FNCA
Forum for Nuclear Cooperation in Asia
Newsletter
No. 14
March 2011

Contents

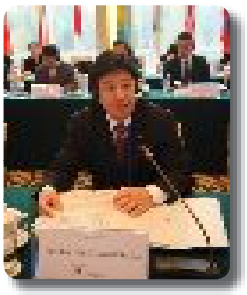
The 11th FNCA Ministerial Level Meeting
November 18th, 2010 Beijing China

The 11th Ministerial Level Meeting of the Forum for Nuclear Cooperation in Asia (FNCA) was held at Diaoyutai State Guesthouse in Beijing, China on November 18th, 2010. The meeting was co-hosted by Japan and China, and was attended by ministerial-level delegates (including 2 ministers, 4 vice-ministers, and chairpersons of nuclear energy authorities, commissions, and agencies) representing 10 FNCA member countries, namely Australia, Bangladesh, China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand, Vietnam and 2 newly acceding countries, Kazakhstan and Mongolia. The representatives broadly discussed international cooperation in the area of nuclear technology development and application.

Diaoyutai State Guesthouse

(1) Opening

The meeting was co-chaired by Mr. CHEN Qiufa, Chairman of the China Atomic Energy Authority of China and Mr. Takashi WADA, Parliamentary Secretary of the Cabinet Office of Japan. Mr. CHEN Qiufa first delivered welcoming remarks as a host country representative. He stated that China has accumulated a wealth of experience in aspects of nuclear research and development for decades and is willing to actively participate and cooperate in FNCA, which is an important framework for Asian regional cooperation in nuclear energy and radiation-utilizing technology. Mr. Takashi WADA also gave a welcoming speech as co-chair and host country representative. He expressed gratitude to the Chinese government for co-hosting the meeting and welcomed



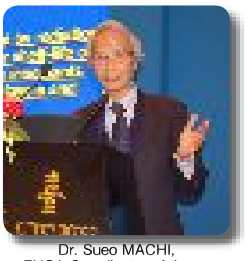
Left: The Hon. Mr. CHEN Qiufa, Chairman, China Atomic Energy Authority (CAEA)
Right: The Hon. Mr. Takashi WADA, Parliamentary Secretary, Cabinet Office (CAO)

Kazakhstan and Mongolia as new official members of the FNCA. Also, he emphasized the importance of cooperation from Japan, China and Korea to Asian countries where utilization of nuclear energy is promoted rapidly, in regard to nuclear infrastructure, and conveyed Japan's intention to promote this cooperation actively. The two new official member countries, Kazakhstan and Mongolia, thereafter expressed their gratitude for admission to FNCA, described the status of nuclear power in their countries, and stated their hopes regarding FNCA activities.

(2) Country Reports

The twelve participating countries reported on their countries' state of nuclear power generation and use of radiation.
[See pages 4-5 for reports summary.]

(3) Reports on FNCA activities


Dr. Sueo MACHI,
FNCA Coordinator of Japan

① Project activities and schedule for JFY 2010

Dr. Sueo MACHI, FNCA Coordinator of Japan, reported on recent FNCA activities in the areas of agriculture, industry, medicine, research reactor utilization, radiation safety and radioactive waste management, public information, nuclear safety management, and human resource development. The schedule of FNCA activities for JFY 2010 and meetings in JFY 2011 was unanimously approved.

② Report of the 2nd Panel Meeting

Dr. Akira OMOTO, Commissioner of the Japan Atomic Energy Commission (JAEC), gave a summary report on the 2nd meeting of the study panel on the approaches to nuclear power infrastructure development.


Dr. Akira OMOTO,
Commissioner of JAEC

(4) Round Table Discussion 1: Cooperation for Further Promotion of Nuclear Energy Use in FNCA Countries

Dr. Akira OMOTO gave a lead speech and suggested the following four points for discussion:


Mr. FENG Yi,
Deputy Secretary General, CNEA

i). Effective cooperation for building sound infrastructure regarding nuclear power generation,

ii). Assuring safety, security, and non-proliferation measures,

iii). Using nuclear power more to promote low-carbon economies,

iv). Increasing unique added value through regional cooperation.

Mr. FENG Yi, Deputy Secretary General of the China Nuclear Energy Association (CNEA) also delivered a lead speech and addressed the following:

i). Allocation of scientific resources and rational planning,

ii). Cooperation in the areas of common benefit and interest,

iii). Well-balanced development and sustainable development,

iv). Human resource development and multi-faceted preparedness.

In conclusion, it was decided that, at its next meeting, the study panel would discuss topics raised at this meeting, such as site selection, licensing, Response to the Clean Development Mechanism(CDM), localization, safety and security, and nonproliferation, in addition to the points suggested by Dr. Akira OMOTO.

(5) Round Table Discussion2: Cooperation for Further Promotion of the Use of Radiation and Isotopes in FNCA Countries

Dr. Sueo MACHI, FNCA Coordinator of Japan, and Dr. Muhd Noor MUHD YUNUS, Deputy Director General (Technical), each gave a lead speech. Dr. Sueo MACHI talked about six FNCA projects related to the use of radiation in the areas of agriculture, medicine, industry, and the environmental protection. He pointed out that socio-economic impact of the projects should be enhanced through FNCA cooperation and promote commercial use of radiation.

Dr. Muhd Noor MUHD YUNUS stressed promotion of synergy in radiation technology application and nuclear power technology for energy infrastructure development of energy use as well as direct benefits from the use of research reactors.

These two speeches led the discussion about information sharing of success stories of nuclear technology application, support measures for commercialization, the role of research reactor in human resource development, and promotion of networks for research reactor utilization and for radio-isotope supply. Member countries agreed that they would put the proposals to work in FNCA activities.

(6) Resolution and Meeting Summary

Dr. Shunsuke KONDO, Chairman of the Japan Atomic Energy Commission, proposed a draft resolution and meeting summary. Both were adopted after discussion. The points of resolution are as follows:

- To enhance mutual efforts for nuclear energy infrastructure development, in particular for nuclear safety, security and nonproliferation / safeguards, recognizing that this infrastructure is essential for the safe and peaceful use of nuclear energy;
- To recognize the importance of ensuring new nuclear plant safety by adopting international safety standards;
- To promote and explore possible mechanisms to commercialize nuclear techniques developed at national research institutes;
- To gain international recognition of nuclear power as a priority in the carbon credit mechanism for the reduction of greenhouse gas emissions.

(7) Closing

Mr. LIU Yongde, Director General of the Department of International Cooperation, China Atomic Energy Authority (CAEA), made the closing remarks. The next Ministerial Level Meeting is scheduled to be held in Tokyo. Member countries were encounraged to actively participate in the meeting.

From Left: Dr. Ron HUTCHINGS (Australian Nuclear Science and Technology Organisation), Mr. Dilip Kumar BASAK (Ministry of Science and Information& CommunicationTechnology, Bangladesh), Prof. Syamsa ARDISASMITA (Ministry of Research and Technology of the Republic of Indonesia), Dr. Erlan G. BATYRBEKOV (National Nuclear Center, Kazakhstan), Dr. Nampyo HONG (Ministry of Education, Science and Technology, Korea), Mr. Takashi WADA (Cabinet Office, Government of Japan), Mr. CHEN Qiufa (China Atomic Energy Authority), Dr. Maximus Johnity ONGKILI (Ministry of Science, Technology and Innovation, Malaysia), Dr. Sodnom ENKHBAT (Nuclear Energy Agency, Mongolia), Mr. Mario G. MONTEJO (Department of Science and Technology, The Philippines), Mr. Gongsak YODMANI (Minister of Science and Technology, Thailand), Dr. LE Dinh Tien (Ministry of Science and Technology, Vietnam)

Messages from New FNCA Member Countries

Kazakhstan

FNCA Kazakhstan Coordinator
Dr. Erlan G. BATYRBEKOV
First Deputy Director General,
National Nuclear Center

Kazakhstan is a world leader in uranium mining and now it is on the point to develop its own nuclear power energetic. The place for the construction of the first power reactor and its model and producer is under discussion.

National Nuclear Center RK produces a set of radiopharmaceuticals for therapy and diagnostics, closed radioactive sources for national industry, indicator solutions for radio ecological and geophysical studies, 3 radiopharmaceuticals exported to other countries. At present time, Center of Nuclear Medicine is under construction near Almaty. In this center, self produced radiopharmaceuticals will be used.

Kazakhstan has widely developed application of nuclear technology for the sterilization and production of advanced materials and track membranes. We have great experience in radioecology and non proliferation monitoring due to long term investigation in the regions of our Republic which are greatly sacrificed from nuclear weapons testing which were carried out on Semipalatinsk Test Site during more than 50 years.

It is very important for Kazakhstan to exchange information with members of FNCA in the field of nuclear technologies, reactor engineering and safety, radioecology and cooperation in the development of human resource for the nuclear industry.

Mongolia

FNCA Mongolia Coordinator
Mr. Manlaijav GUN-AAJAV
Director of Nuclear Technology Department,
Nuclear Energy Agency of the Government of Mongolia

Mongolia recognizes the importance of effective and efficient implementation of the IAEA Technical Cooperation Program and considers it as an important resource for the development of national nuclear science and technology capability. In 2009-2011 cycles, Mongolia has been implementing 11 TC projects and in the new 2012-2013 cycle, we consider to continue our cooperation in broad spectrum of nuclear technologies that address some of our national development goals. The active participation of our country in the RCA program brings significant advances in the development of nuclear research and nuclear technology transfer, as well as the development of human resources and training in cooperation with RCA-member countries .

Under the "Pre-feasibility study of NPP Programme", we have implementing some activities and carrying out sub-programs for Define of demand of the electric power and nuclear power in future; Influence on features of geographical sites for implementation of first NPP programme; Study of the earth crust deformation and tectonics; Site selection; Nuclear safety, nuclear reactors technology selection; Study of Human recourse requirements and processing of pre-feasibility for research reactors. We are planning to continue subprograms in accordance with requirements of IAEA and to implement the program for State Policy of Mongolia on use of radioactive minerals and nuclear energy. On this issue we give special attention to the development program of national specialists in the direction of operating NPP and radioactive minerals exploration and exploitation.

In the first stage it is necessary to prepare lecturers, trainers, operation engineers and researchers in the following qualified specialists such as nuclear power, new energy technologies, radiation physics, chemistry, radiochemistry; material science, modeling and simulation, metrology, biology, radiobiology, nuclear medicine, radiopharmacy, medical physics; risk control; quality management, radiation protection, environment monitoring, conventional and nuclear safety; research and innovation economics, project management; supervision and guidance instructors, etc.

By today we have organized short-term and long-term courses on improvements of professional qualification and training in France and Japan. We have started a training program for 10 students and 5 specialists every year since 2009, in accordance with the Memorandum of understanding between the Nuclear Energy Agency of Mongolia and corporation "RosAtom" of RF.

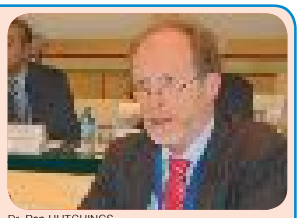
We are in hope that our participation in Forum for Nuclear Cooperation in Asia will allow us to obtain new knowledge and technologies, to train experts and specialists and develop cooperation belong member states.

Summary of Country Reports

Presened at the 11th Ministerial Level Meeting.

Australia

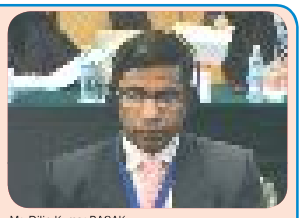
The Australian government maintains its position that it does not foresee the introduction of nuclear power in Australia. However, it accepts that nuclear power is an important part of the energy mix in some countries where energy demand is growing strongly but which lack the abundant and diverse energy resources available to Australia. It continues to support uranium mining, subject to rigorous environmental and safety considerations. The Federal Government recognised the importance of nuclear science and technology by announcing funding for new neutron research instruments at the OPAL reactor facility, and for establishing a Centre for Accelerator Science. Australia actively participate in FNCA projects. We have taken on the leadership and sponsorship of the Safety Management Systems for Nuclear Facilities (SMS) Project. The first SMS workshop was held in February, 2010, in Sydney, followed by the second workshop in October in Indonesia.



Dr. Ron HUTCHINGS
Executive General Manager - Strategy, Government & International Relations, Australian Nuclear Science and Technology Organisation (ANSTO)

Bangladesh

The role of science and technology has been recognized by our government as one of the important vehicle for the country's development and poverty alleviation, and the government outlined a target of generation capacity to 20,000 MW by 2021. Accordingly, nuclear is considered as an "inevitable option". In the area of radiation application, government is enhancing research equipments and facilities such as upgrade of beam port facilities at the TRIGA Research Reactor and installation of a Tandem accelerator. In Bangladesh, nuclear medicine facilities are available in 14 centers throughout the country and a new PET centre will be established in BAEC by the end of 2011. Human resources development remains one of the most challenging issues. Further cooperation in member countries is expected.



Mr. Dilip Kumar BASAK
Additional Secretary Ministry of Science and Information& Communication Technology (MOSICT)

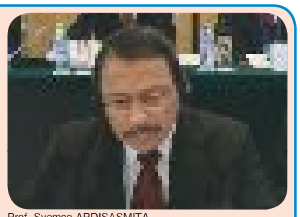
China

China has been participating in 8 FNCA projects, which yielded fruitful results. Many of FNCA member countries are considering introduction of nuclear power generation. China will promote widely and strengthen the cooperation by utilizing accumulated rich experience in nuclear energy and technology applications, especially in the following 4 areas. (i) nuclear R&Ds to improve capabilities, (ii) nuclear power construction in support of nuclear energy development, (iii) nuclear technology application to promote social and economic development, and (iv) personnel cultivation with an aim to the sustainable development of nuclear energy.

Mr. CHEN Qiufa
Chairman
China Atomic Energy Authority (CAEA)

Indonesia

Indonesia is facilitaing commercialization of outcomes produced in the field of nulear science technologies. The National Energy Council has mostly agreed that a big amount of nuclear energy for electricity should be one of main electricity production to support a national energy security commencing year 2020.In the field of radiation application, improvement of rice by radiation-induced mutation breeding is promoting and Ministry of Agriculture released a superior soybean in July 2010. Human resource development is still a general problem among all of the FNCA member countries, so that the HRD project should be taken into account as the first priority among other FNCA Projects. Indonesia would like to participate and support ANTEP (Asian Nuclear Training and Education Program).



Prof. Syamsa ARDISASMITA
Deputy Minister for Science and Technology Network, The Ministry of Research and Technology of the Republic of Indonesia

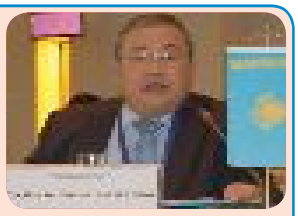
Japan

This June, the Government decided the New Growth Strategy and showed intention to promote new technology development including renewable energies, nuclear power, and storage batteries for a low-carbon society. Long-term plan includes promotion of the fast reactors and related fuel cycles that are aimed at its commercialization in 2050 or so. In order to ease the access to various HRD training programs to be promoted in Japan, an organization tentatively called Japan Nuclear Human Resource Development Network will be established soon and at the Nuclear Security Summit held in this April, Japan committed to the establishment of an Integrated Support Center for Nuclear Non-proliferation and Nuclear Security to share Japan's experience with countries that are preparing for the introduction of nuclear energy.

Dr. Shunsuke Kondo
Chairman
Japan Atomic Energy Commission

Kazakhstan

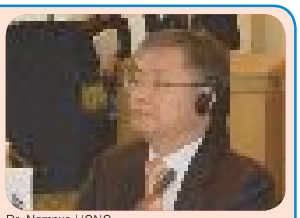
Kazakhstan possesses 15% of uranium deposits and 28% of production of its resources in the world. On the basis of the possession, we are creating the full nuclear fuel cycle covering from uranium mining and nuclear fuel production to use of electric generation. Since Kazakhstan signed a decree to close Semipaltinsk nuclear test site in 1991, we have been adhering to the peaceful use of nuclear power. With regard to Nuclear Power Introduction, the first light water nuclear reactor will be constructed by 2020. In the field of Nuclear Science and Technologies, we have 4 research reactors and the heavy ion accelerator and moreover, material testing tokamak KTM will be constructed in 2011. In the framework of Non-Proliferation Regime, seismic stations are performing monitoring of unauthorized nuclear tests.



The Hon. Dr. Erlan G. BATYRBEKOV
First Deputy Director General,
National Nuclear Center

Korea

The Republic of Korea is participating in bilateral and multilateral cooperation in order to meet the demand for nuclear infrastructure development of the new comers. Currently, we are providing training programs for nuclear R&D, safety regulation and human resource development in UAE and Jordan. In addition, the Republic of Korea developed the Integrated Regulatory Infrastructure Supporting System which supports several aspects including regulatory standards, safety reviews, and professional training. FNCA has contributed to the active regional cooperation in the field of radiation application including cancer treatment and use of radiation in medicine such as cyclotron, PET and radiation oncology. It is significant to discuss the "further promotion of radiation and isotope application in FNCA countries", aiming at contribution to the enhancement of quality of life in Asia.



Dr. Nampyo HONG
Director General of Atomic Energy Bureau
Ministry of Education, Science and Technology (MEST)

Malaysia

The National Nuclear Policy was approved in July 2010 by the Cabinet. This Policy will guide the development of peaceful, safe and secure use of nuclear power and nuclear technology. Malaysia is developing a national Nuclear Power Infrastructure Development Plan (NPIDP) that will be completed by 2011. A comprehensive review of the Development Plan will be conducted by engaging experts from the International Atomic Energy Agency (IAEA) and other appropriate bilateral, regional and multilateral cooperative agreements, including FNCA. A rather urgent and important matter is to ensure public acceptance of nuclear energy. Malaysia proposes that the following initiatives be considered for future activities of the FNCA, namely: (i)Business Forum, (ii) Public Information Programme, (iii) Promotion of Cooperation in HRD and R&Ds, and (iv) Establishment of a Regional Project to Study the Socio-economic Impact of Nuclear Technology

Dr. Maximus Johnity ONGKILI
Cabinet Minister Ministry of Science, Technology and Innovation

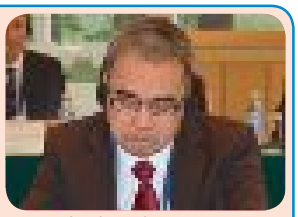
Mongolia

Mongolia is rich in uranium deposits and the Parliament has approved the "State Policy of Mongolia on Exploitation of Radioactive Minerals and Nuclear Energy" for meeting the growing domestic demand of energy . The policy is aimed at wide international co-operation in exploitation, mining and trading of uranium. In a view of the growing demand for uranium in the international market, Mongolia, for future utilization of nuclear energy, is implementing a complex policy aiming at exploitation, processing and exporting of uranium resources under "Comprehensive National Development Policy based on the Millennium Development Goals". We use various nuclear applications in production, process control, non-destructive testing, resource prospecting etc, which have yielded remarkable social and economic benefits. Mongolia hopes to take an active part in the following fields of FNCA projects.1) Industrial use, 2) Environmental use, 3) Better human health, 4) Strengthening of Nuclear Safety, 5) Nuclear Infrastructure strengthening.

The Hon. Dr. Sodnom ENKHBAT
Director General Nuclear Energy Agency of the Government of Mongolia

The Philippines

The government formulated national innovation strategy called "Filipinovation" and promote cooperation with stakeholders from business, academe, government, and the science and technology sector. The Philippines is seriously considering the inclusion of nuclear power as part of the Philippine energy mix and the Department of Energy has requested funding for the conduct of a feasibility study on the viability of having a national nuclear power program. The Department of Energy and the Department of Science and Technology issued in 2009 a Joint Department Order establishing the Nuclear Energy Core Group to study nuclear energy as a long term option. The Core Group has been working on legislative and regulatory framework, human resources development, public information and communication, siting, and BNPP-related issues. The DOST is working closely with the Department of Foreign Affairs and the Office of the President for the ratification of Convention on Nuclear Safety, and the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management.



Mr. Mario G. MONTEJO
Secretary (Minister)
Department of Sciernce and Technology

Thailand

Thailand has been closely cooperating with the FNCA. Through the FNCA projects, our country has progressed in building for our personnel and improving our technological expertise in various aspects. We have succeeded in learning and applying Safety Analysis Techniques which are COOLOD-N2 and EUREKA2/RR through FNCA Research Reactor Utilization project. The knowledge gained through this project has been transferred to the reactor operation staff and will be included in the reactor operation training and re-training courses. The successful of the biofertilizer project in Thailand leads to the new era of biofertilizer, and we stimulate the extension use of biofertilizers in the environmental-friendly agriculture in Asia. On Thailand's nuclear power development plan, Thailand has moved ahead towards implementing the National Power Development Plan (PDP 2010), which includes 5,000 mega watt of nuclear power, and the Nuclear Power Infrastructure Establishment Plan (NPIEP).

Mr.Gongsak YODMANI
Advisor to the Minister of Science and Technology
Ministry of Science and Technology (MOST)

Vietnam

The" Oriental Plan on Nuclear Power Development up to 2030" was approved by the Prime Minister, clearly defining the target to put into operation in 2020 the 1st NPP Unit with capacity 1000MW, 8000 MW by 2025; and 15-16000 MW by 2030.Regarding the applications of radiation, master plans for the applications of nuclear energy in healthcare, in industry, in national resources and environment managements are being under consideration for the approval by the Prime Minister by the end of this year. The government of Vietnam has paid special attention to the human resources development issue. On August 18, 2010, the "Human Resources Development Program" was approved by the Prime Minister with the targets to strengthen enrolment of 250 students per year by the year 2015 in order to meet the demand for manpower of NPP projects, of state management organizations and of R&D institutes by the year 2020.

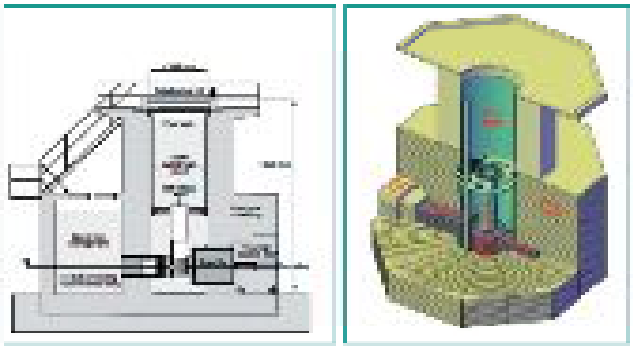
Dr. LE Dinh Tien
Deputy MinisterMinistry of Science and Technology of Vietnam

Introduction of 11 On-going FNCA Projects

Research Reactor Utilization

Research Reactor Technology Project

This project aims to improve safety analysis techniques in member countries by using common safety analysis code*1 developed in Japan as well as by having interactive discussion for the purpose of ensuring safe and stable operation of research reactors and promote their effective use.



Research reactor used for analysis (Vietnam)

Recent Project Achievement

Member countries performed safety analysis of steady-state fuel temperature, Reactivity-Initiated Accident (RIA) and Loss of Flow Accident (LOFA) in their research reactors by using two analysis codes "steady-state thermal hydraulic analysis code COOLOD" and "nuclear & thermal hydraulic coupling code for transient change EUREKA",

Results of the analysis, shared among member countries, and discussion helped to promote safe and stable operation of research reactors in member countries.

Workshop Outline

- Period: September 13-16, 2010
- Venue: Beijing, China
- Number of participants:14
  (Bangladesh, China, Indonesia, Japan, Korea, Malaysia, Thailand and Vietnam)

In the Research Reactor Technology (RRT) Project workshop, member countries reported and discussed the results of safety analysis, including Reactivity-Initiated Accident (RIA) and Loss of Flow Accident (LOFA), which were obtained from the application of EUREKA2/RR to their own research reactors. It was found that in most cases, the results correlated very well to other codes or experimental data. Since it is the last year of the current three-year project phase (2008-2010), member countries evaluated the project activities and discussed preparation of the final report, concluding that the level of safety analysis techniques among member countries has been promoted and that this project benefit in developing the infrastructure technology of research reactors.

Participants discussing the safety analysis result with "EUREKA" at the workshop

Neutron Activation Analysis Project

This project aims to broadly discuss benefits brought about by Activation Analysis*2, and to share with users such as researchers the results and accomplishments of the analysis test on three samples targeted in the current phase, geochemical, food, and environmental samples.

Geochemical Sampling(Bangladesh)

*1 safety analysis code : Computer codes in order to analyze power change and fuel temperature in research reactors which is very important to maintain nuclear reactors safety

*2 Activation Analysis : Methods of analysis using radioisotope

Tea sample (Malaysia)

Recent Project Achievement

The past eight years' analyses of the environmental samples taken throughout Asia using neutron activation analysis by the K -zero and comparison methods have promoted understanding of environmental contamination level and, consequently, made contribution to the environmental administration in member countries.

Core sampler (Japan)

Workshop Outline

- Period: September 13-16, 2010
- Venue: Beijing, China
- Number of participants: 18
  (Australia, Bangladesh, China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand and Vietnam)

In the Neutron Activation Analysis (NAA) Project workshop, participants presented their progress reports on NAA utilization for their respective research reactors, followed by a comprehensive discussion. Participants reviewed objectives, targets, methods of coordination and cooperation, and the road-mapping to be focused in this project, and exchanged their opinions on these subjects centering on the potential users.

Since it is the last year of the current three-year phase (2008-2010), each country explained the outline of the project phase evaluation report. Member countries obtained results in all three subprojects, targeting geochemical, food, and environmental samples, and the continuation of these three sub-projects for a further three years from 2011 to 2013 was suggested.

The RRT and NAA workshop participants visited the China Institute of Atomic Energy (CIAE) and observed facilities such as the China Advanced Research Reactor (CARR) and the China Experimental Fast Reactor (CEFR).

NAA Workshop

Visiting CEFR (China Experimental Fast Reactor)

Nuclear Safety Strengthening

Safety Management Systems for Nuclear Facilities Project

The Safety Management Systems for Nuclear Facilities (SMS) project was established in 2009, replacing the former Nuclear Safety Culture (NSC) project. The SMS project, under the leadership of Australia, aims to improve and promote safety management systems in nuclear facilities in the Asian region by conducting peer reviews.

Recent Project Achievement

This project developed Self-Assessment tool by reference to materials and manuals such as the "IAEA safefy standard", and use it for self-assessment and peer review.

Presentation on RSG-GAS by the director of the reactor

Workshop Outline

- Period: October 11-15, 2010
- Venue: Serpong, Indonesia
- Number of participants: 15
  (Australia, Bangladesh, China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand, and Vietnam)

In the workshop, the context of nuclear activities in Indonesia was explained, and a representative from the Asian Nuclear Safety Network (ANSN) introduced ANSN activities. Participants from FNCA member countries thereafter presented country reports on the current status of safety management systems in the nuclear facility as well as the results of Self-Assessment for their research reactors. They also discussed strenghthening of the Self-Assessment tool and agreed to prepare a guidance that explains complicated terms and questions.

The peer review for the G. A. Siwabessy Multi-Purpose Reactor (RSG-GAS) was conducted. RSG-GAS, 30MWt, is mainly used for neutron radiography*1, neutron activation analysis*2, radioisotope production*3 and material irradiation test*4. Following a report on the self-assessment results by the director of the research reactor, the participants reviewed the reactor, main control room, hot cell facility and waste storage facility. As a summary of the peer review, the participants identified 35 "Good practices", 11 "Comments" and 8 "Areas for Improvement".

The "Areas for Improvement" will be continuously followed up in Indonesia and be reported in future workshop, and this effort will contribute to enhancement of safety management system in RSG-GAS.

RSG-GAS
Left: Building / Right: Reactor core

Radiation Safety and Radiaoctive Waste Management Project

This project targets the safety improvement of radiation and radioactive waste management in the Asian region by sharing and exchanging information on radiation safety and radioactive waste management as well as knowledge

**1 neutron radiography : Technique for obtaining image by using radiation*
**2 neutron activation analysis : Technique analyzing element by neutron irradiation*
**3 radioisotope production : Atoms that have the same number of protons but a different number of neutrons in the nucleus*
**4 material irradiation : A test to analyze the behavior and characteristic by irradiating materials such as the fuel and iron*

gained through experience in member countries.

Recent Project Achievement

A report consolidating the status of radioactive waste management in member countries was published in 2001, followed by a revision issued in 2007. In addition, a consolidated report on radiation safety was compiled and released on the FNCA website in March 2011.

These series will be updated periodically in order to reflect the latest information on radiation safety and radioactive waste management in member countries.

Consolidated Reports on RS/RWM

These reports are available on the FNCA website↓
[URL]:http://www.fnca.mext.go.jp/english/e_project.html

Workshop Outline

- Period: May 21-25, 2010
- Venue: Tokyo, Japan
- Number of participants: 25
  (Australia, Bangladesh, China, Indonesia, Japan, Malaysia, The Philippines, Thailand, and Vietnam)

On the first day of the workhop, participants promoted their understanding by giving and receiving their country reports on the legislative framework of, updates on, and plans for radiation safety in their countries.

On the second day, participants delivered presentations and had discussions on various issues including calibration and training/education programs in member countries on the theme of further improvement of dosimetry. During the session titled experiences on design and siting for Low level waste facilities, participants from Thailand, Vietnam, and Indonesia each gave presentations on experiences of radiological accidents, management of radioactive sources, and predisposal management of radioactive waste. At the session on future plans, six subjects were selected as major issues to be further discussed; (1) Radioactive Waste Management and Decommissioning, (2) NORM (Naturally Occurring Radioactive Material)/ TENORM (Technologically Enhanced Naturally Occurring Radioactive Materials), (3) Clearance, (4) Safety and Security, (5) Emergency, and (6) Nuclear Power Plant program.

The joint session with AOCRP-3 (Third Asian and Oceanic Congress on Radiation Protection)*1 , which was held during around the same time as the workshop, was set on May 24th to extend the information exchange in the area of radiation safety.

During this joint session, a panel discussion on several topics, including NORM/TENORM and Clearance, was held, chaired by Prof. Toshiso Kosako, Project Leader of Japan/ the University of Tokyo. On the subject of Clearance, Mr. Lubi Dimitrovski, Manager of Waste Operations, Australian Nuclear Science & Technology Organisation (ANSTO) introduced the waste clearance system in Australia.

Joint Session with AOCRP-3

Dr. Takatoshi Hattori, Senior Research Scientist, Radiation Safety Research Center, the Central Research Institute of Electric Power Industry, explained the Clearance Automatic Laser Inspection System using 3-D measurement, which led to active questions and answers among participants.

At the session titled "Introduction of Japan's Experience" on the final day, some documentaries such as the Kashiwazaki-Kariwa earthquake were broadcast.

**1 Asian and Oceanic Congress for Radiation Protection 3 (AOCRP-3) :*
An international congress under Asian and Oceanic Association for Radiation Protection (AOARP) associated with International Radiation Protection(IRPA), held in Tokyo from 24th -28th, May, 2010. This Congress is held every four years.

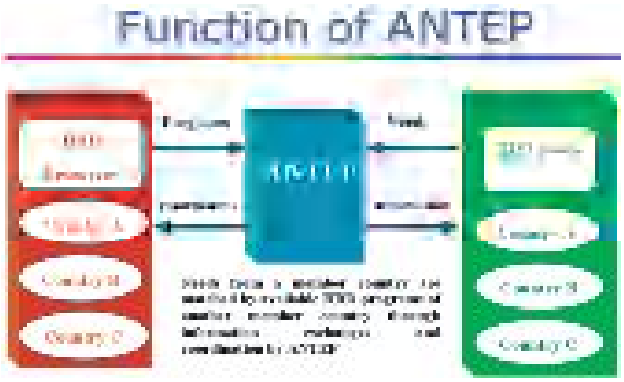
Nuclear Infrastructure Strengthening

Human Resources Development Project

This project aims to improve mutual cooperation and strengthen the nuclear technology infrastructure in terms of human resources development by identifying needs, exchanging information, and defining the effective mechanism of cooperation.

Recent Project Achievement

By using the Asian Nuclear Training and Education Program (ANTEP), which is a system to network the needs of each country with the available programs offered by member countries, the matching rate between needs and program is increasing lately and eighteen needs were matched with the subjects offered in the MEXT program for inviting nuclear researchers of Asian countries to Japan in 2010.



Workshop Outline

- Period: June 30-July 2, 2010
- Venue: Seoul, Korea
- Number of Participants: 37
  (Australia, Bangladesh, China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand, and Vietnam)

On the first day, thirty seven participants, consisting of FNCA Coordinators and experts in nuclear power plants, who participated in the "FNCA 2nd Study Panel on the Approaches toward Infrastructure Development for Nuclear Power" (1-2 July), in addition to the Project Leaders (PL) of Human Resources Development (HRD), attended the workshop.

WS on the first day

After the country reports by participants from each country, the round table discussion on HRD Strategy and Regional Cooperation was held. The meeting agreed that HRDs for nuclear security and safeguards are also necessary for the introduction and expansion of nuclear power. Participants expressed their hope that the Japan Nuclear Human Resource Development Network, which is a government-industry-academia collaboration framework for nuclear HRD implemented by Japan, would facilitate nuclear HRD in member countries.

On the second day, the participants had a discussion focused on ANTEP. The PLs of each country showed their countries' needs and programs that they could provide to member countries. Japan reported that the research subjects for the MEXT program for inviting nuclear researchers of Asian countries to Japan in JFY2011 would be set taking the needs found in ANTEP survey carried out in 2010. In addition, participants showed their expectations of the synergetic effect between this project and other international initiatives such as the Asian Nuclear Safety Network (ANSN), and a shared awareness of benefits in mutual links among all respective databases.

On the final day, the participants conducted technical visit to the Korea Atomic Energy Research Institute (KAERI) and KEPCO Nuclear Fuel Company (KNF).

WS paticipants

Public Information Project

In response to the trend of disseminating radiation applications and momentum toward the introduction of nuclear power, member countries conducted activities including information exchange on the status of public information activities and new challenges, as well as finding responses to common challenges of member countries with the aim of improving the quality of public information activities and establishing public information method for obtaining better understanding of the public. This project was completed in 2010 with recent satisfactory outcomes.

Recent Project Achievement

In the framework of the Regional Speakers' Bureau (RSB), which is the system to dispatch experts on nuclear science and technology as lectures to nuclear related seminars, lecture meetings and symposiums organized in FNCA member countries, some experts were dispatched to Indonesia, Japan, Malaysia, the Philippines, and Thailand. The RSB helped public information officers in these countries to share experiences and knowledge on such topics as means for delivering information to people living near nuclear power plants.

Joint Cross-National Questionnaire Surveys on the Literacy in Science and Technology and Use of Radiation Among High School Students in 7 FNCA Countries were conducted, and the high school students' knowledge, recognition and image of radiation were analyzed and discussed.

In cooperation with International Atomic Energy Agency (IAEA), simulation training of press conference and interviews targeted for nuclear communicatiors have been carried out since 2006. This training helped the communicators improve their public information skills.

Outline of Project Leaders' Meeting

■ Period: February 21-25, 2011
■ Venue: Hanoi, Vietnam
■ Number of Participants: 16
(China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand and Vietnam)

The Project Leaders' Meeting on Nuclear Energy (PLM) of public information project was initiated with country reports covering the plans for nuclear power generation, current status of radiation applications, progress of nuclear public information activities, its challenges and its future plans. Some member countries reported that they had their opinion leaders participate in on-site tours to nuclear power plants provided in foreign countries.

The results of the "Public Opinion Survery on Nuclear Energy", conducted in 2010, were presented by each country. All the responses from 2,335 high school students and 2,500 university students were counted. Analysis of the results indicates that the young generations of each country were commonly concerned about global warming and obtained information on nuclear energy from TV and the Internet. Public awareness and recognition of radiation safety and nuclear power were identified and the result of the survery will be used for their national strategies to improve public acceptance.

An open seminar was held in a meeting hall of the Vietnam Atomic Energy Institute (VAEI), attended by an audience of 100. Lectures on several topics such as global trends of nuclear power generation, and plans for nuclear power generation in Vietnam were delivered.

The seminar was broadcast by Viernamese TV companies, VTV1 and VOV (Voice of Vietnam) and also appeared in a local newspaper.

Open Seminar

Participants visited Central Milinitary Hospital and Institute for Nuclear Science and Technology of VAEI.

Radiation Utilization Development
Healthcare Utilization

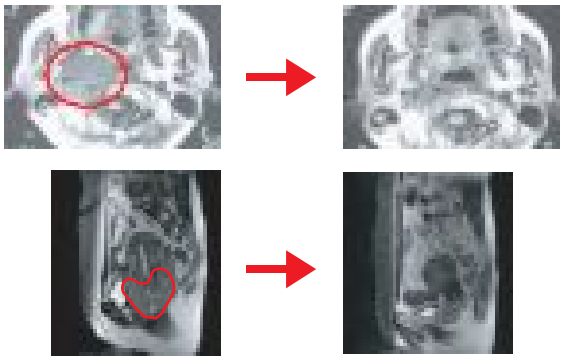
Radiation Oncology Project

The aim of this project is to improve radiotherapy as well as to disseminate radiotherapy in the Asian region by establishing radiation therapy protocols based on the joint clinical trials for predominant cancers in Asia, including cervical and nasopharyngeal cancers.

Recent Project Achievement

The project has conducted protocol studies by international joint clinical trials for cervical and nasopharyngeal cancers on an unprecedented scale in the Asian region. These clinical trials have contributed to the establishment of safe and effective treatment methods. The treatment results achieved to date were similar or superior to those of other international clinical trials but at lower cost. Consequently, the treatment protocols developed by the project have been widely disseminated among Asian countries.

This project confirmed that the "Cervix-III", which is the chemoradiation treatment protocol, was effective for Asian people. It is used as a standard treatment, not only in Japan but also in many other member countries.



Disappearance of diseased area through chemoradiotherapy
Top: Nasopharyngeal Cancer
Bottom: Cervical Cancer

Workshop Outline

■ Period: November 24-27, 2010
■ Venue: Chiba and Tokyo (Japan)
■ Number of participants: 38
(Bangladesh, China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand, Vietnam, India, Pakistan, Sri Lanka and IAEA)

In addition to 9 FNCA member countries, 3 member states of Regional Co-operative Agreement (IAEA/RCA), India, Pakistan and Sri Lanka as well as the Head of the Programme of Action for Cancer Therapy (PACT) from the International Atomic Energy Agency (IAEA) participated in the workshop.

Participants reported data on clinical trials of locally advanced cervical and nasopharyngeal cancers, and quality assurance and quality control (QA/QC) of external beam radiotherapy, followed by a discussion. During the session on chemoradiotherapy for locally advanced cervical cancer, the latest clinical data were presented from each country, and it was shown that the FNCA chemoradiotherapy protocol, CERVIX-III, was safe and effective for advanced cervical cancer patients in the Asian region(five-year overall survival and local control rates were 55.4 % and 76.8 %, respectively).

Open Seminar

An open seminar was held on the last day of the workshop, November 27th, at Miyakezaka Hall (Tokyo), attended by around 320 participants including the general public, public officers, medical experts / staff, and media. Mr. Hayashi Towatari, Deputy Director-General, Research Promotion Bureau, Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) and Dr. Yoshiharu Yonekura, President of the National Institute of Radiological Sciences (NIRS) made the opening remarks, followed by a presentation on FNCA activities given

by Dr. Sueo Machi, FNCA Coordinator of Japan. Dr. Shogo Yamada, Tohoku University Hospital, Dr. Kazuo Hatano, Chiba Cancer Center, and Dr. Tadashi Kamada, National Institute of Radiological Sciences (NIRS) respectively gave a presentation on "Current Status of Radiotherapy in Japan", "Intensity Modulated Radiation Therapy" and "Carbon Ion Radiotherapy, What are the Differences?".

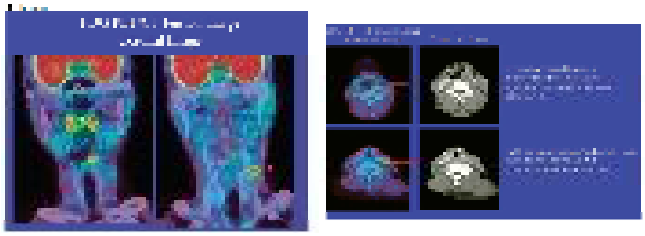
Dr. Hirohiko Tsujii, the FNCA Radiation Oncology Project Leader of Japan, Executive Director, National Institute of Radiological Sciences (NIRS), and participants from Malaysia, the Philippines, and Thailand delivered presentations on the FNCA radiation oncology project in Asia. Dr. Massoud Samiei, the Head of PACT, IAEA, also gave a talk on Building Self-Sustaining Cancer Control Capacity and Infrastructure in the Asia & Pacific Region Using Radiation Medicine as the Anchor.

Cyclotron and PET in Medicine Project

This project targets the improvement and dissemination of nuclear medicine diagnostic technologies for people in Asia, which can contribute to the earlier detection and treatment of diseases. The project has been focusing on PET imaging technologies for diagnosis and radiation safety of PET*1 and Cyclotron*2 under the leadership of Malaysia for five years, and was completed in FY 2010.

Recent Project Achievement

Two guidelines on "Radiation protection and performance evaluation of PET-CT imaging equipment" and "FDG quality assurance & quality control" were prepared for PET examination that was gradually prevailing in Asian countries. This project has also compiled a Clinical Diagnostic Atlas (glossary of clinical cases) which doctors can refer for correct diagnosis by PET scan images.



Clinical Case of PET scan image

Workshop Outline

- Period: March 4-5, 2011
- Venue: Bangi, Malaysia
- Number of participants: 30
  (Bangladesh, China, Indonesia, Japan, Malaysia, The Philippines, Thailand, and Vietnam)

In the final workshop of the project, the participants reported the updated number of PET and Cyclotron facilities in each country, current status of PET and Cyclotron application. It was indicated that PET diagnosis was stably expanding in Asia.

For radiation safety, the results of surveillance on personal dose implemented in Malaysia in June 2010 were reported.

The final review of two guidelines was conducted on "Radiation protection and performance evaluation of PET-CT imaging equipment" and "FDG quality assurance & quality control". These guidelines will be released on the websites of FNCA and Malaysian Nuclear Agency as the outcomes of this project. It was announced that the number of cases of the Clinical Diagnostic Atlas collected from member countries had reached 170. After being edited by the Ministry of Science, Technology and Innovation, Malaysia, the Clinical Diagnostic Atlas will be published and widely distributed not only to the people involved but also to hospitals and medical schools for effective utilization.

Workshop

**1 PET : Abbreviation for Positron Emission Tomography. Utilizing the fact that special radiopharmaceuticals are collected at the loci of illnesses in the human body, PET can be used for cancer diagnosis and so on.*

**2 Cyclotron : One of accelerators. In nuclear medicine, it stands for the instrument to refine radiopharmaceuticals used by for PET examination etc.*

Radiation Utilization Development
Industrial/Environmental Utilization

Mutation Breeding Project

This Project is intended to help boost food production and improve food quality in Asia, by developing new varieties with disease resistance, insect resistance and drought tolerance of important crops in Asia such as rice, bananas, orchids, sorghum, and soybeans, using radiation-induced mutation breeding technology with gamma rays and ion beams.

Recent Project Achievement

To date, the mutant varieties developed in member countries have been registered and released as new varieties, and also used as parent materials for the breeding development. In the field of research on breeding for disease and insect resistance, techniques for plant tissue culture were developed and the technology transfer for commercialization is underway.

The Mutation Breeding Manual (MBM), which was published in 2004, covers various topics from basic information to applied techniques for mutation breeding. It has been used in many Asian countries and globally.

Mutation Breeding Manual

Biofertilizer Project

This project is intended to help to promote environmentally-friendly and sustainable agriculture in Asia, by developing biofertilizers that combine carriers (material to store live and propagate microorganisms) sterilized by radiation with several soil microorganisms such as rhizobium and mycorriza, which are beneficial in plant growth by improving nitrogen fixation and phosphorus uptake. The use of biofertilizer is able to reduce the environmental load exerted by the excessive use of chemical fertilizer and to increase crop yield.

Project Accomplishments To-Date

One of the major challenges in the radiation sterilization of carriers is collaboration between nuclear research institutes equipped with irradiation facilities and agricultural research institutes engaged in studies on application of biofertilizers. In member countries, however, this collaboration has been strengthened by the efforts of project leaders and other researchers. The introduction of radiation sterilization technology and technology transfer to the private sector are being promoted. Biofertilizers using radiation sterilization are already marketed widely in Indonesia and Malaysia.

Biofertilizer Production in Malaysia Using Radiation Sterilization

Workshop Outline

- Period: November 8-11, 2010
- Venue: Manila, The Philippines
- Number of Participants: 32
  (Bangladesh, China, Indonesia, Japan, Malaysia, The Philippines, Thailand, Vietnam, and IAEA/RCA)

The workshops on Mutation Breeding project and Biofertilizer project were held in parallel.

At the Mutation Breeding Project workshop, reports about three research topics; insect resistance of orchids, disease resistance of bananas, and modification of the composition contents of rice, were presented,

followed by a discussion concerning future plans. The participating countries then compiled a final report and evaluation on the subject of disease resistance in bananas, which have been studied for seven years. They have successfully obtained various promising mutant lines that were resistant to Fusarium wilt disease and Banana bunchy top virus (BBTV) disease. The research activity on this subject was successfully completed.

The application of mutation breeding for sustainable agriculture in Asia as well as possible cooperation between FNCA and IAEA/RCA were discussed. Suggestions here included research and application of resistance to various environmental stresses, adaptability to organic farming, and mutagenic effects of ion beams and other kinds of radiation. With regards to cooperation between FNCA and IAEA/RCA, a parallel workshop was proposed to share experiences and information for their effective cooperation.

Participants in the the Biofertilizer project workshop gave presentations on five topics; (i) the application of radiation sterilization of carriers, (ii) the development of the FNCA Biofertilizer Quality Standard Manual, (iii) the development of multi-functional biofertilizer, (iv) the commercial application of biofertilizer, and (v) the application and challenges of biofertilizer with the plant growth promoter of oligo-chitosan, followed by discussions. Member countries subsequently discussed the plans for JFY 2011, which is the final year of the ongoing phase, including the editing of the FNCA Biofertilizer Quality Standard Manual based on the Biofertilizer Quality Standard Manual of Thailand.

Scene of the Biofertilizer Project Workshop

Scene of the Mutation Breeding Project Workshop

On the 2nd day, participants visited several venues such as the National Institute of Molecular Biology and Biotechnology (BIOTECH) of University of the Philippines Los Banos (UPLB) and observed the Bio-N laboratory.

Carrier Production of Bio-N, Biofertilizer in the Philippines

On 12th November, the FNCA 2010 Meeting on Technology Transfer from Research to Commercial Application was held. A brief summary is shown on page 18.

Radiation Utilization Development
Industrial/Environmental Utilization

Electron Accelerator Application Project

This project aims to pr omote electron and gamma beams application in industry .

Information and experimental results of this project have been shared not only in FNCA member countries but also with IAEA/RCA.

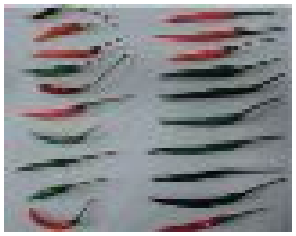
Electron Accelerator : An equipment to accelerate the electrons in high electric field for radiation processing.

Recent Project Achievement

Field tests conducted in member countries showed that radiation irradiated oligo-chitosan has a significant effect to prevent plant diseases caused by fungus, and, as a result, boosted the productivity of vegetables, rice, and fruits.

The "FNCA Guideline on the development of hydrogel and oligosaccharides by radiation processing"*, published in October 2009, is commonly used for research and development in member countries. This guideline has contributed to production of high-quality materials and products, such as super water absorbent (SWA) from carrageenan and starch. This guideline is regularly updated based on new R/D results.

* This guideline is available on the FNCA Website [http://www.fnca.mext.go.jp/english/e_project.html]



Left: Control Right: Chili with PGP

PGP Application in a cabbage garden

PGP increases the yield by 30%

Workshop Outline

- Period: February 14-18, 2011
- Venue: Bangkok, Thailand
- Number of Participants: 18
  (Bangladesh, China, Indonesia, Japan, Malaysia, The Philippines, Thailand, and Vietnam)

An open seminar on the radiation processing of natural polymers was held on the first day, attended by about 60 participants from research institutes, universities, and Department of Agriculture, Ministry of Agriculture and Cooperatives. The recent outcomes of Japan's radiation processing technologies as well as Thailand's policies of agriculture and applications of natural polymers were presented.

[Plant Growth Promoter (PGP)]

Open Seminar

Field tests to verify the effect of PGP produced by radiation degradation of natural polymers such as chitosan are underway. It was found that PGP increased the productivities of crops such as maize, soybeans, rice, and papaya. It was reported that chitosan-based PGP was commercialized in Japan and Vietnam. The data of the field tests achieved to date will be reported in a common format to promote the research more effectively and efficiently.

[Super Water Absorbent (SWA)]

Each member country has been carrying out research on SWA development by radiation processing using their local and low-cost natural polymers such as cassava starch, carrageenan, and cellulose. It was recognized that biodegradable SWA can retain rain water and is effective in improving agriculture in drought and semi-drought areas. Member countries, in collaboration with agriculture-related authorities, agreed to test the germination rate of seeds by conducting small scale field experiment of SWA and thereafter, to promote strategies for the commercialization.

The 2nd Panel Meeting of " Study Panel on the Approaches toward Infrastructure Development for Nuclear Power"

July 1st -2nd, 2010 Seoul, Korea

The 2nd Panel Meeting of the "Study Panel on the Approaches toward Infrastructure Development for Nuclear Power" was held on July 1st and 2nd, 2010 in Seoul, Republic of Korea, co-hosted by the Cabinet Office of Japan (CAO), the Japan Atomic Energy Commission (JAEC), and the Ministry of Education, Science and Technology of Korea (MEST).

The meeting was co-chaired by Dr. Akira OMOTO, Commissioner of JAEC and Mr. SHIN Jae Shik, Director of the Atomic Energy Cooperation Division of MEST. Nine of the ten FNCA member countries, namely Bangladesh, China, Indonesia, Japan, Korea, Malaysia, the Philippines, Thailand, and Vietnam, as well as the International Atomic Energy Agency (IAEA) participated in the meeting.

(1) Opening Session of Human Resources Development Project workshop / Session of Human Resources Development for Nuclear Power Generation

Member countries introduced their plans for human resource development toward the introduction of nuclear power generation.

Japan provided information about HRD cooperation programs for Asia including a program to invite nuclear researchers of Asian countries, offered by Ministry of Education, Culture, Sports, Science and Technology (MEXT) since 1985, as well as the Global Nuclear-HRD (GN-HRD) initiative, currently in planning. In addition, after an overview of international support programs for human resource development in the area of safeguards and nuclear security following the agreement of the International Nuclear Security Summit, the following was recognized through comprehensive discussions:

○ Importance of HRD for infrastructure development towards the introduction of nuclear power

○ Further cooperation in HRD of the countries using nuclear power with developing countries, such as GN-HRD initiative.

○ Importance of national coordination amongst government, industries and educational institutions in each member country. The following was pointed out as major challenges:

○ Loss of human resources due to governments taking time on the decision for the introduction of nuclear power plants (NPP)

○ Enhancement of synergies and prevention of overlapping with a variety of international, regional or bilateral initiatives (e.g. ANENT, KAIST-KINS, EC, FNCA, MEXT).

(2) Session of the 2nd Panel Meeting of the "Study Panel on the Approaches toward Infrastructure Development for Nuclear Power"

① Regarding project management and national industry development, Japan, China, and Korea shared their experiences and lessons learned with other member countries, followed by a Q&A session on possible strategies for successful promotion of NPP introduction in countries planning NPP introduction by making full use of the above mentioned experiences and lessons learned;

② IAEA made a lead speech on the preparation of fuel cycles and radioactive waste disposal. It was stressed that the preparation should be considered prior to planning nuclear power generation;

③ A roundtable discussion on the role of nuclear research institutes for first NPP introduction was conducted. Member countries shared common understanding on the significance of nuclear research institutes in various areas including technology development, human resource development, and support for institutes which will implement nuclear power projects;

④ When presenting status updates about the activities of member countries planning NPP introduction, it was learned that six countries (Bangladesh, Indonesia, Malaysia, The Philippines, Thailand and Vietnam) are considering the start of operation of the first nuclear power plant within the 2015-25 time frame;

⑤ The candidate topics for the 3rd study panel were discussed and the following topics were raised: (i) licensing, (ii) stakeholder involvement, and (iii)potential unique added value by FNCA to support establishment of sound infrastructure.

(3) Clean Development Mechanism(CDM)

A follow-up survey of a CDM case study was carried out. Reinforcements of ongoing activities including the activities mentioned in the joint communique, adopted at the Ministerial Level Meeting in 2008, were pointed out. Member countries discussed CDM with regards to CO_2 emission reduction and its economic analysis. This meeting noted needs for the renewal of data and for encouraging government representatives to take action for COP-16 and other preparatory meetings (AWG-KP13, 14).

(4) Others

Member countries agreed to hold the Forum for Enhancing Commercialization of Nuclear Technologies proposed by The Philippines during the FNCA Mutation Breeding Workshop to be held in November, 2010.

Message from Dr. Sueo Machi FNCA Coordinator of Japan

First of all I would like to sincerely appreciate your sympathy and condolence for disaster of earth quake and tsunami in north-east of Japan on 11th March, 2011. The disaster seriously damaged Fukushima-I nuclear power station. Learning lessons from the experience, nuclear power continues to be important part of power generation for sustainable development of mankind.

The Ministerial Meeting was held in Beijing, China on 18th November, 2010 hosted by China Atomic Energy Authority and Atomic Energy Commission of Japan. Governments of Kazakhstan and Mongolia officially participated in the meeting for the first time and warmly welcomed by Member Countries.

FNCA is implementing three major strategic programs; (1) strengthening infrastructure and capacity building of member countries in nuclear science and technology, (2) applications of nuclear technology for agriculture, human health and industry, and (3) infrastructure building for introduction of nuclear power.

In order to support Bangladesh, Indonesia, Malaysia, Thailand and Vietnam to introduce the first nuclear power plant in 10 to 15 years, the FNCA has Study Panels on Nuclear Power to share experience and knowledge.

The 11th Ministerial Meeting approved two new important projects starting 2011. One is "Nuclear security and safeguard" to share experience and information, which are essential for the introduction of nuclear power. The other is "Nuclear research reactor network" for efficient utilization of research reactors in production of isotopes and other applications. I would trust these new projects would highly benefit member countries.

Finally, I would like to stress that efficient transfer of R/D results to end-users is still remaining challenge of the FNCA. Strengthening linkage further with end-users is essential to achieve tangible benefits of nuclear technology.

FNCA Welcomes New Member Countries, Kazakhstan and Mongolia

Other FNCA Meetings in JFY2010

Meeting on the Development of a Regional Network for Research Reactor Utilization and Production/Supply of Isotopes

September 17th, 2010 in Beijing, China

On September 17th, 2010, the meeting on the development of a regional network for research reactor utilization and the production/supply of isotopes was held in Beijing, China. Experts in research reactor utilization and isotope production including participants in FNCA Research Reactor / Neutron Activation Analysis Project workshops were in attendance and had discussions.

Participants reported the policies and plans of RI production and supply in their countries as well as the renovation progress of the Japan Materials Testing Reactor (JMTR), plans for the construction of new research reactors and the status of the research reactor application. They also discussed advanced technology for isotope production. It was recognized that research reactors play an important role in research, isotope production, the neutron doping of silicon and training of nuclear engineers. Stable supply of widely-used medical isotopes such as Mo-99 is the common interest of member countries. The importance of establishing a mechanism for coordination and cooperation among member countries was emphasized in order to ensure the Mo-99 supply.

The importance of sharing information on advanced production techniques of Mo-99 and Tc-99 amongst member countries was also emphasized.

Meeting on Technology Transfer from Research to Commercial Applications

November 12th, 2010 in Manila, The Philippines

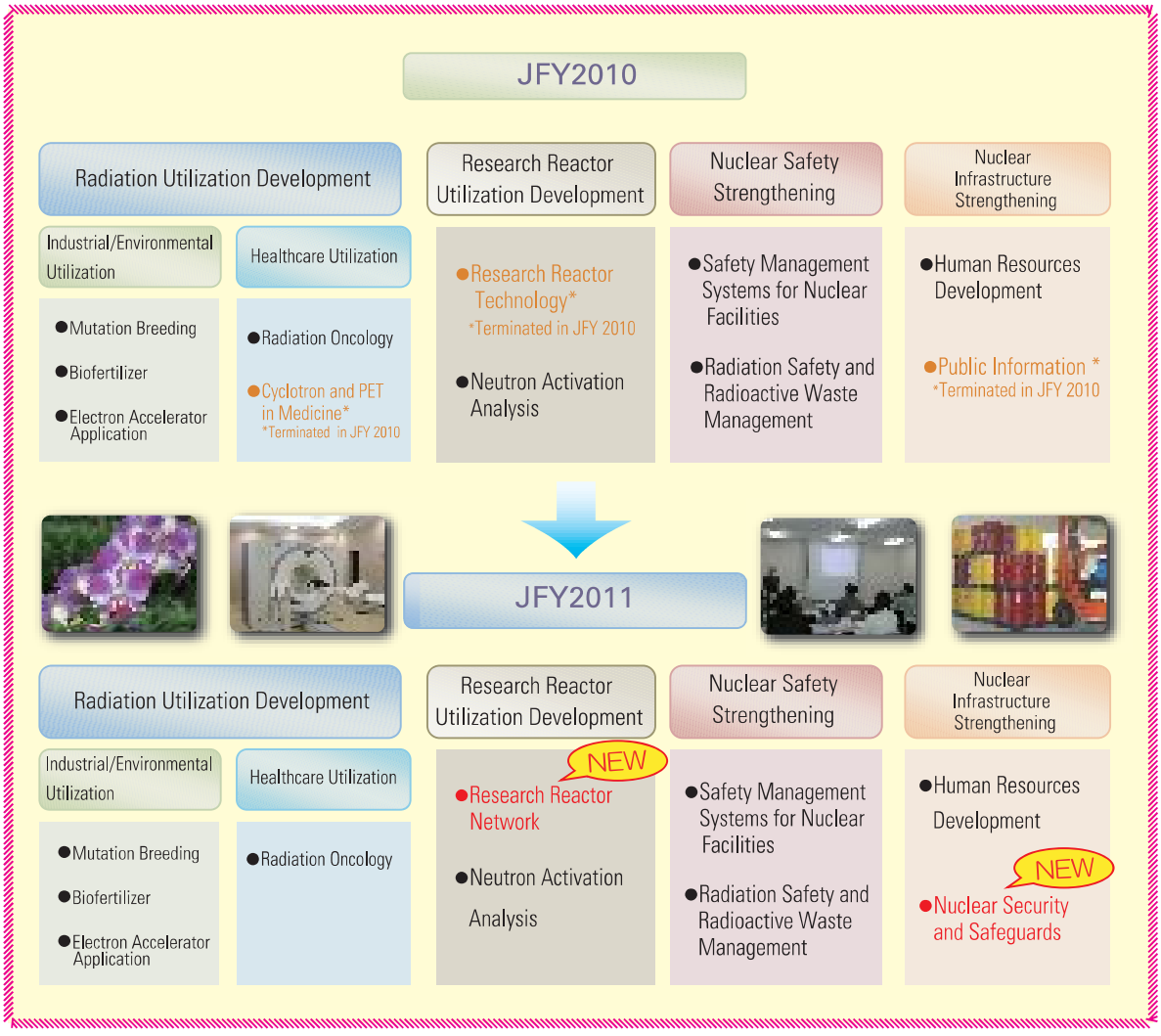
The meeting on Technology Transfer from Research to Commercial Applications was held on November 12th in Manila. Forty five experts from related organizations and industries attended this meeting, in addition to the participants in the FNCA workshops on Mutation Breeding and the Biofertilizer Project held prior to the meeting.

Member countries reported their support systems and policies to enhance technology transfer as well as success stories of transferring technologies developed in member countries. In addition, the current status and challenges faced by nuclear research institutes in transferring technology to the end-users were discussed.

It was noted during the discussion session that research institutes should carry out research projects based on industry needs. Participants also stressed that potential end-users should be involved at the project formulation stage and do joint research with them. The needs and prices of products in the market were mentioned as points to be considered for the commercialization. They also emphasized the importance of offering affordable products with advantage of nuclear technologies. Participants also stressed the fact that technology transfer toward the commercialization of research outcomes should be enhanced to contribute to regional economic development by maximizing and properly using research resources.

Framework of FNCA Projects in JFY2011

It was proposed and agreed at the 11th FNCA Ministerial level Meeting in November in Beijing, China to terminate three projects, ① Cyclotron and PET in Medicine, ② Research Reactor Technology, and ③ Public Information, in JFY2010 and establish two projects, ① Research Reactor Network and ② Nuclear Security and Safeguards in JFY2011.



Research Reactor Network Project

Research reactors have been operated properly in many Asian countries. Some Asian countries have the plan for construction of new research reactors or even started operating large scale research reactors. Research reactors are used in a variety of applications. This project aims to improve the technology infrastructure and to promote mutual utilization of research reactor, through establishment of a network among FNCA countries to share information about features and utilization of research reactor, and isotope production.

Nuclear Security and Safeguards Project

At present, many Asian countries have been planning the introduction of nuclear power following the trend of a "Nuclear Renaissance". For this reason, dramatic increase of nuclear material is foreseen, and nuclear security and nuclear safeguards will become more important in order to promote peaceful use of nuclear power. This project aims to cooperate with FNCA countries in order to strengthen infrastructure for nuclear security and nuclear safeguards through information exchange and discussion on policy, technology and approaches by FNCA countries.

What is the Forum for Nuclear Cooperation in Asia (FNCA)?

Name

FNCA : Forum for Nuclear Cooperation in Asia

Participating Nations

Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Korea, Malaysia, Mongolia, The Philippines, Thailand and Vietnam, IAEA (Observer)

Ministerial-Level Meeting

The ministerial-level representatives of each country holding jurisdiction over nuclear activities discuss cooperation measures and nuclear related policies. On the day before the ministerial-level meeting, the senior administrative officials meeting is to be held.

Coordinators Meeting

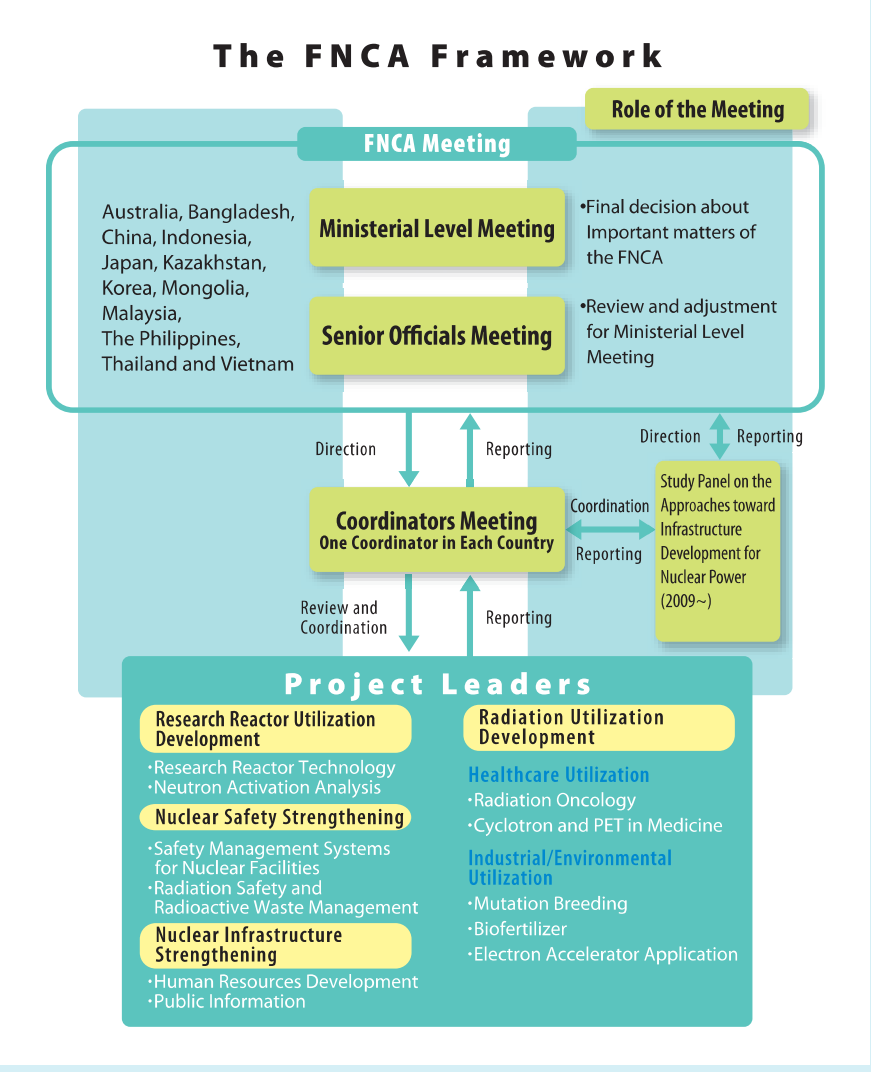
The Coordinators who are selected as a representative by each nation discuss several issues including introduction revision & abolishment, coordination and evaluation of cooperative projects.

Panel Meeting

To examine & evaluate the role of nuclear energy, and also study problems related to the introduction of nuclear power generation. A new study panel on the Approaches toward Infrastructure Development for Nuclear Power started in 2009.

Project

Each FNCA participating nation holds workshops through post rotation to discuss activity programs. And in addition to workshops, appropriate expert's meeting are held for each project.



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