

PNRI Newsletter

A newsletter of the Philippine Nuclear Research Institute (PNRI)

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The PNRI Newsletter is an online publication of the Philippine Nuclear Research Institute (PNRI), a research and development institute of the Department of Science and Technology (DOST).

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PNRI-DOST FEATURES ADVANCES IN NUCLEAR SCIENCE AND TECHNOLOGY IN 41ST ATOMIC ENERGY WEEK CELEBRATION



The Philippine Nuclear Research Institute-Department of Science and Technology (PNRI-DOST) will feature the latest advances in nuclear science and technology in the fields of agriculture, industry, medicine and the environment during its 41st Atomic Energy Week celebration on December 9 to 13, 2013 at the PNRI compound in Commonwealth, Diliman, Quezon City.

As mandated under Presidential Proclamation No. 1211 in 1973, the annual AEW is celebrated every second week of December to help generate awareness of the Filipinos on the beneficial uses of nuclear science and technology.

This year's celebration is themed, "Nuclear Science, Safety and Security: Road to Smarter Philippines," in line with DOST's theme for the 2013 National Science and Technology Week celebration in July.

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IAEA Offers to Provide Technical Support for Recovery after Typhoon Yolanda

The Vienna, Austria-based International Atomic Energy Agency (IAEA), has offered to provide technical support and advice in the rebuilding and rehabilitation efforts in the Philippines following the aftermath of the devastation caused by super typhoon Yolanda (international name Haiyan).

The typhoon has ravaged much of central Philippines early November, with more than 5,000 dead and inflicting P11.3 billion in damages to agriculture, of which rice and corn crops bore most of the brunt, according to the National Disaster Risk Reduction and Management

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From the Director



Greetings to everyone!

In time for the celebration of the 41st Atomic Energy Week, I am pleased to announce the launching of the online issue of the Philippine Nuclear Research Institute (PNRI) Newsletter.

PNRI has always adapted to better serve the needs of the Filipino people. The recent advent of the digital age and the rise of internet and social media opened more avenues to enhance public awareness on the benefits of the peaceful applications of nuclear science and technology.

The global reach of this new medium will keep us in touch and on par with our various international linkages and networks 24/7.

Moreover, the PNRI Newsletter will also keep the public and various stakeholders up to date with the Institute's latest activities on nuclear science and technology.

The contributions of the PNRI staff, whether based here or abroad, are always welcome. We highly encourage the participation of PNRI's experts from very diverse fields – ranging from agriculture, industry, medicine, and environmental protection, among others – in imparting their specialized knowledge and eventually helping the laymen relate to our progress in nuclear research and development.

Every article we read is a contribution in paving the road to a SmarTer Philippines as envisioned by the Department of Science and Technology.

Congratulations to the PNRI Newsletter Editorial Staff!

PNRI-DOST Features Advances in Nuclear...from page 1

The 2013 AEW will focus on enhancing public awareness on breakthroughs in nuclear science and technology, as well as safety and security in undertaking activities involving radioactive materials.

"We also find it equally paramount that nuclear research and development will bring prosperity only if harnessed properly," said Teofilo Leonin, chief of the Nuclear Regulatory Division and the 2013 AEW Executive Committee Chairperson.

The Institute will provide free guided tours to the exhibits and selected PNRI facilities and laboratories to students, teachers, researchers, entrepreneurs, and the public during the week-long celebration.

Experts will give presentations during the technical sessions on nuclear and radiation safety and security and on peaceful applications of nuclear science and technology: **Technetium-99m Radiopharmaceutical Production, Graded Approach in Radioactive Material Licensing and National Contingency Planning Process**

on December 10; **Nuclear Techniques as a Tool in Smart Farming and Radioisotopes as Environmental Tracers** on December 11 and a **Special Session on Cyclotron and PET-CT** on December 12.

Teams of high-school students from public and private schools across the country will compete with their knowledge in nuclear science and other related topics in the Philippine Nuclear Science Quiz (PNSQ) for High School Students to be held on December 12 at the PNRI Auditorium.

Cash prizes will be awarded during the AEW closing ceremonies to the first, second and third placers in the final round of the PNSQ – P30,000, P20,000 and P10,000 respectively – as well as medals, trophies and plaques of recognition.

For more information on the activities for the 41st Atomic Energy Week, please contact the PNRI Nuclear Information and Documentation Section at 920-8787 and 929-6011 to 19 local 286, or send your emails to information@pnri.dost.gov.ph, or visit www.pnri.dost.gov.ph.

IAEA to Provide Technical Support...from page 1

Council. Damages to livestock and fisheries both cost around P2 billion, causing fear and anxiety as to its effects on the national economy.

The IAEA, the world's center of cooperation in the nuclear field within the United Nations family, offered to provide assistance in the assessment of damaged agricultural lands, and in monitoring of potential risks of possible animal disease outbreaks such as foot and mouth disease, which has a high risk of returning after its eradication in the Philippines, Newcastle disease, and influenza.

With efforts shifting from emergency relief to reconstruction, the Joint FAO/IAEA Division then Department of Nuclear Application and the Technical Cooperation Department extend its technical knowledge and expertise in speeding up the recovery of the calamity's survivors and their livelihood while giving equal attention to health and safety concerns.

Immediate, short-term targets include the analyses of soil quality, mapping of destroyed agricultural areas and diagnostics of animal health problems.

Long-term assistance by the IAEA may

include seed production for early crop recovery and identification of crops which are suitable to the current soil quality and salinity levels.

On its part, the PNRI has organized a research team consisting of a geologist, marine scientist, soil scientist, and chemists.

The team has been dispatched to Leyte and Samar to make an initial survey and assessment of the extent of damage to the agricultural lands. Since erosion decreases soil fertility, the team will assess the soil erosion and sedimentation estimates in the typhoon-damaged agricultural lands using fall-out radionuclides-based technique.

The team will also collect water samples from well and drinking water sources to assess the effects of the typhoon on groundwater system in Tacloban.

Gamma-Ray Technique will Help Local Mining Industries Save Millions of Dollars for Failed Explorations - PNRI



RS230 Gamma Ray Spectrometer equipped with Bismuth Germanium Oxide detector

Hailing yet another addition to the Institute's wide range of services, scientists from the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI – DOST) opens its surveying service on copper deposits to help the local mining industry.

Using newly acquired gamma-ray spectrometers, the PNRI's Nuclear Materials

Research Section offers surveys for potential porphyry copper and copper-gold deposits to prospective clients from mining companies, helping them to save millions of dollars in expenses for failed explorations.

Copper is crucial for various industries, ranging from electric cables to components of machines, appliances and other gadgets, while gold is one of the most precious metals in the market, used both for jewelry and electronics. The ever-increasing demand for these metals has driven mining companies to conduct more and more exploration ventures – often wasting time and resources in the process.

"Economically speaking, mining is a very high-risk business. Sometimes, only one in ten exploration operations will turn out to be a success," said Rolando Reyes, head of the Nuclear Materials Research Section.

Reyes heads the team which validated the technology's practical applications for searching copper deposits. PNRI's expanded

capabilities in gamma-ray spectrometry will provide the industry with much-needed expertise, let alone spare local companies from spending on their own spectrometers, which could cost more than P1.2 million pesos each.

"We have already tested and verified the method, so we are confident that the service will prove useful as an additional tool in a multidisciplinary field," he said.

Primarily intended to detect concentrations of potassium, uranium and thorium, gamma-ray spectrometry has since been used in a number of applications by industries heavily involved in geological exploration such as oil and mining firms.

PNRI scientists used the technology to pinpoint areas rich in copper and copper-gold quantities by correlating the presence of these deposits with high readings of potassium and potassium/thorium ratios.

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PNRI Hosts National Training Course on Nuke Technologies for Agriculture



Participants in the National Training Course on the Use of Isotopic Techniques in Soil and Water Management and Crop Nutrition pose with PNRI Atomic Research Section head Dr. Glenda Obra (standing, 4th from left); OIC, Deputy Director Dr. Christina Petrache; Mariano Marcos State University, Dr. Dionosio Bucao; and Atomic Research Division chief Dr. Soledad Castañeda.

Twenty-six participants from Philippine government agencies, including four Cambodian experts, completed a four-day training course on the use of nuclear techniques in agricultural management hosted by the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI-DOST) from October 14-17.

Organized by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development - Department of Science and Technology

(PCAARRD-DOST), the seminar emphasized the benefits of nuclear isotopes as a less intrusive and more direct quantifier of soil, water and crop nutrient assessment, which is a key advantage in analyzing farming methods and improving various government projects involving agriculture.

Among the participants were officers from the Bureau of Soils and Water Management, Philippine Rice Research Institute (PhilRice), Sugar Regulatory Administration (SRA), PCAARRD and PNRI. Many of them were very interested as the

course has proven itself very relevant to their agency's current projects; some expressed an even greater need for future collaborations.

Members of the academe also attended, particularly from the UPLB, Central Luzon State University, Benguet State University and Visayas State University.

Visiting experts from the Cambodian Agricultural Research and Development Institute and the Department of Agricultural Land Resources Management in Cambodia joined the week-long training course.

The institute's science research specialists conducted the lectures, among them Mr. Roland Rallos and Ms. Faye Rivera of the Agricultural Research Section. Rallos is the National Project Coordinator for RAS 5056, a technical cooperation project conceived by the joint program of the Food and Agriculture Organization and the International Atomic Energy Agency for Asia-Pacific region.

PNRI Director Alumanda Dela Rosa advised the participants to consider working together in the future whenever nuclear technology may be beneficial, as well as exalting the inquisitive talent of the meticulous Filipino scientist. 🌱

PNRI Scientists Trace Pollutants for Manila Bay Cleanup Program

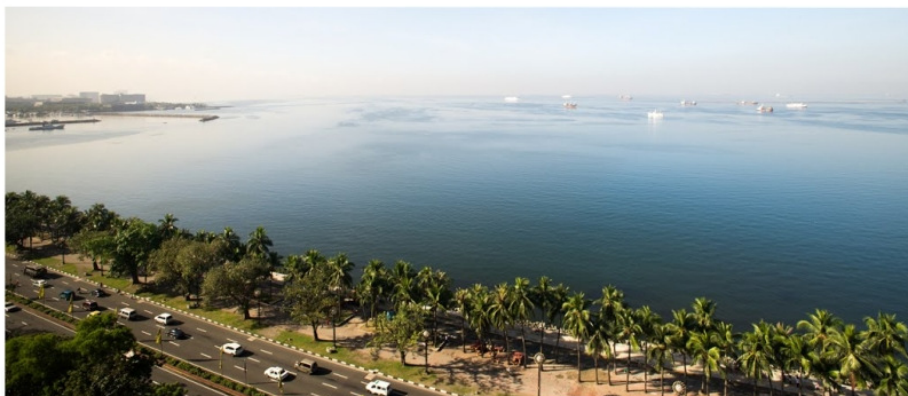


Photo Credit: Lim Kyung Sub

Taking on the formidable task of restoring Manila Bay to safer levels, the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI – DOST) joined forces with the Manila Bay Coordinating Office and the Bureau of Soils and Water Management to analyze the sources of pollution plaguing the 60-km long bay area that caters to a lot of economic activities ranging from shipping, industrial, commercial, fishing, aquaculture to tourism activities.

The agencies signed a Memorandum of Agreement in October 2012, with the PNRI lending its scientific and technical expertise in stable isotope techniques to determine the different sources of pollutants in the Manila Bay area.

The joint action was prompted by a Supreme Court's December 2008 decision and February 2011 resolution ordering the Department of Environment and Natural Resources (DENR) and other government agencies to restore the bay's waters to Class SB classification of the DENR, a water quality standard "fit for swimming, skin-diving, and other forms of contact recreation."

According to the DENR, the Manila bay passes only for Class SC water standards, which only allows up to recreational boating and commercial or sustenance fishing.

Estimates from the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) show that net use of Manila Bay resources is valued at P8.7 billion annually. Environmental damages for the bay, according to PEMSEA, is estimated at P3.98 billion annually as a result of pollution related water-borne diseases, mangrove loss and harmful algal bloom or red tide.

Earlier studies pointed to agricultural, industrial and service sectors as sources of the pollution in the Manila Bay, but there is

no conclusive or direct evidence as yet as to where they come from, how much the materials changed and how much each sector has contributed to the pollution.

The PNRI study was able to differentiate between nitrates from agricultural and domestic activities and estimate the contribution of these sources to the bay's pollution by determining the ratio of the heavy and light isotopes of certain elements – carbon and nitrogen isotopes found in sediments, suspended organic matter and plant tissues, nitrogen and oxygen isotopes in nitrates and for oxygen and hydrogen isotopes in water.

PNRI scientists analysed these samples from the Pampanga river basin collected from "ridge to reef," and from surface sediments in selected sites offshore of the Manila Bay.

Low nitrogen isotope ratios are usually found in agricultural areas, the nitrogen content usually coming from fertilizers. On the other hand, higher nitrogen ratios are exhibited by nitrates from fecal matter and sewage which may be coming from livestock businesses and domestic waste. Inorganic or synthetic fertilizers can further be distinguished from organic fertilizers (decaying organic matter), the former exhibiting much higher oxygen isotope ratios than the latter.

Marine-borne substances, particularly from coastal waters, usually have higher carbon ratios than those of terrestrial origin.

The findings of the study will be presented to the stakeholders before the end of 2013. A similar study is being proposed for Bataan and Cavite watersheds.

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 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.

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.

Gamma-Ray Technique will Help Local Mining Industries...from page 3

Studies at the San Antonio Copper Deposits in Santa Cruz, Marinduque last 2001 and the Dinkidi Copper Deposits in Dipidio, Nueva Vizcaya almost ten years later established their findings.

With the service now open to clients, PNRI currently promotes its surveying capabilities to members of the mining industry, waiting and very willing to enter into agreements with companies that are interested.

"All we are waiting for is a Memorandum of Agreement and we're good to go," quipped the section head.

Philippines Hosts IAEA Regional Workshops/Training Courses

Interregional Training Course on Radioactive Waste Management: Stakeholders Consideration as Inputs to the Strategic Planning for Radioactive Waste Management



Participants and lecturers in the Interregional Training Course on Radioactive Waste Management pose with PNRI Director Dr. Alumanda M. dela Rosa (standing 1st row, 5th from right) and Mr. Peter Ormai, IAEA Technical Officer (standing 1st row, 6th from right).

Joining its peers across four continents to ensure public and environmental safety from the potential risks of radioactive waste, the Philippine Nuclear Research Institute – Department of

Science and Technology (PNRI-DOST) hosted the Interregional Training Course on Radioactive Waste Management at the Crowne Plaza Hotel in Pasig City, Metro Manila from October 21 to 25.

Organized by the International Atomic Energy Agency, the week-long seminar goes beyond the technicalities of establishing an appropriate disposal and storage sites and formulating a national policy for radioactive waste management, giving equal weight to the concerns of communities affected and other stakeholders as well as making a proper communication strategy to address these concerns and eventually benefit the field of nuclear research locally and globally.

Three experts from the IAEA handled the discussions, sharing their experience in radioactive waste management and communication to 28 participants representing government agencies, universities and research institutes from 17 different countries in South and Central Asia, Europe, South America, the Middle East and Southeast Asia.

Government representatives from the National Power Corporation, Department of Energy and PNRI also participated in the seminar. 🌐

PNRI Hosts Second Regional Workshop on the Implementation of IAEA General Safety Requirements Part 3



Participants and lecturers in the 2nd Regional Workshop on the Implementation of the IAEA General Safety Requirements Part 3 pose with PNRI Director Dr. Alumanda M. dela Rosa (standing 1st row, 9th from right) and PCHRD Executive Director Dr. Jaime C. Montoya (standing 2nd row, 3rd from left).

Aiming to protect people and the environment from the harmful effects of ionizing radiation and for the safety of radiation sources, the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI-DOST) hosted the Second Regional Workshop on the Implementation of the IAEA General Safety Requirements Part 3 held at the Crowne Plaza Hotel in Pasig City, Metro Manila from October 28 to November 1, 2013.

Representatives from China, India, Indonesia, Iran, Iraq, Jordan, Malaysia, Qatar and Sri Lanka participated in the workshop organized by the World Health Organization and the International Atomic Energy Agency, the United Nations bodies responsible for matters on health and nuclear issues, respectively.

The IAEA Safety Standards GSR Part 3 is the revision of the International Basic

Safety Standards published as Safety Series no. 115 in 1996.

Regulators and researchers from PNRI joined the four-day workshop, along with participants from other government agencies and research institutions such as the Philippine Council for Health Research & Development–DOST, the Center for Device Regulation, Radiation Health & Research, the Environmental Management Bureau and the Philippine General Hospital.

Members of the private sector also participated, particularly representatives of hospitals and commercial suppliers of radiopharmaceuticals.

IAEA experts discussed the safety requirements for medical procedures, standard procedures for emergency exposures, radiation safety of consumer products & irradiated gemstones, regulations for industries involved with Naturally-Occurring Radioactive Materials (NORMS), and controlling the risk of Radon exposure in residential areas. The endeavor also receives support from the Philippine Council for Research and Development (PCHRD). 🌐

National Workshop of the Asian Nuclear Safety Network



Participants in the National Workshop for Philippines ANSN Topical Group Members for Capacity Building IT Modules pose with PNRI Director Dr. Alumanda M. dela Rosa (seated, 3rd from right), Mr. Kunjeer Sameer, IAEA Technical Officer (seated, 2nd from right), Mr. Teofilo V. Leonin Jr., Chief, PNRI Nuclear Regulatory Division (seated, right) and Ms. Ana Elena Conjares, OIC, PNRI Technology Diffusion Division (seated, 2nd from left).

The Philippine Nuclear Research Institute (PNRI), in cooperation with the International Atomic Energy Agency (IAEA), hosted the national workshop of the Asian Nuclear Safety Network (ANSN) from December 4 to 6 at the PNRI compound in Commonwealth Avenue, Quezon City.

Participants from the PNRI received training from the IAEA on the various Capacity Building Information Technology

Modules as the Philippines' participation in the ANSN's centralized website will be key to the support of the safety network's future activities.

The online IT modules and national centre websites will facilitate the faster and more efficient channeling of resources – human, financial and infrastructural, among others – to better communicate data and information concerning nuclear technology,

safety and security, both within agencies and between nations in the Asia-Pacific region.

"While the ANSN started with sharing information on the safety of nuclear research reactors, its establishment has been indeed providential for Asia considering that Asia is the most actively engaged region in nuclear power – with the nuclear power states enhancing their [nuclear power plants] and the newcomer states seriously considering nuclear power as part of their energy mix," said PNRI Director Alumanda Dela Rosa.

ANSN's Vision 2020 calls for a more advanced information technology network coupled with stronger linkages between participants in acquiring, creating and sharing nuclear knowledge and experiences.

The ANSN includes China, Japan, Korea, Indonesia, Malaysia, Thailand, Vietnam, Bangladesh and the Philippines as member states, and Australia, France, Germany and the United States as supporting countries. .

Mid-Term Review Meeting on Supporting Sustainable Air Pollution Monitoring Using Nuclear Analytical Technology



Participants in the IAEA/RCA Mid-Term Review Meeting on Supporting Air Pollution Monitoring pose with PNRI Director Dr. Alumanda M. dela Rosa (seated, 2nd from left), Dr. Andreas Germanos Karydas, IAEA Technical Officer (seated, 3rd from right) and Dr. Christina A. Petrache, OIC, Office of the Deputy Director, PNRI (seated, 2nd from right).

The Philippine Nuclear Research Institute – Department of Science and Technology hosted the mid-term meeting on air pollution monitoring project using nuclear technology sponsored by the International Atomic Energy Agency and held at the Crowne Plaza Hotel in Pasig City, Metro Manila from November 25 to 29.

RAS7023 entitled "Supporting Sustainable Air Pollution Monitoring Using

Nuclear Analytical Technology" is a project of the IAEA and the Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific (RCA).

Representatives from 14 countries – Australia, Bangladesh, China, India, Indonesia, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Republic of Korea, Sri Lanka, Vietnam and the Philippines – discussed with

IAEA technical officer Dr. Andreas Karydas in a collaborative effort to help provide more accurate and reliable information on air pollution to governments and regulatory agencies through the application of nuclear analytic techniques.

"There are lots of pollutants in the air, and this project has just studied a few of these pollutants. We encourage you to continue the good science using nuclear and nuclear-related techniques, and the linkage you have established with the proper authorities in your respective governments," said PNRI Director Alumanda Dela Rosa, who welcomed the attendees.

Experts from the IAEA hailed the success of the network of scientists in the Asia-Pacific region in advancing nuclear technology applications in environmental monitoring, from developing databases on the contributions of various pollution sources in urban areas to the study of air pollution movement through power plants, biomass burning, volcanic emissions among others.

The project covers assessments and future work plans for air pollution monitoring activities from 2012 to 2015. .

Gamma-Ray Scanning Technique Improves Structures and Processes of Local Industries



Denis Aquino, Senior Science Research Specialist of Isotopes Techniques Section, performs gamma-ray scanning during a training course in a petro-chemical plant.

Keeping up with the global standards, scientists from the Philippine Nuclear Research Institute (PNRI) Isotope Techniques Section adapted the gamma-ray column scanning technology to improve the maintenance capabilities of local industries, particularly for oil refineries and petrochemical plants.

Using gamma rays from controlled radioactive sources, the technique shows the conditions inside process columns and vessels on real-time without interrupting production for a more physical inspection, saving the operation valuable time and resources.

Process columns are crucial components in refining crude oil to valuable

fuel, as well as in sustaining the plant's cooling systems, among others. Plant shutdowns could cost around \$1,200 per hour overseas, which translates to millions of pesos in losses everyday for the local operators.

Since the late 1990s, PNRI experts put the state-of-the-art method to the test, having rendered services to major oil companies with local operations in the Central and Southern Luzon. The Department of Science and Technology Grants-in-Aid project also kept the service and equipment upgraded with automated data-logging software and scanning systems.

To detect the type of damage in the interiors of the column and in which area, the engineers will lower a detector along with a sealed radioactive source – either Cobalt-60 or Cesium-137, depending on the diameter and materials of the structure – on opposite sides of the column.

The detector, a sodium-iodide scintillation detector, is hooked to a rate meter which will gather information to be fed to the computer. Scanning the column from top to bottom, the scintillometer reads the radiation intensity from the source.

A high reading tells the engineers that the column has a relatively low density

profile for that particular area, and vice versa. The results are then compared to the mechanical drawings of the column to determine the kind and scope of damage reflected by the irregular reading.

Gamma-ray column scanning was proven effective in identifying specific types of malfunctions, such as flooding, blockage, foaming, weeping and tray damage or loss, corrosion and level-control failures.

Since the process does not rely on direct contact with the insides of the vessels, it also avoids potential corrosion, temperature or pressure problems.

This precision nuclear tool could prove useful beyond troubleshooting structural problems. The data gathered may also be applied to improve the structures and processes of the plant, thus making them more efficient and reducing production down-time in cases of programmed shutdowns.

The prospective clients of the gamma-ray column scanning service range from members of the oil industry to operators of chemical plants. PNRI hopes to render this service to more clients as the industries expand further across the country.

PNRI-DOST Develops Safe Ready-to-Eat Meals for Immunocompromised Persons



Photo Credit: BRMS/PNRI

Scientists from the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI – DOST) are developing safe and nutritious ready-to-eat meals for immuno-compromised persons through food irradiation technology.

The ongoing project of PNRI's Biomedical Research Section solves the need

for longer-lasting and microbe-free food for persons whose natural defenses against diseases are low. Among these are cancer patients undergoing chemotherapy or radiation therapy, organ transplant patients and HIV or AIDS patients, who are very vulnerable to pathogens such as *salmonella* and *E. coli*.

The project began in 2010 and is part of a coordinated research program with funding from the International Atomic Energy Agency (IAEA) and involving 18 other countries, including the United States, Canada, India, Korea and Indonesia.

Irradiated pork and chicken adobo, brown rice, and fresh fruits and vegetables compose the "complete meal" planned for the project. Brown rice is preferred by both hospitals and patients for its high nutritive value. Irradiation of mangoes, melons, cucumber, lettuces, carrots and other salads which complete the balanced meal is already well-tested.

"In the United States, irradiated food is already in use, and even Indonesia is already using the technology to feed their HIV patients and children suffering from malnutrition," said Zenaida De Guzman, the Biomedical Research section head who leads the project.

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PNRI-DOST develops Safe Ready-to-Eat Meals...from page 7

Like other Asian countries which chose ethnic foods for irradiation, PNRI scientists chose the local adobo for its popularity. More importantly, the Filipino viand has a naturally longer shelf-life than most other meals and may also be cooked with low salt content, making it well-tailored for the patient's delicate diet.

De Guzman pointed out that food irradiation is an alternative to the conventional method of autoclaving used to sterilize food for patients. Aside from making meals fit for the patient's consumption, the food irradiation technology also combats spoilage by keeping the food safe from insects and bacteria, allowing consumers to store food longer than usual. The conventional heat treatment risks compromising the taste and nutrients, and consumes more electricity to use.

In contrast, food irradiation has been proven to be more effective against microorganisms, consumes less electricity, retains the sensory qualities (tastes, color, flavor) of the food and its nutrients. For the irradiated adobo, protein and Vitamin B are retained.


De Guzman emphasized that food irradiation does not make the food radioactive. The procedure is approved by the Food and Drug Administration and complies fully with the CODEX Alimentarius, the international standard for food and consumer health.

PNRI research and development studies show that it requires around 10 to 25 kGy of radiation dose for total elimination of microbes resulting to a sterile diet meant for immunocompromised patients. Food are treated with radiation from Cobalt-60 under

controlled conditions at the PNRI

Multipurpose Irradiation Facility. PNRI scientists also experimented on irradiating different types of food packaging and storage means such as plastic, aluminum foil and starch-based biodegradable materials to determine the suitable packaging material for the said food.

Plans are also being drawn for developing emergency ready-to-eat food for calamity victims, this time using irradiated chicken-neck adobo.

"Hopefully, in two to three years, irradiated food may already be accepted by consumers, especially immunocompromised patients," said De Guzman. 


Lufthansa Accredits PNRI as NDT Training Service Provider

The Lufthansa Technik Philippines (LTP) has accredited the Philippine Nuclear Research Institute (PNRI), through the Nuclear Training Center (NTC), as NDT training service provider per European Standard EN 4179 (Aerospace series - qualification and approval of personnel for nondestructive testing).

LTP personnel can now avail themselves of the NDT training services of PNRI, which are conducted in collaboration with the Philippine Society for Nondestructive Testing, Inc. (PSNT). Previous trainings of LTP personnel are availed of only in foreign countries.

LTP offers a wide range of aircraft maintenance, repair and overhaul (MRO) services to customers worldwide. The company focuses on base maintenance checks for the A319/A320, A330/A340 and A380 types of aircraft.

Dr. Joern Dahmen, VP, Quality Management Department of LTP awarded the Approval Certificate to PNRI represented by Mr. Roel A. Loteriña, OIC, Nuclear Training Center during the 28th PSNT Annual Convention and General Membership Meeting held at Great Eastern Hotel on November 22, 2013. Dr. Dahmen calls it a milestone in the training of NDT personnel in the Philippines.

In his acceptance speech, Mr. Loteriña acknowledged the support of the PNRI officials, PNRI NDT team, PSNT officials and LTP experts. He said that the recognition is a significant achievement of the PNRI Nuclear Training Center. The training team aims to strive harder to provide NDT training services with excellence and in compliance with international standards. 



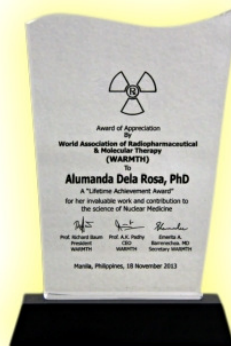
Roel Loteriña, OIC, Nuclear Training Center, PNRI, receives the Approval Certificate from Dr. Joern Dahmen, VP, Quality Management Department, Lufthansa Technik Philippines.

PNRI Director Receives WARMTH Lifetime Achievement Award

The World Association of Radiopharmaceutical and Molecular Therapy (WARMTH) presented Philippine Nuclear Research Institute Director Dr. Alumanda M. dela Rosa with a Lifetime Achievement Award during the 8th International Conference on Radiopharmaceutical Therapy (ICRT) held in Manila on November 17 to 21, 2013.

The award was given to Dr. dela Rosa for her invaluable work and contribution to the science of nuclear medicine.

Dr. Emerita Barrenechea of the Philippine Society of Nuclear Medicine (PSNM), chairman of the conference organizing committee, said this was the first time that the international gathering of leading nuclear medicine specialists was held in the Philippines. The PSNM, under the auspices of WARMTH, hosted the ICRT. 





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