

⁷news/etter of the Philippine Nuclear Research Institute (PNRI)

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PNRI Agriculture Projects Won Several Awards



PNRI Agriculture Research Section Head Ms. Glenda Obra and Dr. Louella Lorenzana of the Department of Agriculture (4th and 5th from left) joined the other awardees for the Industrial Technology Category of the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) R&D Awards at the Manila Marriott Hotel. The awardees are joined by PCIEERD Officer-in-Charge and Undersecretary for S&T Services Dr. Rowena Cristina Guevara (5th from right). Photo from PCIEERD

Scientists from the Department of Science and Technology – Philippine Nuclear Research Institute (DOST-PNRI) garnered several awards for research projects and papers on agriculture in June this year.

PNRI Agriculture Research Section (ARS) Head Ms. Glenda Obra, Mr. Sotero Resilva from ARS and Dr. Louella Lorenzana from the Department of Agriculture (DA), were among the awardees for Outstanding R&D 2015 during the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) 5th anniversary celebration held at the Manila Marriott Hotel on June 30.

Their project entitled "Establishment of Radiation Dose for Quarantine Treatment of Mango Pulp Weevil, *Sternochetus frigidus* (F.) in Philippine Super Mango" won under the Industrial Technology Category of the PCIEERD R&D Awards.

Irradiation as a quarantine treatment for Philippine Super Mangoes was recently approved on October 1, 2014 by the United States Department of Agriculture – Animal and Plant Health Inspection Service - Center for Plant Health Science and Technology (USDA-APHIS-CPHST).

Based on PNRI's research studies, a minimum radiation dose of 165 gray (Gy) is enough to make the adult mango weevil sterile, providing sufficient quarantine security for the Philippine Super Mangoes.

The development of the quarantine treatment was a collaborative project with the DA Regional Field Unit 4B and was funded by USDA and the DA Bureau of Plant Industry (DA-BPI).

Meanwhile, the research team of Mr. Roland Rallos and Ms. Faye Rivera, both from PNRI-ARS, along with scientists from the DA Bureau of Soils and Water Management (DA-BSWM) swept three awards from first to third place for their research papers during the 64th anniversary of the DA-BSWM held from June 2-5.

From the Director



Greetings to everyone!

Time truly flies when in the midst of hard work as we cap the first half of 2015. All the while, we at the Philippine Nuclear Research Institute continue to strive towards contributing to a higher standard of living for the average Juan Dela Cruz by developing new technologies and refining already exisiting ones, opening our doors to clients in need of the unique advantages of nuclear and radiation-based services, and regulating the peaceful uses of nuclear and radioactive materials.

We are proud to announce that our Agriculture Research Section has recently garnered several awards for their research projects and papers. This quarter also proved productive for PNRI in its participation in the Asian Nuclear Safety Network (ANSN) through several workshops in various fields.

As regards our regulatory mandate, PNRI continues to cooperate with the IAEA and the US Department of Energy to prepare for the security of the APEC Summit to be hosted by the Philippines this November.

We have also been recently successful in cascading nuclear science & technology to the educational sector through our training courses such as the Course on Medical Use of Radioisotopes, Seminar on Nuclear Science for Teachers, Course on Nuclear Technology and the recently established PNRI Neutron School. An IAEA outreach program for secondary schools is also gaining ground as we were able to engage in a Teacher's Exchange Program with our counterparts from Indonesia.

These accomplishments are are a good sign that we here at PNRI can do even better this latter half of 2015.

PNRI Agri Projects Win Awards - Continued from Page 1

Their paper on "The Use of Nuclear Analytical Technique in Improving Soil Test Calibration and Fertilizer Recommendation for Corn" won first place, followed by research on "Nuclear Techniques and Fertigation to Improve Water and Nutrient Use Efficiencies of Mungbean Mutant" for second place, and the paper entitled "Assessment of Inorganic and Organic Rice-based Farming Systems in the Pampanga River Basin Through Lysimetric Nutrient Dynamics and Isotopic Techniques" for third place.

The team also won 2nd Best Poster Paper and Most Promising Technical Research Paper for the lone poster paper presented under the On-going Projects Category during the DA Regional Field Office III 2015 RD&E Agency In-House Review held from June 10-11 at the Holiday Inn in Clark, Pampanga.



Mr. Roland Rallos (3rd from right) and Ms. Faye Rivera (extreme left) of PNRI Agriculture Research Section and Ms. Edna Samar (2nd from left), Ms. Jacqueline Rojales and Mr. Allan Anida of the DA Bureau of Soils and Water Management with their winning poster paper on increased crop yield and nitrogen use efficiency during the DA 2015 RD&E Agency In-House Review held from June 10-11 at the Holiday Inn in Clark, Pampanga

PNRI Signs MOU on Radiological Health and Environmental Protection with Hirosaki University



PNRI Director Dr. Alumanda Dela Rosa and Hirosaki University Institute of Radiation Emergency Medicine Director Dr. Masatoshi Yamada (1st row, 3rd and 4th from left) signed the Memorandum of Understanding between the two institutions on June 30.

The MOU highlights the cooperation of PNRI and the Japanese university in the field of radiological health and environmental radiation protection. They are joined by Health Physics Research Section Head Mr. Teofilo Garcia, National Liaison Officer Ms. Nydia Medina (1st row, 1st and 2nd from left) and Hirosaki University officials.

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Assessing Seismic and Volcano Hazards Related to Nuclear Power Plant Safety





Left Photo: IAEA expert Mr. Leonello Serva discusses on the development of a geological and geophysical database in preparation for the establishment of a nuclear power plant.

Right Photo: The participants and experts during a tour of the Bataan Nuclear Power Plant as part of the workshop on nuclear power plant site safety.

To help countries embarking on a nuclear power program be better able to ensure safer sites for prospective nuclear facilities, the DOST-PNRI hosted the IAEA Asian Nuclear Safety Network (ANSN) Regional Workshop on Fault and Volcano Hazards related to Nuclear Power Plant Site Safety and Annual Meeting of the Siting Topical Group from June 15 to 19 at the Crowne Plaza Manila Galleria in Quezon City.

Representatives from Bangladesh, China, Indonesia, Malaysia, Thailand and Vietnam participated in the week-long event. They were also joined by participants from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Philippine Institute of Volcanology and Seismology (PHIVOLCS), University of the Philippines - National Institute of Geological Studies (UP-NIGS), the Department of Energy (DOE) and National Power Corporation (NPC).

Through case studies and exercises, the participants discussed several factors to consider for nuclear installation sites, including an analysis of faulting, volcanic and extreme metereological hazards. IAEA experts from Italy, South Korea, Jordan and Armenia and Filipino experts from PAGASA, PHIVOLCS and UP-NIGS conducted lectures and presentations on their experiences with technologies for assessing the various geological, seismic and volcanic hazards, as well as the IAEA safety standards applicable to these scenarios.

The participants also toured the Bataan Nuclear Power Plant to have a firsthand observation and application of the siting considerations discussed in the previous days.

Leadership and Safety Culture Towards an Integrated Management System



Left Photo: IAEA expert Mr. Jongile Majola, PNRI Director Dr. Alumanda Dela Rosa, IAEA expert Mr. Ovidjus Sestokas (1st row, 6th to 8th from right), and PNRI Planning Section Head and Workshop Coordinator Ms. Maria Celerina Ramiro (1st row, 4th from right) with the participants from PNRI.

Right Photo: Mr. Majola observes as the participants deliberate on the safety qualities and procedures for their various sections and facilities.

As the Philippines joins the world in the effort to harmonize the various management systems of nuclear regulatory bodies, the DOST-PNRI hosted the International Atomic Energy Agency (IAEA) National Workshop on Leadership and Management for Safety in a Regulatory Body and Development of Safety Culture from June 1 to 5.

The week-long workshop was conducted under the Asian Nuclear Safety Network (ANSN), particularly to develop the safety culture within PNRI as well as to improve its efficiency in fulfilling the regulatory mandate.

Among those who participated in the workshop from PNRI are the Institute's senior

regulators, radiation facility operators, laboratory managers, and officials as well as process owners in charge of the PNRI Quality Management System (QMS).

These efforts on training PNRI officials and staff on safety culture and management are part of the Institute's preparations for its eventual transition to the IAEA Integrated Management System.

The new IMS will cover not only the regulatory requirements of the IAEA, but also those of the International Standardization Organization (ISO). PNRI's QMS was recently certified under ISO 9001:2008 on December 4, 2014, which served as an expansion of the

prior certification of the PNRI Nuclear Regulatory QMS back in 2008.

The workshop was handled by IAEA regulatory experts Mr. Jonglie Majola from Canada and Mr. Ovidjus Sestokas from Lithuania.

The experts shared their experiences on their country's nuclear regulatory bodies, especially on the processes involved in integrating their management systems. They also encouraged the participants to share and discuss the various safety and regulatory practices of PNRI as well as the areas which must be made more compatible with the aspects of safety culture and management.

Philippines Hosts Indonesian Teachers Under IAEA Teachers Exchange Program



Left Photo: IAEA Technical Officer Dr. Sunil Sabharwal, PNRI Director Dr. Alumanda Dela Rosa and Dr. Takeshi limoto of the University of Tokyo (1st row, 5th to 7th from left) with DepEd Division of City Schools – Quezon City Science Supervisor Dr. Violeta Tupas and PNRI Nuclear Information and Documentation Section Head Ms. Rhodora Leonin (1st row, 1st and 2nd from right), join the visiting teachers in Indonesia and the Filipino officials and teachers from the Philippine pilot schools

Right Photo: Ms. Endang Wadju Rijana and Mr. Eko Supardyono (1st and 2nd from left) observe the cloud chamber experiment at San Francisco High School

Keeping nuclear science alive in the classroom, not only in the Philippines but also throughout Southeast Asia, the DOST-PNRI and the Department of Education–Division of City Schools Quezon City (DepEd-QC) hosted the visit of science teachers from Indonesia for a teacher's exchange program under the International Atomic Energy Agency (IAEA) from June 8 to 13.

The exchange program was conducted under an IAEA project on "Supporting Sustainability and Networking of National Nuclear Institutions in Asia and the Pacific Region" which aims to develop the youth's interest in nuclear science and technology by reaching out to high schools throughout the region. The Philippines and Indonesia serves as pilot countries for the said project along with Malaysia and the United Arab Emirates.

Four science teachers from secondary schools in Indonesia met with IAEA Technical Officer Dr. Sunil Sabharwal, University of Tokyo Professor Dr. Takeshi limoto and officials from PNRI and DepEd-QC to observe how nuclear science is being taught in Filipino classrooms by their counterpart teachers from San Francisco High School (SFHS) and Quezon City Science High School (QCSHS), who are currently serving as pilot schools for the outreach project. The Filipino teachers previously visited Indonesia last May 17-24 as part of the teacher's exchange program. The visit started with an in-depth discussion of the differences between the curriculums of the two countries, particularly regarding the science and mathematics track of the Philippines' K-12 Curriculum, and how could the teachers from both countries learn from each other regarding the integration of nuclear and radiation concepts in their lesson plans.

The following day, the participants visited the two pilot schools for teaching demonstrations that feature lessons as well as experiments on basic radiation concepts. In the morning, students from SFHS were able to observe the tracks of radiation through a cloud

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Quality Management Systems for Better Marine Radiological Data



Left: PNRI Director Dr. Alumanda Dela Rosa (1st row, 4th from left), IAEA expert Mr. Peter Vermaercke (2nd row, 5th from right) and Lead Country Coordinator Mr. Ronald Szymczak (2nd row, 6th from left) with the representatives from several countries in the Asia-Pacific Region at the Crowne Plaza Manila Galleria.

Right: The international participants listen to the briefing of the PNRI Irradiation Services Section at the Electron Beam Facility.

Marine environmental radioactivity monitoring experts and researchers from the Asia-Pacific region met in the Philippines early this May to improve the research capability to provide better marine radiological and environmental data with more stringent and intensive reviews of each country's quality management systems.

From May 11 to 15, the DOST-PNRI hosted a Workshop for Review Implementation of Quality Management Systems at the Crowne Plaza Manila Galleria in Quezon City. The workshop was conducted through the efforts of the International Atomic Energy Agency (IAEA) and the Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology in the Asia-Pacific Region (RCA).

In particular, these efforts on QMS review are under the IAEA/RCA Project RAS/7/021 entitled "Marine Benchmark Study on the Possible Impact of the Fukushima Radioactive Releases in the Asia-Pacific Region". It specifically aims to develop capabilities of countries having limited experience in marine radioactivity monitoring programs.

Developing quality data is indispensable in the contribution of the various national counterparts to the Asia Pacific Marine Radioactivity Database (ASPAMARD), with the Philippines as the focal point for the database compilation throughout the region.

The ASPAMARD contains data on radionuclide concentrations in seawater, sediment and marine biota in Asia and the Pacific.

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Indonesian Teachers Visit - Continued from Page 4



Clockwise from left: (1) A student competing in the Science on a Wednesday poster-making contest presents her entry to Dr. Sabharwal; (2) The experts and Indonesian teachers with PNRI, NPC and DepEd officials at the Bataan Nuclear Power Plant; (3) PNRI



Director Dr. Alumanda Dela Rosa formally receives the Hakaru-kun gamma radiation detectors donated through Dr. Takeshi limoto of the University of Tokyo; (4) Ms. Sri Wilujing from Indonesia shows some of the creative materials her students made related to nuclear science and technology to the Filipino teachers; (5) Dr. Sabharwal and Ms. Noor Lailah Sahlan from Indonesia (extreme left) observes the teaching demonstration on radiation doses at Quezon City Science High School.

chamber experiment. The experts and the visiting teachers were also shown the Nuclear S&T Information Kiosk, which serves as a standalone terminal for information and educational materials on nuclear science and technology for the students. The kiosk is based on the DOST Starbooks digital library for schools throughout the Philippines.

Meanwhile, the QCSHS students used the Hakaru-kun gamma detectors to survey their surroundings for radiation in the afternoon. Around 20 of these detectors were donated with assistance from the IAEA. The demo teachers also made the technical concepts more interesting by adding games and creative presentations to their lesson plans.

On June 10, the students and teachers from the pilot schools went to PNRI for Science on a Wednesday, a whole-day event of funfilled competitions related to nuclear science and technology, including radiation monitoring, poster-making, slogan-making, songwriting and jingle-making contests. The Indonesian teachers and IAEA experts served as judges along with PNRI and DepEd-QC officials.

The experts and visiting teachers also got the chance to visit the Bataan Nuclear Power Plant in Morong, Bataan, on Thursday, where they were welcomed by engineers and information officers of the National Power Corporation who are currently in charge of the maintenance of the mothballed nuclear plant. They were also joined by teachers from several secondary schools in Metro Manila and Luzon who completed the Seminar on Nuclear Science for Teachers (SNST) at PNRI last May 22.

On Friday, science teachers throughout Quezon City attended the Seminar on Nuclear Education for Teachers held at the Science Interactive Center at DepEd-QC.

The experts shared their knowledge and insights on teaching basic nuclear and radiation science to students, including the ways to make these technical concepts even more interesting and accessible using various information and educational materials.

UNTUK MASA DEPAN

The teachers from the pilot schools also shared to the participants how to conduct the various radiation experiments and activities in a classroom setup. In the afternoon, the students and teachers closed the program with their expression of gratitude and a series of special numbers showcasing the talents and culture of Filipinos.

Finally, the participants gathered once again at PNRI to review the progress of the exchange program and determine the lessons learned from the visit, both by the Indonesian teachers and their Filipino counterparts. Before concluding the exchange visit, the experts and participants were shown two interactive kiosks entitled "The Atom, Radiation & Radioactivity" developed at PNRI with assistance from IAEA.

These kiosks use flash animations and pop quizzes to feature the basics of atomic structure, nuclear applications and basic radiation protection, among others.

QMS for Marine Radiological Data - Continued from Page 4

Under Project RAS/7/021, Phase 3 of the ASPAMARD focuses on the potential impact of the Fukushima nuclear accident on marine life and the environment.

Among the 20 workshop participants are representatives from Australia, Bangladesh, Cook Islands, China, Fiji, India, Indonesia, Malaysia, Marshall Islands, Myanmar, New Zealand, Pakistan, Sri Lanka, Thailand, and Vietnam. Specialists from various research sections of PNRI also participated in the workshop. Most of the participants are experienced in the field of marine radiochemistry or environmental management, as well as in monitoring radionuclides in their respective countries.

Lectures were conducted by IAEA expert Mr. Peter Vermaercke from Belgium, Ms. Cecilia De Vera of the PNRI Radiological Impact Assessment Section and Mr. Joseph Michael Racho of the PNRI Nuclear Analytical Techniques Applications Section. The workshop was facilitated by IAEA and RCA Lead Country Coordinator Mr. Ronald Szymczak from Australia and Workshop Director Ms. Eliza Enriquez of the PNRI Health Physics Research Section. The participants from each country presented their experiences in sustaining their quality management systems and procedures.

They also had the chance to visit the various PNRI laboratories and facilities certified under the International Standardization Organization (ISO) standards.

Among these facilities are the Nuclear Analytical Techniques Applications Section, the Cobalt-60 Multipurpose Irradiation Facility and the newly inaugurated Electron Beam Facility.

Nuclear Training Courses

Medical Radioisotopes Training for Doctors and Medical Staff





Left Photo: The participants deliberate on the radiation safety measures to be taken for their medical facilities Right Photo: The participants during a tour of the control room of the Philippine Research Reactor - 1 (PRR-1) at PNRI. During its decades-long operation, the BBB takes also used to produce medical instance such as loding 11, among others.

the PRR-1 was also used to produce medical isotopes such as Iodine-131, among others.

One of the thriving applications for nuclear and radiation technologies in the world today is in the medical field. These applications range from teletherapy machines for treating cancer to radiopharmaceuticals for diagnostic imaging, among many others.

Proving that the Philippines' medical sector is up to date with the latest in the field of radioisotopes, doctors, medical technologists and medical workers graduated from the Course on Medical Use of Radioisotopes (CMR) conducted by DOST-PNRI from June 1 – 26.

For the first two weeks, the participants were taught basic nuclear physics and

radiation chemistry, radiation protection and monitoring instruments, proper handling practices of radioactive materials, radiation dosimetry, cellular radiobiology and medical cytogenetics.

By the third week, the lectures focused on nuclear medicine and medical radioisotope applications, including radioimmunoassay, radiophamacy, positron emission tomography and radiation therapy.

The participants were also provided lectures on the Code of PNRI Regulations, licensing requirements, security of radiation sources, radioactive waste management and emergency procedures, among other nuclear safety/security measures. Long quizzes were given every week to test how much the participants have learned.

In addition, the participants presented a case study per group to assess procedures or facilities in their respective fields on the final day of the training course.

A certificate of completion was awarded to participants for successfully finishing the course.

The participants also toured the various facilities of PNRI, including the Cobalt-60 Multipurpose Irradiation Facility, the Electron Beam Facility, the Technetium-99m Generator Facility and the Philippine Research Reactor – 1 (PRR-1).

Seminar on Safe Transport of Radioactive Materials

As part of the effort to keep the general public safe from harmful exposure to radiation by ensuring the proper transportation of radioactive materials, the DOST-PNRI conducted the General Awareness Training on Safe Transport of Radioactive Materials from June 23 to 24 at the PNRI compound.

The seminar was attended by members of the government sector, particularly the Inter-Agency Coordinating Committee on Safe Transport of Radioactive Material, including representatives from the Bureau of Customs (BOC), Philippine Coast Guard (PCG), Civil Aviation Authority of the Philippines (CAAP), Maritime Industry Authority (MARINA), Land Transportation Franchising and Regulatory Board (LTFRB), Ofice for Transportation Security (OTS), Manila International Airport Authority (MIAA), Cebu Ports Authority (CPA), Mactan Cebu International Airport Authority (MCIAA) and Clark International Airport Authority (CIAA).

Beyond the basics of radiation and radioactivity, the seminar also featured lectures on radiation monitoring, biological effects of radiation, radiation protection concepts, nuclear and radiological emergency preparedness and response to transport accidents involving radioactive materials, and a film showing on the safe transport of radioactive materials, among others.

The seminar also touched on both the national as well as the international regulatory frameworks to be followed to ensure safety in the transportation of radioactive materials. These include the Code of PNRI Regulations (CPR) and the relevant safety standards set by the International Atomic Energy Agency (IAEA).

PNRI regulators conducted lectures on the classification and proper transportation of radioactive materials, response to transport accidents, and the responsibilities of consignors and carriers involved in transport operations.



Lecturers from PNRI with the participants from the government sector for the General Awareness Training on Safe Transport of Radioactive Materials at the PNRI compound



High School and University Faculty Develop Teaching Modules and Present Case Studies on Nuclear S&T





Left: The participants conduct the cloud chamber experiment to see the tracks of radiation emanating from the radioactive source. The experiment was supervised by high school teachers involved in the International Atomic Energy Agency educational outreach program on nuclear science and technology for secondary schools

Right: A radiation measurement activity being conducted at the PNRI Nuclear Training Center

Halfway this summer, teachers from secondary schools and instructors from universities and colleges spent the rest of the vacation grappling with equations and formulas as they studied nuclear science and technology to develop teaching modules and case studies under the tutelage of experts from the DOST-PNRI.

This May, the faculty felt the nostalgia of being students once again during the

Course on Nuclear Technology (CNT) and the Seminar on Nuclear Science for Teachers (SNST) conducted by the PNRI Nuclear Training Center.

University professors and graduates from De La Salle University, Cagayan State University, University of Eastern Philippines and University of the Philippine Los Baños participated in the CNT. The SNST participants are composed of science teachers from several secondary schools in Metro Manila and Luzon. Also among the participants are teachers from Quezon City Science High School and San Francisco High School, which are the pilot schools for an educational outreach program for nuclear science & technology.

The outreach program is under the IAEA Project RAS /0 / 065 on Supporting Sustainability and Networking of National Nuclear Institutions in Asia and the Pacific Region.

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PNRI Annual Neutron School for Undergraduate Students



Left Photo: An instrument demonstration on neutron detection and dose measurement under the supervision of the PNRI Applied Physics Research Section Right Photo: The students conduct an exercise on setting up a lead cave assembly

Aiming to build competence and expertise on neutron science among the next generation of potential nuclear scientists, DOST-PNRI conducted the 2015 Neutron School from May 4-8.

Six students from University of the Philippines – Manila, Ateneo De Manila University and Eulogio A. Rodriguez Institute of Science and Technology participated in the week-long training program consisting of lectures and practical activities on the basics of nuclear and neutron physics. This program also served as part of the on-the-job training of senior undergraduate students taking up physics and engineering courses.

The in-depth and more advanced discussions on nuclear and radiation science are expected to provide adequate training and teaching environments for the operation and regulation of future nuclear facilities. The neutron school includes lessons and experiments on basic radiation dosimetry and detection, nuclear instrumentation, active and passive neutron detectors, gamma spectrometry using sodium iodide, and neutron flux mapping, among others.

At the end of the course, the participants presented their outputs for the program during a colloquium held last May 26.

The Annual Neutron School is facilitated by the PNRI Applied Physics Research Section with the invaluable assistance of lecturers from the Nuclear Training Center and the Nuclear Regulatory Division.

Nuclear Safety and Security

Nuclear Security Systems and Measures for the APEC Summit



Left: PNRI Director Dr. Alumanda Dela Rosa (1st row, 6th from right), Nuclear Regulatory Division Chief Mr. Teofilo Leonin (1st row, extreme left) with the experts from the United States Department of Energy - National Nuclear Security Administration (USDOE-NNSA) - Mr. Bert Cochran, Mr. Kevin Rolfe, Mr. Vince McClelland, Mr. Richard Maurer (1st row, 5th to 9th from left), Ms. Rica Salcedo and Mr. Charles Guinn (2nd row, 6th to 7th from left), Mr. Radek Hlavacka of the International Atomic Energy Agency (IAEA) (1st row, 3rd from right) and the participants from various government agencies.

To be further able to protect the public from potential threats involving nuclear or radiological materials, the DOST-PNRI in cooperation with the United States Department of Energy - National Nuclear Security Administration (USDOE-NNSA) and the International Atomic Energy Agency (IAEA) organized the National Workshop on Nuclear Security Systems and Measures for a Major Public Event from June 29 to July 2.

The four-day workshop is particularly necessary as part of the preparations for the 27th Asia-Pacific Economic Cooperation (APEC) Leaders Summit to be hosted by the Philippines from November 18-19, 2015.

Several experts from the USDOE and the IAEA supervised the participants as they studied the various procedures, practices and equipment used in radiation detection

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National Workshop on Threat Assessment and Design Basis Threat



International Atomic Energy Agency experts Mr. Albertus Hendricus Dal (1st row, extreme left), Mr. Sung Soon Jang (1st row, center) and Mr. Anthony Aragon (1st row, extreme right) with PNRI Director Dr. Alumanda Dela Rosa (1st row, 2nd from left, Nuclear Safeguards and Security Section Head Ms. Julietta Seguis (1st row, 2nd from right) and the participants of the national workshop from various agencies.

Highlighting the continued cooperation between government agencies in the field of nuclear security, the DOST-PNRI hosted the National Workshop on Threat Assessment and Design Basis Threat from April 21-24.

The workshop was conducted in cooperation with the International Atomic Energy Agency (IAEA), in line with the Integrated Nuclear Security Support Plan (INSSP), of which the Philippines is an active partner in its implementation. The four-day course featured the use, development, and maintenance of threat assessment and design basis threat as regulatory tools for sharing security responsibilities between the State and various operators.

It also included discussions on the sources and types of threat information, as well as the methodology, implementation and application of these tools to further strengthen the regulatory foundation of the country in terms of nuclear security. The lectures were conducted by IAEA experts Mr. Albertus Hendricus Dal, Mr. Sung Soon Jang and Mr. Anthony Aragon.

The participants include representatives of various government agencies such as the Armed Forces of the Philippines, Philippine National Police, Department of National Defense, National Bureau of Investigation, National Intelligence Coordinating Agency, Anti-Terrorism Council and the Office for Transportation Security. They were also joined by regulators from PNRI.

Nuclear Security Systems for Major Public Events - Continued from Page 9

and protection, transportation of radioactive sources, and responding to nuclear and radiological emergencies, among others. Among the sixty participants are several











Left Photos: USDOE expert Mr. Charles Guinn demonstrates techniques for dealing with radioactive sources in suspicious packages

Top Right Photo: Mr. Bert Cochran shows the participants how to use the state-of-the-art mobile systems for tracking radioactive materials in a given area

Bottom Right Photo: Mr. Kevin Rolfe instructs the participants in the use of radiation detectors

High School and University Faculty - Continued from Page 7

The CNT was held on May 4 to 15, while the SNST was conducted until May 22. The participants from both courses were oriented on the basics of radiation and radioactivity, nuclear physics & chemistry, detection and measuring instruments, radioactivity counting, neutron sources and interactions, radiation safety, protection and shielding, among others.

The high school teachers were exposed to the various applications of nuclear science and technology, such as food irradiation, mutation breeding, soil fertility and plant nutrition studies, radioisotopes in medical, industrial and geological applications, and nuclear energy for power generation.

The SNST lectures also involved relevant aspects of nuclear regulations and radiation safety, such as emergency planning, preparedness and response, radioactive waste management, transportation of radioactive materials and radiation monitoring.

Meanwhile, the CNT participants learned much about gamma spectrometry,

production of radioisotopes and its medical and environmental applications, and radiation processing of natural polymers.

Written examinations were given to the participants to gauge how much they learned after every week. The participants were also required to develop the respective final requirements for each course – the teaching modules for SNST and case studies for the CNT participants. These were presented before a panel of evaluators composed of experts from various PNRI research and regulatory sections.

After these activities, the participants had the opportunity to go on a tour of the various PNRI facilities and laboratories such as the Technetium-99m Generator Facility, the Philippine Research Reactor-1 (PRR-1), the Cobalt-60 Multipurpose Irradiation Facility and the Electron Beam Facility. The visit gave the participants a first-hand observation of the nuclear and radiation applications they learned during the course. Extending their fellowship beyond the training seminar, the high school teachers capped the summer with a trip to the Bataan Nuclear Power Plant on June 11 along with science teachers from Indonesia under a teacher's exchange program by the IAEA.

About Us

The Philippine Nuclear Research Institute (PNRI) is a research and development institute under the Department of Science and Technology (DOST) mandated by law to undertake research and development activities in the peaceful uses of nuclear energy, render nuclear and specialized services and exercise regulatory control in the field of nuclear science and technology. The Institute has been serving the public for the past 55 years, harnessing the beneficial applications of nuclear energy while ensuring the safe use and security of radioactive materials and nuclear facilities for the protection of workers, the general public and the environment.

PNRI Vision

The PNRI is an institution of excellence in nuclear science and technology propelled by a dynamic and committed workforce in the mainstream of national development.

PNRI Mission

We contribute to the improvement of the quality of Filipino life through the highest standards of nuclear research and development, specialized nuclear services, nuclear technology transfer and effective and efficient implementation of nuclear safety practices and regulations.



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Philippines: A Science Nation Innovating for Global Competitiveness





