

The IAEA Technical Meeting on the Asian Network for Education
in Nuclear Technology
23-27 February 2004, Kuala Lumpur, Malaysia

Korean Efforts for Education and Training Network in Nuclear Technology

1. National Approach toward Nuclear Education and Training

Nuclear energy has been a backbone for Korea's remarkable economic growth, and will continue its essential role with 18 nuclear power plants in operation, 2 more units under construction, 6 more units in planning. Korea is operating its own designed nuclear power plants, such as KSNP, 1400, as well as self-design and operation of 30 MW Hanaro research reactor. Korea makes strong efforts to develop future nuclear technology. They are the System-Integrated Modular Advanced Reactor, SMART, Korea Advanced Liquid Metal reactor, KALIMER, Hydrogen Production reactor, and Proliferation-resistant Nuclear Fuel Cycle. In parallel, Korea is establishing an Advanced Radiation Technology R&D Center and a High Power Proton Accelerator Center. International, next generation nuclear power technologies are being developed through projects such as the IAEA Innovative Nuclear Reactors and Fuel Cycle, INPRO, Generation IV International Forum, GIF, and International thermonuclear Experimental reactor, ITER. In the new millennium, Korea expects that radiation technology combined with bio, nano, and space technology will sustain our civilization.

About 21,000 qualified nuclear human resources are engaged in power and non-power fields such as design and manufacturing of equipment, plant operation and maintenance, safety, RI production, R&D, etc. However, it is recognized that the first generation of nuclear work force is getting older and retired, less of our youth are studying nuclear science and engineering. Korean Government has established a promotion program on nuclear human resources development, which is needed until 2010. The following are items needed for the promotion;

- Support for nuclear program at university
- Maintain qualified nuclear personnel at nuclear industries
- Enhancement of competitiveness in nuclear manpower at global level.

2. Status of Education and Training in Nuclear Technology

There are 5 types of organization in Korea, which are related to education and training in nuclear technology, they are universities, R&D institutes, industries, associations, and medical centers. Six universities have nuclear engineering department in education of BS, MS and Ph. D course. In order to encourage Korean youth to become more interested in science and technology, the University of Science and Technology (UST) opened newly in 2004 to provide them with emerging advanced technology linked with 5T under the partnership of 22 national science and technology institutes. NTC of KAERI will provide 3 kinds of advanced engineering courses on M.S, Ph. D. The Center that established in 1967 as an integrated nuclear training center is also providing various specialized training programs for government, utility, and industries as well as its research staff. The Center opened a new training facility of International Nuclear Education Center (INTEC) to promote international training and education activities. Korea Institute of Nuclear Safety (KINS) has established a training center to cultivate its regulatory and inspection staffs in 2002. The Korea Cancer Center Hospital (KCCH) has established a radiation emergency treatment center to provide training courses on radiation emergency treatment.

There are three of collaboration organizations promoting international cooperation in nuclear education and training. The RCA Regional Office, which was opened in 2002, is providing RCA post-doctorial fellowship training program. RCA/KAIST master's degree courses, and RCA/KOICA nuclear medicine internship training programs for the IAEA RCA Member States. The Korea International Cooperation Agency (KOICA) offers financial supports to the national nuclear related organizations to provide specialized nuclear technology courses for neighbor countries. The Korea Nuclear International Cooperation Foundation (KONICOF) has established newly in 2004. KONICOF will also provide specialized training courses for neighbor countries.

The Korean Network of Nuclear Education and Training (KN-NET) is being developed for the effective implementation of the national nuclear education and training activities. The network will be composed of government, universities which have nuclear engineering department, nuclear R&D institutes, power utility, nuclear industries, and nuclear related associations and societies. The purpose of KN-NET is to encourage information exchange of nuclear education and training including materials and expertise, to promote collaboration in education and training, to study curricula. The following fields will be potential international training programs available from KN-NET;

- Nuclear policy

- Advanced reactor technology
- Nuclear fuel technology
- Radioactive waste management technology
- Nuclear safety improvement
- Radiation protection
- Radioisotope production and radiation application technology
- Radio-therapeutics
- Basic nuclear science such as accelerator technology.

3. Needs for Regional Cooperation in Nuclear Education and Training

For the sustainable development of nuclear science and technology, it calls for more qualified human resources. We ought to encourage our youth to become more interested in nuclear studies and careers. Korea is making strong efforts to support nuclear education and training for young generations. It is believed that internationally accepted advanced education programs along with a career in the nuclear fields at home and abroad should raise young generation's interests. Global network will serve as a vehicle that drives nuclear education and training forward. The Korean nuclear community has to address the following needs to;

- attract the young generation by broadening their vision of the nuclear field to the regional level
- facilitate the accessibility of nuclear personnel to the regional forum where they can learn more about emerging technologies
- develop careers of nuclear personnel through their involvement in regional education and training activities
- upgrade its education and training capabilities to international level by effectively making use of available resources from the region
- increase mutual benefit at regional level by sharing its expertise and experience with other communities of neighboring countries.

4. Suggestions for ANENT

NTC of KAERI has developed the ANENT temporary web site (www.anent-temp.org) for the IAEA Consultancy Meeting on Establishment of ANENT held in June 2003 at KAERI. According to the results from the discussion of the meeting, KAERI has requested to continue to work toward establishment of a web site for all activities related to ANENT. The followings are KAERI's efforts made for the ANENT;

- Installation of a portable cyber education system (Edu-V producer) and cyber

studio for the effective production of VOD materials

- Production of VOD type learning materials: 3 IAEA courses containing 52 lectures.

For the progress of the establishment of ANENT, it is believed that exchange of informational and materials on education and training should be considered in advance among the member states. The followings are our suggestions for the exchange of information and materials to be discussed among member states;

- Formulation of a working group
- Identification of the scope of activities
- Establishment of cooperative mechanism
- Design of ANENT web, and loading of existing information and materials on the web
- Production and loading of new materials including cyber education and training materials
- Sustainable operation of ANENT web site.