Nuclear Knowledge Management

The management of nuclear knowledge has emerged as a growing challenge in recent years. The need to preserve and transfer nuclear knowledge is compounded by recent trends such as ageing of the nuclear workforce, declining student numbers in nuclear-related fields, and the threat of losing accumulated nuclear knowledge. Addressing these challenges, the IAEA promotes a "knowledge management culture" through:

- Providing guidance for policy formulation and implementation of nuclear knowledge management;
- Strengthening the contribution of nuclear knowledge in solving development problems, based on needs and priorities of Member States;
- Pooling, analysing and sharing nuclear information to facilitate knowledge creation and its utilization;
- Implementing effective knowledge management systems;
- Preserving and maintaining nuclear knowledge;
- Securing sustainable human resources for the nuclear sector; and
- Enhancing nuclear education and training.

Maintaining and preserving knowledge in nuclear science and technology

Objectives

- To preserve nuclear knowledge in specific areas of nuclear science and technology by capturing accumulated nuclear knowledge in Member States and transferring it to the next generation of nuclear scientists and engineers.

Activities

- **IAEA Fast Reactor Knowledge Portal:** an initiative to establish a comprehensive, international inventory of fast reactor data and knowledge.

- **Coordinated Research Project on Comparative Analysis of Methods and Tools for Nuclear Knowledge Preservation:** to assist Member States in selecting and implementing technological solutions for cost-effective knowledge preservation, including databases and websites.

- **Enhancing the INIS/IAEA Library nuclear management portal**

For more information on this programme contact:
Yanko Yanev; y.yanev@iaea.org; +43 1 2600-22887
Andrey Kosilov; a.kossilov@iaea.org; +43 1 2600-22811

Examples of IAEA Activities related to Nuclear Knowledge Management (NKM)

1. The IAEA's **Fast Reactor Data Retrieval and Knowledge Preservation Initiative** seeks to establish a comprehensive, international inventory of fast reactor data and knowledge that would be sufficient to form the basis for fast reactor development 20 to 40 years from now. Work has started to create a Fast Reactor Knowledge Portal and to establish a taxonomy for the classification of fast reactor data and knowledge.

2. The **International Nuclear Information System** (INIS), which currently has 138 members, is in the process of redefining its mission to become a key NKM tool to meet Member States' needs. A national INIS and Knowledge Preservation Seminar was conducted in Cairo, Egypt, in December 2003, in cooperation with the Egyptian Atomic Energy Authority. Two projects on the digitization of microfiche collections in Member States were started: the digitization of microfiche collections of the French Atomic Energy Commission (CEA), and the digitization of the INIS microfiche archive of non-conventional literature, in cooperation with the Russian INIS Centre.

3. **Knowledge management tools,** including the IAEA public website and IAEA databases, continue to be enhanced to support information exchange and knowledge distribution. New tools for supporting NKM have been developed or initiated, including an IAEA-wide document management system and a web-based Nuclear Knowledge Portal.

4. The Agency supported the **World Nuclear University** (WNU), together with the OECD/Nuclear Energy Agency, the World Association of Nuclear Operators (WANO) and the World Nuclear Association (WNA). In 2004 and 2005 the IAEA convened a Technical Meeting on Planning Support Activities to the World Nuclear University. The first deliverable of the WNU was a successful WNU Summer Institute at Idaho Falls, USA, in July 2005.

5 The **Asian Network for Education in Nuclear Technology** (ANENT) was established through an IAEA Technical Meeting in Malaysia in February 2004. ANENT is a new partnership for cooperation in human resource development and research in nuclear technology as a key strategy for capacity building, nuclear infrastructure development and better use of available information resources. The ANENT activities are under way in five distinct areas: exchange of information and materials for education and training; exchange of students, teachers and researchers; distance learning; establishment of reference curricula and facilitating mutual recognition of degrees; and liaising with other networks.

6. The Agency, through its different Programmes, supports **training courses on nuclear applications in developing countries** by designing and preparing curricula and providing lecturers in the fields of human health, environmental monitoring and protection, new radiation-based manufacturing processes, use of nuclear methods in art and historical heritage studies, food and agriculture, and management of water resources. Distance-learning modules have been developed in the fields of nuclear medicine, food and agriculture and selected aspects of radiochemistry. A systematic approach was initiated to archive and make available on CD the training material related to all training courses supported by the IAEA held on various nuclear applications.

7. A new Coordinated Research Project (CRP) on **Comparative Analysis of Methods and Tools for Nuclear Knowledge Preservation** was approved in June 2005**.** The objective of this project is to support the preservation of nuclear knowledge in Member States and the IAEA by selecting and implementing appropriate cost-effective technological solutions. A Preparatory Consultancy for the CRP was held in November 2005 to assist in the preparation of the formal start of the CRP and also to review the focus of the first proposals that were submitted by Member States.