

Fact Sheet on Nuclear Knowledge Management

Background

Developed and developing Member States face knowledge challenges. Many have nuclear knowledge management (NKM) programmes in place, but efforts are fragmented. Sufficient experience has not yet been gained by all.

Developed countries are the custodians of nuclear knowledge accumulated over decades. *There is a consensus that actions need to be taken to preserve key parts of that knowledge.*

A second problem is the *effective transfer of knowledge between generations of workers and the need to sustain and develop sufficient human resources* to continue the operation of existing facilities and to prepare for a possible expansion in the future.

Developing countries face different knowledge problems: *capacity building and access to and transfer of knowledge to the “country of growth”*. Knowledge and human resources need to be built up for new nuclear power programmes, and knowledge needs to be sustained and not be brain-drained.

What services are provided?

The INIS & NKM Section’s strategy for future and planned activities in the short and medium term to help Member States manage nuclear knowledge, comprises the following elements:

- Providing guidance for policy formulation and implementation of nuclear knowledge management, including the implementation of effective knowledge management systems;
- Strengthening the contribution of nuclear knowledge in solving development problems, based on the needs and priorities of Member States;
- Pooling, analysing and sharing nuclear information to facilitate the creation of knowledge and its utilization;
- Preserving and maintaining nuclear knowledge through specific projects in the subject area; and
- Enhancing nuclear education and training.

What are the benefits?

The Agency can *assist* Member States in the development and implementation of *their* NKM programmes. Added value arises *from cooperation and coordination*, cross-fertilisation between programmes in different thematic contexts and through the sharing of lessons learned among Member States. The IAEA can help *make Member States’ programmes more effective and efficient* by using NKM approaches.

Another important role for the IAEA is to assist in the transfer of knowledge from “centres of competence” to “centres of growth”. This requires effective networking and communication - *all stakeholders have to be encouraged to work together*, and the IAEA can provide a mechanism and platform for doing so.

The potentially high risk of knowledge loss and the additional *cost for future generations* must be avoided. The IAEA can help integrate this long-term aspect into today’s strategic decisions.

Recent work - implement guidance, educational networks, and services

Recent projects include a comprehensive set of methodology and guidance by the end of 2007; a second conference on KM in nuclear facilities in 2007; NKM seminars; national and regional TC projects; and further development of knowledge assist visits, in particular:

- Completing a comprehensive set of methodologies and guidance (establishing NKM as an element of the Integrated Management System and the objective of the Nuclear Energy Series);
- Working with Member States to design and develop NKM strategies;
- Implementing services and providing direct assistance to Member States.

Relevant documents include:

IAEA-TECDOC-1399: *Ageing Workforce: Transfer of Knowledge to the Next generation* (2004)

IAEA-TECDOC-1510: *Knowledge Management for Nuclear Industry Operation Organizations* (2006)

STI/PUB/1248: *Risk Management of Knowledge Loss in Nuclear Industry Organizations* (2006)

STI/PUB/1266: *Managing Nuclear Knowledge, IAEA Proceedings* (2006)

STI/PUB/1235: *Managing Nuclear Knowledge: Strategies and Human Resource Development* (2005)

TC projects under implementation

Regional (Europe) project “Strengthening capabilities for nuclear knowledge preservation” (2007-2010) - through this project the IAEA is supporting Member States in strengthening capabilities for preserving and transferring nuclear knowledge, as well as developing new skills and competencies in nuclear related areas.

Regional (Asia) project “Supporting Web-Based Nuclear Education and Training through Regional Networking” (2007-2010) supports the web-based development, consolidation and utilisation of standardized educational and training programmes in nuclear sciences and applications in 17 Asian Member States. A web-based nuclear education portal has already been established by integrating standardised materials and other educational resources.

TC project “Nuclear Knowledge Management and Preservation in Kazakhstan” is intended to assist in preserving knowledge in critical areas, enhance capacity, and further develop expertise and knowledge in nuclear science and technology in Kazakhstan from 2007-2010. This project supports capability and capacity building and Kazakhstan infrastructure development through expert advice, and provides a forum for the transfer of expertise. The project will establish a strategic approach to NKM as a basis for understanding and specific action among the national parties involved.

Looking ahead - developing knowledge analysis tools and services

The main objective for 2008-2011 is the development of a “*knowledge culture*” in Member States and continued services and support to Member States. This includes:

- Developing concepts for knowledge sharing, analysis and utilization;
- Continuation of the services and direct assistance presently offered;
- Developing “knowledge products” and new knowledge resources.

Expected outcomes/output: NKM has become part of a universally adopted “knowledge culture” in Member States, i.e. it is part of organizational strategies and national development plans; Member States have preserved key parts of nuclear knowledge; sufficient and well qualified human resources for existing and planned nuclear programmes are available in Member States using guidance, tools and services offered by the Agency.

How to benefit from these activities

Member States can benefit by directly taking part in the work of Technical Meetings and Consultancy Meetings, or by using the materials produced at these meetings (proceedings, technical and guidance documents). The initiation of national TC projects, focusing on country or utility specific areas, can be requested by Member States on any of the NKM related subjects.

For more information please contact your IAEA TC Country Officer or

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