

THE IAEA ENGAGES THE INTERNATIONAL COMMUNITY ON RADIOACTIVE WASTE MANAGEMENT

The importance of the safe management of radioactive waste for the protection of people and the environment has long been recognized, and considerable experience has been gained in defining objectives, establishing safety standards and developing technology and mechanisms for meeting safety requirements. This is of fundamental relevance to the global nuclear industry as well as for the increasing use of nuclear energy.

The IAEA safety standards reflect an international consensus on what constitutes a high level of safety for protecting people from the harmful effects of ionizing radiation and protecting the environment. This consensus serves to identify and give prominence to common safety concerns and also helps to give Member States an agreed basis for the harmonized application of the standards.

The development of safety standards is based on pooling expert knowledge and experience from organizations in Member States. This process is part of the IAEA's ongoing international collaboration in establishing "standards of safety for protection of health and minimization of danger to life and property" in accordance with the IAEA's Statute.

To ensure the safety of radioactive waste management, the international nuclear community is supported by a global nuclear safety framework comprising several elements that include reinforcing nuclear safety, facilitating the global application of safety standards, and implementing international instruments such as conventions and codes of conduct.

In 1995, the IAEA set up four topical Safety Standards Committees and the Commission on Safety Standards that oversee the development of the safety standards and exchange experience for strengthening the global nuclear safety framework.

Safety Standards Committees

As one of the four Safety Standards Committees, the Waste Safety Standards

Committee (WASSC) is a standing international advisory body of senior representatives in the areas of waste safety. It reviews and approves proposals for the development of standards to be published in the IAEA Safety Standards Series and it is invited to comment on relevant proposals for the development of publications in the IAEA Nuclear Security Series.

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WASSC is responsible for reviewing and approving draft waste safety standards that are submitted to Member States for comment before their approval for publication. Waste safety is supported by a comprehensive set of internationally agreed safety standards, established with the active involvement of Member States and under the supervision of WASSC and the other Committees as necessary and appropriate, which also advise on the provision of guidance and assistance to Member States on the implementation of these standards.

The Commission on Safety Standards (CSS), a standing body of senior government officials, endorses the texts of the Safety Fundamentals and Safety Requirements for submission to the IAEA Board of Governors for approval, and also advises on the suitability of Safety Guides, which are issued under the authority of the IAEA Director General.

With the assistance of the CSS, the IAEA works to promote the global acceptance and use of its safety standards. In accordance with the mandate of the IAEA, the CSS assists in articulating a vision for the future application of the safety standards, policies and strategies, and corresponding functions and responsibilities.



Participants discussing a case study on stakeholder involvement in radioactive waste disposal at an IAEA training workshop in Warsaw, Poland, November 2012

(Photo: A. Izumo, IAEA)

The International Radioactive Waste Technical Committee, a working group of senior international experts, provides advice to the IAEA on activities and directions for the radioactive waste management programme, and supports its implementation. It develops and reviews selected publications for the IAEA Nuclear Energy Series, assesses gaps and advises on the preparation of new publications that fall within its scope of responsibilities.

Networks — Cooperation in the Nuclear Field

The IAEA is the world's centre of cooperation in the nuclear field. Since 2001, the IAEA has championed the concept and use of professional networks (communities of practice) to advance best practices in nuclear knowledge management, implementation of nuclear technology, radioactive waste management, decommissioning and environmental remediation. The communities of practice aim to enhance the safety and sustainability of practices and facilities related to nuclear science and technology, and to serve as international forums for learning and growth of competence in the application of nuclear knowledge management, as well as for networking nuclear education. The IAEA has developed tools and services to provide better sharing and access to existing knowledge for scientists and experts in the nuclear field.

Currently, five such networks focus on these specific nuclear related areas of specialization.

1. Network on Environmental Management and Remediation (ENVIRONET)

The scope of ENVIRONET covers the enhanced implementation of remediation actions as well

as of public and environmental protection and site monitoring. The basis for this network has been built over the past decade as a number of remediation methods have been developed to deal with environmental cleanup of sites with radioactive contamination.

2. International Decommissioning Network (IDN)

The IDN is intended to bring together existing decommissioning initiatives both inside and outside the IAEA to augment cooperation and coordination. It was launched in 2007 to provide a continuing forum for the sharing of practical decommissioning experience among Member States, in response to the needs expressed at the International Conference on Lessons Learned from Decommissioning of Nuclear Facilities and the Safe Termination of Nuclear Activities held in Athens, Greece, in 2006.

3. International Network of Laboratories for Nuclear Waste Characterization (LABONET)

LABONET is a network of laboratory-based centres that aims to improve the sharing of international experience in the application of proven, quality assured practices for the characterization of low and intermediate level radioactive waste and waste packages and to facilitate risk reduction and cleanup of the environmental legacy.

4. International Low Level Waste Disposal Network (DISPONET)

DISPONET brings together planners, developers and operators of disposal facilities who wish to improve international practices and approaches in managing low level waste.

5. Underground Research Facilities (URF) Network

The URF Network provides a platform for learning about the geological disposal of radioactive waste. Under the auspices of the IAEA, nationally developed underground research facilities and associated laboratories concerned with the geological disposal of radioactive waste are being offered by various Member States for training in and demonstration of disposal technologies.

These networks in different areas of radioactive waste management are beneficial for Member States. The networks provide a forum for

information exchange and dissemination and also enhance cooperation between experts in developed and less developed programmes. Through this exchange, the IAEA is able to help those Member States seeking assistance in the area of spent fuel management and radioactive waste management.

International Projects Examine the Application and Use of Waste Safety Standards

The IAEA has developed intercomparison and harmonization projects that examine the application and use of its waste safety standards, with a view to enhancing their effectiveness as well as seeking to harmonize methods in respect to the safe management of radioactive waste.

International Project on Demonstration of the Operational and Long-Term Safety of Geological Disposal Facilities for Radioactive Waste (GEOSAF Part II)

This project provides a forum to exchange ideas and experience in developing and reviewing the safety case — defined as a collection of arguments to demonstrate the safety of facilities and activities — for geological disposal facilities. It also aims at providing a platform for knowledge sharing. With more countries contemplating embarking on nuclear power, and countries with nuclear power programmes seeking to define national policies and strategies aimed at covering all elements of the fuel cycle, such a platform is considered not only relevant, but appropriate. There is also a need to maintain existing knowledge bases.

The initial project (2008–2011) focused on the development by the operator and the review by the regulators of the safety case for geological disposal facilities, a concept that has recently gained considerable prominence in the waste management area and is addressed in several waste safety standards.

GEOSAF Part II was initiated in 2012 with the objective of reaching a joint understanding and working towards harmonization of views and expectations regarding the safety of the operational phase for geological disposal of radioactive waste and of post-closure safety.

Practical Illustration and Use of the Safety Case Concept in the Management of Near-Surface Disposal (PRISM)

The PRISM project focuses on the nature and use of the safety case over the lifetime of a near surface radioactive waste disposal facility. The objective of this project is to share experience and expertise in facilitating good practices in the safe disposal of radioactive waste.

This project provides guidance in the demonstration of safety, through the development of a safety case, for taking decisions, as part of the licensing process, regarding the development of near surface disposal facilities. The follow up Application of the Practical Illustration and Use of the Safety Case Concept in the Management of Near-Surface Disposal Project (PRISMA) will develop a model safety case based on the tools and methodology established under the PRISM project.

International Project on Human Intrusion in the Context of Disposal of Radioactive Waste (HIDRA)

The HIDRA project is a two-year project that commenced in 2012. The objective of this project is to provide guidance on how to take into account potential human intrusion aspects in the demonstration of safety for radioactive waste disposal facilities. The outcomes of the project will contribute, as part of the development of radioactive waste disposal facilities, to optimizing siting, design and waste acceptance criteria.

The IAEA organizes and administers networks and international working groups to assist Member States in the use and application of safety standards, technical guidance and best practices for the safe management of all types of radioactive waste. Such assistance is complemented by other tools such as peer review missions, seminars and workshops, and education and training.

IAEA Department of Nuclear Safety and Security and IAEA Division of Nuclear Fuel Cycle and Waste Technology