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FNCA

Forum for Nuclear Cooperation in Asia

Newsletter

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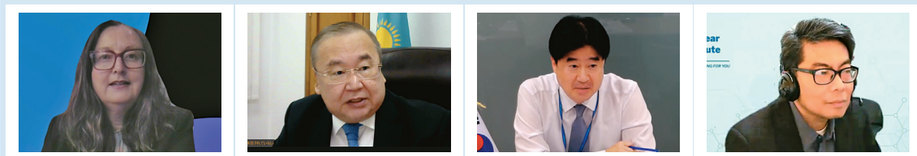
FNCA Workshop on Radiation Oncology in Kazakhstan

Online participants in the FNCA Ministerial Level Meeting



<National representatives>
Photo on the left (from left to right): Prof. Anugerah Widiyanto, Acting Deputy Chairman for Development Policy, National Research and Innovation Agency (BRIN); Dr. Muhammad Rawi Bin Mohamed Zin, Director General, Malaysian Nuclear Agency; Dr. Cao Dong Vu, Director of Dalat Nuclear Research Institute, Vietnam Atomic Energy Institute; Dr. UESAKA Mitsuru, Chairperson, Japan Atomic Energy Commission (JAEC); Ms. ONODA Kimi, Minister of State for Science and Technology Policy; Mr. Suphachai Pathumnakul, Permanent Secretary of Higher Education, Science, Research and Innovation; Ms. Koh Li-Na, Deputy Chief Executive Officer, National Environment Agency (NEA); Mr. Manlaijav Gunaajav, Secretary, Nuclear Energy Commission (NEC) of Mongolia; Dr. M. Moinul Islam, Director, International Affairs Division, Bangladesh Atomic Energy Commission (BAEC)

Photo on the upper right (from left to right): Ms. Natascha Spark, Senior Manager, International Affairs, Australian Nuclear Science & Technology Organisation (ANSTO); Prof. Erlan Batyrbekov, Director General, National Nuclear Center of the Republic of Kazakhstan; Mr. Young Hooi Hwang, Director, Nuclear Energy Cooperation Division, Ministry of Science and ICT (MSIT); Mr. Neil Raymund Diaz Guillermo, Supervising Science Research Specialist, Philippine Nuclear Research Institute (PNRI)

Discussion on the Role of Nuclear Energy

FNCA Ministerial Level Meeting Held in Japan

On November 27, 2025, the Japan Atomic Energy Commission (JAEC) held the 26th Ministerial Level Meeting of the Forum for Nuclear Cooperation in Asia (FNCA) in Tokyo (at the Mita Kaigisho). The meeting employed a hybrid format.

In recent years, there has been growing interest in applications of nuclear power technology in the energy field to address the expected increase in power demand, for building a low-carbon society and supporting a digital society in Asian countries. Against this background, Ministers and other officials overseeing the field of nuclear science and technology from FNCA member countries other than China gathered for policy discussions and related activities under the theme of "The Role of Nuclear Energy," chaired by Dr. UESAKA Mitsuru, Chairperson of the JAEC.

Keynote Speeches

【OECD/NEA】

Mr. William D. Magwood, Director-General of the OECD Nuclear Energy Agency delivered a keynote speech (video message) entitled "The Role of Nuclear Energy in Asia" from a global perspective. Since many FNCA member countries are considering the introduction of nuclear power as newcomer countries, Mr. Magwood showcased advanced efforts in Europe. He explained topics such as the ongoing global development of technology for Generation IV reactors and small modular reactors (SMRs), associated issues and risks, human resource development and encouraging interest in the nuclear field among the young, and the importance of human capital.

【Agency for Natural Resources and Energy】

Mr. YASURAOKA Satoru, Director for International Affairs at Nuclear Energy Policy Division, Agency for Natural Resources and Energy, delivered a keynote speech on the theme "Cooperation with Newcomer Countries" from Japan's perspective (Mr. YASURAOKA delivered the speech on behalf of Ms. UENO Asako, Deputy Commissioner for International Affairs).

He explained Japan's history and track record to date regarding nuclear power generation, and its current nuclear power policy. With Asian countries in mind, he highlighted the need for financial support, corporate cooperation in nuclear power projects, and collaboration with stakeholders.

Country Report

Following the keynote speeches, representatives of each country presented country reports in two sessions. The first session, as in previous Ministerial Level Meetings, featured reports on general trends in nuclear technology in each country from Australia, Bangladesh, Kazakhstan, Mongolia, Singapore, and Viet Nam. At the next session, there were country reports by Malaysia, the Philippines, Japan, and the Republic of Korea focusing on "The Role of Nuclear Energy." These reports provided information for the subsequent Round Table Discussion, which prompted a lively exchange of views.

For details on the results of the Ministerial Level Meeting,
https://www.fnca.mext.go.jp/english/mini/e_26_minister.html

Ms. ONODA Kimi, Minister of State for Science and Technology Policy, attended the 26th FNCA Ministerial Level Meeting. She welcomed each country and expressed her respect for the leadership of the representatives of member countries to date. She indicated her expectations for a fruitful exchange of views in line with today's theme, and for lively discussions of future initiatives based on a review of the FNCA's activities over the past year. She also expressed her hope that the advancement and sharing of nuclear science and technology in the Asian region will contribute to the development of both the region and the world.

Round Table Discussion

To address the theme of "The Role of Nuclear Energy," Dr. Thawatchai Onjun, Executive Director of the Thailand Institute of Nuclear Technology, and Dr. Anugerah Widiyanto, Acting Deputy for Development Policy, National Research and Innovation Agency (BRIN), Indonesia, gave lead speeches on their countries' energy policies and efforts to introduce nuclear power. Then, there was an exchange of views based on the lead speeches and the country reports in the previous session.

During the discussion, there were a series of questions focusing particularly on developing and securing human resources, and the responses addressed topics such as: (1) approaches to encouraging interest in nuclear energy among younger generations and women; (2) the importance of construction planning and program development for securing workforce; and (3) IAEA education and training courses, and programs in Japan for developing technical leaders in the nuclear field, focusing on trainees from Asian countries. While technological preferences varied by country due to site conditions and the status of power grid infrastructure, it was found that, aside from Australia, the participating countries recognized the importance of nuclear power generation as a low-carbon energy option, although there were differences in degree of enthusiasm.

Examples of Country Reports from Member Countries

Nuclear Power Activities in Mongolia

Mr. Manlaijav Gunaajav
Secretary
Nuclear Energy Commission of Mongolia

The legal and regulatory framework in Mongolia's nuclear field is being developed based on the Long-Term Development Policy, "Vision 2050", established in 2020, while nuclear-related infrastructure development is being implemented under the Government Action Plan for 2024-2028. Mongolia is currently advancing amendments to the Nuclear Energy Law, the establishment of the Nuclear Energy Agency, the establishment of a nuclear energy programme implementing organization (NEPIO) to develop regulations and carry out planning activities for basic studies for the nuclear power program, and preparation for the uranium production.

Nuclear Power Plant Project in Viet Nam

Dr. Cao Dong Vu
Director of Dalat Nuclear Research Institute
Vietnam Atomic Energy Institute

Viet Nam's nuclear power plant development projects were postponed in 2016 and approved for resumption in late 2024. The initial technology will focus on Generation III+ Advanced Light Water Reactors (ALWRs), with an expected capacity of 1,000–1,600 MWe. Besides, SMR technology has been identified as one of 11 strategic technologies for prioritized development in Viet Nam. In addition, the Center for Nuclear Science and Technology (CNST) Project is also being implemented, including a Russian-supplied multipurpose research reactor to strengthen national nuclear capacity, human resource training in reactor physics and safety, and applications in medicine, semiconductors, and research.

Nuclear Energy in Malaysia' s Energy Transition Context

Dr. Muhammad Rawi Bin Mohamed Zin
Director General
Malaysian Nuclear Agency

Via The Ministry of Energy Transition and Water Transformation (PETRA), Malaysia has the plan to achieve carbon neutrality by 2050 (Net Zero 2050), which includes the gradual phase-out of coal-fired power generation and the expansion of renewable energy in line with national targets. As coal is phased out and renewable energy penetration increases, Malaysia is assessing nuclear energy as a potential low-carbon option to support electricity generation, particularly to address future baseload power requirements and enhance grid stability. This consideration is aligned with the Government's efforts to diversify the energy mix while ensuring reliable, sustainable, and low-carbon power generation.

FNCA Award

A ceremony was held to present the FNCA Awards recognizing research teams who achieved notable accomplishments in FNCA project activities for FY 2024.

There was a commemorative speech by a representative of the team that won the Best Research Team Award (See p. 15 for details).

FNCA 2025
BEST RESEARCH TEAM
OF THE YEAR

This award is proudly presented to

Research Reactor Utilization Team

Viet Nam

In recognition of the outstanding achievement of the team throughout the year 2024

FNCA Forum for Nuclear Cooperation in Asia
Japan Atomic Energy Commission (JAEC)

November 27, 2025

Mitsuru UESAKA
Chairperson
Japan Atomic Energy Commission

Analyzing Radioisotopes in Forest Soils to Assess the Impact of the Carbon Cycle on Climate Change

Workshop in progress

Forests and soils on Earth store massive amounts of carbon. This carbon contains radioisotope carbon-14 (^{14}C), which has a half-life of 5,730 years. By measuring the number of carbon isotopes using an accelerator mass spectrometry (AMS), it is possible to determine when ^{14}C was incorporated into soils and forests. This analysis also makes it possible to determine the decomposition rate of soil containing ^{14}C.

This project aims to use this technology to measure carbon storage and emissions in forest soils across Asia and assess their relevance to global warming and climate change. Ten countries participate in the project: Japan, Bangladesh, China, Indonesia, Kazakhstan, Malaysia, Mongolia, the Philippines, Thailand, and Viet Nam.

The evaluation method involves each country first collecting soil samples and then collecting gas samples through laboratory soil incubation experiments. These samples are sent to Japan for analysis of soil characteristics and carbon dioxide concentrations in the gas. These results will be used to create a database of soil characteristics across Asia. A model will also be developed to estimate the amount of carbon dioxide emissions from Asian soils.

This project began in FY2023. After discussing the project's direction and sample collection methods, the Japan Atomic Energy Agency (JAEA) developed experimental kit for sample collection in FY2024 and distributed to participating countries. A demonstration of soil sampling and other activities were conducted at a workshop held in Hiroshima Prefecture in Japan. Soil and carbon dioxide samples collected from various countries have been gradually arriving in Japan this current fiscal year, and analysis of soil characteristics and carbon dioxide concentrations is underway.

The FY2025 workshop took place in Fukushima City and Minamisoma City, with a total of 27 participants from nine countries: Bangladesh, China, Indonesia, Japan, Malaysia, Mongolia, the Philippines, Thailand, and Viet Nam. The workshop included presentations on project progress. The status of soil and gas sampling in each country, as well as the preliminary analysis results for the soil samples, were presented. The current progress was also evaluated, and discussions were held regarding the results of the analysis and future research plans. As a result of these discussions, it was decided to extend the project by one year to complete the analysis of all samples and proceed with the development of a database and carbon dioxide emissions model.


Demonstration of soil sampling at the 2024 workshop

At an open seminar, Dr. TAMADA Masao, FNCA Coordinator of Japan, introduced FNCA activities, Dr. NAGANO Hirohiko from Niigata University gave a presentation on soil greenhouse gas dynamics and the intensification of extreme weather, and Dr. Roland V. Rallos from the Philippine Nuclear Research Institute reported on the impact of land use changes on soil carbon. Finally, Dr. FUJII Kazumichi from the Fukushima Institute for Research, Education and Innovation (F-REI) gave a presentation on mineral weathering and carbon cycling in forest soils as linked by malic acid. This was followed by a lively Q&A session with the audience.

Experimental kit for sample collection


Dr. FUJII Kazumichi (F-REI) speaking at an open seminar

The participants paid a technical visit to the Collaborative Laboratories for Advanced Decommissioning Science (CLADS) of the JAEA in Minamisoma City, Fukushima Prefecture. Since the accident at the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station, the CLADS has been conducting air dose rate monitoring using cutting-edge technologies, such as unmanned helicopters, unmanned fixed-wing aircraft, and quadrupedal robots, to collect data.



Gas analysis at Niigata University

Hands-on Training on 3D-IGBT

Dissemination and Promotion of Radiotherapy in the Asian Region

- Radiation Oncology Project Workshop Held in Kazakhstan -

For more than 20 years, the Radiation Oncology Project has been establishing treatment procedures (protocols) for cervical cancer, breast cancer, and nasopharyngeal carcinoma, as cancer types frequently occurring in the Asian region, through joint clinical studies with member countries.

An annual workshop getting people concerned with the project together was held for 4 days from October 13 to 16, 2025, in Semey, Kazakhstan, partially in a hybrid format. Representatives from 12 Asian countries, including Bangladesh, China, Indonesia, Japan, Kazakhstan, the Republic of Korea, Malaysia, Mongolia, the Philippines, Singapore, Thailand, and Viet Nam, participated in the workshop (Singapore participated for the first time).

On the first day, Kazakh radiation oncologists gave lectures on the current situation of radiotherapy in Kazakhstan, and a representative from Singapore, participating for the first time, delivered a talk on radiotherapy at the National Cancer Centre Singapore. On the first and second days, the results of on-going clinical studies for cervical cancer and breast cancer were reported.In addition, it was reported that many cases had been enrolled in the clinical study on prognostic factors for brain metastasis from non-small cell lung cancer, and favorable results obtained from the analysis of the cases were presented. Furthermore, as new clinical studies, 1) a clinical study of a state-of-the-arts technique in radiotherapy for locally advanced cervical cancer (CERVIX-VI), combining external whole pelvic irradiation based on intensity modulated radiation therapy (IMRT) with 3D-image guided brachytherapy (3D-IGBT), was approved, 2) a retrospective study of total neoadjuvant chemotherapy for locally advanced rectal cancer was proposed, and 3) post-operative ultra-hypofractionated radiotherapy for breast cancer was proposed.

As a quality assurance/quality control (QA/QC) activity for radiotherapy, the medical physicist team conducted an on-site audit of precision management for 3D-IGBT at a radiotherapy facility in Kazakhstan.

As educational activities, Hands-on Training on 3D-IGBT for Cervical Cancer was conducted on the afternoon of the second day, and Open Lectures were held on the third day.

In addition, a technical visit was held at the Center of Nuclear Medicine and Oncology of the Abai Regional Health Department, where we inspected radiotherapy and nuclear medicine facilities. On the final day, the participants moved to Kurchatov, and after learning about the nuclear tests at the exhibition hall, we visited the ground zero marker and the Atomic Lake, which was formed by a nuclear test, at the Semipalatinsk Test Site.

Aiming to Raise the Level of Radiotherapy Techniques through Technical Guidance via Hands-on Training and Open Lectures

● Hands-on Training on 3D-IGBT

Since the beginning of the clinical study using 3D-IGBT (CERVIX-V) in 2018, the project has been delivering Hands-on Training on 3D-IGBT at annual workshops to improve brachytherapy techniques. In the training at this year's workshop, a Kazakh radiation oncologist and a medical physicist, after listening to lectures on 3D-IGBT, made a treatment plan for an actual case, which radiation oncologists and medical physicists from Japan and Thailand evaluated. Then, points to note in making treatment plans were discussed.

● Open Lectures

Open Lectures were also held as an educational opportunity for local medical professionals, in addition to the on-site technical guidance. Seven lectures were given: "Overview and Progress of Forum for Nuclear Cooperation in Asia (FNCA)," "Current Problems and Achievements in Cancer Treatment in Kazakhstan," "Recent Advances in the Treatment of Locally Advanced Cervical Cancer," "Physics Aspects and Consideration in Gynecological Cancer Brachytherapy," "Recent Trends and Advances in Radiotherapy for Breast Cancer," "Stereotactic Body Radiation Therapy (SBRT) for Hepatocellular Carcinoma," and "Particle Beam Therapy."

Many Kazakh radiation oncologists and medical physicists participated in the event, where lively questions and answers took place. It is hoped that the level of radiotherapy in Asian countries will be raised further in the future through our technical guidance and education.

Technical Visit to the Center of Nuclear Medicine and Oncology of the Abai Regional Health Department

Open Lectures

Participants in the workshop (at the exhibition hall of the history of the Semipalatinsk Test Site)

Development and Commercialization of Products in Agriculture, Medicine, and the Environment fields using Radiation Technology

The properties of polymer materials can be altered by irradiating them with electron beams or gamma rays, thereby enhancing their strength and heat resistance. It is also possible to synthesize new materials. Member countries are using this technology to develop various products, such as highly absorbent hydrogels that decompose into soil, by irradiating naturally derived polymer materials. Additionally, there is significant interest in the synergistic effects of these products with biofertilizers developed through irradiation.

This project promotes the development and practical application of new products in the agricultural, environmental, and medical fields through extensive use of radiation processing technology.

This fiscal year's workshop was held in Bangkok, Thailand, from December 16 to 19, 2025, co-hosted by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Thailand Institute of Nuclear Technology (TINT). Experts in radiation processing, polymer modification, and biofertilizers participated from 10 countries: Bangladesh, China, Indonesia, Japan, Kazakhstan, Malaysia, Mongolia, the Philippines, Thailand, and Viet Nam. At the workshop, presentations were given on the progress of development of new products and their practical application in each country.

Various initiatives are underway in different countries, some of which are introduced here.

Initiatives are underway in China, Indonesia, the Philippines, and Mongolia to combine super water absorbent (SWA) and plant growth promoters developed using radiation processing technology with biofertilizers. This initiative has resulted in various benefits, including reduced use of chemical fertilizers and improved crop tolerance to climate stress.

In Bangladesh, prototype concrete blocks incorporating radiation-processed waste plastic were developed, and their enhanced strength was confirmed by industrial testing. This method is considered effective as one of the ways for recycling waste plastic.

Kazakhstan is advancing an initiative to utilize a special polymer developed using SWA. This polymer can absorb water or other liquids equivalent to 200 to 400 times its own weight and forms a gel, enabling its application in fire extinguishing, fire prevention, and anti-heat protection.

Mongolia is researching the application of low energy X-ray irradiation to curd cheese, a traditional dairy product, as a means of reducing mold toxins.

Biofertilizer (Philippines)

Super water absorbent (SWA) (Kazakhstan)

Concrete prototyping (Bangladesh)

Curd cheese (Mongolia)

During the workshop, the plans to develop guidelines titled "FNCA Biofertilizer Development and Irradiation Mutagenesis of Microorganism" were presented.

Various research fields were organized into three categories: "agricultural bio-stimulant (a general term for substances and microorganisms that enhance plant growth and stress tolerance)", "environmental remediation," and "medical and biological application". Then, group discussions on these topics were also held.

Furthermore, the workshop participants paid a technical visit to the irradiation center at TINT.

Workshop participants

Driving Sustainable Agriculture

- Mutation Breeding Project Workshop held in Indonesia -

Since its launch in 2000, the FNCA Mutation Breeding Project has promoted the development of new crop varieties in Asia through radiation-based breeding technologies such as gamma rays and ion beams, contributing to stable food supply and improved quality.

In recent years, the project has focused on developing rice varieties with resistance to diseases, drought, and salinity to address climate change and achieve sustainable agriculture. From FY2018, the scope expanded to other crops, aiming to develop high-yield varieties under low-input conditions.

In FY2024, a new five-year phase began under the theme "Mutation Breeding of Major Crops and Application of New Technologies toward Sustainable Agriculture." This phase incorporates advanced technologies such as remote sensing, genome sequencing, genome editing, marker-assisted selection, and ion beam irradiation to enhance radiation breeding. Through efficient mutant selection, trait evaluation, and genetic analysis, the project seeks to advance breeding techniques and promote practical, strategic efforts to improve agricultural sustainability across Asia.

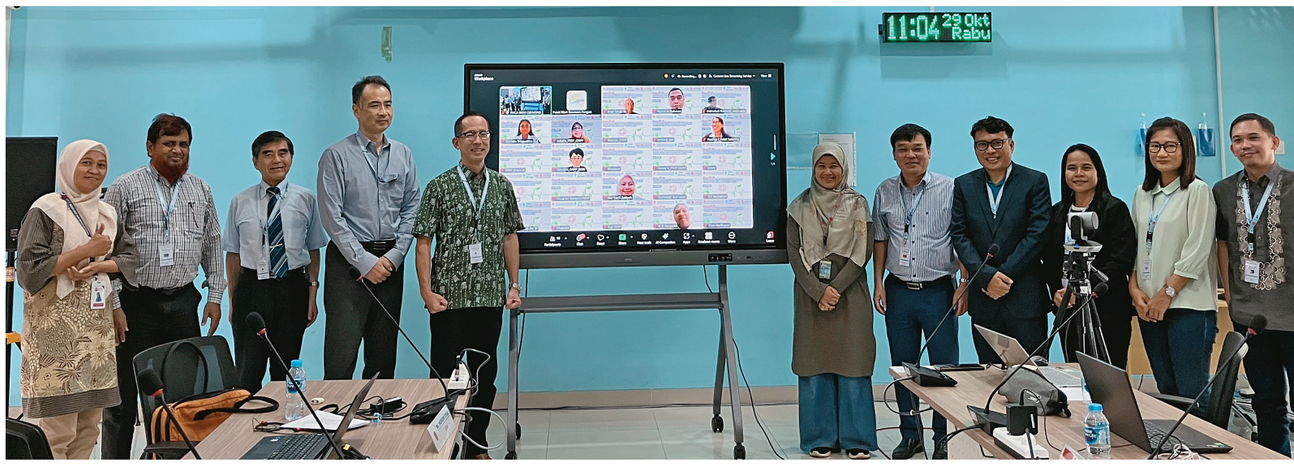
In the same year, the Philippine team received the FNCA Best Research Team Award for outstanding achievements in radiation breeding—a recognition that serves as a major encouragement for the entire project.

The FY2025 workshop was held from October 28 to 30 in Cibinong, Indonesia, jointly organized by the National Research and Innovation Agency (BRIN) and the Ministry of Education, Culture, Sports, Science and Technology of Japan. A new initiative this year was the "e-Asia Open Webinar", endorsed by the Japan Science and Technology Agency (JST). The webinar introduced research under the "e-ASIA Joint Research Program (e-ASIA JRP)", jointly promoted by Thailand, Indonesia, and Japan within the FNCA framework, and shared success stories from FNCA member countries. Over 100 participants joined lively discussions during the webinar.

Sorghum and Soybeans at the Radiation Breeding Field in Indonesia

Additionally, a technical visit was conducted to BRIN's research facilities and experimental fields for radiation breeding of sorghum and soybeans.

The FNCA Mutation Breeding Project will continue leveraging collaboration and expertise among participating countries to address agricultural challenges in Asia.



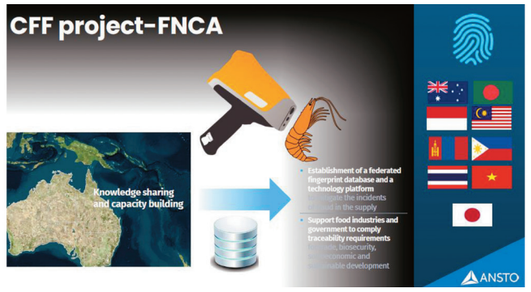
"e-Asia Open Webinar" participants—onsite in Indonesia and online from around the world

Reviewing Research Progress and Facilitating Knowledge Sharing

The combating food fraud using nuclear technology (CFF) project, led by Australia's Nuclear Science and Technology Organisation (ANSTO), aims to develop a food provenance technology platform and a federated database using priority food items to help mitigate incidents of fraud within the supply chain. These outcomes will strengthen scientific capacity in applying nuclear technology to address biosecurity risks and adulteration issues in food systems.

At the online workshop in 2023, participating countries agreed to include a common seafood item, black tiger shrimp, and one additional item selected by each participating country as the food items for the development of a federated database. The participating countries started collecting samples from February 2024 and have sent them to ANSTO for elemental analysis being conducted through the handheld X-ray Fluorescence (XRF) scanner at ANSTO. At the same time, each country has also been collecting and analyzing their nationally specific food items selected as additional commodities, such as turmeric, honey, mango, rice, and coffee.

An online workshop was held on September 4, 2025, to review the progress of this research and facilitate knowledge sharing among participating countries. A total of 31 participants attended from FNCA member countries, along with four observers from Papua New Guinea (PNG). PNG expressed strong interest in the project, and their participation provided valuable opportunities for networking and collaboration.

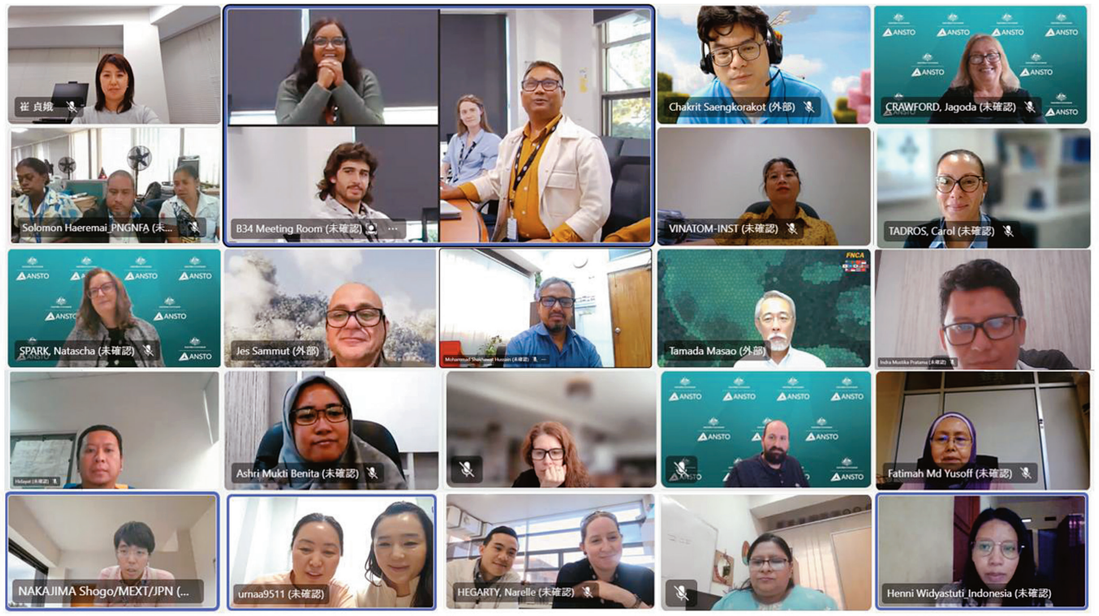


An excerpt from ANSTO's presentation

Dr. Debashish Mazumder, the project leader from Australia, provided an update on the status of the project. He reported that most participating countries have completed the collection of samples for their selected food items to build the data connectivity. He also presented the results of tiger prawn samples provided to ANSTO by Bangladesh, Malaysia, and Viet Nam for handheld XRF analysis. Afterwards, participating countries shared their involvement and progress in the CFF project.

Finally, the ANSTO's implementation plan for 2026 was presented. Under this plan, samples will continue to be analyzed at ANSTO, with results shared with participating countries and stored in a central repository. A final workshop is planned for 2026, followed by the preparation of a multinational report and a manuscript based on consolidated seafood data.

Workshop participants



Multipurpose Uses of Research Reactors in Asian Countries Benefiting the Next Generation

In many Asian countries, research reactors have been in operation for a long time and have been used for a wide range of purpose. In the Research Reactor Utilization (RRU) Project, participating countries share information on the characteristics and usage situations of FNCA member countries' research reactors in order to build research infrastructure and improve the technical level of researchers and engineers in member countries.

The topics of the current phase of the RRU Project (FY2024-2026) range widely, covering neutron activation analysis (NAA), radioisotope (RI) production including new isotopes and new facilities, new research reactors and research reactor utilization such as neutron scattering and material research. Holding annual workshops brings great opportunities for networking. This year's workshop of the project was held in Dalat, Viet Nam, for 4 days from September 9 to 12, 2025, with participation from 10 countries.

The NAA group analyzes a wide range of environmental samples, including airborne dusts, soils, and sediments in river, lakes, marsh, and oceans, mainly by means of instrumental NAA (INAA), together with other analytical methods such as XRF analysis, and conducts environmental assessments based on results obtained. INAA is a non-destructive method to quantify many elements at the same time. It is an analytical method taking advantage of the high penetration power of neutrons and gamma rays emitted after activation. Its ability to analyze whole solid samples is an outstanding feature not seen in other methods. INAA was used to analyze particles brought by the spacecraft Hayabusa2 from the asteroid Ryugu.

Participants hearing a story about the Dalat Nuclear Research Reactor (DNRR) in Viet Nam

In the current phase, most participating countries analyzed common samples in a joint study, and compared their results to improve NAA techniques. A multi-faceted review of data collected was reported, and some causes for wrong analytical values were identified, for which solutions were confirmed. This is expected to contribute to improved reliability of analytical values in the future. These results are scheduled to be compiled into an academic paper at a later date.

The non-NAA group participating countries made presentations on RI production and issues related to management of RI facilities, including human resources development and aging of facilities. Some countries have projects under way to build new research reactors or upgrade existing research reactors to meet rising demands for radioisotopes.

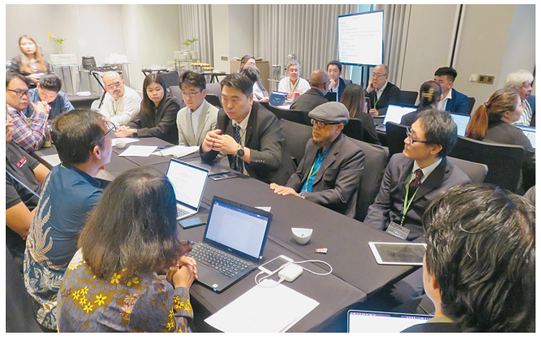
Visit to the Dalat Nuclear Research Reactor (DNRR) in Viet Nam

In-Depth Discussion of Environmental Radiation Associated with Nuclear Facilities

The Radiation Safety and Radioactive Waste Management Project has been actively engaged in efforts to ensure radiation safety and enhance the safety of radioactive waste management in the Asia region. The participating countries have exchanged and shared diverse experiences and information related to radiation safety and radioactive waste management, and have compiled the outcomes of project activities into consolidated reports.

The current phase (FY2024–2026) aims to comprehensively review data and information related to the impact of environmental radiation associated with nuclear facilities on the environment and humans, considering the current status of the FNCA member countries. It is planned that a final consolidated report will be completed in FY2026.

This year's workshop was held in a hybrid format from July 8 to 10, 2025, in Quezon, the Philippines. It was co-hosted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan, the Philippine Nuclear Research Institute (PNRI), and the Nuclear Energy Program Inter-Agency Committee (NEP-IAC) led by the Department of Energy. The event was attended by experts from 12 countries, including first-time participation from Singapore, as well as local government officials as observers. Representatives from each country presented country reports on environmental radiation and radioactivity, providing updates on their respective national situations and sharing information.



Group discussion

During the group discussions, participants were divided into two groups and discussed the necessary elements, table of contents, and content for the development of the consolidated report. These discussions helped to deepen mutual understanding.

In the poster session, representatives from China, Indonesia, Japan, Mongolia, the Philippines, and Thailand presented topics on radiation safety and radioactive waste management.

The Open Seminar, held in a hybrid format, was attended by participants from the PNRI, as well as government agencies and universities. Representatives from Japan and the Philippines gave presentations on environmental radiation monitoring, followed by an active exchange of opinions.

In the afternoon of the final day, a technical visit to the PNRI was conducted. Participants toured facilities including the radioactive waste management facility, the nuclear materials research section laboratories, and radiological impact assessment section.

Workshop participants

Poster session

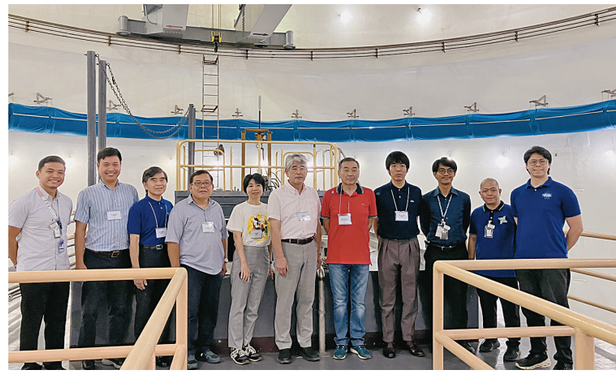
Technical visit to PNRI

Expansion of the Network of Nuclear Security and Safeguards in the Asian Region

In promoting peaceful use of nuclear energy, nuclear security to protect nuclear and radioactive materials from theft, illegal access, and other malicious acts, and safeguards to prevent diversion of nuclear materials to nuclear weapons are essential. The Nuclear Security and Safeguards Project, which began activities in FY2011, has been strengthening nuclear security and safeguards in the Asian region by sharing experience, knowledge, and information and promoting cooperation in human resource development. With Singapore newly joining us in FY2025, it is expected that the network of nuclear security and safeguards in the Asian region will become wider and deeper.

An annual workshop of the project was held in Quezon, the Philippines, for 3 days from September 23 to 25, 2025, and was attended by 10 FNCA member countries and the International Atomic Energy Agency (IAEA).

The workshop was focused on mitigation of insider threats, the topic that has been increasing in importance in the field of nuclear security; major initiatives to address insider threats were presented at the workshop. It is pointed out that propagation of mobile applications and artificial intelligence platforms has increased the risk that people with no malicious intention would become the starting point of cyber attacks through account hacking. It was agreed that not only threats from malicious insiders but also threats from insiders without any malice should be addressed.



Visit to the Philippine Research Reactor (PRR-1)

As for the field of safeguards, we discussed the IAEA Additional Protocol (AP) to strengthen the safeguards agreement for non-proliferation that each member country had concluded with the IAEA. Practical exercise on Complementary Access (CA) was conducted, using the video produced by the Japan Atomic Energy Agency (JAEA), followed by reports from member countries and free discussion among participants. In addition, an Open Seminar regarding Safeguards-by-Design (SBD) for small modular reactors (SMRs) was held, with lecturers invited from the IAEA, mainly targeting Philippine stakeholders. Furthermore, there was discussion about how to address challenges specific to various reactor technologies, and opinions were actively exchanged.

Open Seminar regarding Safeguards-by-Design (SBD) for small modular reactors (SMRs) in the Philippines

Viet Nam Team Won the "Best Research Team of the Year"

Best Research Team

Viet Nam
Research Reactor Utilization Project

Representative: Dr. Pham Thanh Minh
Project Leader of Viet Nam
Dalat Nuclear Research Institute, VINATOM

Left: Dr. UESAKA Mitsuru, Chairperson of the JAEC
Right: Dr. Pham Thanh Minh

The Dalat Nuclear Research Institute (DNRI) is a unit under the Vietnam Atomic Energy Institute (VINATOM) and operates the only nuclear reactor in Viet Nam, with a capacity of 500 kW. The reactor has been officially in operation since March 1984.

From April 2024 to March 2025, the reactor operated safely and efficiently for an average of 1,500 hours per year. More than 90% of the reactor's operating time has been devoted to radioisotope research and production. During its operation, the reactor has been successfully utilized for the research and production of various radioisotopes and radiopharmaceuticals used in medicine.

DNRI produces approximately 1,000 Ci of medical radioisotopes per year, the majority of which are I-131 capsules and I-131 solutions used for the diagnosis and treatment of thyroid cancer, as well as Tc-99m (MDP) kits for nuclear medicine applications. DNRI has also published numerous international scientific papers, contributing significantly to the advancement of nuclear medicine in Viet Nam.

In recognition of these contributions, DNRI was awarded the Second-Class Vietnam Medical Star Award by the Ministry of Health of Vietnam in May 2024. The DNRI staff involved in this project are greatly honored by this distinction and wish to express their sincere gratitude to the FNCA members for selecting the team for this award.

Key staff currently involved in the project
From left: Dr. Pham Thanh Minh, Mr. Nguyen Thanh Nhan, Dr. Nguyen Dang Khoa, Mr. Nguyen Thanh Binh, Mrs. Nguyen Thi Khanh Giang, Mr. Dang Ho Hong Quang

Dalat Nuclear Research Institute

Excellent Research Teams

The "Excellent Research Teams of the Year" awards were presented to the following four projects in recognition of their achievements, following the Best Research Team award.

The Philippines
Radiation Processing and Polymer Modification Project

Japan
Climate Change (Evaluating the Carbon Emission from Forest Soils) Project

Malaysia
Radiation Oncology Project

Kazakhstan
Nuclear Security and Safeguards Project

Ms. Koh Li-Na
(At the 26th Ministerial Level meeting)

A Warm Reception into the FNCA Community

Ms. Koh Li-Na
Deputy Chief Executive Officer, National Environment Agency

We appreciate the unanimous support by FNCA members to admit Singapore into the FNCA family in 2024. Singapore looks forward to learning from and deepening collaboration with FNCA members.

Several representatives from Singapore have already participated in FNCA workshops such as the Radiation Safety and Radioactive Waste Management (RSRWM) Workshop held in Quezon, the Philippines in July 2025, the Research Reactor Utilization (RRU) Workshop held in Dalat, Viet Nam in September 2025, and the Radiation Oncology (RO) Workshop held in Semey, Kazakhstan in October 2025. They have had fruitful discussions and learnt a lot from our FNCA colleagues.

◆ Radiation Safety and Radioactive Waste Management Workshop (July 8-10, 2025)

Participant : Ms. Tang Hui Qi

I gained valuable insights into diverse environmental radiation monitoring approaches and regulatory frameworks across the Asia-Pacific region. The country presentations highlighted varying stages of nuclear development and innovative waste management strategies, demonstrating different methodologies for addressing radiation safety challenges. The technical visit to Philippine Nuclear Research Institute (PNRI)'s facilities provided practical perspectives on implementing radiation safety measures and waste management practices in research settings. I particularly enjoyed networking opportunities with regional counterparts and poster sessions showcasing research developments. The workshop strengthened my understanding of international best practices and established valuable connections for future collaboration on environmental monitoring capabilities and knowledge exchange initiatives.

Ms. Tang Hui Qi receiving a certificate of appreciation

◆ Research Reactor Utilization Workshop (September 9-12, 2025)

Participant : Mr. Gabriel Tan

I thoroughly enjoyed my experience at the RRU Workshop in Dalat, Viet Nam. My sincere appreciation goes out to the organizing staff from FNCA, as well as our colleagues from Viet Nam who treated us with great hospitality throughout our stay. Through this workshop, I learned a lot from my experienced colleagues' country presentations about radioisotope production and the challenges they faced. To close the demand-supply gap for radioisotopes in their countries, there are plans for future research reactors and revitalization of existing facilities to improve the domestic production of radioisotopes. The visit to the Dalat Nuclear Research Institute (DNRI) research reactor was also very enjoyable, with our kind hosts showing us the applications and safety features of the reactor. This experience has deepened my knowledge of the applications of research reactors in FNCA countries, and I look forward to participating in future activities!

Mr. Gabriel Tan participating in the discussion

Project Evaluation and Discussion on New Proposals

The Cabinet Office of Japan and the Japan Atomic Energy Commission (JAEC), in cooperation with the Ministry of Education, Culture, Sports, Science and Technology (MEXT), held the 25th FNCA Coordinators Meeting in Tokyo in a hybrid format on February 26, 2025. The meeting was attended by representatives from 13 FNCA member countries (i.e., Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Korea, Malaysia, Mongolia, Singapore, the Philippines, Thailand, and Viet Nam) and the RCA Regional Office as an observer.

■Summary of Results of the Meeting

The results of the meeting are summarized as follows:

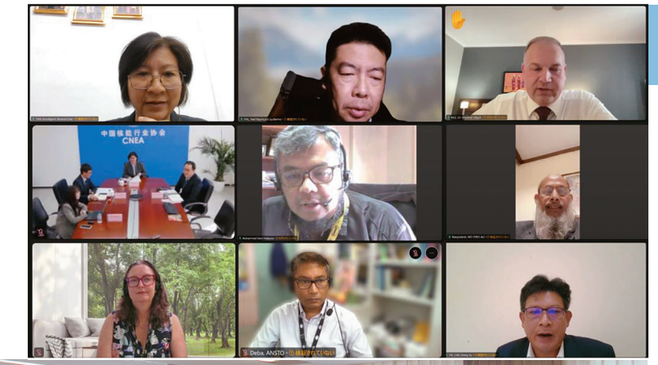
➢Based on the Joint Communiques of the 25th FNCA Ministerial-Level Meeting (MLM), the Coordinators Meeting ("the meeting") reaffirmed that the main role and objective of FNCA are research and development, knowledge and information sharing and capacity building, for the social and economic well-being of Member Countries, and agreed to further develop FNCA's activities.

➢Representatives from FNCA's eight current projects outlined their annual activities. It was confirmed that the activities are being implemented steadily under effective cooperation of member countries. In addition, a final activity report was presented for the Radiation Processing and Polymer Modification (RPPM) Project, which is scheduled to complete its implementation phase in FY2024.

➢The FNCA coordinators performed ex-ante evaluation of the two projects newly proposed from viewpoints of relevance, effectiveness, efficiency, impact, and sustainability. As a result, it was agreed that the new phase of the RPPM project, proposed by Japan for continuation, will commence in FY2025. The Public Information on nuclear energy proposed by Malaysia was recommended for resubmission with a more detailed plan. It was also suggested that the theme could be taken up as a topic for Study Panel in the future.

➢As new membership of Singapore was approved in the 25th MLM, Singapore participated in the meeting as a member country for the first time. Singapore expressed interest in participating in four projects and presented ideas of potential contribution from Singapore side and implementing agency. Singapore is encouraged to participate in project meetings like workshops as soon as possible, hopefully from this year.

Online participants



Scene of the meeting

Activities		Date	Venue
The 26th FNCA Ministerial Level Meeting		November 27, 2025	Japan / Hybrid
2025 FNCA Senior Officials Meeting		July 16, 2025	Online
The 26th FNCA Coordinators Meeting		February 6, 2026	Japan / Hybrid
2026 Study Panel		February 5, 2026	Japan / Hybrid
Radiation Utilization Development	Mutation Breeding WS	October 28 – 30, 2025	Indonesia / Hybrid
	Radiation Processing and Polymer Modification WS	December 16 – 19, 2025	Thailand
	Combating Food Fraud WS	September 4, 2025	Online
	Climate Change WS	November 18 – 20, 2025	Japan / Hybrid
	Radiation Oncology WS	October 13 – 16, 2025	Kazakhstan / Hybrid
Research Reactor Utilization Development	Research Reactor Utilization WS	September 9 – 12, 2025	Viet Nam / Hybrid
Nuclear Safety Strengthening	Radiation Safety and Radioactive Waste Management WS	July 8 – 10, 2025	Philippines / Hybrid
Nuclear Infrastructure Strengthening	Nuclear Security and Safeguards WS	September 23 – 25, 2025	Philippines / Hybrid

Message from the New FNCA Advisor of Japan

Mr. MORIMOTO Koichi
FNCA Advisor of Japan

Within the FNCA framework, eight projects are implemented under the overall guidance of the Ministerial Level Meeting. Each project is led by a project leader, and annual workshops are held with the participation of researchers from member countries.

In 2025, I had the opportunity to participate in the Nuclear Security and Safeguards Workshop held in the Philippines in September, as well as the Mutation Breeding Workshop held in Indonesia in October. I reaffirmed the importance of information sharing among us through active exchanges of views.

The Asia-Pacific region has experienced remarkable economic growth while continuing to showcase its diverse and distinctive cultures on the global stage. At the same time, cross-border collaboration is becoming increasingly essential for addressing the various challenges confronting the region.

In the nuclear sector, although economic and social circumstances of each country differ significantly, there remain numerous common challenges that need to be addressed jointly, including coping with global climate change and ensuring stable and autonomous energy supplies.

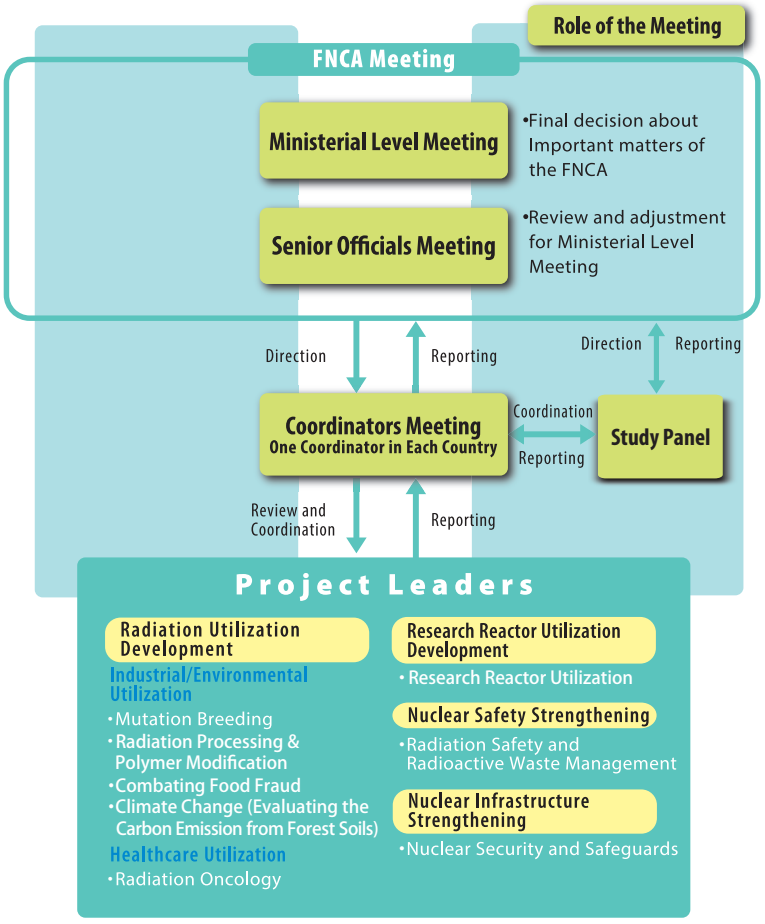
There was a strong willingness among the workshop participants to learn from the experiences and good practices of other countries. Coupled with organizational reforms in government agencies and the introduction of new legal frameworks, their proactive approach to further promoting nuclear energy was particularly impressive.

What's FNCA?

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

FNCA is a framework for international cooperation on the peaceful use of atomic energy, led by Japan's Cabinet Office and Ministry of Education, Culture, Sports, Science and Technology. Thirteen countries - Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Korea, Malaysia, Mongolia, the Philippines, Singapore, Thailand, and Viet Nam - are conducting collaborative activities under equal partnership for joint research on nuclear science and technology, information exchange, and support for nuclear power infrastructure development.

The FNCA Framework



FNCA Ministerial Level Meeting

A meeting of ministerial level representatives who are in charge of science and technology policy and supervising nuclear energy and radiation uses. FNCA's cooperation policies and nuclear energy policies of the member countries are discussed in this meeting.

FNCA Senior Officials Meeting

Senior officials from member countries have preliminary discussion on the agenda for the Ministerial Level Meeting.

FNCA Coordinators Meeting

A coordinator is appointed for each member country to oversee FNCA project activities in various nuclear fields. Coordinators gather to assess the progress of individual projects and discuss their results, evaluations, future policies and general management of FNCA.

Study Panel

In the Study Panel, senior officials and experts from the FNCA member countries discuss on nuclear policy/technical matters of both power and non-power areas of nuclear energy with a view to applying such knowledge to domestic and international activities.

Projects

For eight projects in four areas associated with radiation utilization and nuclear power infrastructure, the FNCA member countries take turns holding a workshop or an open seminar to discuss achievements and the plans of activities.

FNCA
Forum for Nuclear Cooperation in Asia

FNCA Search
https://www.fnca.mext.go.jp/english/index.html

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