ISSUES & ANSWERS

TOWARDS IMPROVED MANAGEMENT OF RADIOACTIVE WASTE

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The International Nuclear Safety Advisory Group (INSAG) has put forward three general principles that apply to any future industrial activity. The principles were enunciated in the 1999 report *The Safe Management of Sources of Radiation: Principles and Strategies* (INSAG-11). They are:

- When considering the entire life cycle of an activity, benefits should outweigh the risks.
- Risks should at all times be kept as low as reasonably achievable, economic and social factors being taken into account.
- No individual should be exposed to an unacceptable level of individual risk as a consequence of this activity.

Furthermore, if, as is the case of radioactive waste management, an industrial activity poses a radiation hazard, the general objective must be to protect individuals, society as a whole and the environment against the harmful effects of ionizing radiation.

A specific application of these principles can be found in the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, thus confirming that the management of radioactive waste is but one particular instance of industrial activity in a modern society.

Experience of the last few decades shows, however, that society as a whole does not consider radioactive waste management to be just one of many industrial activities, like producing chemicals, mining for metals or building aircrafts. Something appears to have gone wrong somewhere and the safety of radioactive waste management is constantly and almost instinctively questioned by many people.

We, the specialists, have failed to recognize that the management of radioactive waste will only be successful in the context of mankind's sustainable development. We have not realized that issues faced by all those who are in charge of radioactive waste management are the same ones that define sustainable development and we have confined ourselves to those technological issues that are surely essential but not sufficient.

In spite of what we have always wanted to believe, modern society gives more importance to social or socio-political, ethical and ecological issues than to technology or even to economics. A failure to incorporate all these issues in an overall plan for the management of radioactive waste will lead to a failure in acceptability by that society. A law of human history is that technology and social systems have always lived in a symbiotic relationship and this is more than ever the case today.

As technologists in the field of radioactive waste management we have had a tendency to concentrate on our professionnal activities and to forget that every one of us, as an individual, is also part of this society in which we live. If we really want to solve the problem of the management of radioactive waste, and particularly of radioactive waste disposal, we have to occupy the place that is ours within society.

This society will consider radioactive waste management to be safe when technology, ethics, economy, ecology and socio-political concerns are adequately taken into account, but no sooner. To reach this goal, we have to keep developing technological solutions, but more importantly, we must realize that, taken by itself, technology will never ensure the safe management of radioactive waste.

We must also understand that the true place of technology in society is not what we have believed it to be. Whenever a technological approach to a given issue conflicts with a socio-political approach, the

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THE INTERNATIONAL NUCLEAR SAFETY ADVISORY GROUP

The International Nuclear Safety Advisory Group (INSAG), established in 1985, is composed of leading experts from IAEA Member States.

The Group advises the IAEA Director General in fields of nuclear safety, radiation safety, and safety of radioactive waste from a global perspective. Its functions are to recommend underlying principles upon which appropriate safety standards and measures can be based; to provide a forum for the exchange of information on generic safety issues of international significance; to identify important current safety issues and to draw conclusions on the basis of results of safety activities worldwide, and other information such as research and development results; to give advice on safety issues in which an exchange of information and/or additional efforts may be required; and to give advice, if requested, on the content of the Agency's programmes in the field of nuclear safety, radiation safety and safety of radioactive waste.

INSAG Publications. The Group has issued reports and technical notes on a range of topics.

INSAG-1: Summary report on the post-accident review meeting on the Chernobyl accident (1986)
INSAG-2: Radionuclide source terms from severe accidents at nuclear power plants with light water reactors (1987)
INSAG-3: Basic safety principles for nuclear power plants (1988)
INSAG-4: Safety culture (1991)
INSAG-5: The safety of nuclear power (1992)
INSAG-6: Probabilistic safety assessment (1992)
INSAG-7: The Chernobyl accident: Updating of INSAG-1 (1993)
INSAG-8: A common basis for judging the safety of nuclear power plants built to earlier standards (1995)
INSAG-9: Potential exposure in nuclear safety (1995)
INSAG-10: Defence in depth in nuclear safety (1996)
INSAG-11: The safe management of sources of radiation: principles and strategies (1999)
INSAG-12: Basic safety principles for nuclear power plants (INSAG-3, Rev. 1)(1999)
INSAG-13: Management of operational safety in nuclear power plants (1999)
INSAG-14: Safe management of the operating lifetimes of nuclear power plants (1999)
INSAG Technical Note No. 1: Towards Improvement in Quality Assurance
INSAG Technical Note No. 2: The Importance for Nuclear Safety of Efficient Feedback of Operational Experience
INSAG Technical Note No. 3: A Review of the Report "IAEA Safety Targets and Probabilistic Risk Assessment", prepared for Greenpeace International.

More information about these and other publications, as well as topics in nuclear, radiation and waste safety, is accessible on the IAEA's WorldAtom Internet site at www.iaea.org. See the Programme pages of the Department of Nuclear Safety and the WorldAtom's Books section on IAEA publications.

latter will prevail. Human societies are not organized according to scientific principles and they are not necessarily rational in their decisions. Even though technology is essential to society, it is only a small cog in a highly complicated organism.

Given the complex nature of technology, most members of society cannot share our knowledge and our approach. We tend therefore to remain between ourselves and thus to reinforce our common prejudices. Even though we realize that preaching to the converted is inefficient, we have not yet taken adequate corrective measures. Let us better express our positions by putting more emphasis on communication. We have a fascinating story to tell, let us make greater efforts to explain to others what, in our view, safe management of radioactive waste is all about.

As communication is a two-way street, better explaining of our activity also means that we listen more closely to others. Let us make genuine efforts to better understand what they have to say and what difficulties they have with our way of thinking.

We should finally remember that socio-political concerns and society itself are changing much faster than the principles on which technology, economics, ethics or ecology rest. Ironically, the reliability and stability of a radioactive waste disposal site are much greater than those of any society, but decisions concerning that site must be taken now by the present generation. Let us contribute to the greater safety of radioactive waste management by making sure that technology is given its rightful share in decisions taken by our society. ❐