Managing Nuclear Knowledge

IAEA Activities and International Coordination

Asian Network for Education in Nuclear Technology (ANENT)

July 2007

IAEA
International Atomic Energy Agency

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The originating Section of this publication in the IAEA was:

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Wagramer Strasse 5
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ASIAN NETWORK FOR EDUCATION
IN NUCLEAR TECHNOLOGY (ANENT)

Printed by the IAEA in Austria
June 2007

FOREWORD

The important role which the International Atomic Energy Agency (IAEA) plays in assisting Member States in the preservation and enhancement of nuclear knowledge and in facilitating international collaboration in this area has been recognized by the General Conference of the International Atomic Energy Agency in resolutions GC(46)/RES/11B, GC(47)/RES/10B, GC(48)/RES/13 and GC(50)/RES/13. The IAEA continues to support the enhancement and stabilization of nuclear education and training with the objective of securing the availability of qualified human resources for the nuclear sector. Its most important approaches are networking regional educational institutions and fostering cooperation to develop harmonized curricula, prepare and disseminate teaching materials. The Asian Network for Education in Nuclear Technology (ANENT), established by the IAEA in 2004, became operational in 2005. An ANENT website has been set up and is being expanded, such as developing a long-distance learning platform. Also, a reference curriculum for nuclear engineering is being developed with the cooperation of external partners.

This booklet summarizes the main activities being carried out by the IAEA with regard to the Asian Network for Education in Nuclear Technology (ANENT) and other related activities including those completed during the period 2002–2005. It briefly describes the background information on the events leading to the formation of the ANENT; the terms of reference formulated at the second Coordination Committee meeting held in Vietnam, October 2005; and objectives, strategy and other institutional and managerial policies reaffirmed by the members.

The attached CD-ROM contains nearly all of the background material in full text, including policy level papers, reports, presentations made by Member States, and meeting summaries. Further information on the current ANENT activities and related IAEA activities is available at http://anent-iaea.org and http://iaea.org /inisnkm.

The IAEA officer responsible for this publication was K. Hanamitsu from the Department of Nuclear Energy.

EDITORIAL NOTE

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1. HISTORICAL BACKGROUND

1.1. Responding to increasing threat of nuclear knowledge loss

Nuclear technology transfer from generation to generation is at risk in many countries. A large number of veteran nuclear professionals including engineers, researchers, and professors are reaching their retirement ages. At the same time, the younger generation appears to be losing interest in nuclear technology, which they do not consider as attractive or challenging as it was in the past. These factors are causing a situation that threatens to jeopardize smooth and effective technology transfer giving rise to the looming risk of a shortage of knowledgeable workforce in the future.

One likely cause of the disinterest of the younger generation in many industrialized countries is that these countries are now less committed to nuclear power and technology. For instance, there are fewer plans today to construct nuclear plants than in the past. However, their nuclear policies are likely to change dramatically in the near future, considering the growing importance of nuclear energy amidst the soaring prices of fossil fuels and an increasing public awareness of the effect of their use on global warming. If immediate remedial actions are not put in place, the valuable skills and know-how acquired and possessed by nuclear veterans could disappear before the governments wake up to the renaissance of nuclear energy.

1.2. Knowledge management initiatives

In 2002, the IAEA General Conference adopted a resolution on nuclear knowledge (GC(46)/RES/11B), which was reiterated in 2003 (GC(47)/RES/10B) and 2004 (GC(48)/RES/13E), emphasizing the importance of nuclear knowledge management and calling for increased awareness and requesting both the IAEA and Member States to strengthen their activities and efforts in this important area. In the IAEA's programme for 2002–2003, a programme on maintenance of knowledge in nuclear science and technology was established and it evolved into the programme on nuclear knowledge management in 2004–2005 and 2006–2007.

The IAEA has been addressing the need for strengthening nuclear knowledge transfer in the Asian region. A consultancy meeting on establishing an Asian network for higher education in nuclear technology was held in July 2003 in Daejeon, the Republic of Korea, in cooperation with Korea Atomic Energy Research Institute (KAERI). About 20 participants including representatives from 6 Member States (Republic of Korea, India, Indonesia, Japan, Malaysia, and Pakistan) initiated preparations for establishing a regional Asian network for higher education in nuclear technology.

1.3. Launch of ANENT

The first meeting of the Coordination Committee of ANENT was held in February 2004, in Kuala Lumpur, Malaysia, with the cooperation of the Malaysian Institute for Nuclear Technology Research (MINT). The meeting was attended by 25

representatives from 11 Member States (India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Pakistan, Philippines, Sri Lanka, Thailand, and Vietnam), the European Nuclear Education Network (ENEN), the World Nuclear University (WNU) and the IAEA. The participants specified the needs for networking nuclear education in Asia and adopted initial Terms of Reference and an action plan for launching the ANENT. Implementation of five group activities was also agreed upon. Ms. Fatimah Mohd Amin, of the Research Management Centre of MINT, was appointed as the first ANENT Chairperson/spokesperson.

1.4. Efforts to establish ANENT Web-portal

Initial efforts were focused on establishing a Web-portal for both internal and external communications, led by the Republic of Korea. In March 2005, the IAEA regional workshop on the development of a Web-portal for the ANENT was held in Daejeon, Republic of Korea, in cooperation with KAERI. The participants included ANENT national coordinators, information technology (IT) experts from 5 Member States (Malaysia, Philippines, Sri-Lanka, Vietnam and Republic of Korea), and representatives of WNU and IAEA. They reviewed and endorsed the approach and the design of the pilot model Web-portal developed by KAERI for promoting, managing, and preserving nuclear knowledge in the region and facilitating the ANENT activities.

The ANENT members also requested the IAEA to set up a regional technical cooperation (TC) project to support the ANENT activities in the 2007–2008 programme cycle including the Web-portal development.

In April 2005, the English version of the ANENT Web-portal became available at www.anent-iaea.org. The website contains information about the ANENT such as the objectives, members, structure and activities. Links are provided to a large number of useful websites on nuclear knowledge and management. The feature called “Cyber Learning” will bring the reader up-to-date on accessing training materials and research papers. INIS2.com provides access to scientific papers and documents in specialized fields. The NET (Nuclear Education and Training) Database contains data about the past, present and forthcoming lectures and training courses in the Asia-Pacific region. The search function helps the members to understand and analyze those data. As the database grows and the number of search items increases, the database is expected to become increasingly valuable in promoting ANENT activities. Related Events, just as the name indicates, provides a list of related events in the past, present and foreseeable future including archival information.

1.5. Amended terms of reference

The second meeting of the ANENT Coordination Committee was held in October 2005, in Hanoi, Vietnam, with the cooperation of Hanoi University of Technology (HUT). The participants included national coordinators from 11 Member States (Bangladesh, China, India, Indonesia, Republic of Korea, Mongolia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam) and the IAEA. The meeting

reviewed ongoing ANENT activities in the light of emerging challenges and made recommendations for future coordinated actions. The most important of these was the change in the vision statement of ANENT from cooperation in education and training to a regional platform for knowledge management and capacity building in the peaceful use of nuclear technology. The Terms of Reference were suitably amended in the light of the recent developments and the proposal to apply for a regional project under the IAEA Technical Cooperation was unanimously endorsed. Kyong-Won Han of KAERI Nuclear Training Centre was appointed as the second ANENT Chairperson/spokesperson.

1.6. Cooperation in developing the reference curricula

Towards the end of 2005, another group led by Vietnam, had a kick-off meeting with the aim of establishing reference curricula to facilitate credit transfer and mutual recognition of academic degrees and qualifications. This is directly connected to university education and thus has the potential to influence nuclear education and training in the whole region by overcoming large variations in educational systems, standards, qualifications, tools, etc., between the member countries that could be significant obstacles to future cooperation and mutual understanding.

In December 2005, an IAEA meeting on comparison of curricula in nuclear engineering among the ANENT member countries was held in Moscow, Russian Federation, in cooperation with the Moscow Engineering Physics Institute (MEPhI). A total of 19 representatives from 4 Member States (India, Republic of Korea, Russian Federation and Vietnam), the WNU and the IAEA participated in the meeting. Priority was given to the development of an initial proposal of standard curricula for acquiring the master's degree in nuclear engineering. It consisted of the following 5 courses totaling 40 subjects: (i) introductory/basic course; (ii) common course; (iii) nuclear power generation; (iv) non-power applications; and (v) nuclear fusion. Depending on the combination of acquired credits, it proposes that a master's degree be issued in nuclear engineering on power application, nuclear engineering on non-power applications, and in fusion technology. The proposal is being reviewed and further refined by the ANENT members. An IAEA TC Project was established in January 2007 to further expand these activities.

1.7. First technical session for promoting better understanding of ANENT

In 2006, the ANENT has had its focus on two major activities: (i) holding a three-day technical session on Managing Nuclear Knowledge in conjunction with the third meeting of the ANENT Coordination Committee in Daejeon, Republic of Korea, with the cooperation of KAERI to promote better understanding of the ANENT by all participating countries including ANENT members and non-members, thus trying to expand regional partnership; and (ii) considering the establishment and implementation of a new Regional Technical Cooperation Project to support web-based education and training in nuclear sciences and applications.

2. WHY ANENT?

2.1. Asia as the area of growth

Asia-Pacific is a region with high future growth potential in economy, industry, and energy. Nuclear technology, which can supply reliable and environment-friendly energy and help improve health and quality of life, can be regarded as a key to the sustainable development of this region. Unlike the developed countries, where basic nuclear technology development has taken place and the majority of nuclear power plants are located, many Asian countries have only recently begun to introduce nuclear technology for peaceful purposes or to expand the current nuclear power programmes. The region requires a wide range of nuclear education and training programmes to develop human resources at various levels.

2.2. Knowledge management issues facing the Asian nuclear community

Potential obstacles to nuclear technology development in the region comprise a shortage of "soft infrastructure" including qualified human resources, high-level information, knowledge, skills and experience, as well as a shortage of hard infrastructure. Widely varying nuclear development situations and education programmes in different countries may hamper their future efforts for mutual cooperation. These countries need to be encouraged to coordinate their nuclear research and educational activities so they can pool and utilize the available resources to spread the benefits across borders, areas and provinces. There is also a need to facilitate knowledge and technology transfer from retiring nuclear experts to the younger generation to preserve their knowledge and experience and make further improvements.

2.3. Regional networking for better solutions

A large number of separate education and training programmes in nuclear engineering and technology are carried out by national authorities, research institutions, professional associations, and industry as well as by universities. Creating a regional networking system connecting these organizations and consolidating their methodologies would go a long way in helping the countries to develop advanced capabilities in the field of nuclear technologies, including nuclear power generation and utilization of radiation technologies. A networking arrangement among nuclear institutions has been recognized as the most feasible and promising approach to address regional needs for capacity building and human resources development.

3. WHAT IS ANENT?

3.1. A new regional partnership for knowledge management and capacity building in the peaceful use of nuclear technology.

ANENT is the acronym for Asian Network for Education in Nuclear Technology. Launched in 2004, the ANENT is a regional partnership, supported by the IAEA, to cooperate in capacity building and human resource development in the area of nuclear technologies. It aims at networking nuclear research institutes, universities, and other educational facilities and developing a web-based education and training system to complement existing mechanisms. This regional partnership is intended to disseminate knowledge and information on nuclear technology in a reliable and economic manner to broader audience by networking people and utilizing information technology.

Universities, research centres, government agencies and other institutions involved in nuclear education and training in the region are accepted as participating members of the ANENT. Other international/regional networks could join as collaborating members. Currently there are 28 participating institutions from 12 countries (Australia, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Pakistan, Philippines, Sri Lanka, Thailand, and Vietnam) and six collaborating international networks. Details are given in the appendix.

3.2. Objectives

The objectives of the ANENT are to:

- provide effective mechanisms for developing human resources;
- strengthen scientific infrastructure;
- develop a self-sustaining network of institutions in the Asia-Pacific region;
- contribute to enhancing nuclear education, training, knowledge management, and associated research and development activities in the region.

These objectives are achieved through:

- integrating available knowledge resources and materials for enhancing nuclear education and training;
- facilitating mutual personnel exchanges and joint research activities to share scientific knowledge and soft infrastructure for the sustainable use of nuclear technology;
- standardizing nuclear educational resources such as reference curricula, materials, academic credits, degrees, and qualifications in countries within the region;
- promoting feedback and improvement of the processes through assessment and review of the results of joint activities and networking;

- coordinating linkages with other regional and global networks for smooth communication and potential synergy in the future.

3.3. ANENT Strategy

The key strategy is to promote self-sustaining regional cooperation to share human resources as well as education, training and research materials and facilities to avoid undesirable regional discrepancies arising from the absence of standards and the lack of mutually recognized materials and curricula.

Each participating member is expected to benefit from the strengths of others and to compensate each other's weaknesses. They would also benefit from shared facilities and resources such as educational and training materials and qualified experts and advanced educational, research and training facilities. A great deal of training materials and knowledge management techniques accumulated in the IAEA, ENEN and WNU could assist the members in this regard, helping further to promote the synergy.

Another element of the ANENT strategy is to promote self-sustaining mechanisms to achieve the following outcomes:

- Integration of available resources among the participating and collaborating members of the ANENT;
- Enhanced public awareness about the benefits of nuclear technology and its applications;
- Enhanced attraction of the interest and attention of talented youth to the nuclear profession in competition with other career options;
- Enhanced transfer of experience and knowledge from senior nuclear professionals to the younger generation; and
- Maximum possible use of information technology, in particular, web-based training and education support systems.

4. ANENT MEMBERSHIP

The ANENT membership is open to any organization that is involved in nuclear education and training for peaceful use of nuclear energy in the Asia-Pacific region. This includes academic institutions, research centers, governmental entities, and other related organizations. Organizations outside the region including international organizations may contribute to the ANENT as collaborating members. The current ANENT members and collaborating members are listed in the appendix.

An individual institution can acquire the ANENT membership at the request of an authorized representative of a member country made at a Coordination Committee meeting. Most of the current members acquired their memberships as requested by the national representatives who attended the previous Coordination Committee meeting held in Hanoi. Any international institution or network wishing

to become a collaborating member can do so by having an authorized representative of that institution express such request directly to the IAEA.

5. ANENT MANAGEMENT

The ANENT Coordination Committee holds an annual regular meeting of all the members and collaborating members, where Member States are represented as full members and collaborating members as observers. The participants report and review their respective activities and current status in relation to nuclear education and training. They discuss and identify issues to be addressed, develop action plans, and present, whenever appropriate, amended vision and objectives of the ANENT. At each annual Coordination Committee meeting a chairperson is appointed who also plays the role of spokesperson for the ANENT during the following year.

The role of the IAEA includes convening the Coordination Committee meetings, putting together the subjects for discussion, and reporting on the overall status of implementation of the activities. In addition, the IAEA currently provides the ANENT with initial leadership and basic support, including technical and financial assistance, to help the region achieve self-sustained development and transfer of nuclear expertise and technology. The IAEA's current role includes organizing workshops, supporting web-portal operation, and providing assistance through technical cooperation projects.

In the future, the ANENT member countries are expected to play a more active role in managing their activities, dealing with their own problems, and financing their solutions so that the IAEA role is basically limited to supplementing and overseeing the activities as the scientific secretariat.

6. ANENT ACTIVITIES

Five of the Member States are currently playing leading roles in the following activities: the Republic of Korea in exchange of information and materials (Activity 1), Malaysia in facilitation of personnel exchange (Activity 2), the Philippines in distance learning (Activity 3), Vietnam in establishing reference curricula (Activity 4), and Sri Lanka in liaison and outreach (Activity 5).

Activity 1: Exchange of information and materials for education and training

Some of the ANENT members are in urgent need of practical and up-to-date information on nuclear energy and/or radiation applications to meet their growing demands. Other members are also expected to see their needs increasing sooner or later. To facilitate effective exchange and sharing of information among the members, the ANENT Web-portal has been in operation since April 2005. It has been playing a vital role in providing fundamental and operational information on the ANENT itself, updating the regional education and training data and materials, and promoting mutual communications. In the future a greater number of researchers and students will be able to get reliable knowledge and information on

nuclear technology, regardless of time and place, through this web-based platform. The following tasks have been agreed to be implemented within this activity:

- Identify and provide access to available information and materials,
- Establish and maintain a web-based network to support all ANENT activities.

Activity 2: Facilitating exchange of students, teachers and researchers

No matter how well IT may be developed, the Web-portal cannot replace human-to-human exchanges. The ANENT supports expanding such direct exchanges between information senders and receivers, between older and younger generations, between developed and developing countries within and beyond the region. Large synergy effects can be expected by combining direct human exchange with web-based education and training.

The activity would be promoted through:

- Facilitating bilateral and multilateral co-operation in exchange of students, teachers and researchers,
- Working with the IAEA and other regional and international organizations to establish a working mechanism for supporting the exchange.

Activity 3: Distance learning

Large differences exist between ANENT member countries — and between different areas in each member country — in the levels of IT infrastructure and learning environments as well as in the development of nuclear science and technology. To get over such differences and provide equal learning opportunities, it would be ideal to develop a distance learning system that could be commonly recognized and shared within the region, by using other electronic and/or non-electronic media. This complementary programme could help generate even greater synergy effects. The following actions are expected to be carried out for this purpose:

- Compilation of available distance learning material;
- Making the material available to the ANENT-web and other electronic media;
- Setting up new ANENT distance learning courses.

Activity 4: Establishment of reference curricula and facilitating credit transfer and mutual recognition of degrees and qualifications

The stage of development of nuclear technology and applied nuclear sciences varies widely among the ANENT member countries and their different provinces. To achieve self-sustaining collaboration within the region, such gaps can be obstacles for mutual understanding and joint activities. To overcome the obstacles,

the existing differences in nuclear education curricula were studied and discussed in December 2005 among the members, who agreed to embark on establishing reference curricula in nuclear engineering. Establishing reference curricula can be a good starting point for developing a common system for accrediting educational quality and level within the region. This activity would be implemented through the following steps:

- Exchange and analysis of existing curricula;
- Development and/or adoption of reference curricula;
- Facilitating transfer of credits and mutual recognition of degrees.

Activity 5: Liaison and Outreach

While the initial efforts of ANENT have been focused on launching full operation of the ANENT Web-portal for sharing resources and developing reference curricula in nuclear engineering, top priority is also being given to recruiting more full members from within the region and collaborating members from outside the region. All activities of the ANENT are based on networking people and consolidating available resources in nuclear education and training. The following actions are expected to be taken by the members:

- Facilitate communication between the ANENT member institutions and other regional and interregional organizations and networks;
- Support the ANENT members in public information and outreach activities.

All these activities are expected to make a significant contribution to regional and national nuclear capacity building, infrastructure development, and better use of existing information resources, thus helping to achieve the ANENT objectives.

7. FUTURE PLAN: SUSTAINABLE EDUCATION AND TRAINING FOR THE NEXT GENERATION

The ANENT will facilitate the transfer of knowledge, experiences, skills, and know-how acquired by senior professionals to the next generation of researchers, engineers and operators. This will be done by: (i) collecting the large amount of professional expertise that currently exists in isolated pockets; (ii) organizing it into standardized educational materials and curricula; and (iii) providing educational opportunities — such as granting fellowships, holding regional workshops and training courses, and offering qualifications and degrees that are eventually recognized throughout the region.

The advanced learning environment to be provided by the ANENT will help generate a large number of qualified nuclear researchers and engineers, who can be expected to significantly contribute to the sustainable development of the Asian region.

APPENDIX

1. ANENT ACTIVITIES AND THE LEAD INSTITUTIONS

Activity 1. Exchange of information and materials for education and training

Lead Institution: Korea Atomic Energy Research Institute (KAERI), Republic of Korea

Activity 2. Facilitating exchange of students, teachers and researchers

Malaysian Institute For Nuclear Technology Research (MINT), Malaysia

Activity 3. Distance learning

Philippine Nuclear Research Institute (PNRI), Philippines

Activity 4. Establishment of reference curricula and facilitating credit transfer and mutual recognition of degrees and qualifications

Hanoi University of Technology (HUT), Vietnam

Activity 5. Liaise and outreach

Atomic Energy Authority, Sri Lanka

2. ANENT MEMBER INSTITUTIONS

Australia	Australian Nuclear Science and Technology Organization (ANSTO)
China	Tshinghua University
India	Bhabha Atomic Research Centre (BARC)
Indonesia	Center for Education and Training, National Nuclear Energy Agency (BATAN)
Republic of Korea	Cheju National University Chosun University Korean Advanced Institute of Science and Technology Kyung Hee University Seoul National University Hanyang University Nuclear Training Center, Korea Atomic Energy Research Institute (KAERI) Nuclear Safety School, Korea Institute of Nuclear Safety (KINS)

	Nuclear Power Education Institute, Korea Hydro and Nuclear Power Company (KHNPC) National Radiation Emergency Medical Center, Korea Institute of Radiological and Medical Sciences (KIRMS) Department of Nuclear Medicine, Seoul National University
Malaysia	Malaysian Institute for Nuclear Technology Research (MINT)
	University Kebangsaan Malaysia (UKM)
	University Putra Malaysia (UPM)
Mongolia	Nuclear Research Centre, National University of Mongolia
Pakistan	KANUPP Institute of Nuclear Power Engineering (KINPOE)
	Pakistan Institute of Engineering and Applied Sciences (PINSTECH)
	Center for Non-Destructive Testing
Philippines	Philippine Nuclear Research Institute (PNRI)
Sri Lanka	Atomic Energy Authority
	University of Colombo
Thailand	Office of Atoms for Peace (OAP)
Vietnam	Hanoi University of Technology (HUT)
	International Atomic Energy Agency (IAEA)

3. ANENT COLLABORATING MEMBERS

European Nuclear Education Network (ENEN)

Moscow Engineering Physics Institute (MEPhI)

The World Nuclear University (WNU)

Asian School of Nuclear Medicine (ASNM), Asian Regional Cooperative Council for Nuclear Medicine (ARCCNM)

University Network of Excellence in Nuclear Engineering (UNENE)

The most comprehensive educational and reference library on CANDU technology (CANTEACH)

Ontario Power Generation

4. POTENTIAL COLLABORATING MEMBERS *

Regional Co-operative Agreement - Regional Office (RCA-RO)

Asian Nuclear Safety Network (ANSN)

Forum for Nuclear Cooperation in Asia (FNCA)

* Potential collaborating members are those who have yet to become collaborating members formally, but have expressed their intention to positively consider collaborating with the ANENT objectives and activities as members in the future. They can participate in the ANENT related meetings in observer status.

5. ANENT NATIONAL COORDINATORS AND CONTACT ADDRESSES

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ACRONYMS

ANENT	Asian Network of Education in Nuclear Technology
ANSN	Asian Nuclear Safety Network
ARCCNM	Asian Regional Cooperative Council for Nuclear Medicine
ASNM	Asian School of Nuclear Medicine
ENEN	European Nuclear Education Network
FNCA/HRD	Forum for Nuclear Cooperation in Asia – Human Resource Development (Group)
RCA (– RO)	Regional Cooperative Agreement (– Regional Office)
WNU	World Nuclear University

CD-ROM CONTENTS

The CD-ROM contains records of the meetings and reference materials related to the ANENT:

Meetings

- Consultancy Meeting on Asian Network for Higher Education in Nuclear Technology, 30 June–4 July 2003, Daejeon, Republic of Korea.
- 1st Coordination Committee meeting, 23–27 February 2004, Kuala Lumpur, Malaysia.
- Regional Workshop on the Development of a Web-Portal for the ANENT, 21–25 March 2005, Daejeon, Republic of Korea.
- Consultancy Meeting on Comparison of Curriculum in Nuclear Engineering within the ANENT Member Countries, 5–9 December 2005, Moscow, Russian Federation.
- 2nd Coordination Committee meeting, 26–28 October 2005, Hanoi, Vietnam.

Material

- The Asian Network for Education in Nuclear Technology (ANENT): An initiative to promote education and training in nuclear technology (as of May 2005).
- Description of the ANENT Web-Portal.
- The skeleton of the ANENT Reference Curricula for Master Degree in Nuclear Engineering (MDNE) (as of February 2006).
- Meeting of Senior Officials on Managing Nuclear Knowledge, 17–19 June 2003.
- Summary of an International Conference: Managing Nuclear Knowledge: Strategies and Human Resource Development, 7–10 September 2004, Saclay, France.
- Managing Nuclear Knowledge: Glossary of Terms (as of September 2006).

General Conference 2002

(1) Report to the 46th regular session of the IAEA General Conference – Managing Nuclear Knowledge [GOV/2002/39-GC (46)/15] 2002.

(2) Resolution GC(46)/RES/11 – Strengthening of the Agency's Activities Related to Nuclear Science, Technology and Applications, Part B; Nuclear Knowledge, 2002.

General Conference 2003

(1) Report to the 47th regular session of the IAEA General Conference – Nuclear Knowledge [GOV/2003/53-GC (47)/11] 2003.

(2) Resolution GC(47)/RES/10 – Strengthening of the Agency's Activities Related to Nuclear Science, Technology and Applications, Part B; Nuclear Knowledge, 2003.

General Conference 2004

(1) Report to the 48th regular session of the IAEA General Conference – Nuclear Knowledge, [GOV/2004/56-GC (48)/12] 2004.

(2) Resolution GC(48)/RES/13 – Strengthening of the Agency's Activities Related to Nuclear Science, Technology and Applications, Part E; Nuclear Knowledge, 2004.