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**REPORT
OF THE CONSULTATION MEETING
ON
THE ASIAN NUCLEAR SAFETY NETWORK
(ANSN)**

TOKYO, JAPAN

06-08 AUGUST 2002

INTERNATIONAL ATOMIC ENERGY AGENCY

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IAEA Consultation Meeting on the Asian Nuclear Safety Network (ANSN)

Tokyo, Japan 6-8 August 2002

1. Introduction:

The Consultation Meeting on the Asian Nuclear Safety Network was convened by the IAEA and hosted by the Ministry of Economy, Trade and Industry (METI) of Japan and Nuclear Power Engineering Corporation (NUPEC). The meeting was held from 6 to 8 August 2002 at the headquarters of NUPEC in Tokyo and attended by 34 participants from China, France, Germany, Japan, Korea, Russia, U.S.A. and the IAEA. The list of participants is attached as [Annex 1](#).

2. Objectives:

The purpose of the meeting was to discuss further development of the concept and detailed technical matters related to the ANSN implementation, including the preparation of a pilot project to be conducted in 2003.

3. List of presentations:

The documents and viewgraphs of each presentation are hyperlinked in the [Annex 2](#).

06 August

-Opening Remarks **Mr. Y.Sasaki**, Director-General, Nuclear and Industrial Safety Agency (NISA), METI, Japan

-ANSN concept **Mr. T.Taniguchi**, Deputy Director General, Department of Nuclear Safety, IAEA

-Pilot Project Objectives and Scope **Mr. L.Lederman**, IAEA

-Experience and Achievements of the International Nuclear Safety Centers (U.S.A.)
Mr. L.W.Deitrich, ANL, U.S.A.

-Experience and Achievements of the International Nuclear Safety Centers (Russia) by
Mr. S.Bugaenko, INSC, Russia

-Results of IAEA's Senior Expert Meeting on Knowledge Management

Mr. L.Lederman, IAEA

-Presentation from Japan on response to IAEA proposal concerning ANSN Concept and Pilot Project **Mr. A.Sanada**, NISA, METI, Japan

-Presentation from Korea on response to IAEA proposal concerning ANSN Concept and Pilot Project **Mr. J.H. Lee**, KINS, Korea

-Presentation from China on response to IAEA proposal concerning ANSN Concept and Pilot Project **Mr. F. Zhang**, CAEA, China

07 August

- EBP database demonstration **Mr. L.Lederman**, IAEA
- Demonstration of the INSCs **Mr. H. Ley**, ANL, U.S.A.
- Proposal for IT Network Structure for Pilot Project **Mr. H. Ley**, ANL, U.S.A.
- Proposal for main menu, taxonomy and material for Pilot Project **Mr. J.C. Braun**, ANL,U.S.A.
- Presentation from Japan on response to IAEA proposal concerning IT Network
 Mr. F. Kudo, NUPEC, Japan, **Mr. M. Sobajima**, JAERI, Japan
- Presentation from Korea on response to IAEA proposal concerning IT Network
 Mr. J.H. Lee, KINS, Korea
- Presentation from China on response to IAEA proposal concerning IT Network
 Mr. T. Xin, the Beijing Institute of Nuclear Engineering, China

4. Results:

4.1 (Topic 1) : Concept of the ANSN

-Reference material: ANSN01

-Scope of discussion:

The ANSN objective, rationale and value, major functions, approach for implementation, modality of implementation and milestone schedule for further actions

-Topics discussed and agreements reached:

The ANSN concept was welcomed by all participants. It was agreed that its implementation will provide a valuable tool to consolidate the results achieved in the frame of the Extrabudgetary Program (EBP) on the Safety of Nuclear Installations in Southeast Asia, Pacific and Far East Countries and to strengthen the exchange of safety information among the participating countries. China, Japan and Korea have expressed their intention to serve as the regional hubs for the ANSN. The IAEA will play a coordinating and facilitating role in the ANSN implementation. Expansion of the ANSN to other regions is being considered by the IAEA in the frame of its Technical Cooperation Programme.

The ANSN will be implemented in 2004 and beyond in the frame of a successor programme proposed for the EBP considering the needs of participating countries and available resources. The full scope of this successor programme will be determined from an analysis of the results achieved by the EBP since its initiation in 1997. This analysis is being carried out by the IAEA and the countries receiving assistance, and will be presented at the next Advisory Group Meeting in Nov. 2002 in Vienna.

For its implementation, the ANSN will use the relevant international experience including that available from the establishment and operation of the International Nuclear Safety Centres.

The ANSN will use a common technical language and conceptual framework based on the IAEA Nuclear Safety Standards that will facilitate the compilation, analysis and retrieval of information. This approach will ensure more effective sharing and mutual learning of experience and knowledge in or regarding nuclear safety. The ANSN also will encourage the participating countries to have national initiatives to enhance nuclear safety, especially those receiving assistance under the EBP.

The ANSN will be an IT network as well as a network for direct personal communication among experts. In this context the hubs will play an essential role in providing information by more conventional means (e.g. printed copies, CD-ROMs...) to countries (national centers) with weaker IT capabilities. Hub centers and other centers in technology supplier countries may also assist national centers in organizing and presenting training events and in facilitating collaboration between experts.

A step-by-step approach, beginning with a pilot project to test the concept and implementation of the ANSN is proposed for 2003. The plan for future actions will be agreed at the ANSN preparatory meeting in November to be held in Vienna.

4.2 (Topic 2) : Pilot Project

-Reference material: ANSN02

-Scope of the discussions: scope of the pilot study, availability of relevant material, steps for implementation of the pilot project

-Agreements reached:

There was general agreement to focus the pilot project on education and training.

The IAEA has already identified the training material, which it will make available for the pilot project. Japan and Korea have also indicated material, which may be available. Other countries will investigate availability of their training material and provide it to the IAEA for use in the pilot project.

Only material with no restrictions for distribution within the EBP participating countries will be included in the pilot project. Material in the English language is preferred, but materials in other languages with English abstracts are acceptable.

All countries participating in the EBP will have access to the ANSN during the pilot project. However, input will be only from the countries providing assistance.

The pilot project will be completed at the end of 2003 and a regional training course will be organized in one of the hubs using the information available through the ANSN. A topic suggested for the training course is safety of research reactors.

The general concept of taxonomy for classification of the training material and the general structure of the data base have been agreed and are discussed under topic 3 below.

4.3 (Topic 3): Organization and Data Storage of Nuclear Safety Training Materials

-Reference material: ANSN03

-Scope of Discussions:

Demonstration of education and training materials, organization and data storage for the ANSN database.

Demonstration of Education and Training Materials

An overview of the IAEA database for the EBP was presented. This database, which is maintained on the NUSAFE site, contains a wide variety of text material relating to the EBP, but does not contain multi-media material. A multimedia presentation of lectures on the IAEA Safety Standards and Guides was also demonstrated. This material is a sample of the educational and training resources now available on the Agency website and which has been made available to course participants in CD-ROM form. Such material would be expected to be part of the content of the ANSN.

A demonstration of the Web sites and databases on the International Nuclear Safety Centers (INSCs) including the U.S., Russia, and Ukraine was given. The information on these sites is primarily that resulting from joint R&D projects, along with data on various safety related topics assembled from open sources. These INSC databases illustrate the material that can eventually be provided on the ANSN, although it is not specifically focused on education and training.

A multimedia CD-ROM lecture from the IAEA's Basic Professional Training Course in Nuclear Safety presented for the EBP at Argonne was demonstrated. This CD-ROM is one of a set of 30 that comprise an additional education and training resource that could be made available through the ANSN.

Organization and Data Storage for the ANSN Database

A proposal for the organization and data storage of nuclear safety training materials was presented. Some of the major points from the ensuing discussion follow.

Attributes of Education and Training Materials

Twelve descriptive attributes to be attached to each of the individual education and training material units were suggested and discussed. The participants accepted the use of

these types of attributes to describe each unit of training material. The set of attributes shall be further developed prior to the November meeting.

Taxonomy of the Content of the Nuclear Safety Training Materials (Structure of the Knowledge Base)

Issue: A taxonomy based on areas of competence and technical areas formulated as a matrix was presented. Comments regarding the need for additional technical areas, such as radiation protection and accident management were discussed with the suggestion that the matrix be enlarged to include these additional items. Additional comments indicated that the present formulation was based on categorization of IAEA training materials according to the IAEA Nuclear Safety Standards.

Resolution: It was agreed that the suggested areas could be accommodated in the proposed structure, but we should maintain the capability of improving the taxonomy as the project proceeds. The use of “key words” attribute would facilitate the identification of these materials during a search.

It was further agreed that a glossary that describes the content for each technical area should be used to the greatest extent possible. A suitable glossary would be the IAEA Safety Glossary combined with the International Nuclear Information System (INIS) Thesaurus.

Issue: A question was raised about the use of the term “Knowledge Base” with the thinking being that the term implied a scope that was too broad for the present application.

Resolution: It was agreed to use the words “Nuclear Safety Training Materials” during the pilot project instead.

Levels of Expertise

Issue: Another attribute discussed was the level of expertise of the intended audience for the specific unit of training material. While some information may be suitable for a general audience, including the general public, it was recognized that some data might be restricted from public release.

Resolution: It was agreed that the attribute should be used to identify whether material was suitable for a general audience without regard for its suitability for public release.

Abstract of Education and Training Materials

The idea of presenting an abstract in the English language of each block or unit of education and training materials to be included in a central index along with other attributes of the material was discussed and accepted.

Issue: It was suggested that a guide for preparing an abstract be added to a checklist of attributes.

Resolution: It was agreed to include such a guide and checklist in a manner that would be of assistance to the person when adding the unit or block of material to the database. Please refer to the attribute on “Format and Medium” discussed below.

Format and Medium

Issue: Regarding the subject of format and medium for the training material, the group generally accepted the suggested list of possible options. Several issues were discussed in this context. It was stated that the access to the ANSN index should be open to all registered users, but it was also recognized that users might not have the capability to download large files. ANSN(03) suggests that for any file of a size greater than 500kB that provisions be made to indicate the file size in this attribute.

Some users may be limited to text downloads only. It will be necessary for the hub centers to be able to provide materials in CD-ROM, hard copy or some other format.

Resolution: It was agreed that the hub centers would provide the additional support needed to the national centers to ensure that they are able to obtain the needed materials.

Issue: Difficulties with the incompatibility of different word processing tools was discussed. The need to have a common preferred set of software among ANSN participants was recognized and agreed to. It was also recognized that it will not be possible to anticipate all such problems, and that human involvement in the process of acquiring materials and entering them into the database will be necessary.

Resolution: It was agreed that any good materials should not be excluded from possible entry into the database for compatibility reasons, and that the centers impacted would work to resolve compatibility differences.

Language:

The importance of native language materials was discussed and the value of translation to national languages was recognized. A mechanism for achieving this goal should be the subject of further discussion.

Hyperlinks:

Issue: The use of hyperlinks was discussed, and a problem was identified with hyperlinks that go outside of the ANSN.

Resolution: It was agreed that hyperlinks should be limited to other ANSN materials or closely related backup documents. In some cases, backup documents are included with course materials on a single CD.

Comments:

It was agreed that the capability to include brief comments from users would be included in some manner in the design of the database.

ANSN Hub in Tokyo

Following the above discussion of attributes, a concept for the ANSN Tokyo Hub Center was introduced. The presentation included a structure for the Tokyo Hub Center along with a listing of currently available documents from NISA and NUPEC. A list of potentially available nuclear safety training materials from JAERI and RADA was also presented. These presentations were very useful in describing a possible hub center concept.

4.4 (Topic 4): Proposed Structure of the ANSN Web Based Network

-Reference material: ANSN04

-Scope of discussion: details of the structure of the ANSN web-based network.

-Topics discussed and agreements reached

Master Index

It was agreed on the concept of a single master index to the education and training material contained in the hubs. The question was raised as to where the master index should be located and who would take responsibility for it. While a designated operator needs to be still determined, the choices are either the IAEA or a server operated in one of the hub countries.

Each node will have its own web site by necessity. Access to the master index will be provided through a single site containing the search page, which can act as a portal as well. Such a master site allows for a unified user experience and could be accessible at a simple address..

Participation on Pilot

It was agreed that during the pilot project, users from all countries that participate in the ANSN should be able to access and use the master index information. This ensures that the needs of all participant countries are being evaluated so that customized improvements can be added during a subsequent stage.

Prioritization of Material

The prioritization of material to be included on ANSN hubs was discussed. Existing evaluations of the needs of participating countries are already available in the form of four pilot missions (Thailand, Malaysia, Vietnam and Indonesia) and one workshop to be conducted in October 2002 in China.

Information Technology Limitations

Regional limitations on Internet connectivity and the availability of IT expertise are to be considered in the design of the ANSN network. Even if network connections and experts are available, limitations may be imposed, such as on file sizes and the use of certain document formats.

ANSN Focus

The question of the long-term focus of the ANSN was discussed. While the emphasis of the pilot project is on collecting enough material for a successful demonstration of the concept in education and training, the emphasis of the full project is more broadly on collaborative development and operation of the ANSN.

Terminology

The definition of certain terms was preliminarily agreed on:

- Hubs: Centers that collect, coordinate, and evaluate information and knowledge for the ANSN and disseminate them within the region through national centers.
- National Centers: Centers that coordinate the collection, evaluation, and exchange of information within the country for the ANSN, and foster use of this information in national programs.
- Node: any server that is connected within the ANSN network.

Public Access

It was agreed that access to the ANSN content should be restricted to ANSN participants during the pilot project.

Advanced Communication

To improve communication between ANSN participants and ANSN users, an implementation of an electronic forum and other advanced communication tools is only envisioned for the full implementation of the ANSN. Such tools are not within the scope of the pilot project. However, a comment field will be provided to facilitate feedback from users.

Specialization

The designation of areas of specialization for each ANSN hub was discussed and agreed not to be applicable under the current concept of a distributed network for ANSN.

Hardware and Software

Specifications as presented to the consultation participants are only a suggestion. The use of existing expertise is the best recommendation. The important point is to adhere to agreed standards: TCP/IP, HTTP, HTML, XML and SQL to ensure interoperability of the ANSN hubs.

Human Resources

The operation of the hubs and national centers requires the assignment of dedicated personnel such as qualified nuclear safety engineers and computer system administrators. These experts have to be thoroughly familiar with the taxonomy and the computer system standards mutually agreed upon.

Security

The ANSN will operate on the same security mechanism of registered usernames and assigned passwords as used for the IAEA's EBP database.

4.5 Final Conclusions:

It is generally agreed that this consultation meeting was an important step forward towards the establishment of the ANSN, building on the accomplishments of the EBP.

As a follow-up to this meeting, Korean representatives proposed to host a second consultation meeting early in 2003 to further develop the details of the ANSN based on formal agreements to be reached at the November 2002 ANSN preparatory meeting in Vienna.