2017

NEA Workshop on Stakeholder Involvement in Nuclear Decision Making

Summary Report

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NEA
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NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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The OECD Nuclear Energy Agency (NEA) was established on 1 February 1958. Current NEA membership consists of 33 countries: Argentina, Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Poland, Portugal, Romania, Russia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission and the International Atomic Energy Agency also take 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 sound and economical use of nuclear energy for peaceful purposes;
- 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 analyses in areas such as energy and the sustainable development of low-carbon economies.

Specific areas of competence of the NEA include the 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.

Cover photos: Opening session of the workshop; Workshop participants.

Foreword

Nuclear issues are embedded in broader societal issues such as the environment, risk management, energy, health policy and sustainability and, as such, often generate considerable interest and concern. Nuclear regulators, governments, operators and other decision makers have a responsibility to ensure a high degree of transparency and to make clear and well-reasoned decisions.

Incorporating societal input into these decisions in a balanced fashion may help to achieve better-informed and more sustainable choices. Stakeholder involvement in decision making provides the opportunity to increase public awareness, understanding and acceptance of decisions in the nuclear domain. It is an important part of building public confidence, not least because citizens expect to voice their concerns and preferences, and to be able to influence decisions of significance to the environment and to community well-being. Stakeholder involvement is not only about what decision is made. It is also about achieving decisions that visibly and transparently reflect stakeholder concerns and input.

Various international and national legal frameworks foresee the formal involvement of statutory stakeholders in decision making around nuclear issues, including members of the public concerned. Anyone who has relevant information, experience or concerns may seek to participate in the decision-making process and to interact with other stakeholders. In the broadest sense, "stakeholders" include the public, businesses, economic actors, representatives from non-governmental organisations, local, regional and national authorities, as well as nuclear regulators.

Member countries and organisations still encounter challenges when applying the vast range of approaches and tools available to implement and reap the benefits of stakeholder involvement. These challenges were addressed at a recent workshop organised by the Nuclear Energy Agency (NEA) to exchange experiences and pool insight and practices across areas, sectors and nations. This first NEA cross-committee workshop on Stakeholder Involvement in Nuclear Decision Making took place in Paris, 17-19 January 2017.

The workshop focused on how to reflect stakeholder concerns and input in decision-making processes. Other questions addressed included: How one works within the existing legal frameworks to effectively involve stakeholders? How one builds and assesses public confidence? How broader stakeholder involvement can help decision makers to make well-informed decisions that effectively address stakeholder views?

Experts and practitioners across multiple domains of NEA work shared perspectives, best practices and lessons learnt from nuclear and non-nuclear activities alike on how to best involve stakeholders in decision-making processes.

The present summary report attempts to capture the collective wisdom generated during three days of interactions. It highlights some commonalities and differences in views and approaches and identifies particular lessons that can be immediately applied to improve strategy and practice. Overall, the learning gained from this workshop can benefit both governments and citizens. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the NEA and its member countries.

Acknowledgements

The success of the NEA Workshop on Stakeholder Involvement on Nuclear Decision Making is the result of the direct and substantial involvement of the chairs and members of the Committee on Nuclear Regulatory Activities (CNRA), the Committee on Radiological Protection and Public Health (CRPPH), the Committee on the Safety of Nuclear Installations (CSNI), the Committee for Technical and Economic Studies on Nuclear Energy Development and the Fuel Cycle (NDC), the Nuclear Law Committee (NLC) and the Radioactive Waste Management Committee (RWMC). The workshop and summary report were jointly co-ordinated by the NEA Division of Radiological Protection and Human Aspects of Nuclear Safety (RPHANS) and the Division of Nuclear Development (DEV), with the support of a broad cross-cutting team of NEA staff. The summary report was co-ordinated by Ms Monica Haage and Mr David Henderson, with the support of the consultant, Claire Mays.

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Executive summary

Nuclear regulators, governments, licensees and other actors all share the goal of achieving sustainable decisions accepted by all with regard to nuclear energy and other areas of radiological application, such as medical radioisotopes for diagnostics and treatment. Heightened availability of information, substantive public participation and engagement are today considered as necessary for delivering clear, well-informed and sustainable decisions, as well as for optimising their implementation.

Involving a larger circle of stakeholders in shaping decisions can build more confidence in the process and can anchor the outcomes in a shared understanding. Stakeholder involvement is a process or a tool to reach a decision that is better-informed, sound and widely accepted. In this context, "stakeholder" is intended to be taken in its broadest sense and should include *inter alia* the public, businesses, economic actors, non-governmental organisations, local, regional and national authorities.

Political and legal systems, as well as culture, vary in each country and lead to different methods and levels of stakeholder involvement. Similarly, public and private organisations may have different rules or traditions of openness towards external stakeholders. Generally, an evolution has been observed over the past decades towards more extensive interaction with stakeholders.

In this context, the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD) organised a Workshop on Stakeholder Involvement in Nuclear Decision Making (17-19 January 2017) as an agency-wide effort, acknowledging the fact that different countries and sectors may face similar challenges and that sharing experiences and approaches could be useful. The workshop was an opportunity to bring together the different NEA standing technical committees and other experts with first-hand knowledge and experience in areas related to: nuclear law, regulatory practices, radiological protection, nuclear waste management, deployment of new nuclear facilities, extended operation of nuclear facilities, deployment of other energy technologies and infrastructures, and social and traditional media. The workshop included eight topical sessions in which case studies were presented. Two structured dialogue sessions allowed all attendees to deepen their exchange and learning; their observations were reported back to plenary in a panel format. Overall, the workshop gathered best practices from across NEA membership and constituencies, integrated cross-cutting issues and generated collective wisdom which is reported in this summary report. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the NEA and its member countries.

Topical Session 1 highlighted that the legal framework for stakeholder involvement has progressed since the first days of nuclear applications. International nuclear conventions like the Convention on Nuclear Safety or the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management are concerned primarily with intergovernmental notification and basic obligations for informing the public. The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) and the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) promote public involvement, including in the nuclear field, and require that public comments be taken into due account. "Public comment however is not a vote" – one informed comment may carry more weight for the responsible authority than many

unsubstantiated and/or repetitive comments. It is important to clarify at which stages of nuclear decision making the public is called upon to participate. From a legal perspective, a "tiered approach", in which each consecutive stage of decision making addresses only the issues within the option already selected at the preceding stage, would benefit the public concerned, the project applicant and the decision-making authority.

Topical Session 2 examined the experiences and practices of nuclear regulatory organisations. Regulators must balance the need to involve stakeholders against their need to make decisions independently of any pressure. Some regulators consider that interaction with stakeholders at appropriate times in fact supports their organisation's credibility and independence. For the regulators, stakeholder involvement and dialogue are means to improve knowledge and build mutual trust, in the ultimate service of high-quality decisions and greater safety.

Topical Session 3 highlighted that radiological protection professionals have to help integrate protection aspects into societal decisions, rather than assume that societal aspects will conform to radiological precepts. It was emphasised that decisions are informed by science, but are driven by societal considerations – at the national level in certain cases of setting dose limits and applying standards, or at the local level when working with communities and individuals in the context of post-accident recovery. Long-term interaction, respect for local knowledge and understanding of local circumstances can assist in fine-tuning decisions. They can also help in building trust, which is essential for expert-citizen co-operation in complex settings where daily life is impacted by radiological issues.

Topical Session 4 explored the radioactive waste management sector, where particularly extended and resource-heavy stakeholder involvement processes are conducted. The need for local communities to have a key role in deliberating choices has been recognised in many countries seeking to site deep geological repositories or other interim storage or disposal facilities. Many countries have made changes in their waste management approach to address acknowledged societal challenges. Such changes include initiating open and transparent decision processes and collaboration with interested stakeholders. This session also placed a focus on transgenerational issues. Special mention was made of the need to get today's youth more involved in such issues and to tutor them in the scientific and societal aspects underlying future decisions around energy choices, nuclear operations, radiological protection, decommissioning and waste transport and management.

Topical Sessions 5 and 6 reviewed cases in which nuclear power licensees or applicants recognised stakeholder involvement to be very important, but were also aware of the challenges. Effective stakeholder involvement requires a significant investment in personnel, training, financial resources and time. It can also add significant uncertainty to the process. Despite such pressures, seeking mutual agreement with stakeholders has been found to be more effective than trying to convince them of an organisation's viewpoint. Experience shows that arrangements can be made for fruitful dialogue around highly technical or controversial matters and, in some cases, to allow examination of sensitive information. The importance of local participation and dialogue throughout an application process was stressed repeatedly. Speakers noted that there were "always good ideas" from stakeholders to improve projects, often regarding the creation of added value for the community and fitting installations into a regional identity and local way of life.

Topical Session 7 showed that stakeholder involvement concerning other energy technologies and infrastructures presented challenges similar to those found in the nuclear realm. While there may be some important distinctions, lessons can be drawn from systematic research on siting approaches and parameters of public response to technologies such as carbon capture and storage facilities, high-voltage lines and renewable energy. Beyond meeting legal requirements, a project or entity must establish legitimacy. Stakeholders expect fair procedures and equitable sharing of risks and benefits

across people, space and time. The term "NIMBY" (i.e. not in my backyard) was underlined as an overly simplistic. In fact, stakeholders may have any number of concerns centred on their attachment to a place, a lifestyle or an activity. Engagement with stakeholders can identify alternative paths of implementation that may be found acceptable.

Topical Session 8 examined the role of social media as a complementary channel to support stakeholder involvement. Social media provides a means for dialogue and outreach and allows stakeholders to express themselves freely. Dedicated resources and staff are needed, with access to an internal network of experts to provide authoritative information in response to questions that may arise on social media. Monitoring social media is important to stay informed on what stakeholders are thinking. While rumours can "live forever" on the web, errors often are corrected by peers, which means the institution need not censure or erase negative content. Many workshop participants said they learned that it is crucial to build up social media competence, credibility and an audience during nominal operations so that these platforms can serve during emergency situations.

The dialogue sessions provided a forum for the broad-based audience to talk about major issues encountered in organising stakeholder involvement and how challenges had been addressed. It was noted that nuclear decision making needed to be embedded in a transparent process with clarity on who can participate and to which extent. Involvement requires good upstream information on the substantive issues and choices implied by the decision. Attendees highlighted the importance of identifying and understanding stakeholder questions, concerns, preferences and expectations related to the decision making. Some advised that voluntary (non-required) stakeholder involvement processes are best applied in cases where there is sufficient flexibility to bring improvements or even reframe a decision in light of stakeholder input.

Sustained engagement (as opposed to one-off consultations) was described as beneficial because it helped to manage policy risks, avoiding polarised conflicts and entrenched positions that can result in the complete rejection of technological projects. Some attendees have found that trusting relationships developed through such sustained engagement provide strength to survive the inevitable challenges of the implementation period. Remarks were made about the importance of trust, advising that trust must be earned and built up through constructive one-to-one and in-person communication, characterised by empathy and respect. Such interpersonal relationships may lead in time to improve trust in the institution that an individual represents (such as the regulatory authority, the applicant, governmental agencies).

Dialogue conversations recognised that public authorities receive stakeholder input, but retain the responsibility for final decisions. Some attendees felt strongly that citizens transferred their decision-making power to elected representatives and central government. In this view, a so-called social licence for nuclear decisions is granted by these officials of democracy, while the technical licence is given by the regulatory authority. Other delegates viewed that to be effective, a social licence needs an immediate basis in stakeholder-supported values and options, which are identified through processes of direct involvement.

Delegates indicated during dialogues that once an organisation had committed to stakeholder involvement it could not draw back from this commitment without risking its reputation. Stakeholder involvement therefore requires the early and unwavering support of top-level managers, and sometimes of political actors to ensure sufficient resources, a strategy and a plan. The resource-intensive character of stakeholder involvement posed some questions among attendees from industry, which cannot operate with open-ended process time frames.

Among the main conclusions reached during the workshop are the following:

- Stakeholder involvement is "a process or a tool to reach a decision that is better-informed, sound and widely accepted". Stakeholder involvement is also viewed as an important attribute of a democratic society.

- There is no one-approach-fits-all: the stakeholder involvement process needs to be adapted to the country-specific context. Nations have different political systems and legal frameworks, which are reflected in the mindsets of populations and the approaches to stakeholder involvement. A longer, more open-ended process may be acceptable in situations where a decision is not time-constrained but less acceptable in other situations.
- The format of involvement will be different in the case of a general, policy-type decision, or a project or site-specific decision. Actors must match the appropriate degree and format of involvement to the decision context. Evaluation of the effectiveness of stakeholder involvement efforts can help to improve subsequent initiatives.
- The involvement process may respond strictly to legal requirements or it may go beyond this minimum. A societal expectation is that stakeholder involvement will go beyond the sharing of information or consultation. Involvement is taken to mean at the very least a two-way dialogue.
- The authority of the decision must demonstrate that stakeholder views are given consideration and explain why they are or are not retained for the ultimate decision.
- A major lesson drawn from the workshop was that face-to-face interaction and effective listening are very important. Large "town hall" style meetings are only one method of interaction and may be useful, particularly for broadly communicating information consistently, but they are not as effective for actual stakeholder engagement and often tend to be polarising.
- When involving the general public, the views and opinions of the "silent majority" must be considered.
- It is wise to take into account and respect local knowledge. Local people, who are experts of their own place and traditions and who can talk directly with the public concerned, can be recruited in this process.
- While stakeholder involvement is resource intensive, many have found it is time and money well spent in terms of the quality of decisions, optimised implementation and improved relationships. Involvement should start very early in the decision-making sequence.

The workshop evaluation showed that the participants appreciated the cross-cutting forum arrangement. They found it was beneficial to sit together, talk and compare experience with persons from different backgrounds and areas of competence. Eighty per cent of respondents stated that they gained new insights, attributing this to the broad panorama of country case studies and the possibility to listen to specialists from outside their own field.

The written evaluations and verbal feedback indicated that there would be interest among NEA member country delegates in continuing the dialogue. A list of topics for future investigation was assembled. Participants wished to learn more about stakeholder involvement, especially from other energy sectors, and they asked for further practical details on how to communicate with stakeholders, how to choose effective techniques and how to conduct involvement. Discussions on failed initiatives, they suggested, could help in identifying solutions for common problems and challenges. Many called for future workshops to include more stakeholders such as those from governmental agencies, civil society, local communities, non-governmental organisations, businesses, academia and different areas of scientific expertise.

In his closing statement, NEA Director-General William D. Magwood, IV emphasised that the practice of stakeholder involvement produces valuable learning for both technical experts and other stakeholders. Mr Magwood highlighted the human connection that is formed when nuclear actors meet members of the public in a true dialogue.

Chapter 1. Introduction

Stakeholder involvement in nuclear decision making

Nuclear regulators, governments, licensees and other actors all share the goal of achieving accepted, sustainable decisions with regard to nuclear energy and other areas of radiological applications (such as medical applications of radioisotopes for diagnostics and treatment). These actors have the duty to make clear, well-reasoned decisions and to ensure appropriate transparency in the decision-making process. Stakeholder involvement, participation and engagement are now seen as means for improving decisions and for optimising their implementation. In this context "stakeholder" is intended to be taken in its broadest sense and should include the public, businesses, economic actors, non-governmental organisations, local, regional and national authorities and others. A wide range of participants with relevant information, experience or concerns may seek to become involved in the decision-making process and to interact with other stakeholders.

Seeking a sustainable public consensus on the decisions regarding nuclear activities has become an operational requirement. This is true at many levels, ranging from regional and national policy making to day-by-day relations with local communities that may be faced with nuclear or radiological issues. The need is often best addressed by providing a substantive role in the decision-making process to members of the potentially affected public. In many cases, this substantive role of public participation corresponds also to a legal requirement. Moreover, it can be viewed through the lens of a moral requirement, and as a basis for the legitimacy of decisions.

Political and legal systems as well as culture differ in each country and allow varying degrees of involvement of the public and other types of stakeholder in decision making. Similarly, in the state and private organisations directly responsible for nuclear oversight or operations, there may be different rules and traditions of openness to external stakeholders. However, in many contexts an evolution has been observed over the past decades towards more extensive interaction with stakeholders among the public. Openness and involvement have led to better public understanding of and support for decisions. Heightened interactions are seen in some contexts to contribute to a stronger safety system including a component of citizen vigilance. The evolution moreover is shaped by today's democratic ethos and the growing demand by citizens generally to have some measure of control over decisions that may affect them. They call for decision processes to be conducted in a manner that maintains public confidence and provides for openness, transparency, accountability and justice across populations and time.

The trend towards greater public participation and stakeholder engagement is reflected in and accelerated by international conventions and national legal frameworks (which often concern all types of significant infrastructure and need not target the nuclear field directly). Greater dialogue between all types of stakeholders is a welcome necessity when seeking to fit nuclear activities into communities and, ultimately, contribute to a better quality of life.

NEA cross-cutting issues in stakeholder involvement

Across nuclear areas, there have been efforts to transition to greater openness and to involve stakeholders in the most effective way. Legal frameworks have developed continuously since the first days of nuclear applications. Public and private organisations at every level have experimented with degrees of stakeholder involvement, ranging from outreach and communication around operating facilities, to sweeping national efforts by parliamentarians and special committees to draw in the full range of publics who benefit from, have a particular interest in or will potentially be directly affected by a nuclear activity.

Experience with designing and conducting stakeholder involvement has been built up in many countries and across nuclear areas. Across NEA member countries, many different approaches are taken to involve stakeholders in decision making and implementation. The practice has drawn on parallel work in many outside sectors (for instance, development or urban planning) and disciplines (decision sciences, sociology, psychology and others). Indeed the nuclear field has contributed to other domains as a front-runner in testing and elaborating means for engaging stakeholders.

The NEA has been a significant contributor to this movement. For many years member country delegates have shared experience and best practices, highlighting the many facets of stakeholder involvement in nuclear decision making. NEA standing technical committees or working groups have held a number of meetings in national or regional contexts which deal with stakeholder issues. In several cases these meetings have been opened to representatives of stakeholders among the public touched by the particular activity under consideration. The record of exchanges and the experience gained overall are made available to the greater number through a series of reports (see Annex B).

The reported approaches to stakeholder involvement reflect the particular rules, concepts, understandings and objectives found in each context. When interacting with stakeholders, nuclear specialists in the various technical areas have distinct tasks to accomplish, and the concerns of their stakeholders may touch on different levels as well. A supplementary level of complexity is found when comparing national and organisational cultures and legal frameworks.

The first NEA Workshop on Stakeholder Involvement in Nuclear Decision making (17-19 January 2017) was a completely new undertaking as it was planned and executed as an agency-wide effort, and its sessions reflect the range of important contributions from the diverse areas of work of the standing technical committees. Recognising this interrelatedness and the wealth of experience residing across the NEA, the decision was made to use the workshop as an opportunity to bring together the different groups and gather the collective wisdom and best practices from across the NEA's membership and constituencies.

Objectives and scope of the stakeholder involvement workshop

The January 2017 workshop was a first-ever opportunity for NEA standing technical committee members to meet and talk together about a single topic, sharing approaches on how to engage and build trust with stakeholders for the benefit of making well-informed decisions. The main objective of the workshop was to allow experts from many different nuclear fields to compare their varied experiences of stakeholder involvement and identify which practices have been successful and which have not; to discuss the laws, policies and programmes underway in different countries; to highlight areas for improvement and to develop a collective wisdom from which all may learn and benefit.

Inviting the members of all the NEA standing technical committees, the workshop allowed its participants to examine the following issues:

- various levels of stakeholder involvement, the terms and their meanings;
- aspects or factors of effective and ineffective involvement of stakeholders;
- respective roles in effective stakeholder participation practices;
- factual accuracy while acknowledging differing positions and information;
- approaches to enable trust and well-informed decisions;
- interrelationships between different expert domains.

The workshop agenda is presented in Annex A.

Participation in the workshop

The workshop event was opened to the members of all the NEA standing technical committees. The workshop saw 147 experts from 26 countries and international organisations come together in the highly interactive format to explore different perspectives and discuss international best practices.

The active support of the member countries was reflected in the time and effort devoted by their experts from many fields to develop detailed case study presentations, and by the attendance of their delegates to address cross-cutting issues with peers from other subject areas. Many committee chairs accepted to be included in the programme and take the floor. The broad-based audience was comprised of experts in nuclear law, regulatory practices, radiological protection, nuclear waste management, deployment of new nuclear facilities, extended operation, other energy technologies and infrastructures, social and traditional media (see Annex D). Stakeholders themselves in the nuclear field, these delegates were also relaying views and experience gathered from interactions in their home contexts with an even broader panel of stakeholders, including those from non-governmental organisations, civil society and the general or affected public.

The workshop programme

The scene was set over the course of the three days by several high-level speakers. Opening remarks were delivered by the OECD Secretary-General, Mr Angel Gurría, the NEA Director-General, Mr William D. Magwood, IV, and the Chairman of the United States Nuclear Regulatory Commission, Mr Stephen G. Burns. Other featured speakers were Mr Julien Aubert, French Member of Parliament, and Mr Julian Gadano, Argentine Undersecretary of Nuclear Energy. Journalist Ms Ann McLachlan served as moderator for the entire workshop.

An additional 37 presentations were made in the course of 8 topical sessions by specialists representing the full spread of NEA member countries and many nuclear fields. Their case studies detailed best practices and lessons learnt from nuclear and non-nuclear activities alike on how to best involve stakeholders in the decision-making process. Each presentation was designed to be balanced in its technical depth in recognition of the diversity of the audience.

The topical sessions centred respectively on: legal frameworks and international conventions; regulatory perspectives; radiological protection; radioactive waste management; new nuclear facilities; extended operations of nuclear facilities; stakeholder involvement in other sectors; media and stakeholder involvement. Each session was introduced by a chair, and provided a briefing on approaches taken to stakeholder involvement and decision making in the specific topical area. The name and

affiliation of each session chair and each presenter and the title of each presentation are provided at the head of each topical session summary and in Annex A.

The sessions were punctuated by opportunities for dialogue among all participants who were seated throughout the workshop at round tables composed of delegates from different countries and specialty areas. Dialogues between table members were organised at two points during the workshop to reflect upon what was presented and for a further exchange of perspectives and experiences on stakeholder involvement in decision making. The dialogues were facilitated by a pre-appointed table leader. The highlights were reported back by the leaders in a panel discussion moderated by Ms McLachlan.

At several points during the workshop Ms McLachlan interpreted highlights and collective wisdom handed up by session and dialogue rapporteurs. After the moderator's final presentation, Director-General Magwood closed the workshop thanking all those who had contributed to its achievement.

Contents of this summary report

The present report summarises the NEA workshop proceedings. Chapter 1 recalls the setting in which the 2017 workshop was organised, the development of the workshop and the audience it gathered. Subsequent chapters are based on rapporteurs' accounts of the plenary and keynote talks (Chapter 2) and topical presentations (Chapter 3), as well as the dialogues among attendees which were then reported in plenary (Chapter 4). Quotes highlighted throughout the report were drawn from speakers' material or from the dialogues.

In this way the publication reports the kaleidoscope of views and practices brought by NEA member countries and their experts from almost all nuclear areas as well as from some other energy technology sectors. It documents best practice and lessons learnt. Furthermore, Chapter 5 singles out the commonalities and differences found across the countries and sectors, as well as tangible takeaways from the workshop. The reader will find that certain major messages are repeated in different parts of the report, as a sign of the convergence between different contexts, experts, sessions and discussions.

Chapter 6 reports the attendees' evaluation of the workshop and the actions requested to progress.

The annexes provide further resources: other NEA publications of interest; instructions for facilitating dialogue; and the list of participants.

The full programme, including speaker biographies and the presentations from the workshop can be downloaded at: www.oecd-nea.org/civil/workshops/stakeholder-involve2017.

Participants of the NEA Workshop on Stakeholder Involvement in Nuclear Decision Making.

Chapter 2. Report of the plenary and keynote speeches

Mr Magwood, Director-General of the NEA, opened the Workshop on Stakeholder Involvement in Nuclear Decision Making by recalling that experts cannot act alone to solve difficult problems. For the greatest challenges facing society today they must, as a central component of their activities, ensure the broad and deep support of stakeholders among the public. This is important in all long-term, complex undertakings – and an absolute requirement for decisions concerning nuclear energy that employ large tracts of land, use significant quantities of resources, and sometimes generate public questions about safety. The Director-General recognised the high expectation among members of the public and other types of stakeholders to be engaged in planning and decision making. He recalled that this lesson has been learnt through hard experience when plans or policy met resistance or when proposals for new nuclear installations could not be carried out on the anticipated timescales.

Mr Magwood pointed to several fundamental ingredients of achieving broad-based support, including reliable information and mutual respect and trust among all the actors. He suggested that rather than criticising a lack of understanding among non-experts, it is the duty of public servants and others working in the nuclear area to reach out and invite members of the public into the conversation.

The Director-General emphasised that stakeholder involvement in nuclear decision-making targets well-informed, well-reasoned and clear decisions. These should broadly reflect the input of stakeholder views in a balanced fashion. Attempts to achieve such broad and balanced reflection of views can lead to greater understanding and acceptance of resulting decisions and as such are an important part of building public confidence.

> "No organisation has been successful in every attempt to involve its stakeholders, but there are many success stories. Both types of experience offer learning."
> (W. D. Magwood, IV, NEA)

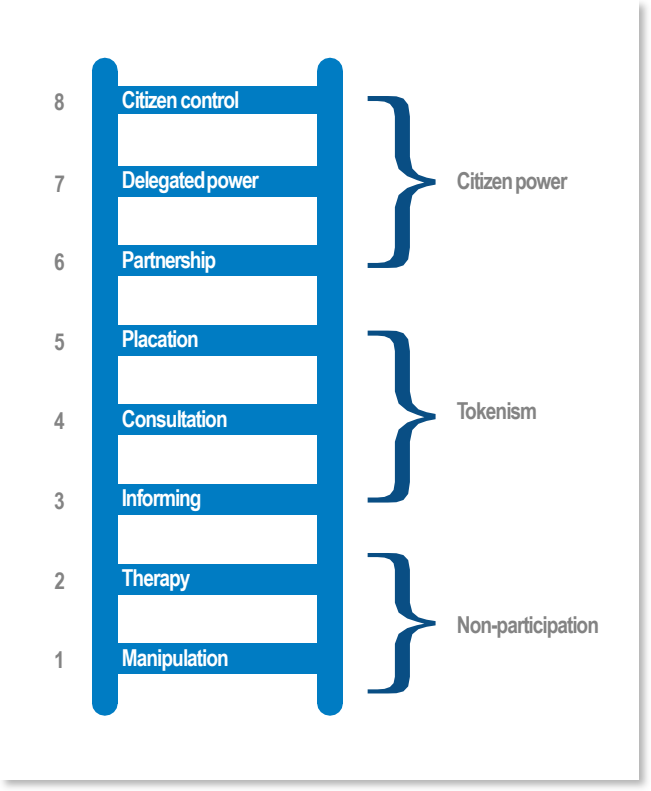
Mr Magwood reflected that stakeholder involvement in nuclear decision making is a topic that has not received all the attention it needs, and saluted the unique opportunity gathering members of almost all the NEA standing technical committees to discuss the issues in a cross-cutting manner. Along with Ms Hah, Head of the Division of Radiological Protection and Human Aspects of Nuclear Safety, he encouraged the delegates to "get involved" across the three days of the workshop in order to build collective wisdom on seeking improved decisions through stakeholder interactions.

During his opening remarks, Mr Gurría, Secretary-General of the OECD, highlighted the trend for stakeholders in all member countries to expect that they will not only be informed about important decisions that affect their lives, but that they will be deeply involved in making those decisions. Involvement bolsters public confidence in those decisions and ensures that they are in the public interest. The Secretary-General acknowledged that this is particularly pertinent to the nuclear sector, where public fears can run high. In particular, the Fukushima Daiichi nuclear power plant disaster has transformed the way many citizens view government decision-making processes in this area, making them much more aware of how those decisions can impact their lives. Mr Gurría noted that the quality of public involvement in the decision-making process may be as important as the quality of the scientific analysis, or the engineering work needed to implement the decision. He also stressed that "taking the shorter route and

bypassing serious public engagement risks reaching decisions that will not stand the test of time as stakeholders continue to question the decision after it has been made. In the end, this path would cost much more, take much longer and also damage the credibility of decision makers." Mr Gurría relayed that the OECD has a long tradition of stakeholder involvement through trade union or business and industry advisory bodies, as well as the OECD Forum which is open to civil society. He acknowledged that the nuclear field has been a leader in stakeholder engagement, and anticipated that the workshop outcomes will be of value to other OECD directorates and stakeholders. Mr Gurría closed by encouraging the workshop attendees to carry home lessons that can help chart the course for coming years.

Mr Burns, Chairman of the United States Nuclear Regulatory Commission, delivered a keynote speech. He recognised there is a global movement towards broadening information flow and participation. He displayed the so-called Arnstein "ladder" (Figure 2.1) that can be applied to assess the degree of public involvement and influence achieved in any state or private decision making. The lower rungs depict non-participation and the middle rungs focus on education and information as well as consultation. Mr Burns suggested that the higher level of partnership was of most interest to the workshop. In his experience, partnership between stakeholders and regulatory organisations, as well as openness and transparency, are today seen as traits of a good regulator, and are increasingly set out as goals in regulatory strategic plans throughout the world.

Figure 2.1. The Arnstein ladder of citizen participation



Source: Arnstein, S.R. (1969), "A Ladder of Citizen Participation", *Journal of the American Planning Association*, Vol. 35, No. 4, pp. 216-224. This version of the figure is drawn from a flyer published by the NEA Forum on Stakeholder Confidence, entitled "From information and consultation to citizen influence and power: 10-year evolution in public involvement in radioactive waste management" (2010). Download from: www.oecd-nea.org/rwm/fsc/#flyers.

Mr Burns highlighted a broad definition of "stakeholder" as "one who is involved in or affected by a course of action." Nuclear stakeholders thus include those who live near or work in nuclear facilities; own or run the facilities; govern at the national, regional or local level; manufacture the components or the fuel; regulate the output or use of the facility; benefit from the use of radiological material and nuclear installations; and those who might be adversely affected in any way by materials or facilities. Stakeholders also include the media who convey information to others, and the non-governmental organisations that represent the views of many individuals.

> "Stakeholders are not only the ones who support your organisation and its objectives or who express confidence in what you do, but also those who are deeply sceptical, who offer critiques, constructive and otherwise, and even those who are largely indifferent, except when [organisations] receive media attention." (S. Burns, United States Nuclear Regulatory Commission)

Mr Burns focused on the concept of trust as enabling public confidence in technical calculations and risk management. He suggested that listening carefully to stakeholders is an important element of trust-building. He closed by affirming that regulators can maintain their independence while nonetheless considering others' opinions. Mr Burns emphasised that at the end of the day, the regulator holds sole responsibility for achieving its own regulatory objectives and consistent, well-supported decisions.

Later in the workshop, the delegates were addressed by Mr Aubert, Member of Parliament from France. He reviewed the history of societal action and law making in France resulting in a high level of statutory access to stakeholder involvement in nuclear decision making. This movement dates at least to the governmental circular of 1981 that set the framework for creation of Local Information Committees associated with risky facilities. Over the years, this formula has gained in use and influence. A local committee is associated with each nuclear installation and comprised of representatives from many sectors including trade, environmental protection and other areas of civil society, as well as elected officials. Such committees have been used also in the context of the stepwise management of high-level radioactive waste. The committee associated with France's underground research laboratory has performed a type of citizen oversight, ensuring consideration of a diversity of views and setting the agenda for dialogue with the implementer. This approach is supported by national laws which affirm the importance of transparency in the achievement of nuclear safety. In parallel, formal public debate has been authorised on energy policy as well as on specific nuclear infrastructure projects. In closing, Mr Aubert addressed the limits of public debate in a representative democracy, stating that those with responsibility for governing must decide in the end.

Finally, Mr Gadano, Undersecretary for Nuclear Energy, Argentina spoke from the perspective of a country looking forward to becoming a member of the NEA. He reviewed the place of nuclear energy in his country's energy mix and called attention to its role in positively addressing the global challenges of climate change and energy security. Mr Gadano also described the federal system which governs Argentina. Drawing on his expertise as a lawmaker and nuclear regulator but also as an academic sociologist, he stressed that reaching agreement on siting initiatives for example requires a sustainable relation with stakeholders, including regional governments. This is important because in the end, "the best project is the one you can finish!"

Chapter 3. Report of the topical sessions

Session 1: Legal frameworks and international conventions

Agenda

1.a Overview of session and introduction of speakers by the chair, *Roland Dussart-Desart, Chair of the NEA Nuclear Law Committee; Federal Public Service Economy, S.M.E.'s, Self-employed and Energy, Belgium*

1.b The role of the Aarhus and Espoo Conventions in promoting effective public participation in nuclear decision making, *Maryna Yanush, Aarhus Convention Secretariat, United Nations Economic Commission for Europe; and Jerzy Jendroska, Opole University, member of the Aarhus Convention Compliance Committee and of the Espoo Convention Implementation Committee*

1.c A perspective on the national implementation of the conventions in regard to nuclear activities, *Marc Beyens, General Counsel, ENGIE Electrabel, Belgium*

1.d Stakeholder involvement in international conventions governing civil nuclear activities, *Sam Emmerechts, Lawyer Linguist, Court of Justice of the European Union, Luxembourg*

1.e The national legal framework in France, *Florence Touïtou-Durand, Legal and Claims Director, French Alternative Energies and Atomic Energy Commission (CEA), France*

1.f The national legal framework in the United States, *Martha Crosland, Deputy Assistant General Counsel for Civilian Nuclear Programs, Department of Energy, United States*

Introduction

Session 1 focused on the legal and regulatory frameworks governing stakeholder involvement in nuclear decision making at national and international levels. It consisted of three presentations dedicated to the applicable international conventions, including the Aarhus and Espoo Conventions, and their application at the national level and two presentations illustrating the national legal frameworks in France and the United States.

Summary

The session revealed that in many nuclear countries, and in particular those represented by the speakers, there are well-established international, regional and national legal and regulatory instruments governing the involvement of stakeholders in nuclear decision making. While in the past public authorities took an authoritative approach to decision making, the free access to information and the right of the public to participate or be consulted, even in a transboundary context, is now enforced. As noted by the session chair, Mr Dussart-Desart, and other speakers, this has a cost, notably in terms of time and legal certainty, which also impacts the cost of nuclear projects.

> "The best legal framework may need to be challenged or interpreted in court." (R. Dussart-Desart, Chair, NEA Nuclear Law Committee)

Ms Yanush and Mr Jendroska highlighted the role and importance of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention) and that of the Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention). These two conventions are open for global accession and, at present, have been ratified mainly by European and Central Asian countries within the United Nations Economic Commission for Europe (UNECE) region. Those two conventions, which apply to a wide range of activities including nuclear, are the only two binding international instruments setting minimum standards for public access to environmental information and public participation in decision making. The Maastricht Recommendations on Promoting Effective Public Participation in Decision-Making in Environmental Matters under the Aarhus Convention and the Good Practice Recommendations on the Application of the Convention to Nuclear Energy-related Activities under the Espoo Convention are instrumental in advancing the implementation in this area. Public participation under the Aarhus Convention goes beyond information or consultation: the decision maker must take into account the views of the "public concerned" (i.e. the members of the public affected or likely to be affected by the decision making or having an interest in it). As the "public concerned" is assessed through the potential impact of the proposed activity, including in the case of an accident, the obligation to notify and provide opportunity for public participation is not limited to the territory of the country hosting the proposed activity. Mr Jendroska indicated a particular finding of the Espoo Convention Implementation Committee that decisions regarding modifications, upgrades or extensions to the lifetime/operation of a nuclear installation would be subject to these obligations even though the activity remains exactly the same, because the environment and circumstances may have changed since the initial decision was made. Finally, Mr Jendroska highlighted provisions of the Maastricht Recommendations giving the public the possibility to discuss all options available at each stage of a tiered decision-making process, including at an early stage the "zero option". In this way, at each following stage the public participation in principle focuses on aspects of the project contained within the option selected at the earlier stage.

> "In the legal context, 'stakeholder' and 'public concerned' do not mean the same thing. The applicant does not have the same rights as the public concerned under the Aarhus Convention, yet is also a stakeholder." (J. Jendroska, Polish Environmental Law Association)

Mr Beyens illustrated the challenges regarding the applicability of the concepts of environmental impact assessment and public participation, as defined in the Aarhus and Espoo Conventions and the relevant directives of the European Union, to the federal laws extending the operation of two nuclear power plants in Belgium. The Belgian authorities considered that those laws only opened the possibility to extend the operational period of those nuclear plants, subject to conditions set by the Belgian regulatory authority. Therefore, these laws should be considered as "policies", exempt from the requirements of environmental impact assessment and public participation. In addition, Mr Beyens explained that, after an environmental screening had been carried out, the regulator ruled that its decision to authorise the long-term operation project did not require an environmental impact assessment, since it considered that the modifications to the installations would not significantly impact existing radiological environmental effects. However, in both instances legal challenges have been filed before the constitutional and administrative courts and are still pending. It is possible that a request for a preliminary ruling be submitted to the Court of Justice of the European Union in this regard.

Mr Emmerechts explained that international conventions have varying positions on stakeholders and their involvement depending upon the intent of the legislator and the field they cover, ranging from a narrow to a broad interpretation. He addressed stakeholder involvement in two other international conventions governing civil nuclear activities, namely the Convention on Nuclear Safety, and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (the Joint Convention), both concluded under the auspices of the International Atomic

Energy Agency (IAEA). He noted that the Convention on Nuclear Safety remains a "traditional" international legal instrument, focusing on governments and governmental bodies as the main stakeholders and limiting obligations regarding the involvement of the public and intergovernmental organisations to their receiving information and observing. Likewise, the Joint Convention limits obligations regarding public involvement to access to information, notably as to the siting of proposed facilities. However, he noted that in the European Union, the Directive on Nuclear Safety (2014/87/Euratom) and the Directive for the Safe Management of Spent Fuel and Radioactive Waste (2011/70/Euratom) have more advanced public participation requirements in nuclear decision making. Mr Emmerechts explained that the substantial differences between nuclear legislation and the Aarhus and Espoo Conventions with regards to public involvement requirements could partly be explained by the technicality of nuclear information and by issues related to nuclear security.

Ms Touïtou-Durand presented the French legal framework regarding public participation. The 2005 Charter for the Environment, which has constitutional value, lays down the principle of public participation in decisions likely to affect the environment. These include, among others, Nuclear Safety Authority decisions on technical prescriptions or on modifications requested by licensees. France is a Party to the Aarhus and Espoo Conventions and applies the relevant European directives related to the matter. Whereas the Aarhus Convention covers access to environmental information held by public authorities, French provisions go further by creating obligations also for the operator of a nuclear installation, which must grant access to information on the risks related to ionising radiation that can result from its activity and on the measures taken to prevent or reduce these risks. The principle of transparency in the nuclear field was introduced in French law in 2006 and further incorporated in the Environmental Code. It grants the public the right to reliable and accessible information on nuclear safety, radiological protection, the prevention of and fight against malicious acts, and civil security actions in the event of an accident. Two bodies are called to deal with stakeholder involvement, namely the High Committee for Transparency and Information on Nuclear Security and the Local Information Committees, the latter being mandatory for any site comprising one or several nuclear installations. The Local Information Committees are composed of representatives of local authorities, environmental protection organisations, trade unions, experts and residents of the area where the site is located. Regarding involvement of the public in project-level decisions, Ms Touïtou-Durand explained that the eventual authorisation by decree of the creation of a nuclear installation must be preceded by a formal public debate (when located on a new site), an environmental impact assessment, and a public enquiry (the latter also in case of dismantling). The public debate procedure may also be voluntarily applied in the case of policy making.

Ms Crosland presented the United States legal framework regarding public participation. Under the Administrative Procedure Act, the primary way of conducting public participation is through "notice and comment rulemaking". A proposed rule is published in the Federal Register and is open to comment by the general public; the final publication of the rule includes the answers to the comments received. The various agencies in the United States make use of several digital tools to expand effective public participation and manage the process. The Atomic Energy Act established an adjudicatory process including "trial-type" hearings, providing participation opportunities to any individual or group whose interests may be affected by a Nuclear Regulatory Commission licensing action. The National Environmental Policy Act requires several levels of review for all actions with potentially significant environmental impacts. An environmental assessment (EA) is conducted, to determine whether there is no significant impact or if a more detailed environmental impact statement (EIS) is needed. The EA requires notification of the host state and/or tribe, and the agency in charge has

> "Public comment is not a vote! One well-argued and documented comment may serve as the basis for a rulemaking even if thousands of others say they do not want a rule but provide no rationale for their opposition." (M. Crosland, United States Department of Energy)

discretion as to the level of public involvement. The EIS requires public notification, a period for public comments on the draft EIS, and at least one public hearing. Ms Crosland presented stakeholder involvement initiatives carried out beyond the legal requirements, such as Citizen Advisory Boards at certain Department of Energy nuclear sites or the National Transportation Stakeholders Forum.

Commonalities

The main commonality highlighted in all presentations in Session 1 is the change from the authoritative approach regarding nuclear decision making retained by the public authorities in the past, which has gradually evolved towards increased stakeholder involvement. This evolution is reflected in the international, regional and national legal frameworks, providing the public with the rights to access environmental information, to be consulted and to participate in the decision making, the latter meaning that their views and comments must be addressed and taken into account. Some speakers also indicated that the change towards increased stakeholder involvement going beyond the legal requirements has affected the culture of their respective organisations.

Highlights

- Stakeholder involvement in nuclear decision making is, in many nuclear countries, subject to binding legal requirements, stemming from international, regional and/or national legal instruments.
- The Aarhus and Espoo Conventions are the only two binding international legal instruments primarily addressing access to environmental information and public participation. These conventions apply to most civil nuclear activities but have not been ratified by all NEA member countries.
- The relevance of legal frameworks for access to information has increased with the improvement of information technologies.
- Public participation, in the sense of many legal instruments including the Aarhus Convention, is different from stakeholder involvement. First, because the public is only one of the stakeholders, and has specific rights compared to others, such as the applicant or licensee. Second, because public participation under the Aarhus Convention means that any member of the public concerned (or affected public) is provided with the same opportunity to participate in the decision making, while stakeholder involvement may sometimes result in selective involvement of the public (e.g. an advisory group composed of representatives of a community).
- It is important to clarify at which stages of nuclear decision making the public is called upon to participate. A “tiered approach”, in which each consecutive stage of decision making addresses only the issues within the option already selected at the preceding stage, would benefit the public concerned, the project applicant and the decision-making authority.
- Conflicts between legal obligations stemming from different legal instruments regarding stakeholder involvement may result in legal uncertainty. Such legal uncertainty and the challenges to decisions it implies can add to the overall cost of stakeholder involvement in terms of resources and time.
- The international conventions governing civil nuclear activities (such as the Convention on Nuclear Safety or the Joint Convention) are primarily concerned with intergovernmental notification and provide for limited obligations with regards to stakeholder involvement.
- Stakeholder involvement and public participation, under the presented legal frameworks, are not a vote. Although the decision-making body takes into account all comments, a single informed comment may carry more weight than several unsubstantiated or repeated comments.

Session 2: Regulatory perspectives

Agenda

2a. **Overview of session and introduction of speakers by the chair**, *Petteri Tiippana, Vice-Chair of the NEA Committee on Nuclear Regulatory Activities (CNRA), Director-General of Radiation and Nuclear Safety Authority (STUK), Finland*

2b. **Stakeholder involvement activities in Slovakia**, *Marta Žiaková, Chair of the NEA Steering Committee, Director-General of the Nuclear Regulatory Authority of the Slovak Republic*

2c. **The Nuclear Regulatory Authority (NRA)'s commitment to a transparent regulatory process**, *Masashi Hirano, Chair of the NEA Committee on the Safety of Nuclear Installations Programme Review Group (CSNI PRG), Nuclear Regulation Authority (NRA), Japan*

2d. **Stakeholder involvement in the French regulatory system**, *Guillaume Bouyt, Director reporting to Director-General, French Nuclear Safety Authority (ASN)*

2e. **Stakeholder involvement in nuclear decision making in the Russian Federation**, *Alexey Ferapontov, Deputy Chairman, Rostechnadzor, Russia*

Introduction

Session 2 focused on the regulatory perspectives related to stakeholder involvement in the regulatory decision-making process. Presentations provided the audience with information regarding the international and national legal framework implemented in the Slovak Republic, in France, in Japan and in Russia. Examples of stakeholder involvement, as well as some tools used for this purpose, were presented and discussed. The value of consistency and complementarity between international and national requirements was highlighted. Presentations and discussion confirmed the very close tie between the way the stakeholder involvement process is conducted and the public confidence and perception of reliability the regulatory body may gain, or lose.

Summary

Stakeholder involvement in the decision-making process is a key issue for many regulatory bodies. Given the sensitivity of the topic, the growing importance of nuclear matters in the public debate and the increasing expectation of the public to be informed of decisions made by any official body, the four regulatory bodies have implemented various and complementary actions to involve "their" stakeholders in the decisions they make.

The fundamental and pragmatic reasons for doing this may be multiple and are mostly complementary too.

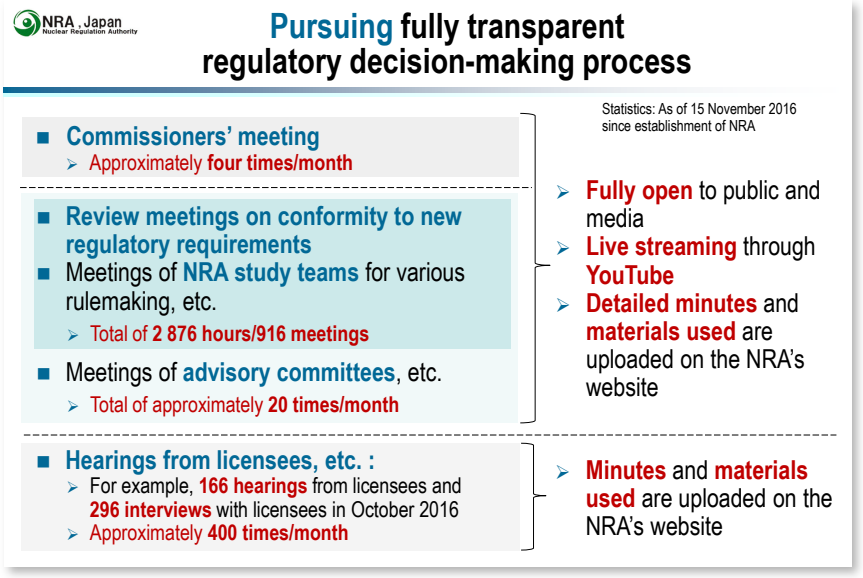
Some cases trigger international legal requirements. It is the case with the Espoo Convention on Environmental Impact Assessment in a Transboundary Context, which creates obligations for governments to notify and consult each other on all major projects under consideration that might have adverse environmental impact across borders. The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice in environmental decision-making processes on matters concerning the local, national and transboundary environment. Several European directives reinforce the right of the public to be informed and more involved in environmental decision making. The Slovak Republic and France transposed related provisions into national regulation. Each of the four countries has also issued specific national regulations, or implemented practices which usefully complete the legal framework to improve public involvement. An example is the case of Russia, which in 2013 adopted legal provisions to improve openness and transparency in state safety regulation of the use of atomic energy.

> "The regulator must say 'how safe is safe enough', strive for continuous improvement, and exercise oversight. Sometimes it may seem difficult to explain these simultaneously." (P. Tiippana, Vice-Chair, NEA Committee on Nuclear Regulatory Activities)

Most regulatory bodies consider that reinforced stakeholder involvement has some impact on their institutional profile. It appears as a relevant way and a necessary means to build and, in some cases, to rebuild their credibility. Past or recent major nuclear accidents diminished the credibility of official discourse and the trust in the information delivered by governmental representatives, as happened in France (after the Chernobyl accident) or in Japan (after the Fukushima Daiichi accident). In this perspective, one key issue for the regulatory body is to succeed in establishing a relationship of confidence with the stakeholder. Recent actions taken in the Slovak Republic, France and Russia, even if not conducted primarily to fulfil this objective, contribute to maintaining or improving the regulatory body's credibility and public confidence. The example given by Japan in this regard is particularly interesting and revealing. Japan's Nuclear Regulation Authority has sought to recover the credibility and the legitimacy of the regulatory system and to improve public confidence in the regulatory authority after the major accident of 2011 at the Fukushima Daiichi nuclear power plant. The actions taken (Figure 3.1) are long term, diverse and ambitious, and conducted at the highest level of the very new regulatory organisation, giving these actions special weight and importance, and creating international interest in their eventual success or shortcomings.

Stakeholder involvement can also be considered as a means for the regulatory bodies to fulfil a societal expectation.

Figure 3.1. "Pursuing a fully transparent regulatory decision-making process"



Presentation by M. Hirano, Japan's Nuclear Regulation Authority (NRA), 17 January 2017.

Decisions in nuclear matters very often appear complicated to understand, especially by non-specialists. Information and involvement procedures help decisions to be better and more easily understood and, possibly, better accepted by the diverse stakeholders. In some countries, the growing importance of nuclear matters, the increasing expectation of "the public" to be informed of, and even participate in and influence, decisions made by any official body lead the regulatory body to wish to improve its approach to stakeholder involvement in its decision-making process, taking due account of all the expressed points of view. Both France and the Slovak Republic confirmed the importance of being able to

involve stakeholders from the very beginning of the process. According to country, institutions may have a specific role either in contributing to public participation and stakeholder involvement or in overseeing the way this process is conducted. As highlighted by the Slovak Republic, different official bodies (local authority, ministry of environment) play out their responsibilities at different stages of decision making. It is key that the regulatory body have a comprehensive and integrated view of the different steps in order to acquit its own duties in the process as effectively, as efficiently and as successfully as possible.

"The Aarhus Convention says we need to open the process to everyone who wants to participate. The difficulty is if you open it in the middle of the process." (M. Žiaková, Nuclear Regulatory Authority of the Slovak Republic)

Various examples were presented to illustrate the way stakeholder involvement is conducted. This takes different forms depending on the country and in addition, for a given country, depends on the nature of the topic and the importance of the decision to be made. While some procedures are formally imposed by legal framework (for example to obtain a construction licence), presentations highlighted the diversity of tools and actions which could be implemented to respond to requirements, or in a voluntary manner. An example was given by the Nuclear Safety Authority in France. To prepare some of its resolutions on major regulatory areas, the authority considers the opinions and recommendations of seven advisory committees of experts with competence in different fields, or of temporary thematic groups for complex, controversial issues. Both types of body include a diversity of stakeholders and experts from operators, civil society, academia, or non-governmental organisations, and appraisal and research organisations. Members may also be licensees of nuclear facilities or come from other sectors (industrial, medical, etc.). Participation by foreign experts can help diversify the approach to problems and provide the benefit of experience acquired internationally. The opinions and advice formulated by these groups are made fully public, and while they are not binding they are taken into account by the regulator.

Presentations confirmed the importance of understanding the real expectations of stakeholders in order to adapt as well as possible the answer to the needs. Whatever the framework for a given stakeholder involvement process, it was highlighted that it will consume time and resources, especially when the process leads to formal questions requiring formal feedback and answers, or to periodic meetings as for example in Japan where a weekly commission meeting is open to the public and to the media. However, some regulators fully embrace this intensive practice. France's Nuclear Safety Authority for instance noted that when detailed technical questions are received from the Local Information Committees attached to nuclear basic installations, "we take full benefit of the opportunity to reply, and wish we had more such questions".

When detailed technical questions are received from the local communities, "we take full benefit of the opportunity to reply, and wish we had more such questions." (G. Bouyt, Nuclear Safety Authority, France)

Such examples in stakeholder involvement, even on controversial and difficult issues, confirm the utility of the process itself and the possibility to have success. All speakers acknowledged the difficulty of measuring the effectiveness and the success of a stakeholder involvement process. Most of the regulatory bodies concluded that they consider the absence of failure and the absence of negative feedback as evidence of success in this area.

A failure may have a very quick negative impact on regulatory body credibility. While losing credibility may be very easy and immediate, regaining it requires time and effort.

Commonalities

The four presentations confirmed that stakeholder involvement is a key challenge for maintaining regulatory body credibility, independence and legitimacy. All countries

confirmed their commitment to trying to make their stakeholder involvement processes as open, visible, transparent and comprehensive as possible. Involvement represents a long and permanent process which requires investment of time, human resources and money, as well as the ability to reach out, to listen, to share, and to take input into account, while keeping in view the goal of delivering decisions that are as rational and objective as possible. Involving stakeholders is more than informing or communicating. The earlier the stakeholders are involved in the decision-making process, the greater the chance of success. If losing credibility is easy, all regulatory bodies agreed on the long process needed to recover it.

Highlights

- Stakeholder involvement is the duty of any regulatory body.
- Compared to other industrial fields, nuclear matters are an area of particular sensitivity with specific risks highlighted in strong stakeholder expectations.
- Heightened credibility of institutions and legitimacy of decisions are key outcomes of any stakeholder involvement process.
- Loss of credibility is easy and may be quick, whereas recovery needs time.
- Success in stakeholder involvement relies on openness and transparency as well as early involvement in the process.
- The diversity of stakeholders means that the regulatory body needs to adapt its organisation, its tools and its processes to give the involvement process a chance of success.

Session 3: Radiological protection

Agenda

3.a **Overview of session and introduction of speakers**, *Ryugo Hayano, Tokyo University, Japan*

3.b **NEA Committee on Radiological Protection and Public Health (CRPPH) Stakeholder Involvement Experience**, *Mike Boyd, CRPPH Chair, United States Environmental Protection Agency*

3.c **The United Kingdom Sciencewise Programme**, *Andrew Mayall, Environment Agency, United Kingdom*

3.d **Sami Reindeer Herders Post-Chernobyl**, *Yevgeniya Tomkiv, Norwegian University of Life Sciences (NMBU), Centre for Environmental Radioactivity (CERAD), Norway*

3.e **Japan's Atomic Energy Commission (JAEC)'s initiative to increase public understanding of nuclear energy**, *Hideo Kawabuchi, Counsellor for Atomic Energy, Bureau of Science, Technology and Innovation Policy, Cabinet Office, Japan*

Introduction

This session focused on stakeholder involvement aspects of radiological protection, recounting the evolution of the radiological protection community's embracing of stakeholder involvement as a key part of decision processes. It touched on: how access to reliable information, but even more, stakeholder dialogue and involvement are central to the management of nuclear incidents and accidents; navigating and addressing a balance between technical and social sciences; and enabling stakeholders to find their concerns acknowledged in protection decisions. During the session, featured experts discussed a

wide range of subjects including an overview of accomplishments by NEA's Committee on Radiological Protection and Public Health, specific examples of post-accident radiological protection decisions in Norway and Japan, and the United Kingdom's Sciencewise programme as a public dialogue resource for science and technology policy making by government bodies and agencies.

Summary

Session 3 outlined the roles and responsibilities of radiological protection actors in the area of stakeholder involvement in nuclear decision making. Presenters emphasised that it is the responsibility of radiological protection professionals to provide tools and resources needed by key decision makers to make informed protection decisions, and to support the successful integration of radiological protection aspects into societal decisions at the community and also individual level. To achieve this, the professionals need training as well as recognition that their role is often one of advisor and counsellor. The speakers represented a range of radiological protection actors, with presentations from members of government, academia and regulatory agencies.

> In the early 1990's, "'stakeholder involvement' was generally viewed by many in the radiological protection (RP) community as 'explaining decisions to the public'."
>
> Subsequently, the goal became to "integrate RP aspects into societal decisions, rather than integrate societal values into RP decisions." (M. Boyd, Chair, NEA Committee on Radiological Protection and Public Health)

Speakers highlighted the need for heightened communication between all stakeholders when addressing radiological exposure situations. Mr Boyd reflected that radiological protection decisions often combine not only scientific aspects but also economic, social, philosophical and emotional facets as well. Moreover, decisions are not often taken by radiological protection specialists themselves, but in fact by governments, licensees, workers and affected publics.

This blurring of roles was seen for instance at Fukushima Daiichi, where a lack of immediate communication following the 2011 nuclear accident led to confusion and conflicting messages for local residents. Mr Hayano illustrated the high public demand in that context for reliable information, dialogue and expert support in order to face decisions ranging from evacuation, to returning home, to consuming agricultural and fishery products. Professionals such as teachers and general practitioners, who lacked training on radiological protection subjects, also needed support to play their role in the community. There is a continuing need in the aftermath of the accident for reliable information and dialogue to help combat unfounded beliefs and stereotypes. Independent verification of information, measurements and data can be an important element of trust.

Another example of the need for government, experts and local populations to work together on addressing radiological protection concerns was found in Norway following the 1986 accident at the Chernobyl nuclear power plant. Ms Tomkiv highlighted the success of the Norwegian government's intervention with Sami reindeer herders, and discussed how a flexible approach, sensitive to stakeholder needs, produced decisions that significantly improved the livelihoods and also the well-being of these herders. Reindeer meat in Norway, a key food source for the Sami indigenous population, had high levels of radiation contamination following the accident. The Norwegian government provided compensation to farmers who lost their herd due to mandatory slaughter of animals with high exposure levels; raised the intervention level to 6 000 Becquerel per kilogramme for reindeer meat in Norway; changed slaughter season from winter to autumn; and fed reindeer caesium binders in order to prevent transfer of caesium into meat. These successful and effective protection decisions were built with and accepted by the Sami reindeer herders of Norway and allowed them to maintain their traditional livelihood and culture.

Two presentations provided further insight on the need to make complex information on nuclear and radiological protection subjects more accessible. Mr Kawabuchi, representing Japan's Atomic Energy Commission, described how the commission has worked to improve messaging and transparency regarding nuclear power. In response to the public's concern about nuclear safety following Fukushima, Japan's Atomic Energy Commission has promoted relations with the public through interactive dialogue, open meetings that are broadcast live on the internet, and a knowledge-based internet offering intended to be accessible to both the general public and experts. Mr Mayall presented the UK Environment Agency's experience using the Sciencewise programme, suggesting that we need not "re-invent the wheel" but rather focus on proven means and skills for achieving communication between government, scientists and the public. The agency voluntarily initiated dialogue to gather input towards an improved siting process for a future geological disposal facility for radioactive waste, as well as to improve regulatory engagement with the public in conducting generic reactor design assessments. Sciencewise facilitated live and digital engagement events, and provided training and mentoring. Its guidance publications bolster dialogue design and also evaluation (Figure 3.2).

Experience shows that societal stakeholders are interested in the information that can help them understand situations and take decisions. Professionals may need to mount a steep learning curve to provide information and guidance in an accessible way, but engaging in the exchange and dialogue can lead to better, more effective protection decisions.

> "The public can engage meaningfully on technical issues if they are given the time and the right information, but it is important to acknowledge that this can be a resource-intensive process." (A. Mayall, United Kingdom Environment Agency)

Figure 3.2. "Key ingredients" of good public dialogue

Presentation by A. Mayall, 17 January 2017.

Commonalities

Stakeholder involvement and trust are not goals or established endpoints to be achieved. Rather, they are essential aspects of achieving decisions that are accepted and sustainable. Long-term interaction between experts and interested or affected stakeholders, and understanding of local circumstances and culture, can assist in building trust. Mutual trust is essential to achieving successful stakeholder involvement, serving as a means to reach

mature dialogue and efficiency in regulation and radiological protection. Training and education of the radiological protection community, and sometimes collaboration with communications experts on stakeholder involvement interactions, are vital ingredients to improve technical support that effectively addresses the needs of stakeholders.

Highlights

- Radiological protection aspects should be integrated into societal decisions, rather than integrating societal values into radiological protection decisions. Decisions are ultimately informed by science, but are driven by societal considerations.
- Radiological protection experts should be at the service of stakeholders, and should improve their stakeholder interaction skills through training and education.
- The effectiveness of stakeholder involvement in radiological protection must be assessed. Without clear markings of success and tracking of failure, mistakes will be repeated.
- Stakeholder involvement should begin by listening to concerns, and then address these concerns directly and in plain language.
- Local knowledge is a resource to be actively used in decision making.
- Members of the public can engage on technical issues meaningfully if they are given time and the right information through accessible channels.
- Achieving stakeholder understanding of radiation effects and radiological protection aspects is a long-term process. It is the responsibility of the radiological protection community to create, provide and maintain resources that can be used by educators to achieve understanding and active participation of our younger generation.

Session 4: Radioactive waste management

Agenda

4.a **Overview of session and introduction of speakers**, *Jean-Paul Minon, Chair of the NEA Committee on Radioactive Waste Management (RWMC), Belgian Agency for Radioactive Waste and Enriched Fissile Materials (ONDRAF/NIRAS)*

4.b **Forum on Stakeholder Confidence (FSC) – A platform to build and share technology about stakeholder confidence in radioactive waste management**, *Pascale Künzi, Chair of the Forum on Stakeholder Confidence (FSC); Swiss Federal Office of Energy (SFOE)*

4.c **Reflections on stakeholder involvement**, *Kathryn Shaver, Former Vice-President, Adaptive Phased Management (APM) Engagement and Site Selection, Nuclear Waste Management Organisation, Canada*

4.d **Case Study: Sweden**, *Johanna Yngve Törnqvist, Municipality of Östhammar, Sara Björklund, Swedish Nuclear Fuel and Waste Management Company (SKB), and Ansi Gerhardsson, Swedish Radiation Safety Authority (SSM)*

4.e **Case Study: Switzerland**, *Pascale Künzi, Swiss Federal Office of Energy; and Philip Birkhäuser, National Cooperative for the Disposal of Radioactive Waste (NAGRA), Switzerland*

4.f **Stakeholder engagement on radioactive waste – Australia's experience**, *Katherine Smith, Australian Nuclear Science and Technology Organisation (ANSTO)*

Introduction

Session 4 focused on the topic of radioactive waste management and how governments, implementers and regulators have utilised stakeholder involvement to make fair and sustainable decisions. Presentations included case studies from Australia, Canada, Sweden and Switzerland. The session also provided insight on how the Forum on Stakeholder Confidence (FSC), created by the NEA Radioactive Waste Management Committee in 2000, has brought together policymakers, regulatory officials, experts, implementers and industry representatives to promote open discussion on radioactive waste management among various stakeholders.

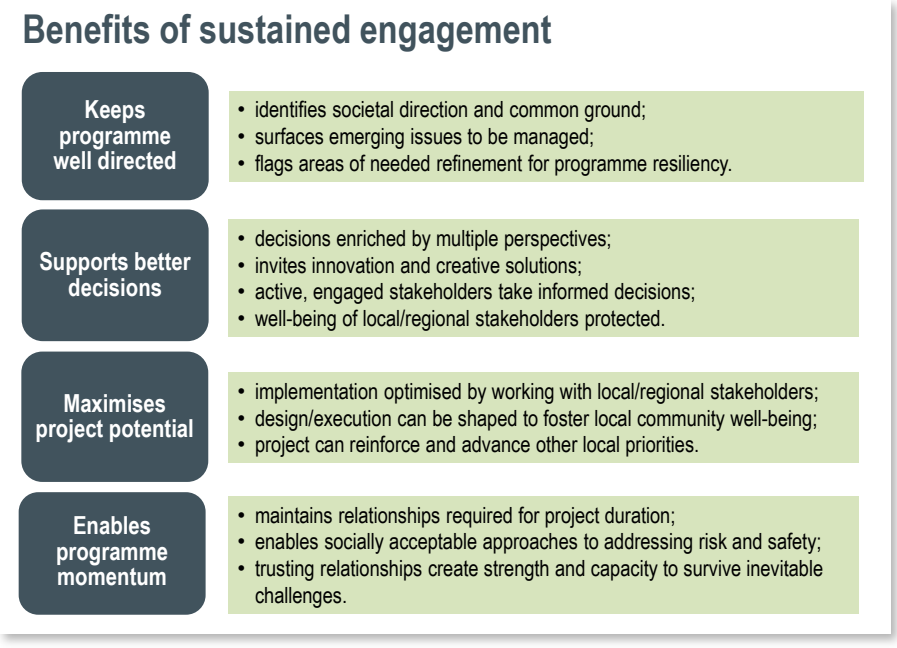
Summary

The session highlighted an ongoing transition of radioactive waste management from theoretical foundations to practical implementation, and how stakeholder involvement plays a significant role in this process. In Mr Minon's opening remarks, he highlighted that a both politically and scientifically stable solution for deep geological repositories must be found, built on trust among all stakeholders. The joint presentation by Ms Künzi and Mr Birkhäuser provided an example of how the younger generation was involved in discussions on radioactive waste management by inviting ten youth from Switzerland to participate in FSC's National Workshop in 2016. Based on the outcomes of the workshop, it will be critical to continue engagement of youth in the near future by expanding outreach to increase participation levels.

> "A site-specific project has to be defined through an on-site consensus." (J.P. Minon, Chair, NEA Radioactive Waste Management Committee)

The Swedish case study illustrated that the roles of a potential repository host community, the implementer and the regulator are complementary. These actors maintained engagement at a high level over decades by ensuring an open process and by building competence in the municipal government. Ms Shaver's presentation conveyed the benefits of sustained engagement (Figure 3.3).

Figure 3.3. "Benefits of sustained engagement"



Presentation by K. Shaver, 18 January 2017.

Several presentations also marked the importance of utilising social media in informing stakeholders on issues related to radioactive waste management. Examples of implementation in using social media to enhance stakeholder involvement included: creating polls to evaluate feedback and establishing more concrete metrics on public support, connecting with youth through popular applications such as Facebook and Twitter, establishing more open public dialogue, and building trust by providing a more accessible form of communication to enhance conversation.

Another key message highlighted during the presentations focused on the information void for the public and key stakeholders regarding the subject of radioactive waste management. Ms Smith's presentation on Australia's experience with stakeholder engagement of radioactive waste highlighted the importance of not only providing the public with information, but also engaging the public on the subject matter in order to bridge an existing gap between intolerance and tolerance regarding radioactive waste management.

Commonalities

One aspect that was evident in all of the presentations on radioactive waste management was an acknowledgement that the process of implementation has taken much longer than originally planned, and that it is challenging to gain trust and support from the local communities where deep geological repositories are being sited or built. All of the speakers recognised a similar dilemma regarding the acknowledgement of both technical and social components of radioactive waste management, both of which are necessary and should be established at the same time to ensure no void in decision making and realisation. Successful decision making is open, transparent and broadly participatory.

Highlights

- The topic of deep geological repositories is a sensitive issue, and sufficient time must be devoted to develop a participatory decision-making process, involving broader circles of stakeholders in examining the management choices of radioactive waste in an informed way. Radioactive waste ultimately becomes a political issue and it is important to keep this in mind when interacting with stakeholders.
- Time is an ally in radioactive waste management; time can help to reach the right solution – one that is stable in the long run and built on established trust.
- Younger generations need to be more involved as they will be responsible for addressing radioactive waste management in the future. Encouraging further participation of younger generations in workshops and conferences will help involve this age group, in addition to utilising resources more frequented by younger people such as social media.
- Use concrete management steps such as "adaptive phased management" to proceed forward with the process of building and implementing deep geological repositories, focusing on listening and learning from stakeholders, encouraging dialogue and deliberation, and establishing collaboration and partnership. Countries should strive for high levels of flexibility, adaptation and resilience in long-term management of radioactive waste.
- Acknowledge that participants and stakeholders involved might be stigmatised, and find concrete solutions to address this. Bridging the information void will lessen the impact of stigmatisation for those involved in radioactive waste management, and can also improve social acceptability.
- Be ready to react to comments from the public by learning precisely what their concerns are concerning radioactive waste management, have thorough and

satisfactory responses prepared which address these concerns, and begin this dialogue from the very early phases of the siting or other decision process.

- National radioactive waste management organisations should direct their efforts beyond technical project development and implement processes that involve the public in decision making. Recognising that dialogue among the scientific/technical communities and the public is essential, adequate resources should be provided for assuring effective stakeholder involvement.
- International co-operation may help achieve national waste management solutions, especially in countries with less advanced or small nuclear programmes or unfavourable geology. Co-operation can range from shared research programmes to shared storage or disposal facilities. Sharing technology and facilities could reduce the cost burden and may also facilitate the establishment of internationally accepted standards.

Session 5: New nuclear facilities

Agenda

5.a **Overview of session and introduction of speakers by the chair**, *Jorma Aurela, Ministry of Employment and Economy, Finland*

5.b **Partnerships and opportunity: A Canadian success story**, *Sharonne Katz, Natural Resources Canada*

5.c **Informing and involving stakeholders in the context of the Finnish decision-making process**, *Hanna Vanhatalo, Fennovoima, Finland*

5.d **Stakeholder involvement and public debate**, *Pierre-Franck Thomé-Jassaud, Communication Manager, Électricité de France, France*

Introduction

"Stakeholder involvement in nuclear decision making" may easily bring to mind images of events surrounding the development of new nuclear facilities. As the chair of a later session noted, historically the construction of nuclear power reactors is inextricably linked with the birth of the societal movement for greater public involvement in taking decisions about infrastructure. This development stage is not only the time when social mobilisation may be great; it is also where the potential financial impact for investors is most acute. And while this fact must be recognised, it cannot be allowed to override all other factors. There is recognition and acceptance in the nuclear energy area that many stakeholders will be involved in the decision-making process, including members of the general public, so the question becomes "when and how?". A number of companies and governments have shown that through effective engagement of their stakeholders they can achieve better decisions and form strong relationships that provide mutual benefit.

Summary

Session 5 featured case studies of stakeholder involvement in decisions related to new nuclear power and fuel cycle facilities. The chair highlighted that more than 30 countries either have nuclear power facilities or are considering developing them, and 15 countries are currently building new reactors. The topic of new nuclear facilities is quite broad, and the session covered three case studies that were quite different. Ms Katz of Natural Resources Canada Limited outlined stakeholder engagement commitments by a number of actors in Canada, including the Canadian Nuclear Safety Commission. She provided an overview on Cameco's behalf of their experience in engaging the local stakeholders of uranium mining activities. Ms Vanhatalo reviewed Fennovoima's activities related to the

site selection and move towards construction of a new nuclear reactor. Mr Thomé-Jassaud presented the experience of Électricité de France on two proposed reactor projects with France's formalised public debate process.

> "Ensure people and the environment remain safe and well-protected, with a traditional [indigenous] way of life that continues to be practiced; ensure [the people] are involved in the industry and communities share in socio-economic benefits." (S. Katz, Natural Resources Canada)

A central theme of the presentations was the importance of establishing and maintaining a good reputation, especially in the local community. Ms Katz relayed a story of Cameco inviting community leaders, near an Australian property that Cameco had acquired to visit a mining community in Saskatchewan. Instead of tightly controlling the interaction, Cameco left the Australian guests to stay with local families for several days to ask questions and hear directly from members of the Canadian community without any interference. This required confidence on the part of the company that it had built a strong and positive relationship with the Canadian host community. Ms Vanhatalo described how the success in siting nuclear power plant Hanhikivi 1 near Pyhäjoki was attributable not only to Fennovoima's commitment to engage the community, but also to the reputation that the company Teollisuuden Voima Oy had built with its Olkiluoto nuclear power plant and the positive association with nuclear power that resulted. Fennovoima established a local office in Pyhäjoki where people could ask questions and discuss issues that are important to them, sometimes not even related to the plant. For Électricité de France, this importance of reputation was highlighted by the recent issue of quality concerns at a component fabrication plant that Mr Thomé-Jassaud described as being more impactful on public confidence in France than the Fukushima Daiichi accident due to its local applicability.

Figure 3.4. Fennovoima's stakeholders

Presentation by H. Vanhatalo, 18 January 2017.

Another theme throughout the session was the importance of making information available, particularly in forms that suit particular needs. During the national public debate to consider the construction of Flamanville 3, Électricité de France faced persistent questions on the ability for the proposed plant to withstand an aircraft collision. This issue highlighted the balance between security and transparency, as making certain

information available can increase the knowledge available to an attacker and endanger the public rather than protect it. Instead of using this as a reason to keep documents completely private, Électricité de France created an agreement with a limited set of people familiar with nuclear issues who could review and understand the information in order to check the sensitive analyses. This approach built trust and has now become a standard practice for Électricité de France. Ms Katz described the Canadian Nuclear Safety Commission as being strongly committed to ensuring that Canadian citizens receive access to information they feel that they need; the regulator places a requirement on licensees to proactively communicate. The Nuclear Safety Commission has its own extensive outreach and engagement programme, and provides funding to members of the general public and indigenous communities to enable their participation in hearings and throughout environmental assessment processes. Ms Vanhatalo emphasised the importance of making information available in a form that the recipient can digest. She also discussed the Pyhäjoki community's interest in visiting the future site of the Hanhikivi plant, even though there was nothing yet built or installed there. The company has held multiple "open" houses and remains engaged in what Ms Vanhatalo referred to as a continuous dialogue with a broad range of stakeholders (Figure 3.4).

Commonalities

While many organisations may have a requirement or a tendency to provide technical documents for public comment prior to approval of a new facility, this does not constitute stakeholder involvement. The presentations showed how the different actors have ramped up their active two-way communication over time, whether by greatly improving their use of digital tools (comparing the online resources offered for the 2005 and 2010 public debates in France), or creating tailored approaches to respond to special needs (an opportunity to review confidential documents in France, or providing funding to support participation by Canadian citizens).

The presenters recognised that new nuclear facilities mean new long-term neighbourly relations, and the effective partnership with communities needs to be prepared from the earliest point. The proposed nuclear facility comes into an existing social setting and needs to adapt to that.

The speakers also showed that actions and events which an organisation might tend to consider as separate are tied together in reality. Perceptions are influenced for better or worse by the reputation created in one setting, or even the reputation established by a comparable outside organisation. Community engagement is by no means an independent add-on, but is rightly at the centre of an organisation's overall strategy embracing such elements as workforce development, business development, community investment (even long after site closure) and environmental stewardship.

> "There is a need to develop competence and motivation to participate in the societal discussion." (J. Aurela, Ministry of Employment and the Economy, Finland)

Highlights

- It is incumbent upon the proponents of the project, whether industry or government or both, to create conditions for stakeholder trust.
- It is not sufficient to simply provide information, particularly in the form of existing documents designed for other purposes. To engage stakeholders, one must provide information in a way that they can digest. The range of information must suit their needs, whether it is technical or addresses other societal concerns.
- Every interaction with stakeholders is an opportunity. There are always ideas to gain from opponents. Even in the case where the same opponents show up to each meeting with the same arguments, these events allow the proponent to tell their story.

- It is in the interest of both the project proponent and the community to effectively engage stakeholders. When stakeholder involvement is done well, the project can become a shared project and hosts become partners for the long term.

Session 6: Extended operations of nuclear facilities

Agenda

6.a **Overview of session and introduction of speakers by the chair**, *Jorma Aurela, Ministry of Employment and Economy, Finland*

6.b **Licence renewal of Wolsong 1 in Korea**, *Su Hwan Bae, General Manager of Plant Strategy Project Office, Korea Hydro and Nuclear Power Company Ltd., KHNP, Korea*

6.c **Long-term operation of existing reactors in Switzerland**, *Ralf Straub, International Nuclear Energy Specialist, Federal Department of the Environment, Transport, Energy and Communications, DETEC, Switzerland*

Introduction

This session considered a subset of nuclear decisions affecting the continued operation of existing facilities rather than a proposed new facility. Stakeholder involvement is as critical here as in other decisions, but takes a quite different form. Operational history of an existing facility is known to all, meaning there is less uncertainty in discussions with stakeholders regarding the social and economic benefits as well as safety concerns. The existing relationships between the facility and its stakeholders will influence deliberations on future activities. The session included two presentations and was followed by a combined panel discussion with the speakers from both sessions 5 and 6.

Summary

Session 6 identified some key stakeholder concerns or interests that shape their considerations on renewing a nuclear power plant licence or extending facility lifetime. These included the safety of long-term operations, the potential need for upgrades or additional investment, and the timing and implementation of such investments.

Mr Bae of the Korea Hydro and Nuclear Power Company presented the current nuclear power programme in Korea and the company's experience with stakeholder involvement, specifically related to the licence renewal of Wolsong unit 1 that included a formal agreement between Korea Hydro and Nuclear Power Company and the local communities around the plant.

Mr Straub, of the Swiss Federal Department of the Environment, Transport, Energy and Communications, provided insight on the current restructuring of the Swiss energy strategy, and the Swiss form of "direct democracy" that involves frequent public referenda. The proposed energy strategy to be assessed by voters in May 2017 would include a gradual phase-out of nuclear power.

Citizens' perception of safe operations, the competence and openness of nuclear actors and the benefits that nuclear plants bring to the local population play a role in their judgement of whether facilities should continue with long-term operations. While for a new facility there is not as much time to establish the relationship and build a rapport and reputation with the community, in the case of existing plants there is history and experience either to build on or to overcome. Each set of decisions has a number of stakeholders, but the general public living around the plant was highlighted as a primary stakeholder. In the case of Korea Hydro and Nuclear Power's licence renewal efforts at Wolsong 1, gaining and maintaining the support of the surrounding communities is critical (Figure 3.5). The company applied lessons learnt from past

experiences and in a year-long process pursued an agreement with representatives appointed by the local community and the village governments, outlining the actions that the company would take if the licence was extended. The agreement was later explained by the representatives to their community. Korea Hydro and Nuclear Power actively engaged residents, organising tours of the facilities, including the reactor control room, to show how it operates the plant and to make it less of a mystery, and conducted training activities to educate members of the public on nuclear technologies. Mr Bae indicated that the positive effects were demonstrable.

For the Swiss case, Mr Straub explained that in the lead-up to the referendum all aspects of the energy mix and the role of nuclear power will be intensively debated in the public. It can be assumed that Swiss voters will come to the polls very much aware of the fundamental energy landscape and the implications of change.

Commonalities

A strong commonality in this session, as implicitly seen in other workshop sessions, is the relationship between stakeholder involvement and economics. Neither of the speakers expressed a sense of conflict between preserving assets and investing in stakeholder involvement. In fact, there was more of a sense that strong and effective stakeholder involvement was in the best interest of all parties, including the operator.

Figure 3.5. Three pillars of the "goal for continued operation"

Presentation by S. H. Bae, 18 January 2017.

Highlights

- The image and relationship developed during routine operation of the facility will carry forward and heavily influence support or opposition in future decisions.
- Actions can have unintended consequences, especially dependent on the culture and decision framework. For example, the additional investment in Wolsong 1 in Korea prior to a licence extension decision was perceived to apply pressure to the regulator to approve the extension. Elsewhere, investment for refurbishing is seen as a critical prerequisite for approval by the regulator.

- "Stakeholders" is not a surrogate term for the "general public." In any project there are numerous stakeholders with varied interests, including policymakers, applicants, shareholders, the general public and special interest groups.

Session 7: Stakeholder involvement in other sectors

Agenda

7.a **Overview of session and introduction of speakers by the chair**, *Maarten Wolsink, University of Amsterdam, Netherlands*

7.b **Case study: High-voltage electricity transmission**, *Nadejda Komendantova, International Institute for Applied Systems Analysis (IIASA)*

7.c **Case study: Carbon capture and storage**, *François Kalaydjian, IFP Energies nouvelles, France*

7.d **Common misconceptions on stakeholder involvement**, *Maarten Wolsink, University of Amsterdam, Netherlands*

Introduction

Session 7 featured several speakers with expertise outside of the nuclear field. High-voltage electricity transmission and carbon capture and storage projects were presented by experts who study and advise on stakeholder involvement in such activities. The session chair provided an overview of stakeholder involvement fundamentals as applied to renewable energy projects. Though the presentations were on non-nuclear projects, the principles presented and discussed were clearly applicable in nuclear contexts as well.

Summary

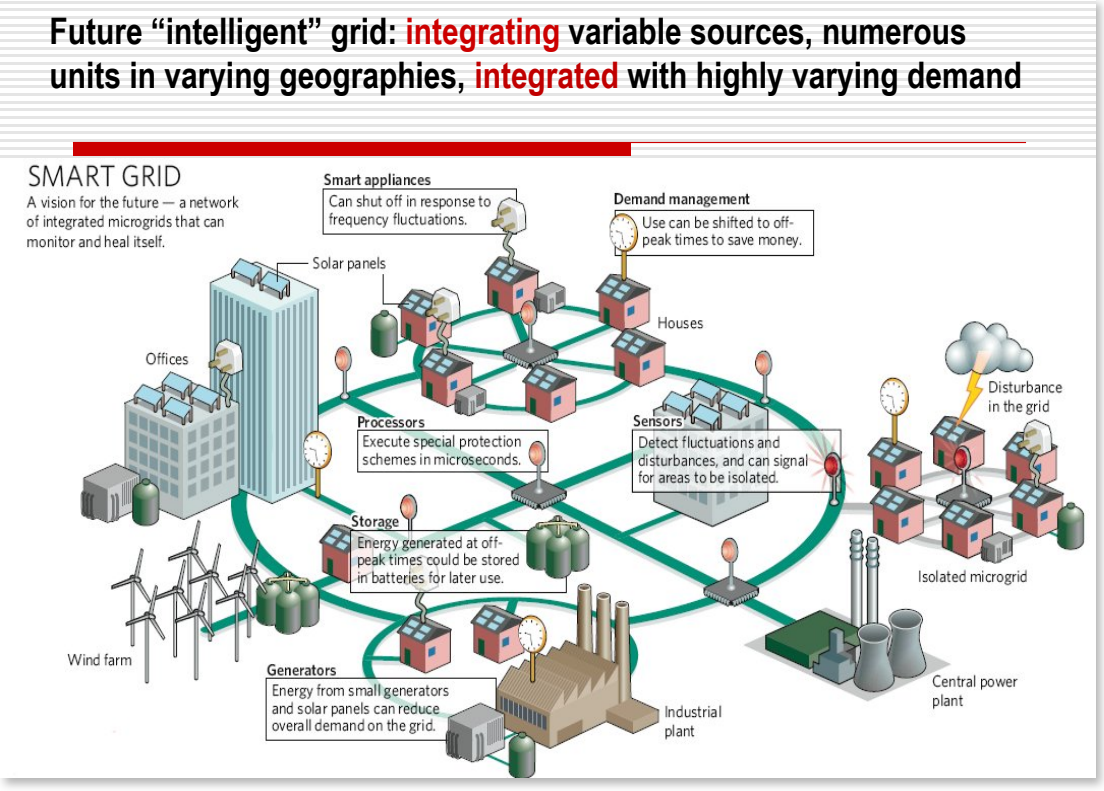
Mr Wolsink of University of Amsterdam reframed the topic of the power supply system as a "socio-technical system" (a suggestive example is shown in Figure 3.6). He identified three types or levels of societal acceptance for energy innovation: socio-political acceptance, market acceptance and community acceptance. This distinction highlights the different nature of questions, issues, set of actors and challenges that arise at different points or fora around energy infrastructure projects and why general favourability towards a technology does not translate into support of its local implementation.

Societal acceptance probably cannot be acquired without meaningful involvement. Arnstein's "ladder of citizen participation" (see Figure 2.1) was referenced by two session speakers. Mr Wolsink explained that inexperienced organisations may target "consultation", thinking that this is real participation. However, consultation is a relatively low level of involvement which consists of gathering information or views, without promoting two-way dialogue (engagement) or committing to actual influence and indeed some degree of citizen power. He advised that simple consultation should be avoided unless the organisation finds that such stakeholder or public input is essential to the decision and intends to give it due account The Barendrecht case on carbon capture and storage, as presented by Mr Kalaydjian of IFP Energies Nouvelles, illustrates the danger in overly restricting or compartmentalising stakeholder involvement. Ms Komendantova of the International Institute for Applied Systems Analysis pointed out that at higher levels of involvement several different ways can be found to share power. These include distributing responsibilities for planning and decision making (partnership) or allocating a majority of seats on review committees to citizen representatives (citizen control).

Alongside choosing the right level of involvement, the approach must be tailored to the setting. Ms Komendantova presented the BESTGRID research project in the European Union, which tested and studied alternative approaches to stakeholder engagement in

transborder high-voltage transmission line projects. Different methods may be needed for engaging specific sets of people, according to such factors as age, technological familiarity, geographic situation and possibly national culture. Mr Kalaydjian pointed to the research project SiteChar-CO2, juxtaposing the reasoning of stakeholders in different locations (in Poland and in Scotland) who held different levels of knowledge of carbon capture and storage technology, and who varied in their proximity to the proposed pilot sites. Their views on economics, risks, etc. in each case also had distinct implications in terms of expected actions by national actors or by local site operators.

Figure 3.6. The "Future 'intelligent' grid" as a representation of the power supply system



Presentation by M. Wolsink, 19 January 2017.

Source: Figure adapted from Marris, E. (2008), "Upgrading the grid", *Nature* 454, pp. 570-573.

Stakeholder concerns can be mapped into several main areas, which were echoed by the various studies presented in Session 7. Mr Wolsink insisted on the issue of perceived need for the project, and stakeholders' demand to choose among real options. He described a failed wind power development in the early 2000s which excluded local stakeholders with knowledge and interests in the proposed locations, considered only a narrow set of alternatives without meaningful distinctions between them, and utilised a technocratic decision process that selected an implementation with significant opposition when other locations would have been generally acceptable to stakeholders. BESTGRID found that areas of concern to stakeholders include the benefits and trade-offs of a project, and its effects on the environment. Ms Komendantova highlighted the central importance of distributive justice (who receives the benefits and who bears the costs). She advised that an analysis of risks (or costs) and benefits be prepared for discussion. Two further areas of concern are the character of the engagement itself and the transparency of the process. Here, the demand is for procedural justice (fairness of process, e.g. in the treatment of participants and their input).

The importance of these concern groupings was borne out by discussion of factors of success or failure in gaining societal support for infrastructure decisions. Mr Kalaydjian recounted the experience of several carbon capture and sequestration demonstration projects. He noted factors contributing to the eventual cancellation of Royal Dutch Shell's and the Dutch government's Barendrecht project: the lack of buy-in on the technology, absence of agreement on its need, safety concerns, confusing messaging and the lack of clear local benefits. This was contrasted with TOTAL's Lacq pilot project in France, in which the community had a good understanding of the local benefits, as well as a favourable history with the company that showed continuing strong willingness to engage and dialogue. Ms Komendantova noted that it is very helpful during the project development period to establish a local focal person who understands local issues and can act as a trusted contact.

Commonalities

Principles of involvement and factors underlying societal response were found to cut across situations and technologies, most of them appearing relevant to nuclear as well. As with presentations in other areas, trust – in the people, the institutions and the process itself – was identified as a prerequisite for effective engagement. Important concepts that shape stakeholders' eventual acceptance of infrastructure solutions include procedural justice (the fairness of the involvement process and how inputs would be used) and distributive justice (who will bear the costs and who will receive the benefits). It is impossible to completely isolate consideration of the need for a project (its overall justification) from deliberations on the siting of the project. All of the speakers noted that the question of need came up in every case and that stakeholders want to identify and examine the alternatives. Any suggestion that this need has already been established in a previous stage or process will be considered an effort to rule out legitimate concerns. This hearkens back to the lessons learnt in the workshop Session 1 regarding the need for clarity in a tiered decision-making process and highlights the potential tension between the decision makers who need a structured, effective decision-making process and other stakeholders who want their input factored in and may not have had a previous opportunity.

> "A project or entity must establish legitimacy in the mind of people as opposed to just meeting legal requirements." (M. Wolsink, University of Amsterdam)

Highlights

- Stakeholder involvement in nuclear activities is not fundamentally different from that in other technologies, and there is much for practitioners in nuclear areas to learn from these other applications.
- Acceptance or favour towards a technology does not equate to acceptance of a project, as there are completely different concerns and considerations that come into play for each.
- There is now an expectation of true involvement by members of the general public, especially those representing groups of interested stakeholders. Societal acceptance is unlikely to be achieved without meaningful involvement.
- Trust and legitimacy of the process are key; only once these are established can the process move forward.
- Establishing a local contact person for the development activity is very helpful.
- Distributive justice – who will bear the cost(s) and who will receive the benefit(s) – is a central concern and must be open to discussion and negotiation.
- NIMBY (not in my backyard) is, at best an overly simplistic term that attempts to characterise any opposition as wanting the benefits of something without bearing

any cost. In fact stakeholders may have any number of concerns centred on their attachment to a place, a public concern (e.g. environmental health), a lifestyle or an activity. Alternative implementations may exist and be found more acceptable.

- The question of whether the specific project or technology is needed will always come up. One must be ready to discuss the alternatives and rationale considered, and perhaps to re-evaluate them.

Session 8: Media and stakeholder involvement

Agenda

8a. **Overview of session and introduction of speakers by the chair**, *Sunni Locatelli, Chair of the NEA Working Group on Public Communication of Nuclear Regulatory Organisations (WGPC), Canadian Nuclear Safety Commission*

8b. **Disseminating information through social media**, *Holly Harrington, United States Nuclear Regulatory Commission (NRC); and Emmanuel Bouchot, Autorité de Sûreté Nucléaire (ASN), France*

8c. **Communications lessons learned from the 2014 radiological release event at the Waste Isolation Pilot Plant**, *Timothy Runyon, Waste Isolation Pilot Plant (WIPP) Recovery Communications, Department of Energy (DOE), United States*

8d. **Role of journalism in stakeholder involvement**, *Eva González Herrero, Europa Press, Spain*

Introduction

Session 8 focused on the media and how it can be utilised to effectively garner stakeholder involvement. It highlighted the changes over the years in how decision makers interact with stakeholders in the nuclear community and the nuances of using the various social media platforms and traditional media outlets. The session had a heavier focus on social media as it is a new and quickly evolving means of engaging the public and other stakeholders. Cases provided insight on current usages, whether in continuing regulatory communication or in response to emergent events.

Summary

The session included input from regulators, implementers and a media representative sharing the various perspectives on the public communication aspect of stakeholder involvement. They pointed out the various outlets and platforms that can be employed to involve and inform different stakeholders, acknowledging the advantages and disadvantages of each method. Speakers emphasised how important it is that the communication with stakeholders be two-way, allowing thoughts and opinions to be expressed even when they are in stark opposition to nuclear projects or when they are critical of regulatory practices.

> "Many of the most valuable pieces of information that can be gathered from monitoring social media exist in the comments section where stakeholders are free to express themselves and criticise and question the process and the main actors." (S. Locatelli, Chair, NEA Working Group on Public Communication of Nuclear Regulatory Organisations)

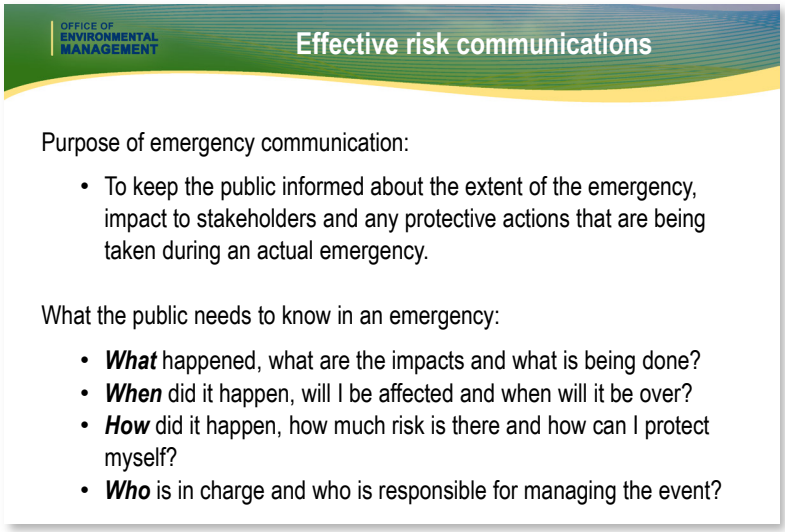
It is important to consider the stakeholders' perspective and how they may want to be involved in the decision-making process. As stated in the first presentation by Ms Harrington of the US Nuclear Regulatory Commission and echoed throughout the session, stakeholders in general want information that will update them as to current activities, how they could be affected and how they can possibly influence the process. During an emergency, there may be special risk communication needs (Figure 3.7). The strategic use of social media platforms can

assist organisations in engaging stakeholders and provide the information and interaction they may want. Social media includes websites and more specifically, applications that allow the user to create and share information.

> "Social media is a tool and not an end in and of itself. It should be used strategically to address issues and gaps to complement the existing information and traditional media tools." (H. Harrington, United States Nuclear Regulatory Commission)

It was recognised during the presentations that the objectives in reaching stakeholders through media are not static. There is the ongoing relationship and trust building that takes place (including with traditional journalists, as outlined by Ms González Herrero) when there are no momentous events. Organisations should have this relationship in place before the need arises to communicate with all stakeholders when an incident occurs or during an emergency. Goals can include making expert content better known, or demonstrating positive values of openness and transparency. The organisation must identify its goals in using the various media outlets to engage its stakeholders. Social media is one of many tools that can be used to address issues and gaps strategically but should not replace existing methods of information dissemination and should complement other forms of stakeholder involvement. Social media allows the magnification of a message simultaneously on various platforms to share the organisation's perspective. Different platforms target different audiences and should be used in integrated and compatible ways. Though a message can be broadcast directly, it is still important to be engaged with traditional media outlets. The reach of information will be increased in turn via these outlets' own social media accounts.

Figure 3.7. "Effective risk communications" guiding content of social media during an emergency



Presentation by T. Runyon, 19 January 2017.

Though social media garnered a large portion of the session, this tool is still in the process of being fully embraced and utilised strategically to involve stakeholders during the various stages of decision making. The case study offered by Mr Runyon of the US Department of Energy's Waste Isolation Pilot Plant showed that time is needed to build up a rich, responsive communications practice as well as audience ("followers"). It is imperative to adapt to the specific rules of social media, which use a conversational tone and require fast and attractive updating. Mr Bouchot of France's Nuclear Safety Authority outlined the various characteristics of each social media platform and the importance of knowing these features to engage and inform stakeholders. For instance, Twitter offers

direct interaction with influential followers who can expand the reach of information. This was illustrated by the effective spread in France of authoritative and correct information about an iodine distribution campaign through "re-tweets" by other Twitter users.

When a major event occurs, there is a need to balance speed, accuracy and comprehensiveness in putting out the information. Fast-paced use of the multiplying power of the social media can be beneficial in getting information out to all stakeholders but it can also be a double-edged sword. As highlighted in the first presentation, if mistakes are made, they are magnified and the content may stay on the web forever, which presents a tremendous challenge. Resources can be directed to correcting an issue but it is important to understand that it is impossible to correct everything. A strategic approach to righting incorrect information on social media platforms is to allow the conversation to range freely, permitting external persons to the organisation to challenge what is presented and allowing other stakeholders to correct mistakes, in an interactive manner.

Commonalities

One aspect that was evident in all presentations is the commitment of time and resources. Presenters from the United States and France repeated the need to allocate skilled professionals with dedicated time and necessary resources to address communication via the social media. Along with those media experts, a network of technical experts should be available to assist or directly address questions which may arise on social media.

It is important to have a solid strategy for an ongoing engagement of stakeholders on an everyday basis such that when there is an event, the means are already in place to inform and involve stakeholders in an efficient manner through a familiar outlet. Building a relationship with the stakeholders during normal operation is imperative to effective engagement and response during an emergency. Information coming directly from the regulator or the operator to describe exactly what is happening in real time during emergencies is of utmost importance. There should be no gap in topics or in the time it takes for information to be disseminated to avoid the rise of false information that would have to be debunked or controlled after the fact. Also, monitoring social media and traditional media is imperative in staying proactive in the engagement with stakeholders.

Highlights

- The history of controversy and of negative perceptions related to nuclear projects as well as one-sided reporting present a specific set of challenges when engaging stakeholders.
- The public sometimes is frustrated at not having the information it expects to receive.
- The media should not only report on the risks of nuclear energy but also report objectively on the benefits of that technology, otherwise the public will only hear biased views.
- Two-way communication is paramount.
- Social media should be integrated into current public outreach activities. Start small with one platform and add platforms, building them up one at a time to focus efforts instead of attempting to develop all social media platform activities at once.
- Traditional and social media outlets rely on various sources of information, official and non-official (including non-governmental organisations). These should be considered and monitored to understand what stakeholders are saying and how situations are developing.
- Early communication with the public in the case of an emergent situation is always important to proactively reduce the probability of misinformation which could occur in a void.

- When there is an event, it is an opportunity for trust to be won or lost. Clarity in emergency communications is crucial to maintaining public trust.
- A direct personal relationship built up with traditional journalists can help when it comes time to distribute accurate information quickly.
- Social media can be used effectively to disseminate information in co-ordination between different actors (regulators, government, etc.).

Opening Remarks by NEA Director-General Magwood IV.

Chapter 4. Report of the dialogue sessions

Description of the dialogue sessions

The NEA Workshop on Stakeholder Involvement in Nuclear Decision Making was punctuated by two dialogue sessions during which the attendees had a conversation on what they had heard in the preceding topical presentations. The dialogues allowed the exchange of perspectives, ideas, thoughts and practices with the aim to harvest tangible takeaways for each participant.

Throughout the NEA workshop attendees were seated at round tables reflecting the diversity of areas of expertise: nuclear law, regulatory practices, radiological protection, nuclear waste management, deployment of new nuclear facilities, other energy sectors, social and traditional media. There were 12 tables, giving all participants the chance to join the interactive forum. During the dialogue sessions the table members discussed a set of questions that had been prepared by the NEA Secretariat. These questions were tailored to cover all the different themes addressed by the workshop as well as the respective expert areas, to facilitate cross-disciplinary conversations. Each table had a different subset of questions.

A pre-appointed table leader facilitated the conversation, ensuring that the opinion and experience of each participant could be heard. The leader encouraged an explorative mindset as table members listened and built upon others' inputs[1]. At the end of each dialogue session, table leaders briefly reported the conversations back to plenary in a moderated panel session. Table members also could comment from the floor.

Participants engaged in a group dialogue session.

1. The instructions provided to table leaders are available in Annex C. These show how to support a fruitful small group dialogue and can be used in participants' home context of stakeholder involvement.

The dialogues created time during the workshop for conversations and reflections providing new insights, which can be further developed into tangible actions to improve stakeholder involvement in nuclear decision making. The highlights of the dialogue sessions were captured at each table by an NEA Secretariat rapporteur. Valuable and detailed examples were shared by the participants. The present chapter gathers their observations and lessons learnt, to enhance the collective wisdom on involving stakeholders in nuclear decisions. The points that emerged are not intended to represent official policy or recommendations by the NEA. They are organised in this chapter in regard to upstream considerations, practical considerations for conducting involvement, issues that emerge in practice, and assessing the experience.

The term "stakeholder" refers broadly to "one who is involved in or affected by a course of action". In principle it thus embraces both professionals and non-professionals who might be involved in nuclear decision making. However, in the dialogue conversations this term was clearly intended by table members to designate primarily stakeholders among the public at large, potentially affected groups in the public, members of local communities, and others without a professional role in the nuclear area. "Actors" therefore is used in this chapter to single out professionals with a public or private sector role in nuclear decision making.

Upstream considerations – framing stakeholder involvement

Goal – Why stakeholders are to be involved in nuclear decision making

According to delegates, in its simplest definition stakeholder involvement is "a process or a tool to reach a decision that is better-informed, sound and widely accepted". Many dialogue attendees agreed that stakeholder involvement ultimately contributes to making the best decisions and improving the policy, the rule, the activity or project. They pointed out that an involvement process should create value for both the decision maker and the involved stakeholders, who ideally can see their concerns, views and contributions integrated at some level into the decision.

Stakeholder involvement was also viewed as key to ensuring the sustainability of nuclear decisions. A decision that takes little account of the stakeholders it impacts or does not benefit from their support will raise objections whether in terms of public reactions, media response or legal challenge.

Sustained engagement (as opposed to one-off consultations) in particular was described as beneficial because it helps to manage policy risks through improved decision making: integrating multiple perspectives, identifying creative solutions, opening the way to optimised implementation. Table members highlighted that sustained engagement avoids polarised conflicts and entrenched positions that can result in the complete rejection of projects of technologies. They have found that trusting relationships developed through such engagement provide strength to survive the inevitable challenges of the implementation period.

In panel feedback, one table leader emphasised that stakeholder involvement serves more than just these direct instrumental goals. He pointed out that stakeholder involvement is in fact a principle of democracy. An open society fosters participation and engagement throughout its citizenry.

> "Stakeholder involvement, as a tool to foster participation and engagement at all levels, is a principle of democracy." (M. Boyd, United States Environmental Protection Agency)

According to some table members a past goal, which may still be deeply rooted in some people's minds, is that stakeholder involvement primarily targets acceptance for nuclear projects. One delegate pointed out that using the term "acceptance" frames engagement as a kind of sales technique. In this perspective, a token or purely symbolic participation is offered to stakeholders, rather than a meaningful dialogue. But for many

private and public actors today, the trend is away from seeking acceptance for nuclear decisions, and towards the elements for which "public acceptance" is in fact a proxy: availability of clear information, procedural justice, trust in the actors (companies, authorities), optimal socio-economic impact, supportable environmental impact, and distributive justice (properly sharing benefits as well as risks). Attendees pointed out that moreover, it cannot be a goal to change everyone's mind. Some suggested that members of the nuclear establishment should be more open, flexible and self-reflexive in order to realise democratic and pragmatic goals.

Certain table members warned that high goals for stakeholder involvement create supplementary pressures and risks for business organisations. They expressed concern that a very large investment of time and resources may come to nothing if involvement leads to the rejection of a project. Others replied that the value of involvement processes is to produce adjusted, supported and sustainable decisions. Still, at the dialogue session there was sometimes a sense of divide between actors who prioritise stakeholder involvement and are willing to allocate significant resources to this activity, and those who regard it with caution. The balance between risks and benefits of stakeholder involvement, and ways to maximise benefits shared among all types of stakeholders could be topics of discussion in future workshops.

Cultural and national differences

Dialogues confirmed that across nations, there are different political systems dictating the role of citizens, which are reflected in the mindset and approach to stakeholder involvement. There are also different legal frameworks guiding nuclear decision making in different countries. These differences stood out at the mixed dialogue tables.

Table members observed that political and legal frameworks are not the only cultural factors that can significantly impact stakeholder involvement and its actual outcomes for nuclear decisions. In particular, aboriginal peoples may have a distinct world view including a spiritual dimension unaddressed by typical technical solutions. What officials consider to be a safe installation may be regarded as disruptive of prayer relationships or as an actual insult to nature.

Some suggested that in newcomer nuclear nations, a low level of education or familiarity with technology in traditional populations may present obstacles to building up involvement initiatives; however, these remain democratically desirable.

Finally, it appeared that organisational culture has an impact. An informal survey at a workshop dialogue table found for example that in one organisation involvement is highly integrated in business practices. For another involvement is viewed essentially as part of the legal environment. One technical support organisation considers that it must be able to answer and moreover to truly listen to questions from the public, resulting in a department named "Openness to society".

Practical considerations – the art and manner of stakeholder involvement

Matching stakeholder involvement to decision

> "The framework needed for a sound public dialogue depends on the decision being taken, and will differ for a policy decision and a project or site-specific decision." (Dialogue table report)

The dialogues confirmed that the shape of involvement will be different for a more general, policy-type decision versus a project or site-specific decision. The involvement process may respond strictly to legal requirements or it may reflect an ambition or commitment to go beyond this minimum. When deciding to go beyond statutory requirements, experienced practitioners advised asking: which decisions need to be made collectively? Which can in fact be improved by stakeholder input? Many tables highlighted the regulator's special situation: across the year the regulator can

invite dialogue to foster societal safety culture and actively seek involvement on rulemaking, but during a formal licensing process independence of the regulator is the top priority.

The Arnstein "ladder of citizen participation" (Figure 2.1) was presented by several NEA workshop speakers. This conceptual model emphasises a progression from token or symbolic participation (one-way information, consultation) towards higher levels of citizen power and influence over decisions. Such higher levels correspond to current expectations in many corners of society, and have been tested in several areas of nuclear activity (for example, in sustained dialogue and partnerships on waste management). Several table members openly questioned the realism and cost-effectiveness of higher-level involvement, while others (including presenters) emphasised positive experience with strong engagement processes and multi-stakeholder partnerships to achieve complex decisions.

Some tables discussed the fact that "providing information" is a very weak form of stakeholder involvement. Offering a website with room for comments is a necessary step up from basic provision of information but it is not sufficient. Table members from countries present agreed that the legal framework is adequate to ensure information sharing, while further adjustments to frameworks may be needed to support effective participation in decision making. They confirmed that the level of involvement and influence that will be attained depends on the type of government and the system of values in which decisions are made.

One dialogue table identified the need to clearly understand and factor in the ways humans make decisions. The decision-making process should explicitly take into account the public's perspective on risk, consequences, probabilities and uncertainty.

Conversations during the dialogue session.

Identifying the stakeholders

Table members observed that the identification of stakeholders depends on a range of factors including the type of decision at hand (ranging from rulemaking to siting) and on the interest, role and statutory responsibility of each actor or stakeholder (government, regulator, operator, population living in the proximity of an existing or potential site, the

general public, etc.). The workshop dialogues revealed that rules and approaches differ. Some countries may rely on statutory stakeholders or established advisory bodies (while still guaranteeing the right of participation to other interested parties). Elsewhere (for example, in the United States) everyone is considered a stakeholder with equal rights whether they are national-level agencies, state representatives or private citizens.

The dialogue tables found that stakeholder populations cannot be treated all alike, may not be simple to identify, and may be evolving fast. In several countries, indigenous peoples may have a special legal status: there may be higher requirements on seeking their input and taking it into account. When seeking to identify affected or non-affected publics, some officials have found it difficult to draw a clear boundary between the public at large or at national level and the public at community level. As for fast-evolving population groups, table members observed that as soon as a segment of the public organises itself it becomes a collective stakeholder. Non-governmental organisations' involvement and influence may grow in coming years with increased formal possibilities for such groupings to shape decisions. Finally, social media create a situation in which any user can consider himself or herself to be a stakeholder.

Some attendees recommended stakeholder mapping as an early step before convening a process of involvement, to maximise the chance of engaging with the right people. If all key stakeholders are not represented during decision making, according to some attendees this would not be considered successful involvement even if an apparently workable decision outcome was obtained.

The issue of transboundary stakeholders was discussed. The "public affected" by infrastructure is not limited by national borders but is defined under international conventions by the degree of potential impact. Table members recognised that transboundary involvement may be a duty, including public consultation in the language of the impacted population and in some cases foreign participation in local monitoring committees. The need for transboundary involvement is recognised as well by some governments which are not parties to the Aarhus and Espoo Conventions.

In processes like siting where a high level of involvement must be offered, practitioners described how they might turn to established networks and existing organisations to recruit participants to join a sustained dialogue. These participants can represent their community, provide place-based knowledge and also ensure two-way communication with their peers. An experienced official advised that the role of such participation within the overall decision-making framework must be clarified, so that no "competition" is created with statutory bodies such as an urban planning commission.

Several speakers and attendees recognised that there are persons with extreme opinions pro or contra any nuclear issue. The vast "silent majority" of the general or local population might be found between these two groups, without a fixed position or strong interest. Many dialogue tables felt that stakeholder involvement processes should specifically reach out to the segment of society without strong opinions, creating awareness and providing information that might otherwise be lacking. Table members recognised that it is difficult to engage members of the public if they do not see a need for it (if it is not work related or it if does not concern them personally). However, there could be difficulties later in the process if they are not on board or feel that they did not have a chance to express their views when options were open.

Some table members urged building awareness in the population that they are the beneficiaries of nuclear power production, as well as of nuclear medicine and other applications. In particular, this effort could target the younger generation so that youth will not grow up to be the silent majority. There was broad agreement that nuclear actors should try to encourage young people to take part in decision making that will impact their future.

Timing of stakeholder involvement

Table members pointed out that when a decision process is planned and when the nuclear project or activity comes into public view, stakeholders (and particularly the local communities) need to know at which point they can intervene in the process. The dialogue tables agreed that involvement ideally should come as early as possible. Sometimes stakeholder involvement will take place after an event – e.g. to address conflict, or sadly in the case of post-accident exposure.

Experience shows that timescales or "reasonable length" for stakeholder involvement processes depend on the type of decision. Table members advised that the political timescale must be factored in (because there may be policy milestones to meet, and also because policy – national or local – can change if the political majority changes). In post-accident contexts, officials and experts often must foresee many years of patient co-operation with residents as they recover their quality of life.

Delegates recognised that applications to extend operations of nuclear plants are generally conducted on a short time scale since an investment decision is needed, and the operator cannot delay that decision and the associated regulatory process. If the operator of a nuclear power plant has a tradition of engaging with the local communities around the site the involvement process can be up and running and complete within a shorter period. Some mentioned that these established relations can facilitate new-build applications as well.

According to observers, siting waste repositories by contrast may require years to decades of continuous engagement. There has been a need for flexibility in project timetables, with the addition of years to allow communities to develop sufficient expertise and to settle viewpoints and preferred solutions. They advised that milestones are useful and help drive the process along. Private industry actors highlighted the difference between fixed, sufficiently long consultation periods that are part of a project plan and unplanned delays or setbacks. In the latter case, they said that economic considerations will condition company choices as to whether or not to introduce flexibility or to change course. While no one wants involvement to drag on, practitioners cautioned that an end to a deep engagement process that is arbitrarily dictated by deadlines or externalities results in loss of trust.

Exchange of opinions and approaches during the dialogue session.

Means to involve stakeholders

Experience indicates that the actual methods employed to conduct stakeholder involvement will be chosen in light of many factors (goal of involvement, type of decision, stakeholders targeted). Many methods and formats are available. Some cited by attendees are: web platforms to collect comments; public meetings (mainly focused on delivering information and hearing a few questions or concerns); town hall meetings (enabling stakeholders to put forward their concerns but usually without a clear mechanism for taking these into account); round tables (gathering a diversity of stakeholders to discuss a specific theme); local partnerships (bringing together community representatives to deliberate over time on a number of decisions); expert groups (including stakeholders with particular knowledge needed for decision making). Younger populations can be reached through school visits and exhibits, videos and hands-on activities.

One table speculated that where people choose not to get involved, this might reflect their tacit approval of how a site, facility or activity is being managed. However a lack of interest or the refusal to participate might signal that the formats offered need adjustment. Several plenary session presenters and tables emphasised strongly that the most effective interactions are face-to-face. They advised that large, open town hall-type meetings tend to be polarising while smaller round table or committee discussions have been more effective. Listening carefully to the concerns of selected participants can be followed by a systematic process involving expert groups and local committee interactions. To reach ethnic minority or aboriginal populations in particular, organisations need to recruit locally, finding persons who can act as the "face of the agency", sitting down and talking with residents at length.

Table members advised being realistic: when stakeholder involvement is opened up to all interested parties criticism will emerge which is not always useful to the decision at hand. It is good to establish agreement on the terms and conditions of a dialogue, but this is not always possible (e.g. opposition refuses to participate). Some stakeholders have an agenda which will not be addressed or changed by the involvement. All engagement issues cannot be resolved by strategy.

Taking due account of stakeholder input

Several tables emphasised that true stakeholder involvement implies making sure there is room in the process for the gathered opinions to be influential. Many stakeholders at community level appear to accept that their role is essentially advisory. However, they expect to see their views reflected in the decisions, or at least acknowledged. Moreover, under legal frameworks like the Aarhus Convention, due account must be given to stakeholder input: the decision authority must detail the views, and explain why they were or were not retained for the ultimate decision.

A much-discussed lesson from the regulatory session was the fact that public comments and inputs "are not a vote". Attendees highlighted the need to justify a situation in which thousands of persons object to a proposal and yet, it will nonetheless be implemented.

One table pointed out that the role of the public authority is not to handle competing interests but to make the best-informed decision possible. The authority receives input and then takes the responsibility for deciding. Members at several tables felt strongly that citizens in fact transfer their decision-making power to elected representatives and central government: in this view, a so-called social licence is given by these actors of democracy, while the technical licence is given by the regulatory authority. Other dialogue members viewed that to be effective, a social licence needs an immediate basis in stakeholder-supported values and options, which are revealed by direct involvement.

One table discussed whether public input can be taken into account on technical aspects of e.g. a waste management installation. An experienced implementer acknowledged that safety is non-negotiable and community stakeholders are not entitled to directly influence technical work; however, they want to do more than simply "decide what colour the door should be painted". Just as the implementers receive policy orientations from political actors, they receive meanings, expectations and feelings and local knowledge from citizen participants. Implementers have successfully taken this societal reasoning to technical designers, who can propose safe solutions that accommodate concerns.

> "The most effective interactions are those that practice listening to identify the public concerns and what is truly at stake." (Dialogue table report)

Issues and observations that emerge from practice

Societal concerns

Session 7 of the workshop gave a panorama of societal concerns that may emerge in energy infrastructure discussions. Dialogue tables identified the following elements in nuclear decision making that typically trigger concerns: the justification or actual need for a technology or facility; safety, health effects, environmental impact; construction and operation nuisances and risks, property values; preserving traditional culture, lifestyle and relationship with a territory. Regarding emergency response and recovery situations, table members highlighted that sensitivity is needed to potentially different impacts on different groups (women, cultural minorities, etc.) and advised additional attention to long-term psychological well-being of the persons affected.

> "Decisions can't be made solely on facts and science. The impact on stakeholders must be factored in the decision-making process. There needs to be an effort to balance the concerns of public stakeholders with the business concerns of the operators, and their responsibilities." (Dialogue table report)

Table members observed that it may be difficult to draw universal lessons for involvement from experience with different types of energy or infrastructure because these elicit concerns on different dimensions and scales. For instance, high-voltage transmission lines inspire concerns about quality of life, landscape and potential health effects within a few hundred metres of the installations. By contrast, nuclear power generation may trigger concern more widely across the general public, linked to the risk of nuclear accidents.

Information needs and issues

Differing cultural interpretations of "transparency" were expressed. Table members advised that in general, openness and sharing information are good institutional policy. However, they acknowledged that these may not be enough to achieve informed decisions. Some inherently complex technical terms may cause confusion: dose rates, low dose, lifetime extension vs. long-term operations, storage versus disposal. "Placing information out there is not enough, we need to ensure the information is absorbed and understood." It was agreed that easy-to-understand and accessible information has the added benefit of enabling more people to take meaningful advantage of involvement opportunities.

According to experience different information channels are needed to serve the diversity of stakeholders. Table members cited "marketplace" events where people can visit stands to get information about themes or actors. One municipality sends a communication trailer to commercial and cultural sites at regional level, aiming to reach those who do not go to public meetings. Several regulatory authorities have successfully created a technical safety forum online: plain language questions are received from the public and plain language answers are published in return.

Some attendees highlighted the need to communicate on the broader energy context in which specific nuclear decisions are embedded. They advised sharing information on why nuclear production was selected or deselected and on its benefits and drawbacks within the energy mix.

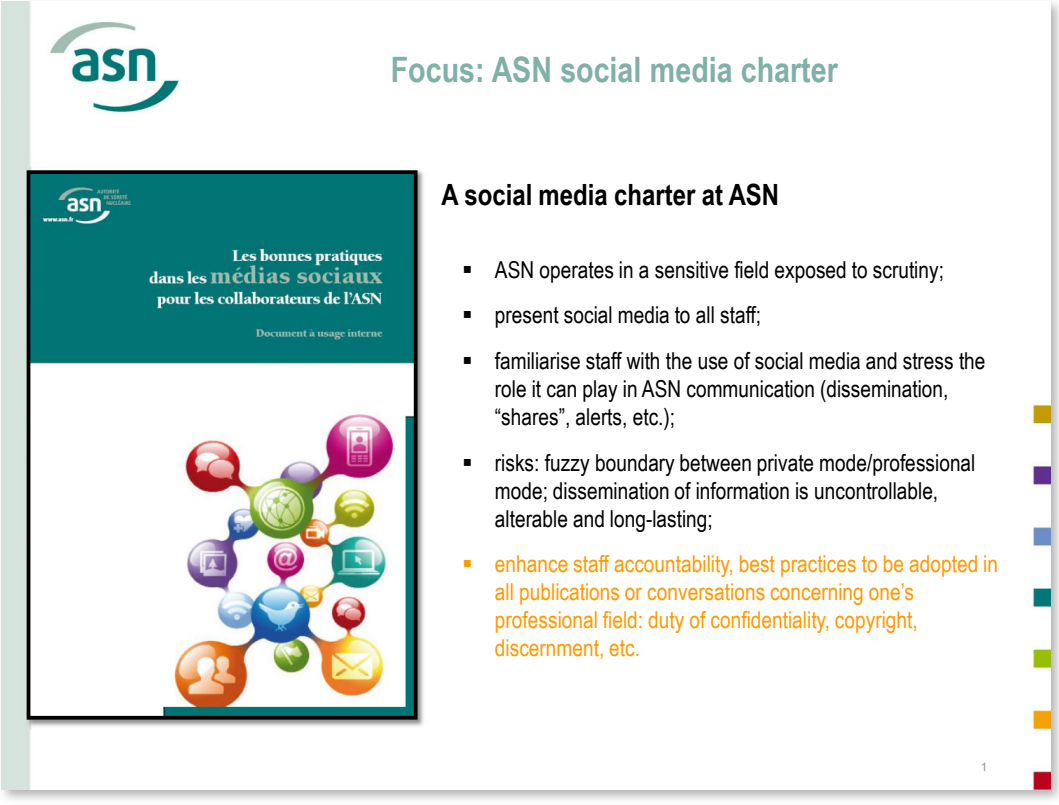
Media and social media

Several tables shared experience regarding the traditional media. Journalists were described by some members as not being always accurate in their nuclear reporting. The media today have fewer expert journalists and fewer resources for checking and validation of information than in the past. Table members recognised that journalists may not fully understand what they are writing about, while in turn nuclear actors may be challenged by communicating the science and technical information. Attendees agreed that personal contact with journalists is very important for being able to convey a balanced message. This is easier to establish with local media than with national media (where there is also faster turnover of journalists).

> "In the past, the media might simply act as a relay of authorities' information to the public. Today, there is a different standard for journalism: the media enquire about specific information which they would need to confirm on their own before publishing." (Dialogue table report)

Social media practices were discussed as well, focusing on the need to develop social media competence, accuracy and audience all year long – which will pay off with an agile response in the case of an emergency. During crisis, organisations have to realise that they cannot control all information. An issue grows very quickly in social media. It was advised that experts may need to say "we don't know, but we will look into it".

Figure 4.1. The "ASN social media charter"



Presentation by E. Bouchot, Session 8, 19 January 2017.

One regulator reported how employees are encouraged to utilise social media independently (apart from discussing energy policy). The trained volunteers represent a little less than 10% of staff (excluding security personnel who need to remain anonymous for safety reasons). Feedback shows that joining in the societal dialogue and providing information in this informal way increases credibility and respect for the regulator. Some tables discussed the internal "social media charter" developed by another regulator to set good practices for employees in the use of social media (Figure 4.1). However, the tables recognised the view by other regulatory organisations that such a practice lays too much responsibility on the employee; for these organisations, social media messaging should be controlled by a communications department.

Several tables highlighted an emerging risk of fake news delivered through social media, or the use of digital tools like "bots" to misleadingly drive up the frequency of certain images or contents and thereby influence public opinion. Table members thought the authors of these disruptions might not necessarily have a stake in the decision to be made but would have a large power of nuisance.

Trust

Trust by stakeholders is seen by many as a key requirement to creating and sustaining dialogue around nuclear subjects. Yet it is often missing. Some table members pointed to a general societal erosion of trust in authority, governments, institutions and even democracy, as well as in big business – perhaps especially among youth (making it important to educate youth on the role that the regulator plays for society). Attendees judged that clear procedures for decision making and stakeholder involvement are very important: if these processes are based in law and agreed on by most people, this will help increase social trust.

> "Trust is built on relationships; relationships are built on communication and respect. Respecting your stakeholders, even those with opinions very different from your own, listening carefully to their viewpoint, looking for common ground, considering their input, examining their evidence: all of this is part of building trust." (S. Burns, United States Nuclear Regulatory Commission)

Several tables highlighted that people trust individuals rather than institutions. Therefore it would be through interpersonal relationships (one-to-one and in-person communication) that a constructive dialogue could be built, possibly leading in time to a certain level of trust in the institution that individuals represent (such as the safety authority, the applicant and governmental agencies). Trust must be earned and for this nuclear actors have to commit to continuous communication, empathy and respect, and experts should form local connections.

One table member shared the particular challenge faced in post-accident and recovery contexts where trust has been deeply broken. Residents are wounded not only by the disruption to their lives and safety, but also by the very fact that their trust in operators, regulators and government was betrayed. It is difficult to build up a trusting conversation between technical actors and community stakeholders when there are so many "unknown unknowns" about how the local situation will evolve and how risk may translate into consequences. Still, a mutually trusting relationship must be developed as it is essential for working together to overcome these "unknown unknowns".

Assessing experience and preparing for future practice

Elements needed to achieve stakeholder involvement

All the dialogue tables recognised that stakeholder involvement in nuclear decision making is a major investment. It requires resources in the form of time, money, training and staff. A few scattered components or actions will not be effective. Some reflected that involvement cannot be treated as an add-on and must become an intrinsic part of

business whether the organisation is public or private. Attendees from the diverse expert areas agreed that once you start with involvement you must uphold your commitment; drawing back could harm both credibility and reputation.

One table advised that to be well-equipped to perform stakeholder engagement an organisation should also practice internal dialogue and involvement as part of its own management culture. At the national level, opening nuclear decisions to public participation probably needs a political decision to be assured of permanent support. Similarly, community engagement needs to be supported by a local political decision. At each scale a system and a responsible body should be prepared with financing, strategy and plan.

Confidence factors

Some observed that the public often questions the independence of nuclear experts and the transparency of decision making. To tackle the lack of confidence it is fundamental to have clear decision frameworks based in law and to design involvement processes that can be widely perceived as legitimate. According to table members the behaviour of nuclear actors all year long will influence the level of stakeholder confidence: they must demonstrate safety culture, responsibility and accountability.

Some tables highlighted the value of international collaboration on the part of the government or project proponent to instil confidence that what is being proposed or executed is recognised as best practice, consistent with what others are doing. Foreign communities can be invited into a process to discuss their experience with their peers at local level while remaining neutral on the decision. This exchange, like community study trips, also helps develop the confidence factor of familiarity with an activity or type of installation.

An element of shared control over the decision-making process was pointed to as a confidence builder, as in Canada where stakeholders across the nation helped define the upstream principles and guidelines for a repository siting framework. Some find that this type of shared control can be achieved in a science-based context and is not limited to socio-economic aspects of decisions.

According to several table members independent verification of information and data can bolster public confidence in radiological protection. Examples included independent laboratories, citizen measurement campaigns or a high-profile process of calibration of national laboratories to ensure that in times of emergency the public has a basis to assess the reliability of dose and exposure measurements.

Success criteria

Attendees reflected that evaluating involvement initiatives will improve future applications and give data to managers to justify the investment. Stakeholder involvement processes are evaluated in light of their goals. Table members pointed out that decisions on siting a nuclear power plant or a radioactive waste management facility obviously require considerably broader support than rulemaking and so the success criteria will be different.

A number of criteria emerged from table discussions, and there are likely many more. The indicators target at least two levels: process design and conduct, and decision outcomes. From a legal perspective a successful involvement process completes formalities and arrangements as outlined. The key stakeholders are heard, their input is considered and it is addressed when the decision is explained. Several table members felt that obtaining the largest diversity of points of view is desirable. A successful process delivers improved understanding of a decision and it may broker the agreement to disagree. As for outcomes, success might include: obtaining a sustainable decision; ensuring regulatory conformity; obtaining a decision improved by stakeholder knowledge and inputs.

Table members cautioned that even if a stakeholder involvement process is well-conducted and successful, the outcome of the process may not be reflected in the final decisions. Instead these may be overtaken by political and economic rationales. Delegates also pointed out that the evaluation of any given process and its outcomes will depend on point of view: criticism and praise both may be anticipated when asking for stakeholder feedback.

Chapter 5. Discussion and conclusions

The NEA workshop in January 2017 gathered representatives of governments, specialists of most aspects of the operation, management and oversight of the full nuclear fuel cycle, and other actors and experts from across the world. Stakeholder involvement in almost all types of nuclear decision making was addressed, and findings were underlined in other technology sectors. The plenary talks and topical presentations provided an overview of major considerations, while dialogue sessions enabled workshop attendees to deepen their understanding and exchange experience. This chapter discusses the main commonalities and differences revealed by this unique cross-cutting workshop. It highlights takeaways that were broadly supported by the workshop.

Commonalities

A growing trend towards increasing stakeholder involvement in decision making can be observed across all sectors of nuclear activity. This trend is supported by legislative frameworks, both national and international, which lay out minimum requirements for access to information and procedures to ensure participation. This trend also is a reflection of societal expectations typically found in many countries and many sectors.

Stakeholder involvement in decision making is recognised as a fundamental principle of open, democratic societies. However, stakeholder involvement is not a goal in and of itself. Across sectors it is viewed as one means to attain a sound, well-informed and broadly-supported decision. Stakeholder involvement contributes to the sustainability of decisions, taking in views and needs upstream and minimising challenges, rejection and appeals downstream.

Across sectors, there is a need to carefully verify, from both a legal and a pragmatic point of view, precisely which actors and public must be involved in view of reaching a decision. Defining, identifying and also reaching the stakeholders are challenges to be addressed.

Stakeholder involvement does not replace the responsibility of mandated actors to take decisions, whether they be the regulatory authority, the technical experts or democratically elected representatives. Nor is it a way of managing concerned populations or manipulating potentially affected communities. Stakeholder involvement simply creates appropriate opportunities to influence decisions, to uptake valuable information and to improve outcomes.

As such, stakeholder involvement is less effective if treated as an add-on. Many organisations integrate public communication and involvement aspects into their overall strategy. During the workshop, there was wide recognition that stakeholder involvement is generally a time and resource-intensive activity requiring significant organisational buy-in, staff and training. This investment is viewed as worthwhile in many cases. It was also recognised that once an organisation has committed to a level of stakeholder involvement, this creates an expectation that cannot be rescinded.

Workshop presentations suggested that the basic principles of stakeholder involvement cut across nuclear activities but also across other technologies and types of infrastructure. These basics include the need to match proportionally the level of

involvement to the actual characteristics of the decision. Involvement may range from a basic low level of providing information, to consultation or higher levels that represent the sharing of a degree of power and influence. Legal frameworks often set the minimum requirements (inside and outside the nuclear sector) for information and involvement, and sometimes they specify the required tools or procedures.

Regulators, operators and implementers appeared to be taking seriously the need to provide clear information about activities and decisions, and to publicise their replies to questions in plain language. Moreover, regulators from several countries stated that openness to society helps to build (or rebuild) credibility and trust in the regulatory system. Transparency and interactions with the regulator can afford citizens a means of verification and assurance that the system is there and functioning well. In this light, communicating with stakeholders and receiving comments does not necessarily threaten regulatory independence.

Across sectors, nuclear actors have found ways to address challenges and achieve higher levels of involvement as appropriate. Examples include creating limited agreements allowing access to sensitive (security-related) data; meeting a community need for heightened information and participation even in processes that are highly determined by national legislation or other constraints; and supporting competence building for communities to deliberate on the diverse facets of decisions whose implementation will impact the community for many years.

Another observation that appears common to nuclear decisions and those related to other technologies is that it is often difficult or impossible to compartmentalise decisions chronologically, as stakeholders in a siting phase will want to debate the actual need for a policy or project. They also want to review and consider potential alternatives. The extent to which stakeholders can influence such decisions may be limited by the legal framework and/or by technical safety imperatives. If a political process (for example the discussion of a national energy strategy that identifies nuclear energy as a suitable technology for the country) has been concluded successfully at parliamentary level, some said that the debate on a choice of technology should not be reopened at the local level. According to workshop presentations, legal requirements and best practices both highlight the need in every case to give due account to stakeholder input, explaining how particular aspects were retained in the final decision and why other aspects were not retained.

Stakeholder involvement delivers important insights into stakeholder concerns, preferences, expectations and questions. Both technical and societal aspects of decisions are apt to come under consideration. Regarding the actual conduct of stakeholder involvement, it was largely found that face-to-face formats that enable conversation and listening are most successful. By contrast, unstructured town hall meetings are viewed as polarising, and while such meetings can be used to present information in a consistent fashion across a region, several presenters advised that this format is not a fruitful one to truly achieve stakeholder involvement.

Many workshop speakers highlighted the role of trust, not as a targeted endpoint but as an essential component for conducting stakeholder dialogue and also as a potential positive result of that dialogue.

Social media is an important complementary tool for dialogue and outreach, contributing to the transparency and openness demanded by society and affording a supplementary channel for understanding stakeholder concerns and opinions. It was described as crucial for nuclear actors to build up social media competence, credibility and an audience during nominal operations so that digital platforms can serve during emergency situations.

Differences

Despite the fact that 26 countries, diverse cultures and a large breadth of nuclear activities were represented at the workshop, more commonalities than divergences were observed. Among the findings that highlighted differences were the following.

Different disciplinary or sectoral backgrounds are apt to influence terminology, emphasis and practice in stakeholder involvement. A legal view on decision making, for instance, may focus on aspects that may be different from a business-oriented, a sociological or a community relations-centred analysis, and may imply different actions than those that may be recommended from a technologist's perspective.

The workshop recognised that there are different legal, political and cultural environments in the different member countries. These necessarily shape the implementation of stakeholder involvement in decision making, for instance the balance found between direct public participation and delegation to authorities.

In some contexts, stakeholder involvement may be limited to public information and consultation. In other contexts, it may be understood as a means to engage the concerned public in the co-design of projects or measures that align with community aspirations.

Different definitions may be given to the concept of "acceptance". In some contexts, those holding final responsibility may involve stakeholders in order to foster greater public understanding and acceptance of decisions as formulated. In other contexts, organisations may have the latitude to work with external stakeholders to improve a decision and in that way make it more acceptable.

In many cases, stakeholder involvement initiatives may be able to address and integrate a broad panel of technical, socio-economic and other societal concerns into decision outcomes. However, in other cases, such as certain safety decisions, it may be necessary to focus on technical aspects only.

In light of statutory requirements and other contextual features, distinct actors and groups may be identified as stakeholders in different decisions.

Different degrees of stakeholder involvement and influence will be required, appropriate or more accepted in different contexts. It is not possible therefore to dictate a single approach.

Takeaways

Even considering the specificity of each context, some takeaways were clearly supported by presentations, dialogues and exchanges. They constitute a part of the collective wisdom developed when participants from across member countries and sectors come together at such a unique, cross-cutting workshop.

- It was beneficial to sit together, talk and compare experience with persons from different backgrounds and areas of competence.
- Stakeholder involvement is not only about what decision is made. It is also about achieving decisions that visibly and transparently reflect stakeholder concerns and input.
- Stakeholder involvement is "a process or a tool to reach a decision that is better-informed, sound and widely accepted". Stakeholder involvement is viewed also as a principle of democracy.
- There is no one-approach-fits-all: the stakeholder involvement process needs to be adapted to the country-specific context. Across nations, there are different

political systems and legal frameworks that are reflected in the mindsets of populations and approaches to stakeholder involvement.

- The shape of involvement will be different in the case of a general, policy-type decision or a project or site-specific decision. The involvement process may respond strictly to legal requirements or it may go beyond this minimum.
- Societal expectations are that stakeholder involvement will go beyond the sharing of information or consultation. Involvement is taken to mean two-way dialogue and some degree of power-sharing.
- Actors need to learn to match the appropriate degree and format of involvement to the decision context. Evaluation can help to improve subsequent initiatives.
- The decision authority must demonstrate that stakeholder views were given consideration and explain why they were or were not retained for the ultimate decision.
- While stakeholder involvement is resource intensive, many have found that it is time and money well spent in terms of the quality of decisions, optimised implementation and improved relationships. Involvement is best started very early in the decision-making sequence.
- As a major lesson, face-to-face interaction and effective listening are very important. Large town hall-type meetings on the contrary tend to be polarising.
- When involving the general public, the views and opinions of the "silent majority" must be represented.
- It is wise to take into account and respect local knowledge. Local people may be recruited who are experts in their own places and traditions and who can talk directly with the public concerned.
- Stakeholder involvement is not static. The world is evolving, and innovation is needed to adapt and improve (e.g. adjusting international methods to home-country contexts or learning to apply new tools like social media).
- Organisations need to build up their use of social media to develop competence, credibility and an audience. This will be an important basis to rely on in times of crisis.
- Education and training today must prepare youth to take over the responsibilities related to the future management of all aspects of nuclear power. There is a need to reach out now to younger generations to familiarise them with the issues and benefits associated with nuclear energy, as well as the science, and encourage them to be active participants in decision making when they reach adulthood.

Chapter 6. Closing, evaluation and next steps

NEA Director-General Magwood reflected at the end of the workshop that the practices of stakeholder involvement transcend a simple ladder of requirements. He recalled past times when technical information was given to the public without explanation, whereas nowadays valuable learning takes place on both sides when the technical expert sits down with stakeholders to work through their questions. Mr Magwood highlighted the human connection that is born when nuclear actors meet members of the public in a true dialogue.

Participant feedback

> "Attendees acknowledged and learned that different countries share the same concerns with regard to stakeholder involvement even if they adopt different nuclear technologies and reactor generations." (Y. Hah, Head, NEA Head of the Division of Radiological Protection and Human Aspects of Nuclear Safety)

At the dialogue tables, comments were heard assessing the value of this ground-breaking workshop. One table leader reflected during the panel session that "the countries and organisations are at different stages of growing their stakeholder involvement in the nuclear sector. It's great to have an international forum to learn from each other. Approaches have to be based on culture and mode of government, so there are limits to transferability, but the examples we heard here can resonate." Another confirmed that "we thought nuclear was unique but we learned that some similar issues are found in other sectors." Likewise, table members found that despite coming from different countries or areas of nuclear activity, they had much to share and learn. For some the workshop even provided a rare opportunity to meet across areas with other nuclear actors from their own country. Overall, participants – including NEA staff – recognised "the value of networking contacts made across the standing technical committees and different cultures and countries; we have different structures but some common challenges."

A formal evaluation was conducted by questionnaire, and completed by almost half of the attendees. The workshop format was positively approved, and its atmosphere was judged to be open and respectful. The dialogue sessions, the seating at mixed round tables, and the facilitation by table leaders were particularly appreciated. Eighty percent of respondents stated that they gained new insights. They attributed this to the broad panorama of country case studies and the possibility to listen to specialists from outside their own field.

Actions requested to progress

The written evaluations and verbal feedback indicated that there would be interest among NEA member country delegates in continuing the dialogue established at the January 2017 cross-cutting workshop. Particular suggestions show how a future workshop or other activities could be fine-tuned to meet delegates' needs:

- Participants expressed interest in learning more about stakeholder involvement, especially from other energy sectors.

- They would like to have more details on how to communicate with stakeholders and conduct involvement, how to choose effective techniques, and solutions for common problems and challenges – including discussion of failed initiatives.

A list of topics for future investigation was gathered from the dialogue table reports and the questionnaires. Suggestions on the organisation of a future workshop were made:

- Delegates praised the cross-cutting forum arrangement and asked for more dialogue time. As a trade-off, topical presentations could be less numerous.
- Many called for the future inclusion of a broad array of stakeholders and other experts: civil society, local communities, non-governmental organisations, businesses, academics and scientific experts. (Some view that the international character of such a workshop can help national stakeholders to speak more freely.)

Dialogue tables issued some suggestions for follow-up in the form of publications and guidance. One table suggested a brochure presenting best practices in stakeholder involvement from different nuclear areas. Several tables called for a clarification of terminology such as: stakeholder, public, affected, concerned, impacted, involvement, engagement, confidence, trust, transparency or social licence.

In light of these requests, certain publications issued by NEA standing technical committees or working groups, as well as by other OECD directorates, may be of direct interest. While none can replace face-to-face dialogue and learning, these resources (Annex B) could assist in spreading knowledge and in preparing future activities that may be desired by NEA member countries.

Annex A. Workshop agenda

Day 1 – Tuesday, 17 January 2017	
08:00-08:50	**Registration** OECD Headquarters, Conference Centre
09:00-09:10	**Welcome and opening remarks** *William D. Magwood, IV, NEA Director-General*
09:10-09:30	**Keynote speech** *Stephen G. Burns, Chairman of the United States Nuclear Regulatory Commission (NRC)*
09:30-10:00	**Setting the scene for the workshop: Objectives and structures** *Yeonhee Hah, Head of the NEA Division of Radiological Protection and Human Aspects of Nuclear Safety* *Ann Maclachlan, Former European Bureau Chief, Platts Nuclear Publications and Moderator for the Workshop*
Session 1. Legal frameworks and international conventions	
10:00-10:10	**Overview of session and introduction of speakers** *Chair: Roland Dussart-Desart, Chair of the NEA Nuclear Law Committee, Federal Public Service (FPS) Economy, S.M.E.'s, Self-employed and Energy, Belgium*
10:10-10:30	**The role of the Aarhus and Espoo Conventions in promoting effective public participation in nuclear decision making** *Maryna Yanush, Aarhus Convention Secretariat, United Nations Economic Commission for Europe (UNECE)* *Jerzy Jendroska, member of the Aarhus Convention Compliance Committee and member of the Espoo Convention Implementation Committee*
10:30-10:50	**A perspective on the national implementation of the conventions to nuclear activities** *Marc Beyens, General Counsel, ENGIE Electrabel, Belgium*
10:50-11:05	**Coffee break**
11:05-11:25	**Welcome remarks** *Angel Gurría, OECD Secretary-General*
11:25-11:45	**Stakeholder involvement in international conventions governing civil nuclear activities** *Sam Emmerechts, Lawyer Linguist, Court of Justice of the European Union, Luxembourg*
11:45-12:05	**The national legal framework in France** *Florence Touïtou-Durand, Legal and Claims Director, French Alternative Energies and Atomic Energy Commission (CEA)*
12:05-12:25	**The national legal framework in the United States** *Martha Crosland, Deputy Assistant General Counsel for Civilian Nuclear Programs, Department of Energy, United States*
12:25-12:45	**Panel discussion** *Questions and answers with audience*
12:45-14:00	**Lunch break**

Session 2. Regulatory perspectives

14:00-14:10 **Overview of session and introduction of speakers**
Chair: Petteri Tiippana, Vice-Chair of the NEA Committee on Nuclear Regulatory Activities (CNRA), Director-General of Radiation and Nuclear Safety Authority (STUK), Finland

14:10-14:30 **Stakeholder involvement activities in Slovakia**
Marta Žiaková, Chair of the NEA Steering Committee, Director-General of the Nuclear Regulatory Authority of the Slovak Republic

14:30-14:50 **NRA's commitment to transparent regulatory process**
Masashi Hirano, Chair of the NEA Committee on the Safety of Nuclear Installations Programme Review Group (CSNI PRG), Nuclear Regulation Authority, Japan

14:50-15:10 **Stakeholder involvement in the French regulatory system**
Guillaume Bouyt, Director reporting to Director-General, French Nuclear Safety Authority (ASN)

15:10-15:30 **Stakeholder involvement in nuclear decision making in the Russian Federation**
Alexey Ferapontov, Deputy Chairman, Rostechnadzor, Russia

15:30-16:00 **Panel discussion**
Questions and answers with audience

16:00-16:20 **Coffee break**

Session 3. Radiological protection

16:20-16:30 **Overview of session and introduction of speakers**
Chair: Ryugo Hayano, Tokyo University, Japan

16:30-16:50 **NEA Committee on Radiation Protection and Public Health (CRPPH) Stakeholder Involvement Experience**
Mike Boyd, CRPPH Chair, United States Environmental Protection Agency

16:50-17:10 **The UK Sciencewise Programme**
Andrew Mayall, Environment Agency, United Kingdom

17:10-17:30 **Sami Reindeer Herders Post-Chernobyl**
Yevgeniya Tomkiv, Norwegian University of Life Sciences (NMBU), Centre for Environmental Radioactivity (CERAD), Norway

17:30-17:45 **JAEC's initiative to increase public understanding of nuclear energy**
Hideo Kawabuchi, Counsellor for Atomic Energy, Bureau of Science, Technology and Innovation Policy, Cabinet Office, Japan

17:45-18:05 **Panel discussion**
Questions and answers with audience

18:05 **Cocktail reception**
George Marshall room

Day 2 – Wednesday, 18 January 2017

09:00-09:10 **Moderator: Opening and reflection on the previous day's discussions**
Ann Maclachlan

09:10-09:30 **The overall policy perspective on stakeholder involvement and public debate**
Julien Aubert, Vaucluse Deputy, French Parliament

Session 4. Radioactive waste management

09:30-09:40 **Overview of session and introduction of speakers**
Chair: Jean-Paul Minon, Chair of the NEA Committee on Radioactive Waste Management (RWMC), Belgian Agency for Radioactive Waste and Enriched Fissile Materials (ONDRAF/NIRAS)

09:40-10:00 **Forum on Stakeholder Confidence (FSC) – A Platform to build and share knowledge about stakeholder confidence in radioactive waste management**
Pascale Künzi, Chair of the FSC, Swiss Federal Office of Energy

10:00-10:20 **Reflections on stakeholder involvement**
Kathryn Shaver, Former Vice-President, Adaptive Phased Management (APM) Engagement and Site Selection, Nuclear Waste Management Organisation, Canada

10:20-10:50 **Case study: Sweden**
Johanna Yngve Törnqvist, Municipality of Östhammar
Sara Björklund, Swedish Nuclear Fuel and Waste Management Co. (SKB)
Ansi Gerhardsson, Swedish Radiation Safety Authority (SSM)

10:50-11:15 **Case study: Switzerland**
Pascale Künzi, FSC Chair, Swiss Federal Office of Energy
Philip Birkhäuser, National Cooperative for the Disposal of Radioactive Waste (NAGRA), Switzerland

11:15-11:35 **Stakeholder engagement of radioactive waste – Australia's experience**
Katherine Smith, Australian Nuclear Science and Technology Organisation (ANSTO)

11:35-12:05 **Panel discussion**
Questions and answers with audience

12:05-13:30 **Lunch break**

Group dialogue session A

13:30-13:40 **Moderator: Facilitating the dialogue session**
Ann Maclachlan

13:40-14:50 **Table dialogues between participants**

14:50-15:35 **Moderated panel discussion of the dialogue session**

15:35-15:50 **Coffee break**

Session 5. New nuclear facilities

15:50-16:00 **Overview of session and introduction of speakers**
Chair: Jorma Aurela, Ministry of Employment and Economy, Finland

16:00-16:20 **Partnerships and opportunity: A Canadian success story**
Sharonne Katz, Natural Resources Canada

16:20-16:40 **Informing and involving stakeholders in the context of the Finnish decision-making process**
Hanna Vanhatalo, Fennovoima, Finland

16:40-17:00 **Stakeholder involvement and public debate**
Pierre-Franck Thomé-Jassaud, Communication Manager, Électricité de France, France

Session 6. Extended operations of nuclear facilities

17:00-17:05 **Overview of session and introduction of speakers**
Chair: Jorma Aurela, Ministry of Employment and Economy, Finland

17:05-17:25 **Licence renewal of Wolsong 1 in Korea**
Su Hwan Bae, General Manager of Plant Strategy Project Office, Korea Hydro and Nuclear Power Company Ltd (KHNP), Korea

17:25-17:45 **Long-term operation of existing reactors in Switzerland**
Ralf Straub, International Nuclear Energy Specialist, Federal Department of the Environment, Transport, Energy and Communications (DETEC), Switzerland

17:45-18:15 **Panel discussion (Sessions 5 and 6)**
Questions and answers with audience

18:15-18:30 **Moderator: Wrap-up**
Ann Maclachlan

Day 3 – Thursday, 19 January 2017

09:00-09:10 **Moderator: Opening**
Ann Maclachlan

09:10-09:30 **Governmental perspective on stakeholder involvement**
Julian Gadano, Undersecretary of Nuclear Energy, Secretary of Electric Energy, Ministry of Energy and Mining, Argentina

Session 7. Stakeholder involvement in other sectors

09:30-09:35 **Overview of session and introduction of speakers**
Chair: Maarten Wolsink, University of Amsterdam, Netherlands

09:35-10:00 **Case study: High-voltage electricity transmission**
Nadejda Komendantova, International Institute for Applied Systems Analysis (IIASA)

10:00-10:25 **Case study: Carbon capture and storage**
François Kalaydjian, IFP Energies nouvelles, France

10:25-10:50 **Common misconceptions on stakeholder involvement**
Maarten Wolsink, University of Amsterdam, Netherlands

10:50-11:20 **Panel discussion**
Questions and answers with audience

11:20-11:40 **Coffee break**

Session 8. Media and stakeholder involvement

11:40-11:50 **Overview of session and introduction of speakers**
Chair: Sunni Locatelli, Chair of the NEA Working Group on Public Communication of Nuclear Regulatory Organisations (WGPC), Canadian Nuclear Safety Commission

11:50-12:15 **Disseminating information through social media**
Holly Harrington, United States Nuclear Regulatory Commission (NRC)
Emmanuel Bouchot, French Nuclear Safety Authority, France

12:15-12:35 **Communications lessons learned from the 2014 radiological release event at the Waste Isolation Pilot Plant**
Timothy Runyon, Waste Isolation Pilot Plant (WIPP) Recovery Communications, Department of Energy, United States

12:35-12:55 **Role of journalism in stakeholder involvement**
Eva González Herrero, Europa Press, Spain

12:55-13:15 **Panel discussion**
Questions and answers with audience

Group dialogue session B (working lunch)	
13:15-13:25	**Moderator:** Facilitating the dialogue session *Ann Maclachlan*
13:25-14:55	**Table dialogues between participants**
14:55-15:40	**Moderated panel discussion of the dialogue session**

Closing session	
15:40-15:55	**Moderator:** Workshop wrap-up and conclusions *Ann Maclachlan*
15:55	**Closing remarks** *William D. Magwood, IV, NEA Director-General*

Annex B. List of resources

A selection of reports and publications by various NEA standing technical committees and working groups can be of value to persons interested in stakeholder involvement in nuclear decision making. They contain a wealth of experience from the member countries of the NEA, guidance developed by standing technical committees and in some cases useful theoretical background or information from sectors outside the nuclear domain. The documents linked below and many more are available online on the NEA website: www.oecd-nea.org.

1. NEA (2015), *Stakeholder Involvement in Decision Making: A Short Guide to Issues, Approaches and Resources*, OECD, Paris, www.oecd-nea.org/rwm/pubs/2015/7189-stakeholder-involvement-2015.pdf.
2. NEA (2015), *Fostering a Durable Relationship between a Waste Management Facility and its Host Community: Adding Value through Design and Process – 2015 Edition*, OECD, Paris, www.oecd-nea.org/rwm/pubs/2015/7264-fostering-durable-relationship-2015.pdf.
3. NEA (2014), "Nuclear Regulatory Organisations, the Internet and Social Media: The What, How and Why of Their Use as Communication Tools", NEA/CNRA/R(2014)6, www.oecd-nea.org/nsd/docs/2014/cnra-r2014-6.pdf.
4. NEA (2013), "Crisis Communication of Nuclear Regulatory Organisations: Towards Global Thinking", NEA/CNRA/R(2012)8, www.oecd-nea.org/nsd/docs/2012/cnra-r2012-8.pdf.
5. NEA (2013), *Stakeholder Confidence in Radioactive Waste Management: An Annotated Glossary of Key Terms*, OECD, Paris, www.oecd-nea.org/rwm/docs/2013/6988-fsc-glossary.pdf.
6. NEA (2012), *Geological Disposal of Radioactive Waste: National Commitment, Local and Regional Involvement*, OECD, Paris, www.oecd-nea.org/rwm/reports/2012/7082-geo-disposal-statement.pdf.
7. NEA (2011), "Commendable Practices on Transparency in Nuclear Regulatory Communication with the Public", NEA/CNRA/R(2011)3, www.oecd-nea.org/nsd/docs/2011/cnra-r2011-3.pdf.
8. NEA (2011), "Road Map for Crisis Communication of Nuclear Regulatory Organisations - National Aspects", NEA/CNRA/R(2011)11, www.oecd-nea.org/nsd/docs/2011/cnra-r2011-11.pdf.
9. NEA (2011), *Practices and Experience in Stakeholder Involvement for Post-nuclear Emergency Management*, OECD, Paris, www.oecd-nea.org/rp/pubs/2011/6994-practices-stakeholder-involvement-post-emergency.pdf.
10. NEA (2010), *Partnering for Long-term Management of Radioactive Waste: Evolution and Current Practice in Thirteen Countries*, OECD, Paris, www.oecd-nea.org/rwm/pubs/2010/6823-partnering-management.pdf.
11. NEA (2010), *Public Attitudes to Nuclear Power*, OECD, Paris, www.oecd-nea.org/ndd/reports/2010/nea6859-public-attitudes.pdf.
12. NEA (2007), "Stakeholder Issues and Involvement in Decommissioning Nuclear Facilities", NEA/RWM/WPDD(2007)1, www.oecd-nea.org/rwm/docs/2007/rwm-wpdd2007-1.pdf.

13. NEA (2005), *Society and Nuclear Energy: Case Histories of Practical Communication Experiences*, OECD, Paris, www.oecd-nea.org/ndd/reports/2005/society-case-studies.pdf.

14. NEA (2004), *Stakeholder Participation in Radiological Decision-Making: Processes and Implications*, OECD, Paris, www.oecd-nea.org/rp/reports/2004/nea5368-stakholder.pdf.

15. NEA (2002), *Society and Nuclear Energy: Towards a Better Understanding*, OECD, Paris, www.oecd-nea.org/ndd/reports/2002/nea3677-society.pdf.

Further publications of potentially direct interest are available from other OECD directorates, such as:

16. OECD (2017), *Trust and Public Policy: How Better Governance Can Help Rebuild Public Trust*, OECD, Paris, dx.doi.org/10.1787/9789264268920-en.

Annex C. Instructions to facilitate a fruitful dialogue

The following instructions were developed for the leaders of table dialogues at the NEA workshop. They have been edited and can be used by facilitators who plan and conduct any small group dialogue in the perspective of stakeholder involvement. The instructions assume that some pertinent questions or issues have been identified prior to the dialogue and are submitted to the group for discussion. These instructions do not address how to settle group agreement (consensus or compromise) on what can be reported to an audience outside the group.

Characteristics of fruitful dialogues

Conversations between people can take many forms; dialogues are different in the sense of creating shared understandings. Dialogues are different from debate in which strong arguments are meant to defeat other, differing perspectives with the mindset of "I'm right; you're wrong". The mindset for dialogues is explorative as we listen and build upon others' inputs. Dialogue is a tool for co-creating shared understandings between different parties and can result in bringing about clarity on varying positions. Fruitful dialogues bring new perspectives to the participants as well as new insights that were not evident before the conversation. Dialogues with the following characteristics can be a powerful tool for progress:

- conversations go deeper than simply sharing facts;
- open-ended questions trigger the conversation and engage the participants;
- each participant is equally respected;
- participants listen attentively to what others are saying and ask inquiring follow-up questions to deepen the understanding;
- conversations build on each other's standpoint;
- individuals are interested in learning from each other and are curious about different perspectives.

Role of the facilitator

The role of the facilitator is to initiate and stimulate a fruitful dialogue while being neutral and ensuring that all members of the group have a voice.

It can be necessary within an involvement process to report the results of the conversations. In this case the group conversation will be supported by a rapporteur who will take notes during the dialogue and help the facilitator identify the highlights of the conversation which will be checked with the group.

Guidelines for dialogues for the facilitator

To successfully create fruitful dialogues, we suggest the following:

1) Create an environment where all viewpoints are welcome. Encourage all participants to be engaged in the conversation. Invite the less-talkative participants into the conversation with questions like "what is your view/experience on this". If needed humbly ask members to listen to each other instead of solely inform about their own opinion. If needed ask for clarifications through examples. Be aware of the time in order to cover all planned areas. However if the conversation leads into a topic which is of great interest for all participants you may want to let it continue despite the risk of not being able to cover all areas.
2) Welcome participants to engage in the dialogue. If the participants have not been introduced start with very brief introductions, including areas of expertise or of interest in the dialogue and possibly which group or type of stakeholder each person may represent.
3) Briefly describe the approach to the session:
   - This is an open dialogue where everyone has an opportunity to pose questions, share ideas, and learn from each other's lines of thinking and inquiry.
   - Pertinent questions or issues have been identified and are presented in order to support the conversation.
   - The aim is to engage the diverse expertise around the table into conversation and to build collective wisdom.
4) Explain that your role will be to facilitate the dialogue and with the help of the rapporteur capture the highlights of what is explored by the group.
5) At the end of the session, the rapporteur will briefly summarise the highlights. Any objections or disagreements should be explored in the same spirit of dialogue, to obtain agreement on what can or cannot be communicated in case of reporting to the outside.
6) Thank everyone for sharing and their engagement.

Annex D. List of participants

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NEA Workshop on Stakeholder Involvement in Nuclear Decision Making

Because nuclear issues are embedded in broader societal issues such as the environment, energy, risk management, health policy and sustainability, they can often generate considerable interest and concern. Actors involved in the nuclear energy sector, including regulators, governments and licensees, share the goal of reaching accepted, sustainable decisions and to ensure that the decision-making process is transparent. Stakeholder involvement in decision making is today seen as an essential means for improving decisions and for optimising their implementation.

In this context, the Nuclear Energy Agency (NEA) organised a Workshop on Stakeholder Involvement in Nuclear Decision Making in January 2017, acknowledging that different countries and sectors may face similar challenges and that sharing experiences and approaches could be useful. The workshop was an opportunity to bring together experts with first-hand knowledge and experience in areas related to nuclear law, regulatory practices, radiological protection, nuclear waste management, the deployment of new nuclear facilities, extended operation of nuclear facilities, deployment of other energy technologies and infrastructures, and social and traditional media.

This summary report attempts to capture the collective wisdom generated over three days of interaction. It highlights some commonalities and differences in views and approaches, and identifies particular lessons that can be applied to improve the strategy and practice of involving stakeholders in decision making. Overall, the learning gained from this workshop can benefit governments and citizens alike.

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