

Summary Report of 14th FNCA Coordinators Meeting

March 11 - 12, 2013

Mita Conference Hall, Tokyo Japan

The 14th FNCA Coordinators Meeting was held on March 11-12, 2013, in Tokyo, Japan, hosted by the Cabinet Office of Japan (CAO) and the Japan Atomic Energy Commission (JAEC), and co-hosted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan. Chairperson of the Meeting was Dr. Sueo MACHI, FNCA Coordinator of Japan.

The Meeting was attended by delegates from 12 member countries: Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Korea, Malaysia, Mongolia, the Philippines, Thailand, Viet Nam, and the RCA Regional Office. Delegates comprised FNCA Coordinators, Project Leaders, Acting Director of RCA Regional Office and Senior Officials.

The summary of the ten sessions is given below:

Session 1: Opening Session

Dr. Shunsuke KONDO, Chairman of the Japan Atomic Energy Commission (JAEC) made the opening remarks. He expressed a warm welcome to all participants and his appreciation for the support by member countries after the Fukushima accident. He also explained the actions taken after the Fukushima accident by the Japanese government, including deliberations on nuclear energy policy and the Nuclear Regulation Authority's new safety rules. He concluded his talk anticipating that the FNCA Coordinators' Meeting will deliberate on the resolutions of the last Ministerial Level Meeting in Jakarta.

After the self-introduction by each participant, the Meeting agenda was adopted without amendment.

Session 2: Summary Report of the 13th Ministerial Level Meeting

Dr. MACHI reported on the summary and resolutions of the 13th Ministerial Level Meeting that was held on November 24, 2012, in Jakarta, Indonesia. In his report, resolutions and its major issues to be followed by the 14th Coordinators' Meeting were highlighted.

Session 3: Research Reactor Utilization Development

1. Project Review

(1) Neutron Activation Analysis (NAA)

Dr. Mitsuru EBIHARA, Japan, reported on the outcomes of the three sub-projects, namely, geochemical mapping and mineral exploration, monitoring of food contamination, and monitoring of pollutants in marine sediments. Suggestions were made to make more progress to set up a network with end-users of NAA measurements, and to publish the best success stories of NAA applications in the fields of mineral exploration and environmental protection.

(2) Research Reactor Network (RRN)

Dr. Hiroshi KAWAMURA, Japan, introduced the results of the last workshop. Some member countries have established a national committee/group for national and international coordination of medical RI production and supply.

It was proposed that the chairman of each of the above-mentioned national group within the participating member countries are invited to participate in the next workshop to define the specific scheme of coordination of RI production for stable supply.

2. Discussion on Future Project Activities

It was pointed out that the NAA Project should make every effort to have linkage with users of NAA results in the 3 areas of application - marine sediment contamination, mineral exploration, and food contamination. The NAA method could be utilized complementarily with other methods such as ICP-MS (Inductively Coupled Plasma Mass Spectrometry) and XRF (X-ray Fluorescence Spectrometry).

It was confirmed that RRN activity on RI production includes Co-60 and Ir-192 in addition to Mo-99.

Session 4: Strengthening Nuclear Safety and Nuclear Infrastructure

1. Project Review

(1) Safety Management Systems for Nuclear Facilities (SMS)

Mr. Peter McGLINN, Australia reported on the results of the workshops and peer reviews that were held in Korea in 2012. He outlined two proposals designed to make the SMS project learning more readily available;

- i) To make self-assessment tool available on the FNCA website
- ii) To compile good practices found from the peer reviews and include on the FNCA website.

Dr. Sigit SANTOSO, Indonesia, reported on the progress on follow-up actions from the peer review at the G. A. Siwabessy multi-purpose research reactor (RSG-GAS) in October, 2010.

The measures adopted included;

- Reports on incidents and near misses is promoted at the daily meeting
- Providing signs of warning and basic rules at the entrance of the reactor pool and surrounding area, and additional exit route
- A visitor receives sufficient explanation before entering reactor facilities. Safety policy of RSG-GAS is also explained at the exhibition hall etc.

Member countries appreciated SMS project activities, especially the peer review process. Australia mentioned that the future of SMS after 2013 should be discussed at the next workshop and findings proposed at the 15th Coordinators Meeting. Vietnam stated its willingness to host a peer review in 2014, subject to agreement that the project should be continued.

(2) Radiation Safety and Radioactive Waste Management (RS & RWM)

Dr. Takatoshi HATTORI, Japan, reported on the achievements in FY2012, namely, the workshop in the Philippines, an update of the Consolidated Report on Radiation Safety, and publication of the FNCA RS & RWM Newsletter No. 6. He also proposed to initiate work to establish a network of the FNCA RS & RWM experts.

(3) Nuclear Security and Safeguards (NSS)

Mr. Masao SENZAKI, Japan, reported on the most recent workshop, where nuclear 3S and capacity building for nuclear security and safeguards were discussed. He proposed to organize a joint seminar on nuclear 3S with the FNCA Safety Management System Project or Radiation Safety and Radioactive Waste Management Project, in order to seek an integrated approach of nuclear 3S. He also proposed to share the information on capacity building (HRD) support activities for nuclear security and safeguards using the FNCA/ANTEP/APSN (Asia-Pacific Safeguards Network) website.

(4) Human Resources Development (HRD)

Dr. Kiyonobu YAMASHITA, Japan, emphasized that most member countries have successfully established a national HRD network, and designated a focal point (single contact point for international HRD cooperation) and a hub of the network. In his report, he highlighted the essential role of universities and nuclear institutes in HRD for NPP. He also requested that decision makers for planning and funding for HRD in each

country should be designated to HRD project leaders, in order to make this project more effective and useful.

It was proposed that senior officials responsible for HRD should participate in the next HRD workshop to share their experiences of HRD strategy and discuss the direction of the FNCA HRD Project.

Dr. MACHI requested member countries to offer the HRD program under ANTEP with possible support to trainees.

2. Discussion on Future Project Activities

Nuclear safety, security and safeguards are all important issues, therefore possible synergies between SMS and NSS Project should be explored with consideration of nuclear security sensitivities.

Session 5: Radiation Utilization Development

1. Project Review

(1) Biofertilizer

Dr. Tadashi YOKOYAMA, Japan, reported the challenges of the project including;

- i) extension of radiation sterilization for commercial production,
- ii) development of multifunctional biofertilizers and strategies to expand their use to farmers,
- iii) study on synergistic effects between biofertilizers and oligochitosan produced by radiation processing.

He noted that the commercial use of radiation sterilization for improved carriers was started in the Philippines, as the most important outcome for this fiscal year 2012.

Dr. Khairuddin BIN ABDUL RAHIM, Malaysia, gave a presentation on the current status, challenges and recipe for success of biofertilizer production in Malaysia. He mentioned that versatility is important in terms of function, effectiveness, ease of application and economic benefit, in order to gain broad acceptance of biofertilizers by farmers.

It was added that the cost of radiation sterilization of carriers is now almost the same to that of autoclaving in the Philippines. Other member countries were encouraged to follow the success story in Malaysia and the Philippines for commercial application of radiation sterilization of carriers to enhance sustainable agriculture.

(2) Electron Accelerator Application (Radiation Processing of Natural Polymers)

Dr. Masao TAMADA, Japan, reported on the effect of Super Water Absorbents (SWA) and Plant Growth Promoters (PGP) produced by radiation processing. He proposed to strengthen the collaborative research on PGP with FNCA the Biofertilizer Project, technology transfer to end-users, and information exchange with IAEA/RCA.

Ms. Charito TRANQUILAN-ARANILLA, the Philippines, gave a presentation on a success story of PGP application in the Philippines. She reported on the remarkable effects of oligosaccharide from natural polymers, kappa carrageenan, potatoes, rice, mung bean, lettuce, and corn.

It was mentioned that prior to commercialization of oligo-kappa carrageenan PGP field tests will be conducted in cooperation with the agriculture sector in the Philippines.

(3) Mutation Breeding

Prof. Hirokazu NAKAI, Japan reported that the sub-project on "Composition or Quality in Rice" was successfully terminated this March with beneficial outcomes. He also introduced that the next project on "Mutation Breeding in Rice for Sustainable Agriculture" would be started with two main approaches:

- i) to gain resistance to various environmental stresses
- ii) to gain adaptability to low input sustainable agriculture

It was emphasized in the discussion that the ion-beam is a useful tool for mutation breeding. Collaboration on ion-beam applications for MB research has been conducted and will be continued. It was also proposed to establish good collaboration with other FNCA projects and also the IAEA/RCA project to enhance environmental-friendly and sustainable agriculture.

(4) Radiation Oncology

Dr. Hirohiko TSUJII, Japan, reported on the joint clinical trials of protocols of radiotherapy and chemoradiotherapy for uterine cervical and head & neck cancers. The protocols established by this project have brought remarkable benefits to medical care and radiation oncology in Asian countries; being presented at international meetings, being published, and becoming standard protocols. Dr. TSUJII proposed to design new clinical trials for cervical cancer and breast cancer.

Dr. Yaowalak CHANSILPA, Thailand reported that protocols of radiation therapy for uterine cervical and head & neck cancers have contributed to better survival rate and quality of life, and is becoming standardized in Thailand.

Session 6: Review and Plan of Study Panel on Infrastructure Development for Nuclear Power

Dr. Alumanda M. DELA ROSA, the Philippines, summarized key points from the The Fukushima Ministerial Conference on Nuclear Safety, namely; lessons learned from the accident; strengthening nuclear safety including emergency preparedness and response; and the protection of people and environment from radiation.

Prof. Dr. Akira OMOTO, Japan, reported on the 4th Panel Meeting held on July 26-27, 2012, in Bangkok. He mentioned that it was agreed to include legal arrangements on security, risk communications and stakeholder involvement at the next Panel Meeting.

Possible other subjects for the 5th Panel were discussed and an additional topic proposed was that a study of small and medium size reactor development, including economic benefits, would be deliberated. Malaysia also suggested to have a discussion on medical doctors becoming more aware of nuclear and/or radiation matters given their high influence in society.

The meeting appreciates the FNCA Study Panel for sharing experiences on nuclear power programs and agreed to have a major agenda item as agreed at the 13MM, including legal arrangements for security, risk communication and stakeholder involvement.

Session 7-1: Follow-up on Recommendations of the 13th Ministerial Level Meeting

(1) Establishment of networks between the radiation application sectors and end-users:

Dr. MACHI introduced Japan's efforts to establish a project steering committee which has linkages with potential end-users of technology. He strongly suggested FNCA countries set up such steering committees, including members from potential end-users, for each project.

Dr. Muhd Noor MUHD YUNUS, Malaysia then introduced models of technology transfer in Malaysia. Afterwards, Dr. Ju-Woon LEE, Korea explained about cross-cutting research activities by Advanced Radiation Technology Institute (ARTI) of KAERI, as well as their approach to establish a new industry cluster of radiation technology.

Thailand, Indonesia, The Philippines, Kazakhstan and Bangladesh showed the mechanism to reach end-users and efforts to commercialize results of R&D for radiation applications in each country. It was also pointed out that it was most important for

commercialization to take market needs into account during the planning phase.

Session 7-2: Follow-up on Recommendations of the 13th Ministerial Level Meeting

(2) Assessments of the Socio-economic Impact of Radiation Application:

At the 13th Ministerial Level Meeting, recommendations on assessments of the socio-economic impact of radiation applications were made. Dr. MUHD YUNUS introduced the Malaysian experience on a case study regarding social economic impact of nuclear technology, conducted from 2006 to 2010 in Malaysia, as well as its output.

Dr. MACHI then gave presentation on the result of a case study regarding assessments of the socio-economic impact of radiation applications which was conducted by the Cabinet Office of Japan in 2005.

Mr. Peter McGLINN also gave a presentation on the socio-economic outcomes of radiation applications making the greatest impact in various areas, including life sciences, environment and national security.

Malaysia mentioned the reason to have proposed this issue at the last MM was that having an indicator to assess socio-economic impact was needed. In the discussion, it was pointed out that appropriate methodology of estimation for economic scale is important.

The meeting appreciated the reports on the economic impact of nuclear technology by Australia, Japan, and Malaysia to make nuclear technology more visible.

Session 8: Collaboration with IAEA/RCA

Mr. Jin Kyu LIM, Acting Director of RCA Regional Office, gave an overview of cooperation between RCA and FNCA in the field of radiation processing and radiation oncology. He made the following suggestions for enhancement of cooperation:

- i) Review of cooperative areas and activities
- ii) Identification of further cooperative projects in other areas
- iii) Investigation of overlapping and similar activities.

There was a discussion about content of the new RCA/UNDP Joint Project on electron beam accelerators, which is to train trainers for utilization. With regards to the Mutation Breeding Project, it was proposed to establish cooperation with IAEA/RCA taking a cue of the need of training for successors of Mutation Breeding experts.

The Meeting agreed that the FNCA should continue the cooperation with IAEA/RCA in the specific projects on mutation breeding, radiation processing of natural polymers and radiation oncology for possible synergies and sharing experiences with non-FNCA RCA Member States.

Session 9: Future Policy on FNCA Activities

Dr. MACHI gave the lead speech on review of FNCA FY2012 outcomes and future plan for FY2013. He summarized the major outcomes of the Mutation Breeding project and proposed that the project moves to the next phase to develop new varieties of rice in view of enhancement of sustainable and environmentally friendly agriculture. The proposal of the next phase of the project was accepted by the meeting. He also proposed a FNCA FY2013 annual plan of meetings and host countries which were agreed by the meeting. Dr. Machi also pointed out that possible synergy between ongoing projects should be explored.

The reviews from FNCA Coordinators are shown in the Appendix.

The meeting appreciated that the projects achieved good outcomes in FY2012 which benefit member countries. It was agreed to extend the project on Mutation Breeding for another 3 years, aiming to enhance sustainable agriculture for the important staple food, rice.

The meeting approved the plan of FY2013 as follows;

Project	Host Country	Schedule
Mutation Breeding	Indonesia	February 2014
Biofertilizer	The Philippines	November
Electron Beam Accelerator	Malaysia	October
Radiation Oncology	Korea	November
Research Reactor Network	Kazakhstan	October
Neutron Activation Analysis	Thailand	December
Safety Management System	Bangladesh	November
Radiation Safety & Radioactive Waste Management	Mongolia	September
Human Resources Development	Japan	September
Nuclear Security & Safeguards	China	January, 2014

Session 10: Closing Session

Summary report of the 14th Coordinator Meeting was presented and confirmed by the FNCA Coordinators.

Chairman of the 14th FNCA Coordinators Meeting, Dr. MACHI, proposed the following Conclusion and Recommendations which the Meeting agreed to after discussion and changes. FNCA Coordinators are requested to take necessary actions appropriately following the Conclusion and Recommendations.

Conclusion and Recommendations

1. The meeting agreed to extend the project on Mutation Breeding for another 3 years aiming to enhance sustainable agriculture for the important staple food, rice.
2. The meeting agreed that FNCA coordinators would confirm the setting up of national networks of radioisotope production and supply with appropriate chairmen.
3. The meeting agreed that FNCA coordinators would support Project Leaders to identify appropriate partners of end-users for the analytical results of NAA in the fields of mineral exploration, marine environment contamination, and food contamination.
4. The meeting agreed that the senior officials in charge of HRD will participate at the next HRD workshop to share experiences of HRD strategies and to define the direction of the FNCA HRD Project.
5. The meeting agreed that setting up the network of radiation applications and potential end-users should be achieved in Member Countries following the 13 Ministerial Meeting, to be reported at the 14th MM.
6. The meeting suggested setting up a national steering committee for each project composed of FNCA Coordinator, Project Leader, relevant experts, officials and representatives of potential end-users.
7. The meeting suggested that FNCA Coordinators organize an annual meeting of Project Leaders where the Coordinator shares the policy and direction of FNCA with PLs, and PLs share information of outcomes of the projects.
8. The meeting encouraged expert(s), in addition to PLs, to participate in Workshops through the support of national or institutes' travel funds in order to strengthen

Project activities and to share information.

9. The meeting suggested that nomination of participants to Workshops by Coordinators should be carefully done in order to make Workshops fruitful and to strengthen Project implementation.
10. The meeting agreed that the FNCA Study Panel should have a major agenda item on legal arrangement on security, risk communication and stakeholder involvement at the next Panel, as agreed by the 13MM.
11. Meeting agreed that FNCA should continue the cooperation with IAEA/RCA in the specific projects on mutation breeding, radiation processing of natural polymers and radiation oncology for possible synergy and sharing experience with non-FNCA RCA Member States.
12. The meeting approved the plan of FY2013 including host governments of Project Workshops and the Study Panel.
13. The meeting agreed to exchange information on the development and methodology and protocols based on the Malaysian experience for assessment of socio-economic impact.

Lastly, Dr. MACHI gave his closing remarks, appreciating excellent contribution of all the participants.

Reviews from FNCA Coordinators

Australia:

Australia is participating in six of the ten projects currently underway in FNCA, sponsoring the Safety Management System for Nuclear Facilities Project. The presentations of all the projects were of high quality and demonstrated very well the achievements and outcomes of the projects during the past 12 months. Australia supports continuation of the current projects which are progressing the safe and efficient use of nuclear science and technology in the region.

Bangladesh:

Bangladesh highly commends the efforts and initiative taken by FNCA authority as well as Japan Government for peaceful use of nuclear science and technology for socio economic development. of the countries in the region. Bangladesh acknowledges that a cooperative atmosphere has been developed among the member states through the FNCA activities. Bangladesh considers that the guidelines, directions and recommendations given by the FNCA is highly beneficial for member states. Bangladesh assured its continuous support and commitment for the cooperation under the FNCA framework.

China:

FNCA has made remarkable achievements in promoting the cooperation and exchange in the nuclear field in Asia. In the future, FNCA should pay more attention to the nuclear safety. China will make efforts with other FNCA member countries together to construct the network system of developing nuclear energy safely and efficiently in Asia.

Indonesia:

Indonesia underlined the importance of safe and effective utilization of research reactors and radiation, human resources development, nuclear security and safeguard, and proposed the continuity of the project on Safety Management System for Nuclear Facilities.

Japan:

Japan proposed that member countries consider to send additional participants of experts/officials funded by their own governments to project workshop, besides the one participant invited by Japan. Japan also hoped to restart activities of “Stakeholder Involvement” subject to availability of funds.

Kazakhstan:

Kazakhstan showed proposals for specific future activities of FNCA, namely Neutron Activation Analysis, Research Reactor Network, Radiation Safety & Radioactive Waste Management, Human Resource Development, and radiation utilization development.

Korea:

FNCA projects are very beneficial and they have been greatly contributed to strengthening cooperation among member states. Korea would like to withdraw from the Biofertilizer Project and will re-attend the Electron Accelerator Application Project in the future for new research topics. As KAERI ARTI is working as the IAEA collaboration Center, it is willing to work with FNCA in the field of advanced radiation technology by cooperating with the IAEA.

Malaysia:

Malaysia emphasized that bringing nuclear technology to market or end user is the main outcome proposed by FNCA. It is proposed for a new FNCA project to identify the success factor and constraints or bottle necks throughout the supply chain are established. Also the establishment of the socio-economic impact is proposed as a new FNCA project.

Mongolia:

Bearing in mind the harsh weather conditions and scarcity of water supply, agriculture projects such as Mutation Breeding and Biofertilizer are important to Mongolia. In addition, studies of super water absorbent carried out under electron accelerator application project will help Mongolia to solve water supply issue in the event of drought. Mongolia also fully supports idea of regional network for medical isotopes and nuclear security and safeguards. Mongolia is grateful that FNCA considers providing support in the application of neutron activation analysis for the exploration of mineral resources, including REE.

Philippines:

The FNCA projects have brought beneficial outcomes for the member countries. The Philippines supports the continuation of the projects. A project or activity to share the methodology to assess the socio-economic impact of nuclear technology should be supported. With regards to the new project on Nuclear Security and Safeguards, the Philippines raised the concern on the possible duplication of initiatives with those of the IAEA and other multilateral organizations.

Thailand:

Thailand is participating in all projects of FNCA, and emphasized the importance of Radiation Oncology Project for breast cancer and the results from Neutron Activation Analysis project were shared with the environment agencies in Thailand for future processing.

Viet Nam:

The participation in FNCA projects has brought about important contributions to the development and application of nuclear energy in Vietnam. Especially, Vietnam considers that human resources development is very important and necessary. Vietnam likes to propose Japan to have more long term courses on NP technology and will share expenditure costs with Japan.