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Medical and agri sectors gain benefits from nuclear techs and researches

By Allan Mauro V. Marfal, DOST-STII

As the 48th Atomic Energy Week (AEW) kicked-off on 07 December 2020, government officials and lawmakers underscored the significant contributions of various nuclear-related research and technologies to improve the country's products and services agriculture and medical sectors.

According to Department of Science and Technology (DOST) Secretary Fortunato T. de la Peña, nuclear science and technology continue to be a foundation of the health, livelihood, public order, agriculture, and the future prosperity of our country.

"Nuclear and radiation applications have long since proven instrumental in various applications. These include raising the yield of our crops, diagnosing and treating various diseases, and improving the competitiveness of our products," said DOST Sec. de la Pena.

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Sen. Nancy Binay
Senator, 16th to 18th Congress

In her video message for the opening of the 48th Atomic Energy Week, Senator Nancy Binay that nuclear and radiation research products had had far-reaching effects on society, yet, the value of nuclear research beyond power generation often overlook.

UP researchers develop low-cost air quality monitor

Text and photo from DOST-PCIEERD



The latest version of aerosol monitor unit developed by the University of the Philippines Diliman

Researchers from the University of the Philippines Diliman (UPD), in partnership with the Department of Science and Technology - Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD), has locally developed a low-cost, high-quality aerosol monitors to help find ways in minimizing air pollution in the cities.

Spearheaded by Dr. Len Herald V. Lim, the Robust Optical Aerosol Monitor or Project ROAM, was initiated to measure particulate matter concentration in the air. It provides crucial information to create policies and programs for environmental protection.

"ROAM units use a different method in detecting particles that does not require the manufacture/fabrication of specialized parts typical of contemporary commercial instrumentation. This allows a much lower production cost, smaller maintenance requirement, and an exclusive research chain," said Dr. Lim.

The team has already produced 10 optical aerosol monitors. Four of these have been verified for performance through collocation

experiments with aerosol equipment used by the DENR-EMB while the remaining six are being tested for performance and will be subject for stricter collocation experiments when conditions permit.

The ROAM team is now exploring the creation of a spin-off company through DOST-PCIEERD's Funding Assistance for Spinoff and Translation of Research in Advancing Commercialization or FASTER program to help advance the commercialization of their technology and bring this citizen science project to the community.

DOST-PCIEERD executive director Dr. Enrico C. Paringit expressed hope that the technology can be adopted by local government units who want to improve their area's air quality through scientific means.

"As leader and partner in enabling innovations, we encourage our researchers for coming up with cutting-edge solutions to solve major environmental and societal issues. This technology is one significant stride in our path towards improving air quality. Now is a good time to cooperation with our innovators, adopt this solution to protect our future," Paringit says.



DOST-PNRI Director Carlo A. Arcilla shares how relevant is nuclear science and technology today in the country and how it could help key sectors in the society such as agriculture, health, and industry, including the prospects of nuclear power.

The DOST-Philippine Nuclear Research Institute (PNRI) has been spearheading new frontiers in its nuclear and radiation applications, full of potential contributions to economic and social progress.

DOST-PNRI Director Carlo A. Arcilla said that they have been harnessing the benefits of atom extent far beyond electricity generation.

"We are proud at DOST-PNRI spearheading another great leap in our country's nuclear medicine capabilities. With enough support, PET-CT and Cyclotron facilities will arise here in Quezon City, which will make diseases like cancer more affordable to Filipinos.

Dir. Arcilla also added that DOST-PNRI continues to apply the unique advantage of atoms for noble applications. These include increasing crop yield with irrigation process and formulas, extracting uranium from seawater, and developing native fabrics for treating wastewater.

He also shared that DOST-PNRI is looking forward to expanding irradiation processing as a whole with the upgrading of COBALT-60 into a fully-automated facility.

"While the COBALT-60 was for the longest time the only facility of its kind in the Philippines, we are proud to report that technology adaptors are now planning to establish their own commercial irradiators in different parts of the country", said Dir. Arcilla.

Meanwhile, in her video message, Senator Nancy Binay said that nuclear and radiation

research products had far-reaching effects on society yet, the value of nuclear research beyond power generation often overlook.

"The ongoing COVID pandemic has emphasized how crucial nuclear technology is, not only in protecting and improving our way of life but in safeguarding our life itself," said Sen. Binay.

She cited the rTPCR test as an example, which is a key element in the government's efforts to combat the spread of COVID-19 is a nuclear application, and its derived techniques continue to serve as reliable tools in investigating, detecting, preventing, and containing the outbreak of various diseases.

Meanwhile, Sen. Binay also said that there is overgrowing evidence of how isotope and radiation techniques contribute to our agriculture and guarantee food security.

"Through these, we were able to help our farmers through the development of crop varieties that yield more and can withstand pests' diseases and harsher effects of climate change," Sen. Binay said.

The virtual celebration of this year's AEW will run until December 11. It carries the theme "Agham at Teknolohiyang Pangnukleyar: Sandigan ng Kalusugan, Kaayusan, Kabuhayan at Kinabukasan," the institute highlights the atom's role in addressing pressing problems in society and in responding to the Covid-19 pandemic.

The five-day event will showcase the latest developments in the local nuclear science and

technology (S&T) community through virtual fora and exhibits.

The annual conduct of AEW celebration, as mandated under Presidential Proclamation 1211 in 1973, aims to generate awareness of the Filipino people on the safe and beneficial uses of nuclear S&T.

ABOUT US

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Pisay adjusted its curriculum by 90% for its remote learning approach for school year 2020-2021

By Allan Mauro V. Marfal, DOST-STII

Heading to the fourth month of the implementation of remote learning method for its 16 campuses across the country, the Department of Science and Technology-Philippine Science High School System (DOST-PSHSS) have been developing and adopting various strategic approaches and learning guides to still provide topnotch science education to its students during this time of the pandemic.

In her interview at DOST Report on 11 December 2020, DOST-PSHSS Executive Director Lilia T. Habacon said that Pisay campuses adjusted its curriculum by 90% for the school year 2020-2021 given remote learning but still covering the essential learning competencies for students to be college-ready.

"We have anticipated grievances as part of the birth pains of remote learning, without face to face learning, students have limited hands-on experience to experiment, so our teachers are challenged to develop substitute experiment that can be conducted at home and look for online resources to complement their learning experience," shared by Exec. Dir. Habacon.

Exec. Dir. Habacon also said that DOST-PSHSS defined the roles and expectations for their teachers to deliver, steer effectively, and support students' learning during the pandemic

through synchronous learning, asynchronous, and self-directed learning.

In implementing remote learning for its different campuses, the DOST-PSHSS developed its 4Cs of learning.

The first C pertains to the Contingency-oriented Approach, wherein it fostered strategic management, empowerment, and involvement of Pisay campuses directors, division chiefs, and key personnel. The second C is Curriculum Adjustments, as they redesign the content and methods. The third C is Contextualized Solutions, as they are trying to cope with the current challenges such as a pandemic. The fourth and last C is Check and Balance for Quality Assurance as they tap the external reviewer for the adjusted curriculum developed by their teachers.

"We have consulted the parents on the curricular adjustments and self-advice on how students will cope under the new normal. It sought community support and strengthened partnership and linkages," said Exec. Dir. Habacon.

DOST-PSHSS is currently introducing an online learning management system suitable for a more technology-savvy generation to its 16 regional campuses. Called Knowledge Hub or KHub contains libraries of teaching guides for Pisay teachers and students to have a one-

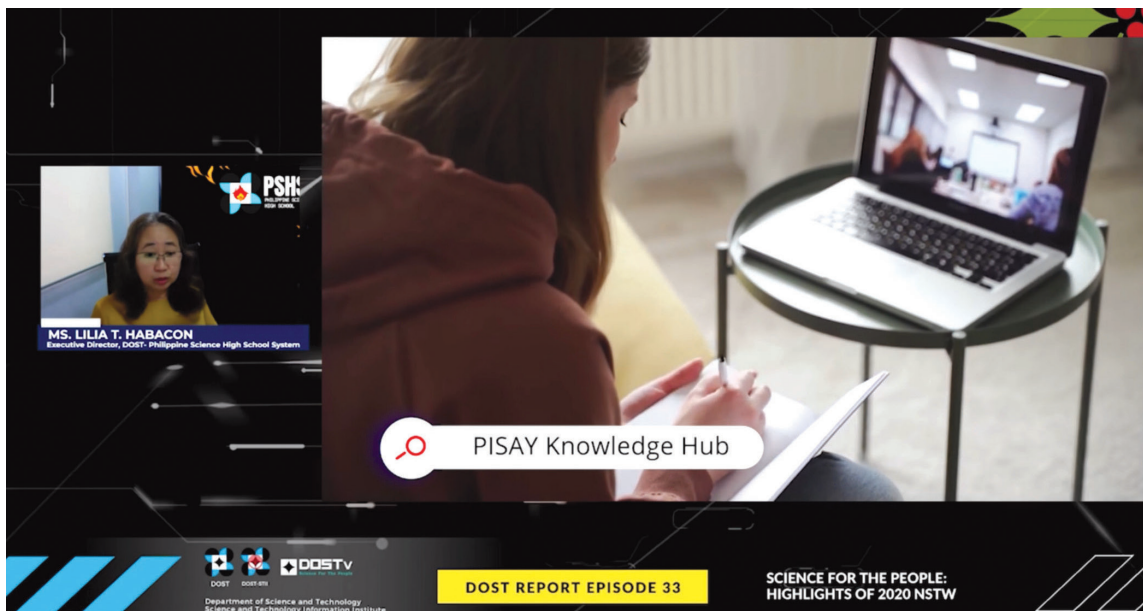
stop-shop for all their academic needs for the coming years.

Exec.Dir. Habacon said that DOST-PSHSS is more than willing to share their experience and the processes they went through, and the framework of their learning guides with different public and private schools in the country.

"This pandemic makes us realize that we must share our success stories and experiences to help other schools to succeed, as well. Other schools have to contextualize the approaches we had to suit their needs, identity, and priorities. Is more of knowing what we valued," said Exec. Dir. Habacon.

Meanwhile, Exec. Dir. Habacon also shared that the drive called "Walang Maiwan Project" initiated by Philippine Science High School Foundation has collected more than five million pesos converted into 156 laptops and tablets. It was distributed equally to 16 Pisay campuses.

The DOST Report is a regular broadcast program of the Science and Technology Information Institute of the Department of Science and Technology (DOST-STII) that highlights the various initiatives and innovations of the DOST aired live every Friday, 4:00 PM to 5:00 PM, through the DOSTv Facebook page and YouTube channel.



In the recent episode of DOST Report, Department of Science and Technology-Philippine Science High School System (DOST-PSHSS) Executive Director Lilia T. Habacon shares with the viewers the remote learning experience of 16 Pisay campuses since the classes opened on September 01, 2020. (Screencap from DOST Report Episode)

Japan, UK, PH push for sustainable development in Southeast Asia

Text and photo from DOST-PCIEERD



(From left) Mr. Osamu Kobayashi, JST Director of the Department of International Affairs, Dr. Mark Claydon-Smith, UKRI Deputy Director of the International Development, and Dr. Enrico Paringit, Executive Director of DOST-PCIEERD, leading the discussion during a workshop on sustainable coastal communities in 2019.

Japan, the United Kingdom (UK), and the Philippines push for sustainable development in Southeast Asia by urging researchers to submit proposals for their multi-funder initiative that focuses on networking and partnership, building outreach and dissemination, demonstration and pilot activities, and working towards the Sustainable Development Goals (SDGs).

The 'Science, Technology and Action' Nexus for Development (STAND) call for proposals, established by the Japan Science and Technology Agency (JST), UK Research and Innovation (UKRI), and the country's Department of Science and Technology of the Philippines (DOST), aims to connect current and recently funded projects from the three countries.

Three projects from the Philippines shall be supported by the DOST under this Call with a maximum budget of P 5 million per project, implemented for one year. This DOST funding will be complemented by UKRI and JST with a maximum budget of £100,000 and ¥5,000,000 per project, respectively.

The evaluation of proposals, as well reporting and monitoring of all DOST-funded projects, shall be governed by the DOST's Grants-in-aid Program and will be spearheaded by DOST's Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD). Submitted proposals may fall under the priority areas of DOST PCIEERD and the other sectoral councils of DOST.

"The Philippines has been collaborating with Japan and UK to ensure that our communities are sustainably developing. We deem that this initiative will encourage projects to come together to create synergies, spur new collaborations and increase the impact of outputs from previously supported projects," said DOST-PCIEERD executive director Dr. Enrico C. Paringit.

Interested Filipino researchers should register and download the necessary forms at <https://dpmis.dost.gov.ph/>. All the documents must be submitted in this e-proposal portal before the February 10, 2021.

Guidelines and other information on this call for proposals can be accessed at <https://pcieerd.dost.gov.ph/e-forms/call-for-proposal-forms>.