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Understanding society and nuclear energy

While signs of a possible nuclear energy renaissance are visible worldwide, it is crucial to gain a better understanding of civil society's views on nuclear technologies, how people perceive risks, and how to establish effective communication among all stakeholders so as to produce a consensus prior to decision making.

Nuclear energy is an important component of electricity supply in many countries. Currently, nearly one quarter of the electricity consumed in OECD countries is generated by some 360 nuclear units operating in 17 member countries. Furthermore, several OECD countries consider that nuclear energy will continue to play a key role in alleviating the risk of global climate change, reducing local pollution and more globally in sustainable energy supply mixes.

However, the implementation of nuclear energy projects often raises social concerns about risks associated with a potential release of radioactivity in routine or accidental conditions, radioactive waste management and disposal, and proliferation of nuclear weapons. Democratic societies recognise that those concerns need to be addressed, in particular by informing and consulting all stakeholders and involving them in decision-making processes aimed at consensus building.

Societal concerns are a component of sustainable development objectives. Integrating economic, environmental and social dimensions in decision-making processes is essential to achieve these objectives, and requires involving civil society in certain aspects of policy making. As a result, a key issue for decision and policy makers is to develop and implement new approaches and methods for facilitating civil society involvement while maintaining a high level of economic efficiency.

In the nuclear energy sector, the lack of understanding and consensus between civil society and decision makers have led to conflicting situations in some instances, and might result in energy policies and supply-mix choices that are not optimised from the viewpoint of society as a whole. It is generally agreed that enhanced communication among stakeholders and exchange of information covering a broad range of topics are necessary, although not sufficient, to promote such consensus building.

Some of the types of issues concerned, however, are not unique to the nuclear energy sector. For example, risk perception and communication and evolution of decision-making processes in modern society are relevant not only for analysing relations between civil society and nuclear energy, but also for a broad range of advanced technologies, such as biotechnologies.

Risks constitute an intrinsic and inseparable part of life, and are recognised as such by society. However, risk acceptance by the public is generally not objective. It operates via perceptions

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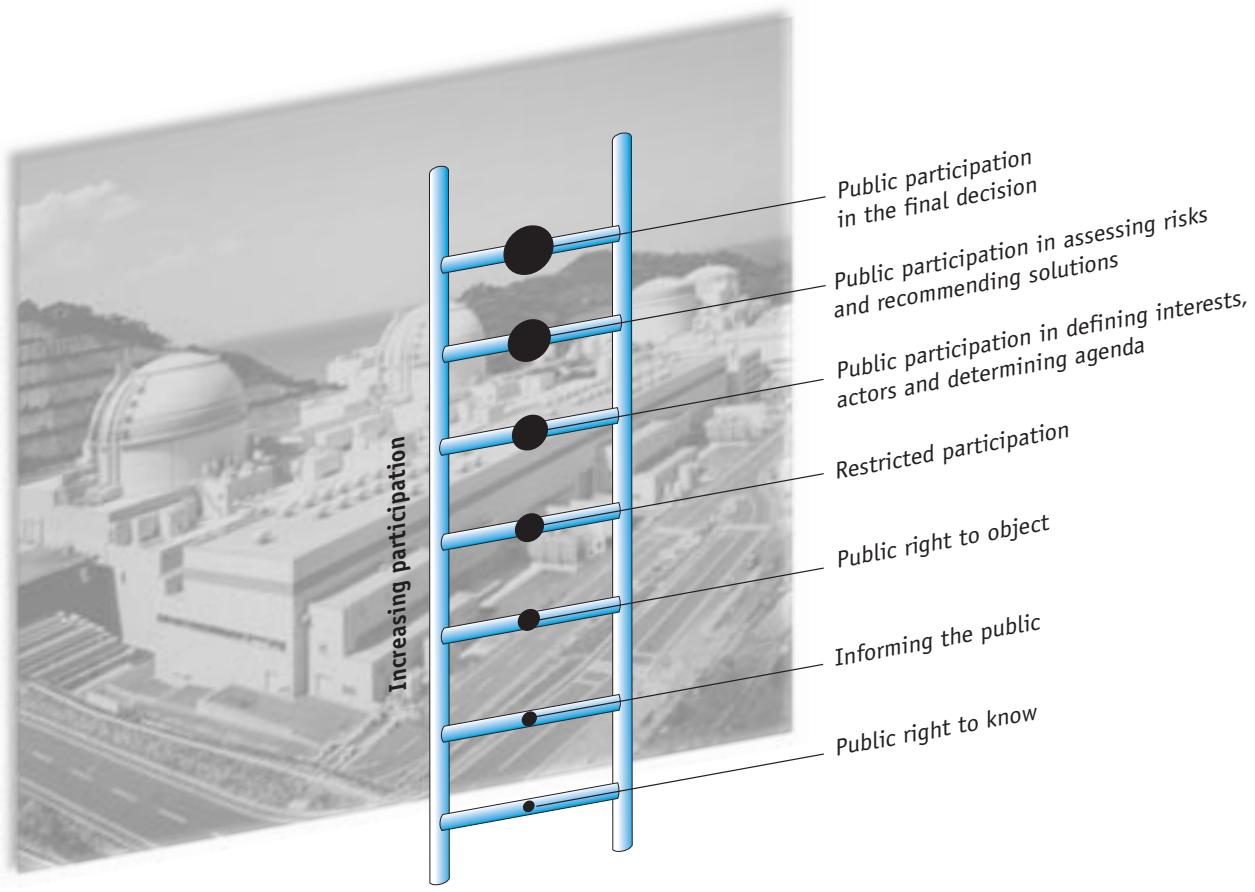
governed by many widely varying factors. Ultimately, the approval or rejection of a given project that involves the public acceptance of certain risks will depend on a complex trade-off between its perceived risks and benefits.

An understanding of the process of risk acceptance and risk-benefit trade-offs, as well as of a whole range of factors involved therein, can aid in the development of communication and decision-making processes that reduce the disparity between the technical definition of risk and the lay perception of it. The importance of risk perception and communication has been highlighted in related literature. Additional work in this field would be relevant to facilitate the dialogue between experts, policy makers and civil society about nuclear energy issues, eventually leading to more effective decision-making processes.

Traditionally, risks associated with nuclear energy have been estimated using a technical and quantitative approach, called probabilistic risk assessment, and it is recognised that the use of this approach has generally not been well received by the public. The public perception of nuclear energy risks differs markedly from the scientists' view of these risks. The subjective, non-scientific criteria that affect public perception of risk regarding nuclear energy include: the invisibility of radioactivity; the complexity of nuclear technologies; the potential consequences of a lack of democratic, social control of nuclear projects; and the catastrophic aspect of nuclear accidents. This may be compounded by the lack of a clear need for, and benefit from, nuclear energy in countries where security of electricity supply is of no immediate concern.

The need for greater public participation in scientific and technical decision making is being recognised more and more by the scientific community and there is agreement that higher levels of public involvement can, and should,

The public participation ladder



Adaptation from Weidemann and Femers, 1993 (Photo: Ohi NPP, courtesy of KEPCO, Japan)

be achieved. Public involvement in decision making constitutes an active research area and the outcomes of ongoing investigations should contribute to the design and implementation of innovative approaches in the future. The opening-up of new decision-making processes, e.g. via web-based approaches, may help push public involvement further up the participation ladder. Ultimately, however, how far the public should be allowed to climb up this ladder will be decided by each country taking into account the specific national context and the views of stakeholders.

Evaluation of new methods of public involvement should take into consideration both the added qualitative values that public deliberation may bring to a decision, and the potential for increased democratic legitimacy of decisions. Since no single method is perfect, there is often a trade-off to be made between the deliberative dimension some methods offer and the representative capacity of others. Experience shows that a high degree of trust and transparency needs to be established and maintained within the public realm to give public participatory processes legitimacy and accountability.

Recognising that some important aspects of decision making in the nuclear sector are undertaken at the political level, the direct contribution of decision-making research to progress in the nuclear energy field is arguably limited. Nevertheless, two particular perspectives are of real significance for those decision makers who look to gain a better understanding of interactions between society and the nuclear energy sector in terms of how decisions are reached. First, formal processes that are based on ideas developed in decision-research literature, e.g. following a multi-criteria decision support perspective, can provide a foundation for complex decisions that often need to be made in the nuclear energy sector. Indeed, the absence of such support is very likely to induce sub-optimal decision making in many circumstances. Second, it is of critical importance to bring a full understanding of intuitive judgements vis-à-vis decision processes into play, even in cases where structured support methods are applied.

Analysing data from public opinion surveys already carried out in OECD member countries has proven to be difficult owing to differences in scope, coverage and methods adopted in each survey. Nevertheless, two main features of public opinion and concerns about nuclear energy issues can be identified in such surveys. First, in several cases, public attitudes towards nuclear energy do not seem to be fully reflected in the national energy policy pursued by governments, including nuclear phase-outs and moratoria. This may result from the intrinsic inertia of large technological and political systems or the diversity of democratic traditions, but it may also indicate that public involvement in policy and decision making concerning the nuclear energy sector is insufficient. Second, people appear to be interested in having access to more information on nuclear energy. Recognising that knowledge is important to allow the public to understand nuclear energy issues better, this declared interest offers opportunities to eventually enhance confidence in nuclear energy through more effective information.

Another important observation drawn from opinion polls is that access to comprehensive information may enhance public trust in the bodies – such as governments and industries – that provide this information, especially if they do so in an open and transparent way. Building trust through information sharing and effective communication is essential for the further use and development of nuclear energy. In modern democratic countries, civil society is likely to play an increasingly important role in all decision-making processes, and accordingly, nuclear energy policy is likely to be increasingly influenced by public opinion. In this context, carrying out and thoroughly analysing public opinion polls on major aspects of nuclear energy constitute an integral part of nuclear energy policy making.

In the light of the importance of risk perception and communication for a better understanding of relations among civil society, nuclear experts and policy makers, the NEA continues to work in this field in order to provide useful information to member countries in the implementation of their own decision-making frameworks. Within the broad NEA programme, a desk study has been carried out under the auspices of the NEA Nuclear Development Committee (NDC); it has resulted in the very recent publication of a report entitled *Society and Nuclear Energy: Towards a Better Understanding* (see page 31 for further details). In addition, the NDC will undertake an analysis of practical experience in different member countries, providing opportunities for sharing information, drawing lessons from failures and successes, and eventually identifying best practices for the benefit of experts and policy makers. ■