

NUCLEAR SAFETY NETWORK IN ASIA

Background

The utilization of nuclear power in Asia continues to grow. Japan and the Republic of Korea have mature nuclear power programmes. China has embarked upon a large nuclear power programme and will soon be operating several new NPPs of different designs and from different vendors. Other countries in the region operate research reactors and are considering the introduction of nuclear power generation in their energy planning.

There is general agreement that effective communication and exchange of information are essential tools to achieve a sustainable nuclear safety infrastructure and a high level of safety of nuclear installations in the region.

On February 18, 2002, the Nuclear Safety (NS) Department discussed with the Director General (DG) the concept of an Asian Nuclear Safety Network (ANSN).

The DG advised NS to proceed and that initially the network should be implemented in the frame of the Extrabudgetary Programme (EBP) on the Safety of Nuclear Installations in the South East Asia, Pacific and Far East Countries. Countries participating in the EBP are: China, Indonesia, Malaysia, Philippines, Thailand and Viet Nam. In addition, France, Germany, Japan, Korea, Rep. of, Spain and USA provide in-kind and/or financial support to the EBP.

China, Japan and Korea, Rep. of have already indicated their willingness to co-operate in the ANSN.

The DG also requested the NS Department to prepare a more specific paper elaborating on the added value of the network to current safety practices in the region.

Objective

The objective of the ANSN is to pool and share existing and new technical knowledge and practical experience to further improve the safety of nuclear installations in Asia. The model could be further used for other regional nuclear safety networks and, eventually, for a global network.

Rationale and Value

There is a great amount of information relevant to the safety of nuclear installations which is currently not properly analysed and shared worldwide. In the Asian region, in particular, relevant safety information is being accumulated owing to the construction and operation of nuclear power plants of different designs.

This information may include results from IAEA and other international and national technical meetings, peer reviews, operational experience feedback and other nuclear safety developments.

The “added value” of the proposed network to the safety practices in the region is to establish a mechanism to pool, extract, analyze and effectively share new and existing nuclear safety information among stakeholders.

When implemented the network will allow a mutual learning process in the frame of the EBP through an easy and rapid retrieval of existing and new nuclear safety information. This will facilitate and advance the introduction of established as well as the development of new nuclear safety practices in the Asian region and prevent undue duplication of work and associated costs.

In a more global perspective, the ANSN would utilize the experience and knowledge of technology supplier countries outside the region and therefore contribute to a stronger nuclear safety regime worldwide.

Major Functions

The network major functions aim at the sustainability of national nuclear safety infrastructures and optimum use of existing and new nuclear safety information. They are:

- Education and training
- Information assessment from knowledge management
- Communication among experts and the public

Approach for Implementation

The Network is to be implemented using modern information technology (IT) tools for communication among Hubs and national centres worldwide.

In its initial phase of implementation, the IAEA should take a more active role and initiative to establish a common technical basis for information assessment, knowledge management and communications protocol.

Individual Hubs and national centres would be charged to extract, analyze and import data according to the knowledge base structure. Figure 1 annex depicts the scheme involving the knowledge base, information assessment and knowledge management.

The knowledge base will be structured according to the categories of IAEA nuclear safety standards to facilitate the consistent pooling of relevant information and easy search and retrieval.

Information to be input in the knowledge base would include:

1. Education and Training

- IAEA and other educational and training material

2. Safety Evaluations

- Major insights of IAEA’s Technical Co-operation (TC) national and regional nuclear safety projects
- Lessons learned from national and international peer reviews of nuclear installations
- Lessons learned from national safety evaluation reports of NPP

- Results from IAEA integrated safety evaluations conducted together with Member States
 - Results and insights from probabilistic and deterministic safety assessments
3. *Standards and Guides*
- IAEA nuclear safety standards and technical documents
 - National safety standards
4. *Operating Experience*
- Safety culture and management of safety in nuclear installations (insights from self-evaluations and performance indicators)
 - Good practices in operation of research reactors
5. *International co-operation*
- Results from bilateral co-operation programmes
 - Convention on Nuclear Safety – results of review meetings and national reports

In addition, the ANSN will establish links to other web sites containing relevant nuclear safety information.

Modality of Implementation

A Memorandum of Understanding (MOU) between the parties involved, assigning specific functions to the IAEA could be established in the frame of the existing EBP. The initiative for the network would come from the countries involved in the EBP and would not need to go to the Board.

Next actions

- Member States to formalize requests for the IAEA to establish the network (April 2002)
- Technical meeting to discuss knowledge database structure, data input, forms of data retrieval and communication protocols (August 2002, Japan)
- Preparatory committee for the establishment of the Hubs and Network (November 2002, Vienna)
- Finalization of the MOUs among participants and IAEA, creation of a Steering Committee and initiation of pilot activities (2003)
- Full implementation (2004-2005 IAEA budget cycle)