 200	Interested specialists, some citizens, utilities, workers, local government
3	NSC	Commission's at Yokohama local meeting at Fukui	Feb. 2, '02 Oct. 19, '02 June 29, '03	289 287 195	Interested specialists, some citizens, utilities, workers, local government
4	NSC	Symposium on the effects of low level radiation, Tokyo	June 19, '03	191	Interested specialists, citizens, utilities, Workers, local government
5	MEXT	Symposium on exemption levels of radioactive substances Symposium on exemption levels of NORM	Aug. 5, '03 Oct. 15, '03	250 210	Specialists, representatives of industry, some citizens

NSC: Nuclear Safety Commission.
MEXT: Ministry of Education, Sports, Culture, Science and Technology.

**Table 3. Recent NSC reports on the subjects of radiation protection –
Status of public comments**

No.	Title of reports	Date of presentation	Number of commentator	Number of comments
1	Incorporation of IAEA BSS Clearance Levels into the National Nuclear Regulatory Systems	Feb. 2003	5	10
2	Guides and Indications of Radiation Protection in the NSC Guidelines for the Safety Examination of Nuclear Facilities	Nov. 2002	4	4
3	Principles of Mental Health Care in the Event of Nuclear Accidents	Nov. 2003	2	5
4	Programme Activities of International Organisation in the field of Radiation Protection and the Systems of National Response/Contribution – Current Status and Problems	Jul. 2002	7	7
5	Accidents and Troubles in the Use of Radiation and Radioisotopes	May 2002	3	3

STAKEHOLDER INVOLVEMENT IN THE MANAGEMENT OF EFFLUENT DISCHARGES FROM NUCLEAR INSTALLATIONS IN FRANCE

André Oudiz[1], Thierry Schneider[2], Gilles Hériard Dubreuil[3], Serge Gadbois[3], Annie Sugier[1]
[1]IRSN, [2]CEPN, [3]MUTADIS, France

Introduction

The objective of the work achieved by IRSN altogether with CEPN and Mutadis was to analyze the French and international experience in this field and to reflect on the existing fora of dialogue in France where the control of nuclear sites is being discussed (public inquiry, local commission, pluralist expertise), to identify the assets of these fora and to bring out proposals in order to improve the follow-up of these installations from the point of view of the local population.

A working group was set up in IRSN with experts from IRSN, CEPN and Mutadis. The task of the group was to prepare detailed case studies on the basis of the salient issues stemming from the report and to make a thorough collective analysis of the transverse questions emerging from the studies.

In a second stage, the working group brought together the main conclusions of its analysis and put forward some proposals which, it thought, could be considered to improve existing tools and fora taking into account local stakeholders' needs, concerns and expectations in the oversight of industrial facilities.

Case studies

The Working Group prepared and analysed several case studies to make a thorough assessment of actual situations of stakeholder involvement in the oversight of nuclear facilities. Here a focus will be put to the Consultation regarding the revision of the authorisation order for the creation of La Hague Cogema plant and on the Local Surveillance Committee (CLS) of Fessenheim nuclear power plant.

The dialogue on the revision of the authorization decree of COGEMA La Hague facility

In 1995 and 1997, Professor Viel published the results of epidemiologic studies analyzing the evolution of leukaemia incidence among the youth of Beaumont-La Hague district and questioning the link between this and COGEMA reprocessing plant discharges. Due to the vivid controversy raised by these publications the national authorities set up a Group called: "Radioécologie North-Cotentin" (GRNC) chaired by Mrs Sugier. The mission was to estimate the risk of leukaemia for young people in

the 0-24 years age group near the La Hague site (in the Beaumont-Hague canton), starting from the evaluation of exposure received as a result of the different radiation sources (natural, medical diagnosis and industrial nuclear installations in the Nord-Cotentin). The GRNC, composed of experts with various origins, significantly contributed to dialogue on COGEMA La Hague facilities in Nord-Cotentin.

In parallel, a dialogue was engaged since 1994 between COGEMA and the nuclear safety authority to modify the decrees of authorization associated with the initial creation of the site and to review the authorizations of discharges. Following the application by COGEMA requesting modifications of its authorizations of creation (DAC), the nuclear safety authority ordered in September 1998 an ad hoc pluralist group of experts to give its views on the admissibility of the safety and impact studies provided by the operator. The Group was chaired by Annie Sugier, as President of GRNC. Views were requested from IPSN in parallel. During this period, discussions continued within the administration as regards the scope of COGEMA request: should it be limited to the modification of the authorization decree for the initial creation of the site or should it cover the modification of the discharge authorizations?

The first analysis of the operator application files, both by the pluralist group of experts and by IPSN, ended up with a negative advice as regards the file suitability and a request for further information. Following the complements brought by COGEMA, the nuclear safety authority again seized the group of experts which gave a favourable opinion at the beginning of 1999, while making explicit criticisms in particular on the impact study of chemical releases and on the justification of the maximum level of expected radiological discharges.

The public inquiry started on February 2000 the 2nd and ran until 17 May 2000. At the request of the Ministry of the Environment the report of the group of experts was made available with the application file submitted to public comment.

The last step in this process relates to the new discharge authorizations. The nuclear safety authority requested an advice from IPSN in May 2000 "on the technical basis to determine the limits as regards the radioactive component of discharges". In its answer, in September 2000, the IRSN presented "an analysis of the operation range required by COGEMA with the current processes and examined ways of improvement on the short-term or longer-term, likely to reduce further the levels of radioactive releases". IPSN thus played its role of expert, proposing alternatives, while the final decision still belonged to the authorities.

In parallel, the GRNC continued its own work. In particular, in July 2000, it was entrusted with a new mission on a) the analysis of uncertainties associated with the impact assessment of radiological releases, b) the impact study of chemical releases.

This case study shows the difficulty faced by the actors who are not involved in the relation between the technical operator and the administration, and more particularly for the local actors, to have a comprehensive view on the authorization process as far as nuclear facilities are concerned. It also highlights important steps forward in dialogue.

The study underlines the development of an informal dialogue between the administration and the operator before the official application and much before the public inquiry. This situation damages the readability and understanding of the process and blurs the distinction between the roles of the operator and the administration. The trustworthiness of the whole process is thus questioned.

As for the public inquiry, it remains a tool mainly devoted to meet administration's concerns in the decision-making process. So far it doesn't clarify the reasons for the final decision, as the technical arguments are partly not made public. Thus, the questions made by the public during the inquiry are usually not responded to, and there is no place for a dialogue with the operator. Questions are transmitted to the inquiry Inspector once the consultation is closed. In the same way, the limits set in the decree of discharge authorization (January 10, 2003) were not debated or commented (contrary to the British case study). One must underline however that this decree plans a revision of authorization within 4 year as well as an annual assessment of the dose impact by the GRNC.

As regards dialogue, the analysis of this case study stresses various innovative features. By widening the scope of the admissibility examination to a pluralist group of experts, the authorities opened the field of expertise. Moreover, the pluralist group of experts broadly built on the work of GRNC. Taking into account its level of expertise and its knowledge of the impact of La Hague releases, this group of experts was able to thoroughly analyze the safety and impact study and to ask the operator for relevant details. The comments made by the group of experts were largely taken into account by the administration and also taken over by NGOs in their own comments.

Local monitoring commission at Fessenheim NPP

The Local Monitoring Commission of Fessenheim is the first Local Committee created in France next to a nuclear site. The Commission was set up in 1977 following a vivid debate about nuclear projects in the Rhine plain. The authorisation was contested in front of the State Council, and was opposed with a hunger strike. A second Local Commission was created in 1979 near another nuclear power plant. A regulatory framework was given in 1981 by the Mauroy circular "to facilitate the creation of local commissions around all large energy equipments", nuclear power plants in the first place, with initiative from the General Councils (Département).

One of the principal challenges for the Fessenheim Commission was to find its place in the oversight of the NPP, when follow up activities were still primarily carried out through a well established relation of control between the operator and the administration. In relation to EDF, the Commission had difficulties to escape a role of mere relay of information. With respect to the administration, it encountered difficulties to reach documents and to express an autonomous point of view on decisions taken by the local state bodies. This led in 1983 to the boycott of the Local Commission by the General Councillors.

In 1989 when the first decennial visit of the NPP started, the Local Commission financed two counter-evaluations, one on the reactor safety with GSIEN[1], the other on radioecology with CRII-RAD. This monitoring role by way of autonomous expertise was explicitly translated in the new statutes of the commission in 1994: "the purpose of the Commission is to facilitate, for the population of Haut-Rhin especially, the access to information on the operation of Fessenheim NPP. The Commission can order expertise concerning particular points relative to this operation. (...) The Local Monitoring Commission with the support of the majority of its members can request the General Council to resort to expertise on particular matters presented either by the NPP operator, the DSIN,[2] the DRIRE[3] or any other organization".

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1.   Groupe de scientifiques pour l'information sur l'énergie nucléaire.

2.   Direction de la sûreté des installations nucléaires (Nuclear Safety Authority).

3.   Direction régionale de l'industrie, de la recherche et de l'environnement.

Several factors were determining in the capacity of the Commission to develop this monitoring role. The Commission comprises a limited number of members which makes easier work in sub-commission, follow-up activities, as well as the analysis of the experts' reports. The Commission has a full-time secretariat and uses the services of the Environment department of the General Council. The Commission has a specific line for its operation in the General Council budget. That includes about 15 000 Euros per year for expertise (usually doubled with the same amount by the DRIRE, the local state administration for industry). EDF, permanent guest in the Commission, takes an active part in the work of the Commission by its collaboration, in particular by providing an access to documents, and answering questions. Contrary to the guidelines proposed by the Mauroy circular, the General Council did not wish that the Commission be cofinanced by the operator.

Expertise made by GSIEN and CRII-RAD were framed by a convention signed by the Local Commission, the independent expert, the DRIRE and the operator. This expertise is financially supported by the General Council of the Haut-Rhin and the local DRIRE. A pluralist steering committee with an administrative representative of the Local Commission, a local councillor, an association and a representative of the DRIRE follows the work done by the experts. The second decennial visit made it possible to measure the evolution of the situation of the NPP, but even more to normalize and prioritize the questions raised, and to identify the relevant actors to address each one of them. This work was also an opportunity to identify points of consensus and debate. For the Commission, this was an important moment to specify its monitoring mandate in the duration, and to make more explicit its role of local oversight and mediation. Nevertheless, a debate on the scope and nature of this role still continues, mainly between NGOs and elected representatives.

Main conclusions by the working group

The reflections initiated by the group started with the view that "new" actors are involved in the management of effluent discharges from nuclear facilities in France. Hence there is a need to better understand who these "new" actors are, what is their contribution in the decision-making process consists in, and to what extent this participation challenges the existing process.

The social dynamics of dialogue

Since several years, an evolution can be observed on the regulation processes related to industrial activities: the traditional delegation mechanisms involving administration, operators and public experts do not appear as efficient as they may have been in the past. Public confidence in these mechanisms tends to be put into question and progressively local actors play an increased role in the decision-making processes. These actors may be non-expert people, such as local elected representatives and members of various NGOs, as well as "independent" experts (i.e. not belonging to the official expert appraisal institutes).

Such an evolution, which is clearly observed within the framework of the authorization processes related to effluent discharges of industrial plants, can be observed also as far as safety matters are concerned. Local commissions are set to implement the dialogue between the administration, operators and public experts and the local actors.

Generally, administration, operators and public experts have reached with time an agreement on a technical common approach to safety or radiation protection questions. However, this common approach is far from being shared by the local population. Involving local actors in the decision-making processes allows them to bring other considerations, due notably to more specific local

concerns. Local NGOs and some independent experts play an innovative relay role between the local population and the administration, operators and public experts.

A need for a better "readability" of the decision-making process at the different steps of industrial facilities

The involvement of local actors in a continuous process of follow-up of the industrial plants allows a better understanding of the technical problems and a progressive acquisition of a common language. A long-term dialogue contributes also to mutual understanding between the actors, which is a prerequisite for social trust. The involvement of local actors certainly contributes to the transparency of the decision-making processes but it goes beyond: these actors are well aware of local aspects of the operation of the plants and bring out relevant safety or radiation protection questions which deserve appropriate answers.

The respective role of the public and the pluralistic expertise in the decision-making processes

The management of effluent discharges is no longer a matter for sole experts from the operator and the public authorities. There is increasing interest from local actors – members of NGOs or mere citizens – to get insight in the process and give their views. From the local actors' point of view, safety or radiation protection expertise brought out by the operators or the authorities appear very hard to understand. The involvement of "independent" experts may contribute to bring contradictory assessments and enhance a better understanding of technical stakes by the non-experts. Such an involvement increases the overall credibility of the decision-making processes by opening them to experts perceived locally as sharing the same values as the local actors.

Existence of an independent expertise capacity may appear insufficient if conclusions cannot be drawn by the local actors from the contradictory expertise process, due to difficulties to understand the technical stakes. A public expert in a position to serve as a technical support to local actors would probably play an important role to allow the local commissions to play efficiently a surveillance role.

The local justification of hazardous activities taking into account sustainable development

The above reflections relate primarily to issues of risk assessment and risk management. However, the continuity of operation for a facility in a given territory and public confidence are based not only on the tolerability of the risks associated with its activity but also on the justification of its existence in the eyes of the local actors.

The justification of a facility cannot be based only on global considerations. It must rest on a positive contribution to the local actors' quality of life, on the sustainable development of the local territory, as well as on the protection of its quality and value. In this prospect, the dialogue and the relations between a facility and the local actors could not be limited to the dimension of the risk. Indeed, the existence of a risk exposure or an impact on the territory can hardly find a justification in itself.

From this point of view, one sees that new forms of dialogue are made necessary that would reach beyond safety considerations – which remain a too narrow field to build a genuine common stake between the involved actors (local actors and operators).

Feedback from dialogue experiences in France

The case studies helped identify key issues, which could be investigated further in view of improving the governance of hazardous activities. When considering these issues, particular attention should be given on the ways to link the governance of these activities with sustainable development.

Not surprisingly, the French model of public inquiry raises many criticisms, in particular on the fact that it takes place late in the process after bilateral discussions between the operator and the regulator. However it is acknowledged that this procedure remains currently the only existing means to engage a dialogue within a legal framework. It has the advantage of being open to the whole public, whereas other tools of dialogue like local commissions target at a much less large audience. The inquiry plays an important role to consult a wider public at important events in the life of the facility (creation, authorisation for discharges, significant modifications ...).

Local commissions and the like make a complementary contribution by carrying out a continued dialogue on the facility. This continuous exercise involves a limited number of local actors who are ready to invest time in the oversight of the facility, in learning its technical context, and in building relationship with other concerned actors. Continued dialogue is an opportunity for the stakeholders to put on the agenda problems which are usually not addressed in the regulatory framework, but which – because of the specific conditions of the territory or because of the type of facility – are regarded as important locally. This can lead the operator to take voluntary commitment beside regulatory requirements. Beyond the myth of the permanent agora, these structures bring a very rich set of experiences of dialogue in the context of the hazardous facilities. A real diversity is observed according to territorial contexts, types of installation and the history of each facility or local territory. The bill on industrial facilities and the draft bill on transparency in nuclear affairs set up partly new structures. The concern of stakeholders is to avoid calling into question the dynamics of dialogue where they are already built after long run efforts and to avoid producing redundant fora. The contribution of the local commissions in the legal procedures (in particular in the public inquiry) needs to be acknowledged and better prepared.

The continued operation of a local committee is expected to contribute traceability and transparency. According to the words of a participant: "To get knowledge on all elements that contributed to the elaboration of the application file, of all the comments made on this file by public bodies before its release to the broader public would be a condition for the stakeholders to get a common understanding of the issues. The origin of the documents (operator, administration, institutional expert, others) should then be clearly identified and made known to all stakeholders involved in the debate." One can however see in traceability a risk that once internal debates among the administration will be made public, the position of public bodies will become quite vulnerable and final decisions will lend consequently more easily to disputes. Does the debate between the administration and the institutional expert bring confusion or on the contrary social trust?

The role of NGOs is often seen to strengthen trust when they participate in a process. Their legitimacy and representativity are nevertheless often called into question. It was noted that although NGOs are given credit for their participation in the decision-making process, they are never viewed as accountable actors. Their role is to point at issues, and bring elements in the decision-making process, not to take the eventual decision and bear the political consequences. This point invites to better characterize the link between the phase of dialogue and the phase of the decision.

The oversight and follow-up of nuclear and non nuclear facilities is a complex task. The operator and the administration are directly and permanently involved in the decision-making process. As for the stakeholders, they need to interact with experts in order to make their own views. The

access to expertise and training opportunities for local actors are essential elements for the quality of dialogue. The objective is not to turn local actors into experts, even if they often bring a practical knowledge on their territory and on the impact. The objective is rather to make expertise a resource available to all the categories of actors involved in dialogue. In this respect, a specific contribution could come from public expert bodies.

As a whole, dialogue remains a difficult exercise, which requires mediation skills, a mid-term or even long term prospect, dedicated resources and an ethical framework. These various elements are often incomplete, but they are all essential to move from stakeholder involvement intellectual concepts to practical dialogue.

THE ROCKY FLATS CONTROVERSY ON RADIONUCLIDE SOIL ACTION LEVELS

Timothy C. Earle
Western Washington University, Bellingham, Washington, USA

This report describes how stakeholder involvement processes led to the successful resolution of a dispute over radionuclide soil action levels at the Rocky Flats Site near Denver, Colorado. During the Cold War Era, Rocky Flats, a plutonium fabrication plant, was part of the American government's multi-site nuclear weapons production facilities. Although the Rocky Flats plant had significant positive effects on the local economy, it became a target of public protest due to concerns over both public safety in the area surrounding the site and global nuclear proliferation. In the late 1980s, local safety concerns led to investigations by state and federal agencies. In 1992, with the Cold War ended, the Department of Energy decided to decommission the Rocky Flats site and to begin the long process of decontamination.

As part of its plan for managing former weapons production facilities, DOE established and funded local Site-Specific Advisory Boards at each site, including Rocky Flats. The functions of the Rocky Flats Citizen Advisory Board (RFCAB) included making recommendations to responsible agencies on issues related to waste management and cleanup. Over the years, the RFCAB has made over 100 consensus recommendations. In 1996, a decision by DOE to announce interim radionuclide soil action levels (RSALs) for the Rocky Flats site triggered a sharp controversy with the RFCAB. DOE's decision sparked public criticism, first, because the final RSALs would be legally binding and determine the cleanliness and future uses of the site, and, second, because the proposed RSALs appeared to be higher than at other remediation sites. DOE's decision thus appeared to reflect values different from those of concerned public stakeholders.

In response to the RSAL controversy, the RFCAB and other public interest groups called for an independent assessment of the levels and the process used to establish them. DOE responded by agreeing to fund an autonomous scientific study of the RSALs for Rocky Flats. A panel of community representatives, known as the Radionuclide Soil Action Levels Oversight Panel (RSALOP), was formed to monitor the new study. The RSALOP was unique among public advisory groups in the high level of technical training and experience of most of its members. The technical expertise of the RSALOP meant not only that they were extraordinarily well equipped to understand highly technical arguments, but, even more important, that they were likely to believe that such arguments carried weight. The RSALOP selected RAC, a team headed by John Till, to conduct the technical aspects of the project. The Panel met and worked with RAC monthly between October 1998 and March 2000, with all sessions open to the public. Till identified the central issue and the focus of technical discussions: "If the soil action level selected appeared to be too high, the public would be concerned about its implications on the health of future populations. If the level selected was too low, the cost of cleaning up the facility could become prohibitive."

Working together, the RSALOP and RAC produced a recommended methodology for calculating RSALs at Rocky Flats. The final result of the process (which was "painstakingly tedious and time consuming, but in the end proved to be a vital element in the project's success") was a range of RSALs that was somewhat lower than DOE's interim level. After a period of reassessment and deliberation, however, DOE announced RSALs that were essentially the same as those recommended by the Panel and their consultants. Public stakeholder involvement thus contributed significantly to the successful resolution of the radionuclide soil action level controversy at Rocky Flats. This was a significant achievement, made possible by the development of trust and confidence between the RSALOP and the RAC team. The primary basis for trust in this case was shared respect for scientific/academic values: The best approach to Rocky Flats cleanup was one based on the best available scientific and technical information. All groups also believed that the best approach to obtaining the best scientific and technical information was one that was open to criticism and correction from independent, qualified individuals.

The Rocky Flats RSAL case illustrates key aspects of successful stakeholder involvement:

1. An event (DOE's announcement of RSALs) caused uncertainty;

2. The event could have been be attributed to poor performance (e.g. use of an inappropriate methodology) or, more damagingly, to conflicting values (i.e. DOE is more concerned with costs than with public safety);

3. A third party (RSALOP, guided by RAC) was introduced to examine the abstract technical arguments within the specific context of Rocky Flats and its possible future uses. In this way, the central trade-off between public health and costs was explicitly and concretely confronted by all parties. By contextualizing science in this way, public stakeholders and DOE were able to identify a basis of shared values on which to build collaboration and improved solutions to the management of radiological hazards.

INFORMATION ON NEA PROGRAMMES ON NUCLEAR ENERGY AND CIVIL SOCIETY AND THEIR CO-ORDINATION

Claire Mays and Hans Riotte
NEA, France

Introduction

At its session in May 2002, the Steering Committee for Nuclear Energy welcomed the activities that the NEA standing technical committees were carrying out in the field of nuclear energy and civil society, and agreed on the value of existing co-ordination among them. The Committee asked the Secretariat to prepare an information document on such co-ordination activities.

With this in mind, the present room document offers an up-to-date account of relevant NEA activities and their co-ordination, pending a broader review of NEA's involvement in the area of nuclear energy and civil society, in the context of the *NEA Strategic Plan* at an appropriate time.

Summary of current and planned NEA activities in the area of nuclear energy and civil society

Society and nuclear energy: Towards a better understanding

As part of the 2001-2002 programme of work, the Nuclear Development Committee (NDC) completed a desk study on society and nuclear energy, mainly based upon literature surveys and complemented by a review of public opinion polls in certain member countries. The findings and preliminary conclusions of the study have been incorporated in a report prepared by the Secretariat that will be published early in 2003. The report highlights the importance of risk perception and communication and concludes that more work in this field could contribute to facilitating the dialogue between civil society, nuclear energy experts and policy makers. The NDC therefore decided to include in its 2003-2004 programme of work a project aiming at reviewing member country experience in communication and consultation with civil society in connection with nuclear energy policy decisions. The project will include an in-depth analysis based on case studies, to be carried out with the support of experts from member countries, as well as a workshop to discuss key issues identified in the expert analysis.

Related NEA publication:

Society and Nuclear Energy: Towards a Better Understanding, Paris, France (OECD/NEA, 2003).

Public Communication of Nuclear Regulatory Organisations

Regulatory bodies, in fulfilling their responsibilities to inform the public about their role in contributing to nuclear safety, face increasing communication needs, notably in terms of interface with the public. Good governance and efficiency in decision making by government authorities are increasingly dependent upon mutual trust and confidence between those authorities and the public. The outcome of a workshop on "Investing in Trust: Nuclear Regulators and the Public" organised in 2000 led to the setting up of a Working Group on Public Communication of Nuclear Regulatory Organisations in June 2001, under the aegis of the NEA Committee on Nuclear Regulatory Activities (CNRA). The group shares information, news, documents and experience. It also exchanges views regarding the policies of nuclear regulatory organisations in the area of public communication of a regulatory nature, and identifies ways of promoting efficient collaboration. The Working Group will organise at the end of 2003 or the beginning of 2004 a workshop on "Building and Measuring Public Confidence in the Nuclear Regulator".

Related NEA publication:

Investing in Trust: Nuclear Regulators and the Public – Workshop Proceedings, Paris, France, 29 November-1 December 2000 (OECD/NEA, 2001).

Confidence Building in Radioactive Waste Disposal – Forum on Stakeholder Confidence (FSC)

The experience of decision making in waste management shows that exchanges between nuclear energy institutions and civil society are no longer confined to rigid mechanisms provided by the law. There is recognition that a more complex interaction is now taking place among players at national, regional and especially at local levels, and a broader, more realistic view of decision making, encompassing a range of actors in civil society, is emerging. The Forum on Stakeholder Confidence (FSC) facilitates the sharing of international experience in addressing the societal dimension of radioactive waste management, explores means of ensuring an effective dialogue with the public, and considers ways to strengthen confidence in decision-making processes.

The FSC convenes a series of alternating regular meetings and workshops in a national context. The annual meetings include topical sessions on specific issues of interest and are used to plan and elaborate the lessons learnt from the workshops. At the latest meeting in April 2002 the topical session focused on the environmental impact assessment (EIA) as a tool for stakeholder involvement. The workshops – also held annually – focus on stakeholder involvement in waste-management issues in the host country. A wide spectrum of stakeholders from the host country are invited to express their views on the nature of their involvement and the process by which they are involved. The first workshop in a country context was held in Finland in November 2001. The next national site visit and workshop will take place in Canada on 14-18 October 2002.

The Forum has a strong link to the OECD/PUMA programme on governance, with regular exchanges of information and well-established co-operation within the Secretariat of the two programmes. Exchanges of information have taken place with the CRPPH and the CNRA, with participation of the FSC Chairman in these committees' workshops. Work is also co-ordinated with relevant EC activities (Trustnet, Riskcom).

Stakeholder Confidence and Radioactive Waste Disposal – Workshop Proceedings, Paris, France, 28-31 August 2000 (OECD/NEA, 2000).

Stepwise Decision Making in Finland for the Disposal of Spent Nuclear Fuel – Workshop Proceedings, Turku, Finland, 15-16 November 2001 (OECD/NEA, 2002).

Establishing and Communicating Confidence in the Safety of Deep Geologic Disposal: Approaches and Arguments (OECD/NEA, 2002).

Better Integration of Radiation Protection in Modern Society

Following the 2nd Villigen Workshop on "Better Integration of Radiation Protection in Modern Society", the proceedings of this meeting as well as a policy-level summary were published. This workshop demonstrated the extent to which approaches have been developed by and large in an ad hoc manner in response to the needs of a given situation. Although these approaches have been largely successful, as a result of the commitment of all the stakeholders to the various processes, the 2nd Villigen Workshop showed the merit of widespread identification and dissemination of best practice and lessons learnt from successes and failures of stakeholder involvement approaches.

To further study this subject and to better understand policy implications, the CRPPH created the Expert Group on Processes of Stakeholder Involvement (EGPSI). This group will conduct, with the support of a voluntary contribution by the Japanese government, a set of regional case studies and analyse good practice in stakeholder involvement in radiological protection decision making, and resulting policy implications based on recent national experiences. The next Villigen workshop, to be held in the fall of 2003, will focus on the case study analyses and on the policy-level implications of lessons and good practice.

In parallel, stakeholder aspects also form an essential element in the evolution of the system of radiological protection, as codified by the International Commission on Radiological Protection (ICRP). The work of the EGPSI will thus also support the CRPPH in its work concerning the evolution of the system of radiological protection.

Related NEA publications:

The Societal Aspects of Decision Making in Complex Radiological Situations – Workshop Proceedings, Villigen, Switzerland, 13-15 January 1998 (OECD/NEA, 1998).

Policy Issues in Radiological Protection Decision Making – Summary Report of the 2nd Villigen (Switzerland) Workshop, January 2001 (OECD/NEA, 2001).

Better Integration of Radiation Protection in Modern Society – Workshop Proceedings, Villigen, Switzerland, 23-25 January 2001 (OECD/NEA, 2002).

Co-ordination of NEA programmes in the area of nuclear energy and civil society

The NEA programmes in the area of nuclear energy and civil society described above stem from needs expressed and decisions taken by relevant standing technical committees, and endorsed by the Steering Committee in the context of the approval of the Agency's programme of work. Each year, in

connection with the spring meeting of the Steering Committee, the chairmen of the standing technical committees participate, together with the Bureau of the Steering Committee and the NEA Secretariat, in a meeting which addresses the co-ordination of the different parts of the NEA programme, particularly those programmes which have a "cross-cutting" scope. Decisions taken are recorded and distributed to the participants for action. The subject of nuclear energy and civil society was addressed during the co-ordination meeting held in the spring of 2002.

Bureau meetings of respective standing technical committees are held during the year, which touch, inter alia, on co-ordination of their programmes with those of the other NEA committees. In addition, it is current practice that a standing technical committee, which meets to examine progress of work in a "cross-cutting activity", will invite other NEA technical committees involved to be represented.

Furthermore, the Heads of Division responsible for programmes on "civil society" regularly consult each other during NEA Secretariat senior staff meetings. The presentation on the NEA website of dedicated, up-to-date pages summarising NEA programmes on civil society also contributes to efficient co-ordination among them.

EGPSI CASE STUDIES: IMPLICATIONS OF STAKEHOLDER INVOLVEMENT FOR RADIOLOGICAL PROTECTION POLICY

John Paterson
University of Westminster, United Kingdom

Aware of the shift in societal expectations with respect to the operation and regulation of new technologies, not least those with a radiological component, the Villigen Workshops have sought to consider the implications of a closer involvement of other stakeholders in radiation protection decision making. The key message from the first Villigen Workshop in 1998, which focused on the particularly difficult question of contaminated areas and their restoration to a point where people could continue to live there, was that radiation protection must adapt to meet the needs of society and not the reverse. What sort of change might be required and what could be regarded as feasible was the objective of the second Workshop in 2001. This sought to make some preliminary suggestions by considering a range of initiatives in a number of countries, which exemplified a desire to change the way that radiation protection policy was developed and implemented. Among the conclusions drawn were the need to foster mutual trust between the radiation protection community and society as a whole; to develop approaches to interacting with stakeholders that are sensitive to specific contexts but which share features of openness, inclusiveness and agreed procedures; to clarify the respective roles of the various actors involved; and to understand interactions with stakeholders as opportunities for mutual learning.

The task for the third Workshop was thus to move from the still conceptual level of these conclusions towards some more practical guidance for stakeholder involvement in radiation protection decision making. Drawing on the analyses of the three case studies conducted for this Workshop, this presentation addresses the "when, what, who and how" questions that radiation protection specialists, in common with their counterparts in other technological domains, ask when confronted with the need to organise a stakeholder participation process.

A key message is that while there is no one-size-fits-all blueprint for such processes – given the sheer range and diversity of the situations where they may be appropriate – it is nevertheless possible to identify common themes and features. These should be of assistance to professionals in developing participation processes, and not detract from the flexibility needed to remain responsive to the particular demands and expectations of any given situation.

The presentation thus covers questions such as: When is stakeholder involvement appropriate? Who should be included? How do such processes differ from the sort of consultation that has been a feature of regulation for decades? What is the duration and extent of stakeholder involvement processes? What sort of issues might properly be included? What is the impact of stakeholder involvement on responsibility for decisions? What are the conditions for success? What should be avoided? What are the costs and benefits?

The guidance offered in this presentation should be understood as flexible rather than rigid, and for use as appropriate rather than on an all or nothing basis. Provided that it is accepted as such, then it should hopefully go some way towards meeting the felt need of radiation protection specialists for more practical information on the design and implementation of stakeholder involvement processes that can enhance their ability to serve society.

Some of the key lessons and knowledge extracted from the case studies, or emerging from discussions, are listed here:

- Case Studies showed that focusing on the problems identified by stakeholders could lead to accepted decisions; however this requires sensitive authorities, a flexible process, and the possibility of an evolutionary process focus.

- Identification of "Common Values" is a stakeholder process that can define a shared decisional framework in which it is possible to reach an agreed solution. The mandate to stakeholders must be flexible to allow the process objectives to grow or to shrink to fit the workable framework.

- There will be a need to frame the decision-making process to balance national policy needs and local stakeholder needs.

- Sustainability of a decision is a key aspect and this will require evolving processes, a long term commitment by government and regulatory authorities, and some flexibility in process goals.

- The question of "Who has the mandate to decide" is key to decision framing, problem identification and process development. Competence will be required in both technical and social aspects of the situation.

- While, in general, the responsibility for the "final decision" lies with the government and/or the regulatory authority, the process of "reaching a decision" is shared among all involved stakeholders.

In a practical sense, it should be noted that:
- Some issues may have to be left off the table in order to reach an accepted solution.
- However, it should also be remembered that significant, unsolved issues may come back at a later date, and may need to be resolved before a complete, accepted solution can be identified.
- A good decision-making process can overcome a bad situation, however success will still rely on the identification of a common goal.

THE OECD PROJECT ON EMERGING SYSTEMIC RISKS

Rudolf A. Müller
State Secretariat for Economic Affairs, Switzerland

Let me first say that I feel honoured and thankful for having been invited to your *3rd Villigen workshop on stakeholder participation in decision making involving radiation*. You yourselves may have taken a risk. You expect me to contribute to your discussions even though, being an economist, I'm not familiar with nuclear and radiation matters. I must even add that as a member of the Steering Group on the OECD Project on Emerging Systemic Risks, I must be a somewhat exotic participant. Almost all my colleagues are very experienced in questions such as risk management or insurance matters.

Moreover, I'm really impressed that the organisation committee of your workshop, the Committee on Radiation Protection and Public Health of the OECD Nuclear Energy Agency, started almost 10 years ago already to study stakeholder-participation in decision making involving radiation. Quite in contrast to your already long experience, the *OECD Report on Systemic Risks in the 21st Century: an Agenda for Action* was only published in the spring of this year. However, I might indicate that I am also somewhat experienced in stakeholder relations and communication with the public. I have been able to gain certain insights, especially into industrial relations. Having been in charge of economic aspects and statistics at the Swiss Federal Office for Industry, Commerce and Labour (the then so-called BIGA or OFIAMT) some twelve years ago, I was confronted with the important rise in unemployment in Switzerland which was then taking place and which was not always easy to explain to the public.

The point of departure

The idea of engaging Switzerland to participate in the OECD Emerging Systemic Risks Project was submitted to us by the Advisory Unit to the Secretary General of OECD. This small directorate is somewhat a think tank within a think tank – as the OECD itself is also sometimes called. Over several years, I participated in conferences and workshops of the Advisory Unit on matters such as the dynamics of globalisation, the future of the world economy, international governance and the like. As I greatly appreciated these discussions, always as an economist and from an economic policy point of view, I presumed that studying emerging systemic risks would also be of great relevance to economic policy.

The Swiss financial contribution to this off-budget project brought together three stakeholders: the State Secretariat for Economic Affairs, the Swiss Directorate for Security Policy, and the Swiss Science and Technology Council, through its Swiss Centre for Technology Assessment, – all joined in on co-financing. Independently from the Federal administration, Zurich Financial Services and The Novartis Group also participated in the project.

The work at OECD, relying on well-known experts and the meetings of the Steering Group, started in the year 2000. It struck me that dealing with emerging systemic risks called for the expanded and enhanced attention of a whole range of policy makers, clearly including those responsible for economic policy as well. To give you just a very simple example: If computer viruses are a systemic risk and if such viruses are rapidly spread within a specific type of software which is almost universally used, the economist suspects a monopolistic situation and calls for help from his colleagues in the domain of the competition policy.

The relevance of the Risks Project of OECD led me to forward my reports on the steering group meetings to some two dozen Federal offices engaged in relevant sector policies such as health, transport, insurance etc., as well as to some of the most important economic associations. Furthermore, I invited Mr. Pierre-Alain Schieb, the responsible Project-Manager at OECD, to present an interim report in November 2001, and the final results of the study in March 2003. These meetings took place in Berne and were attended by more than 20 persons representing almost the same number of Offices of the Federal administration. The Swiss Federal Institute of Technology in Zurich was represented by its Research Centre on Security Policy.

Project work and results

Let me now present the main thrust of the thoughts conceived and the results of the OECD study.

The global risk landscape has radically changed and is still rapidly and profoundly changing. The most notable changes are recognisable in demography, in the environment, in technology and in socio-economic structures. With regard to demography, we should mention the growth of the world population, important inequalities in wealth concentration, rapid urbanisation as well as migration and general mobility. Major changes are taking place in the planet's environment, such as a significant modification in the atmosphere's gas composition brought about by human activity, loss of biological diversity, climatic changes, global warming, and so on.

All of us are very familiar with the far-ranging technological changes out of which new risks emerge. Not only do new technologies such as biotechnology, robotics, xenotransplantation and nanotechnology produce new risks if not sufficiently mastered; but there has also been a significant advance in the interconnectedness of human beings and organisations, multiplying the channels through which accidents, diseases or malevolent actions can propagate. Socio-economic structures too are changing under the influence of economic and social progress. This internationalisation in all kinds of activities has, since the eighties, taken the form of globalisation, that is to say, the phenomenon of an acceleration and change in the quality of internationalisation.

These shifts in the landscape of risks have inspired the following maxims and caveats:

- first, there is no deterministic trend in the rise of major risks in modern society;

- second, risks will increasingly have to be considered from a forward-looking standpoint;

- third, there are a number of interactions and feedbacks between these forces that can only be appreciated through a holistic approach to risk management.[1]

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1. *Emerging Risk in the 21st Century: an Agenda for Action*. OECD (2003), p. 48.

In a next step, it was concluded that five critical issues should be considered. Each of these issues at least intuitively suggests or even underlines that risk management necessarily needs a focus on stakeholders and the public:

Issue 1: Heightened mobility and increasing complexity

The growing mobility of people, goods, services, technology and information, along with increased interconnectedness, results in the greater complexity of risks. The more complex a system is, the less avoidable an accident, and the bigger the damage of such a potential accident.

Issue 2: Rising scale and concentration of human settlements, activities and assets

As population grows and urbanisation intensifies, so does the concentration of large scale projects and production units. The possibility of major disasters is therefore further heightened.

Issue 3: Speed and scope of changes in risk conditions, and the uncertainty that results

What is at stake in this issue is well illustrated by the recourse to the precautionary principle in order to hedge developments which are difficult to foresee or might even be largely unexpected.

Issue 4: Shifting responsibility among public and private actors

The triumph and dynamics of the market economy, privatisation, deregulation, regulatory reform, and globalisation as well, have reduced the grip of nation-states on firms and individuals, and this situation continues to provoke the shift of numerous responsibilities over to the private sector.

Issue 5: Societal change and the perception of risk

Be it in the form of anticipation or of ordinary reaction to a hazard, the behaviour of society may be as important as the hazard's physical or "objective" effect, and may indeed amplify a given risk.

I have touched only superficially on these five critical issues. The study undertaken in Paris went into depth by drawing on five case studies, namely flooding, nuclear accidents, infectious diseases, food safety and terrorism. Every module of the risk management cycle was examined, that is to say:

- risk assessment;

- risk prevention;

- emergency management;

- recovery issues.

It became obvious that risk management is faced with challenges which have undergone a qualitative change in recent times. Consequently, and by conclusion, the OECD study advocates *a new policy* approach which should materialize as follows:

1. Adopt a broader view. Multi-disciplinarity is needed and: communication and acceptance have become crucial.

2. Look at the consistency of policy. Prioritize risks. Set target levels of risks. Exchange information and best practices among sectors.

3. Improve the coherence of risk management. Understand the effect of regulation. Coordinate phases of risk management.

The further conclusions and recommendations are grouped under the following four main headings:

1. Making better use of technological potential, and enhancing research efforts.

2. Strengthening international co-operation in all elements of the risk management cycle.

3. Developing synergies between the public and the private sectors. And finally

4. Informing and involving stakeholders and the general public.

All these conclusions and recommendations mean that risk management is to become a very central issue in society. I'm tempted to say that we face a change of paradigm similar to the one experienced in environment policy when the corresponding debate resulted in the concept of sustainability. Hence, risk management is to become, and somewhat has already become, an established policy theme constantly present in the public debate and more and more invading well-established policy areas such as the economy, the tax system, the organisation of security, social policy, education, etc.

Let us take just one example. One of the individual recommendations states: "Promote diversity". This recommendation will have to be anchored in many fields, as the interconnectedness, the mobility, and the concentration of population and wealth, along with the reliance on specific technologies, increase links among networks and multiply repercussions of many kinds. One might think of competition and anti-monopolistic policies, as well as concern for bio-diversity or patterns of urbanization. Public utilities, the structure of large organizations, or IT systems will all have to be rethought. Redundancies will have to be introduced, etc.

Citizens as partners

Inevitably, therefore, risk management needs the citizens as partners. Let me take the example of a concrete disaster and quote to you from the report:

"The handling of the ice storm in Québec, Canada in 1998 offers some useful indications of how new approaches are being applied to relations with a responsible media in times of crisis. Three successive waves of heavy snowfall in five days paralysed electricity distribution (there was a 75 mm-thick coating of ice on cables), transport networks, drinking water supplies and many other vital sectors. Evacuation of Montréal was seriously considered. The usual command-and-control approach to crisis situations was abandoned in favour of a strategy of trust building and collaboration with the

public, politicians and the media. A major media centre was established at the headquarters of Hydro-Québec and regular briefings were organised with journalists. Rules of the game were established. For example, no interviews would be given on speculation about the causes of the crisis, only on the facts – but technical briefings were held for those journalists interested in detailed information. The specialists working on emergency operations were available for such interviews but at no other time, thus significantly reducing disruption to their work. The president of Hydro-Québec appeared at the daily press conferences, accompanied by the prime minister of Québec. Their statements focused on the objectives to be achieved for the day. Straightforward, non-technical language was used, and their message was aimed at generating solidarity, trust and a sense of achievement."[2]

In my view, this example illustrates the main lessons of the OECD report on stakeholder and public involvement. These lessons could be formulated as follows:

1. In risk management, we need the citizens as partners, sooner or later, in mastering or even in preventing a disaster.

2. The media are attracted by disasters and even by the sheer idea of disaster. Their presence is a given; there is even the clear danger of intrusion and hindering. Effective interaction with the media is therefore essential; it can be of critical importance in reducing losses.

3. Trust is fundamental. So is trust-building. And, it is much easier to destroy trust than to build it; any step which could destroy trust must be avoided. Trust relies on credibility, and credibility depends on honesty and openness in the communications presented by the people in charge.

4. Involve the full spectrum of participants in every step of the decision-making process. Start with a formulation of the problem to be analysed.

5. Clearly separate risk assessment and policy decisions. Risk assessment needs to be based on clear and solid grounds, have no link to policy decisions, and be effectively communicated to the public.

6. Separate analyses and deliberations. In the factual information given, the limits of scientific knowledge should clearly be stated; the underlying assumptions of the analyses should be divulged. Uncertainties should be mentioned.

7. Analysis informs deliberation, and deliberation frames analysis. Allow for the whole range of standpoints and controversy. The more open the risk assessment and decision-making process is to public participation, the more democratic it is. The consequence is increased legitimacy and acceptance of the resulting decisions.

8. Plan, prepare and train for the communication process.

9. Finally, after a disaster, there remains a window of opportunity, as the attention of the public is at its highest.

Risk management is not just avoiding pending disaster. More and more, it has to focus on changing the framework conditions of the considered risks. It must reshape the risk landscape. Citizens need to be partners in this reshaping process; indeed citizens must become informed and

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2 .   *Emerging Risk in the 21st Century: an Agenda for Action*. OECD (2003), p. 181.

responsible actors of such reshaping. This means, of course, that the decision makers need to be open when conducting the communication process in which they engage society. This openness particularly implies that the decision makers are willing to cope with any unforeseen outcome of deliberations.

Follow-up

Meanwhile, the OECD Secretariat has developed ideas for follow-up activities to its risk project, based on the conclusions and recommendations. A pilot project on voluntary country reviews was brought up. Several countries engaged themselves or showed their interest: the US, Italy, Denmark, as well as Japan, Norway, Sweden and France. Critical risk sectors to be studied might be flooding, critical energy infrastructures and endemic diseases.

When consulted about the value of the OECD study and the possible relevance and interest in the follow-up project, the report was generally well received by the Federal offices. Some services with sector responsibilities in risk management declared to be already up-to-date in their work. This can be interpreted that Switzerland would show up well in a peer review. More horizontally oriented offices argue that the follow-up project would present a good occasion for self-analysis and international comparisons and contacts. Furthermore, it would present an occasion to strengthen the networks in Switzerland. The Federal Chancellor, Mrs. Annemarie Huber-Hotz, has agreed to facilitate the co-ordination. Switzerland is therefore about to announce its participation in the follow-up.

Finally, I would like to mention a more or less private Swiss Initiative which probably has at least part of its origins here at the Paul-Scherrer-Institute. The International Risk and Governance Council (IRGC), promoted among others by Professor Wolfgang Kröger, has found affinities and a sympathetic ear in Berne as well as in Paris with the OECD. Indeed, it seems obvious that Switzerland disposes of more than one asset in advancing modern risk management.

TOWARDS INCLUSIVE GOVERNANCE OF HAZARDOUS ACTIVITIES, SYNTHESIS OF THE CONCLUSIONS OF THE 2001-2003 TRUSTNET ACTIVITIES

Gilles Hériard-Dubreuil
Mutadis, France

TRUSTNET is a European pluralistic think tank network on the governance of hazardous activities since 1997. It is involving the participation of some 150 key decision makers, stakeholders and experts at European, national and local levels in activities having impact on health and the environment. The participants of TRUSTNET are representatives of public authorities at national and European levels, industry, trade unions, local governments, NGOs. They are also consumers or lay citizens, together with a multidisciplinary group of experts in risk management, public health, political sciences, sociology, psychology, economics, law and ethics.

TRUSTNET is supported by the European Commission (DG Research – Radiation protection) as a Concerted Action. The work programme of TRUSTNET is based on a participatory methodology and a co-expertise of actual case studies involving experts and non-experts. From 1997 to 1999, TRUSTNET has identified the severe difficulties and multiple social blockages affecting the credibility, effectiveness and legitimacy of traditional regulatory framework of hazardous activities. It has also identified emerging features of inclusive risk governance as a major opportunity for overcoming the observed difficulties. The conclusions of the 1997-1999 exercise have been reported in 2000 in the "TRUSTNET Framework: a New Perspective on Risk Governance".[1]

From 2001 to 2003, TRUSTNET has carried on the reflection and more specifically investigated the possible strategies for implementing in Europe inclusive governance in the various activities entailing risks for health and the environment. The presentation ("Towards Inclusive Governance") will outline presenting the main conclusions of this 2001-2003 exercise.

Ten case studies[2] involving decision-making processes in various activities entailing risk for health or environment in different European countries or at EU level were achieved along the 2001-2003 programme. Each case study was presented by a pluralistic group of stakeholders actually involved in the context of the case study.

From the analysis of the case studies, the participants of TRUSTNET have identified that the traditional mechanisms of co-ordination and complexity reduction are confronted with severe

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1.   Available on the TRUSTNET website: www.trustnetgovernance.com

2.   The case studies are: Gas distribution pipes replacement in UK, Accidental consumption of lamp oil and banning of phthalates at EU level, British beef embargo in France, European food regulation at EU level, Protection of wild bears in France, Energy policy framing in Germany, Food and farming policy framing in UK, Sustainable forestry in Europe, Occupational safety policy framing in UK, Airport extension in Germany and Austria.

difficulties in several categories of contexts of decision involving hazardous activities. Two major characteristics of those contexts were noted. The first one is the presence of irreducible factors of complexity in the decision-making context. The second is the existence of perverse mechanisms contributing to create or to reinforce ambiguities and creating distrust among the actors involved in the decision-making processes and beyond.

Analysing the case studies, the participants have identified irreducible factors of complexity in different decision-making contexts. Those factors of complexity operate with different levels of intensity and according to various kinds of interaction. A common characteristic of the situations analysed is the presence of several levels of decision and action (individual, local, national or international) as well as of a plurality of actors and stakeholders (public, private, experts, trade unions, NGOs, consumers, etc.). The current distribution of tasks among levels of action does not operate in the sense that it does not produce acceptable and practicable decisions in the eyes of the concerned actors.

Another factor of complexity is associated with the interactions of the different dimensions (sanitary, economic, political, legal, social and cultural, ethical, scientific and technical) at stake in the analysed situations. Traditional procedures of decision tend to manage the various dimensions of a situation as independent problems and to ignore the multidimensionality and the complexity of the actual issues. Complexity also arises from the necessity to take decisions in the presence of irreducible scientific uncertainties.

A common characteristic of the case studies is the expression of a growing disenchantment and disillusion by lay citizens towards the traditional representative democratic processes of decision. Stakeholders express loss of control, scepticism and distrust when involved in decision-making process bounded by secret agendas or overriding constraints. It is also a difficulty for public authorities often "victims" of situations where they are committed to consult the public on the base of a narrow remit with little if any room for changing the "givens" of the decision to be taken.

While identifying the contexts of decision requiring change in governance, the participants have also observed an additional source of complexity in the existence of perverse mechanisms contributing to create or to reinforce ambiguities creating distrust among the actors involved in the decision-making process. The participants have identified 11 mechanisms of this kind presented in Table 1.

Table 1. **The 11 mechanisms generating ambiguities**

- Focus the dialogue on risk while the problem is in the justification of the activity.
- Reduce complexity to pre-framed dimensions evacuating societal concerns.
- Impose a local decision justified by an overriding global interest.
- Let the non-experts believe that safety is the absence of risk.
- Present the decision making process as "scientific".
- Emphasise the differentiation between a scientific risk assessment and a political risk management.
- Propose more scientific expertise when the issue is to decide now in the context of large uncertainties.
- Bring new experts when the need is to make decision makers more accountable to stakeholders.
- Make irreversible decisions when society is not ready to take a step forward.
- Put the decision in the "safe hands" of independent bodies.
- Involve stakeholders without making explicit their means to influence final decisions.

Having described the factors of complexity and ambiguity in risk governance, the participants have proposed the following list (see Table 2) of 7 criteria in order to qualify the "Inclusive Risk Governance" processes. The participants have then come to the conclusion that implementing an "Inclusive Risk Governance Culture" is representing a significant challenge in most contexts. Analysing the case studies, they have however observed common characteristics in the different processes of change towards inclusive governance across the various context of decision making. It was therefore possible to outline a description of these processes and to identify their prerequisites.

Table 2. **Criteria characterising Inclusive Risk Governance**

- Empowering the affected individuals and groups.

- Operating in an atmosphere of mutual respect and trust.

- Creating the conditions for stakeholders to appropriate the relevant scientific evidence.

- Providing feed-back to the involved stakeholders on the decisions taken.

- Recognised as legitimate and fair by the stakeholders.

- Producing practicable decisions and strategies, flexible and open to revision with time.

- Producing a shared risk governance culture among the involved actors.

The participants have noted that specific conditions are required for making change possible. A first prerequisite is the existence of "pioneer actors" actually willing to initiate change as a vital option and acknowledging the complexity of the situation. Another prerequisite is the availability of professional mediation skills. Inclusiveness as a continued capacity of stakeholder integration along the decision-making process was also seen as a prerequisite.

In order to reduce the observed ambiguities, the participants have suggested the implementation of a step by step decision-making process. From the case studies analysis they have identified a procedure for the different actors to enter the problem in order to build together possible options and to prepare the decisions to be subsequently taken. In this perspective, they have proposed a clear distinction between a first phase of "decision framing" and a second phase of "decision taking" as exposed below.

The objective of the decision-framing phase is to create the conditions for all the actors concerned by a decision to build common representations of the issue at stake and to review and assess the possible options to be adopted. It is involving the relevant expertise and the concerned actors at the different levels of actions. Opening up the participation and widening up the considered issues are two iterative and complementary aspect of the framing process. The framing process is an opportunity to identify and to involve the different concerned categories of actors at local, national and international level. Inclusiveness should not be considered as static but rather as a "work in progress". The decision-framing phase also comprises the iterative identification of the various issues and dimensions at stake (sanitary, economic, social, ethical, technical, political…) in the decision. The framing phase contributes to the establishment of a common and reliable basis of relevant knowledge among all the participants of the process, notably on the technical and scientific dimensions.

While the co-framing process is described as an open and free dialogue involving all the concerned actors with the relevant expertise, the decision taking is representing a different phase in the decision-making process. Taking a decision can be the final stage of the decision making or one phase in a stepwise process. Decision taking should be seen as the privilege of the body bearing the responsibility to take the decisions. A participation in the decision framing is seldom associated with a participation in taking decision. The actors involved in the decision framing are not necessarily the ones involved in the decision taking. In other terms, inclusive governance does not necessarily involve co-decision. Case studies illustrate different procedures for making explicit the articulation of decision framing and decision taking. A very explicit articulation is observed in the "Haut Béarn" case study where the two phases are formalised in two different political instances.

The participants emphasised the need for contextualised multilevel decision taking. In this perspective, decision making should be distributed among the relevant levels of action. Decisions taken at national or global level should be as flexible as possible in order to open the possibility for lower levels of decision to take consistent and meaningful decisions integrating the various dimensions or concerns at stake in each (regional, local or individual) context. Multi-levels decision is an opportunity for increasing the accountability of the concerned actors to the decision taken. Contextualisation should not be confused with the European subsidiarity principle or devolution.

Stakeholders are scarcely informed on the outcome of the decision-making process as well as on the way their contribution has been taken into account. A feedback to stakeholders is therefore a necessary step once the decision has been taken. It should include precise information on the content of the decision, the actors who took the decision, the way the contribution of stakeholders has been taken into account and the reasons why.

Reviewing the different case studies, the participants have underlined the transformation entailed by entering inclusive governance processes. The observed transformations are concerning the strategic, institutional and cultural patterns that are characterising the social interactions in the context of hazardous activities.

Stakeholders having participated to inclusive governance processes have described the deep cultural and behavioural changes at institutional and personal levels. Inclusive governance necessitates the exploration of new roles and mutual trust relationships. Participants in inclusive governance are moving away from being reactive to a position where they contribute and provide the process with positive inputs. A difficulty is however to preserve along the process the accountability of representatives for their own constituencies. Inclusive governance is also at the origin of institutional strategic repositioning. Inclusive governance implementation is a long-term iterative learning process involving deep societal changes and new patterns for democracy.

LIST OF PARTICIPANTS

AUSTRALIA

ELLIOTT, Brendan
Public affairs
Australian Radiation Protection
and Nuclear Safety
PO Box 655
Miranda   NSW 1490

Tel: +61 2 9545 8333
Fax: +61 2 9545 8314
Eml: brendan.elliott@health.gov.au

CANADA

UNDERHILL, Douglas
25 Burnaby Boulevard
Toronto, Ontario M4R 1B5

Tel: +1(416) 486-0259
Fax:
Eml: dhunderhill@yahoo.com

FINLAND

PAILE, Wendla
MD, Chief Medical Officer
STUK Radiation and Nuclear Safety Authority
P.O. Box 14
FIN-00881 Helsinki

Tel: +358 9 7598 8480
Fax: +358 9 7598 8498
Eml: wendla.paile@stuk.fi

FRANCE

HÉRIARD-DUBREUIL, Gilles F.
Mutadis
3 rue de la Fidélité
F-75010 Paris

Tel: +33 1 48 01 88 77
Fax: +33 1 48 01 00 13
Eml: g.heriard-dubreuil@mutadis.fr

JOUVE, André
Emergency Preparedness, Environment
Radiation Protection Dept.
Nuclear Installation Safety Directorate (DSIN)
6 place du Colonel Bourgoin
F-75012 Paris

Tel: +33 1 40 19 86 84
Fax: +33 1 40 19 87 90
Eml: andre.jouve@asn.minefi.gouv.fr

LOCHARD, Jacques
Directeur, CEPN
Route du Panorama
B.P. 48
F-92263 Fontenay-aux-Roses Cedex

Tel: +33 1 58 35 86 65
Fax: +33 1 40 84 90 34
Eml: lochard@cepn.asso.fr

OUDIZ, André
Institut de Radio Protection et
de Sûreté Nucléaire
IRSN – DP, B.P. No. 17
F-92262 Fontenay-aux-Roses

Tel: +33 1 58 35 82 43
Fax: +33 1 58 35 88 29
Eml: andre.oudiz@irsn.fr

SUGIER, Annie
IRSN
77 - 83 avenue du Général de Gaulle
F-92140 Clamart

Tel: +33 1 58 35 83 36
Fax: +33 1 58 35 79 62
Eml: Annie.Sugier@irsn.fr

HUNGARY

FARKAS, Attila
Hungarian Atomic Energy Authority
Pf. 676
Fényes Adolf utca 4.
H-1036 Budapest

Tel: +36 1 436 4851
Fax: +36 1 436 4843
Eml: atfarkas@haea.gov.hu

JAPAN

KOBAYASHI, Sadayoshi
Office of Nuclear Safety Commission
Cabinet Office
3-1-1 Kasumigaseki
Chiyoda-ku
Tokyo 100-0013

Tel: +81 3 3581 9259
Fax: +81 3 3581 9839
Eml: skobaya@op.cao.go.jp

KUWABARA, Jun
Office of Nuclear Safety Commission
Cabinet Office
3-1-1 Kasumigaseki
Chiyoda-ku
Tokyo 100-8970

Tel: +813 3581 9259
Fax: +813 3581 9839
Eml: jkuwaba@op.cao.go.jp

NORWAY

AMUNDSEN, Ingar
Adviser
Norwegian Radiation Protection Authority
P.O. Box 55
1332 Osteraas

Tel: +47 67 16 25 39
Fax: +47 67 14 74 07
Eml: ingar.amundsen@nrpa.no

SPAIN

GUTIERREZ LOPEZ, Jose
CIEMAT
Avenida Complutense 22
28040 Madrid

Tel: +34 91 346 67 13
Fax: +34 91 346 61 21
Eml: jose.gutierrez@ciemat.es

SANCHO LLERADI, Carlos
Chef du Service de Protection
Radiologique Intérieure
CIEMAT
Avenida Complutense 22
28040 Madrid

Tel: +34 1 913 466 258
Fax: +34 1 913 466 718
Eml: carlos.sancho@ciemat.es

SWITZERLAND

AHLFANGER, Rainer
Hauptabteilung für die Sicherheit der Ker
Sektion Radiologischer Arbeitsschutz
OHSA/C-04
CH-5232 Villigen-HSK

Tel: +4156/3103819
Fax:
Eml: rainer.ahlfaenger@hsk.psi.ch

FLUELER, Thomas
Swiss Federal Nuclear Safety Commission
Munzentalstr. 3
CH-5212 Hausen

Tel: +4144 56 441 63 19
Fax: +4144 56 441 63 19
Eml: flueeler_urg@bluewin.ch

HAMMER, Johannes
HSK, Swiss Nuclear Safety Inspectorate
OHSA-C09
Dev. for Radiation Protection, Deputy
CH-5232 Villigen-HSK

Tel: +41 (56) 310 39 54
Fax: +41 (56) 310 49 54
Eml: hammer@hsk.psi.ch

JAHN, Swen-Gunnar
HSK, Swiss Nuclear Safety Inspectorate
OHSA-C08
Dev. for Radiation Protection, Deputy
CH-5232 Villigen-HSK

Tel: +41 56 310 39 31
Fax: +41 56 310 49 31
Eml: jahn@hsk.psi.ch

JANETT, Albin
Radiation Hygiene Division
Paul Scherrer Institut
CH-5232 Villigen PSI

Tel: +41 (56) 99 23 17
Fax: +41 (56) 99 23 09
Eml:

MÜLLER Rudolf
State Secretariat for Economic Affairs (SECO)
Policy Development and Special Assignments
Effingerstrasse 1
CH-3003 Bern

Tel: +41 31 324 09 31
Fax: +41 31 323 03 33
E-mail: rudolf.mueller@seco.admin.ch

PFEIFFER, Hans-Jurgen
Deputy Director
HSK-Swiss Federal Nuclear Safety
Inspectorate
CH-5234 Villigen-HSK

Tel: +41 (56) 310 3841
Fax: +41 (56) 310 39 07
Eml: hans.pfeiffer@hsk.psi.ch

PRETRE, Serge
Former Director
Swiss Nuclear Safety Authority
Chairman ILK (Germany)
Haldenweg 11
CH-5313 Klingnau

Tel: +41 56 245 6414
Fax: +41 56 245 6622
Eml: serge.pretre@gmx.ch

SCHMOCKER, Ulrich
Director
Swiss Federal Nuclear Safety
Inspectorate (HSK)
CH-5232 Villigen-HSK

Tel: +41 56 310 39 64
Fax: +41 56 310 39 95
Eml: schmocker@hsk.psi.ch

WERNLI, Christian
Radiation Metrology Section
Paul Scherrer Institute
CH-5232 Villigen-PSI

Tel: +41 (56) 310 23 57
Fax: +41 (56) 310 23 09
Eml: christian.wernli@psi.ch

TURKEY
USLU, Ibrahim
Turkish Atomic Energy Authority
Radiation Health and Safety Department
06530 Ankara

Tel: +90 (312) 287 1529
Fax: +90 (312) 285 9257
Eml: ibrahim.uslu@taek.gov.tr

UNITED KINGDOM
PATERSON, John
Reader
School of Law
University of Westminster
4 Little Titchfield Street
London W1W 7UW

Tel: +44 20 7911 5000
Fax: +4420 7911 5821
Eml: J.Paterson@westminster.ac.uk

WILCOX-BAKER, Rupert
Manager of Government Relations
British Nuclear Fuels plc
Risley, Warrington WA3 6AS

Tel: +44 1925 832022
Fax: +44 1925 832082
Eml: rcwb1@bnfl.com

UNITED STATES OF AMERICA
CAYFORD, Jerry
Fellow Resources for the Future
1616 P Street NW
Washington, DC 20036

Tel: +1 202 328 5015
Fax: +1 202 939 3460
Eml: Cayford@rff.org

EARLE, Timothy C.
Psychology Department
Western Washington University
Bellingham, WA 98225

Tel: +1 360 733 7057
Fax: +1 360 650 7305
Eml: timearle@cc.wwu.edu

OECD Nuclear Energy Agency

SHIMOMURA, Kazuo
Deputy Director

Tel: +33 01 45 24 10 04
Fax: +33 01 45 24 11 06
Eml: kazuo.shimomura@oecd.org

LAZO, Edward
Radiation Protection and Waste
Management Division

Tel: +33 (0)1 45 24 10 42
Fax: +33 (0)1 45 24 11 10
Eml: lazo@nea.fr

MAYS, Claire
Consultant
Radiation Protection and Waste
Management Division

Tel: +33(1) 45 24 10 47
Fax: +33(1) 45 24 11 10
Eml: claire.mays@oecd.org

OECD Nuclear Energy Agency
12, boulevard des Iles
F-92130 Issy-les-Moulineaux

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