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First in the Regions: 2023 NSTW goes to Iloilo City

The 4th Quarter 2023 issue of the S&T Post Magazine commemorates the exceptional exhibitions and stories during the annual celebration of the National Science and Technology

Week (NSTW) 2023, which was, notably, conducted in Iloilo City, marking the first time it was held outside the national capital, underscoring the commitment to regional inclusivity and innovation.

Known as the “City of Love,” Iloilo City served as a beacon of regional scientific advancement, showcasing a diverse array of projects and initiatives aimed at addressing the unique challenges faced by different parts of the Philippines. From sustainable agriculture to healthcare innovations, the event highlighted the role of science and technology in driving progress and prosperity in regional communities.

In this issue, we highlight a notable regional and national stories during NSTW 2023 that showcased advancements in renewable energy technology, emphasizing the region’s transition towards a greener and more sustainable future.

Aside from the NSTW 2023, we also feature stories during the celebration of the National Youth Science, Technology, and Innovation Festival (NYSTIF) that provided a platform for young Filipino innovators to showcase their ingenuity and creativity.

Stories such as “Students learn responsible use of AI tools in SciComm fields”, and “Street Science mixes fun with learning in youth festival”, among others, featured a wide range of student-led research projects and youth-driven activities addressing local and global challenges, ranging from sustainable solutions for waste management to innovative technologies for disaster resilience.

As we cap the last issue of the magazine for 2023, we feature and highlight stories that celebrates the regional progress and empowered young innovators, emphasizing the pivotal role of science and technology (S&T) in driving inclusive growth and sustainable development across the Philippines. As we read on these inspiring stories, may our commitment to foster S&T, innovation, and collaboration for the betterment of all regions and communities be ignited.

RODOLFO P. DE GUZMAN
Editor-in- Chief

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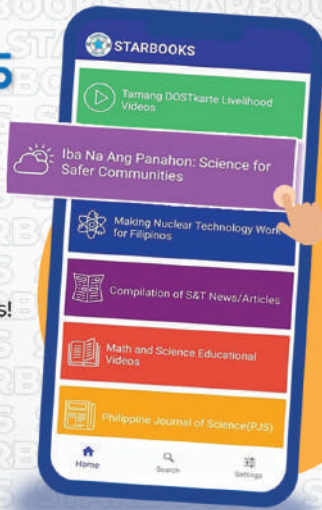
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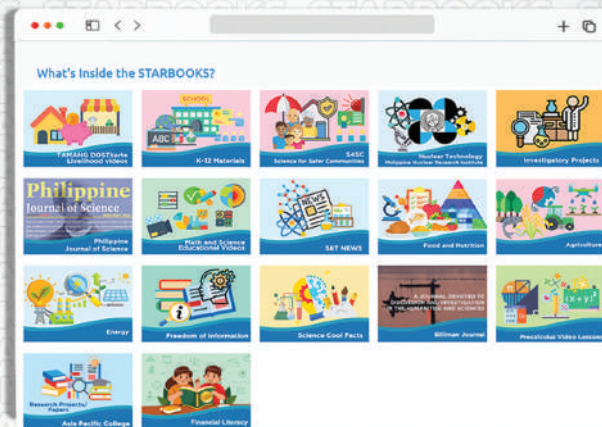


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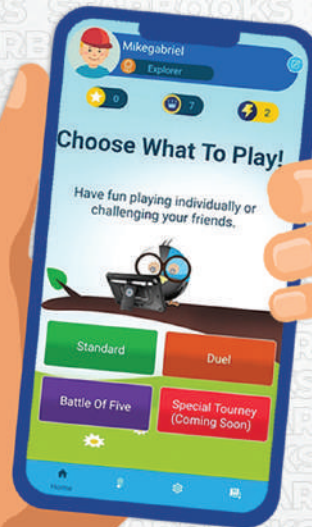


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ABOUT THE COVER

The Fourth Quarter 2023 issue cover features the 2023 NSTW mascots, Ino (yellow), Alon (blue), and Habi (light green), which paraded the streets of Iloilo City last November. Ino, derived from “Innovation”, represents the many innovative technologies featured during the 2023 NSTW. Alon, which is the Filipino translation for “wave”, represents the S&T initiatives of DOST in support of the Blue Economy in the country. Last but not least, Habi, which is derived from its English translation, “weave”, represents the weaving technologies in Iloilo featured during the 2023 NSTW celebration. In addition, the playful and vibrant colors and elements on the cover are taken from the design of the 2023 NSTW.

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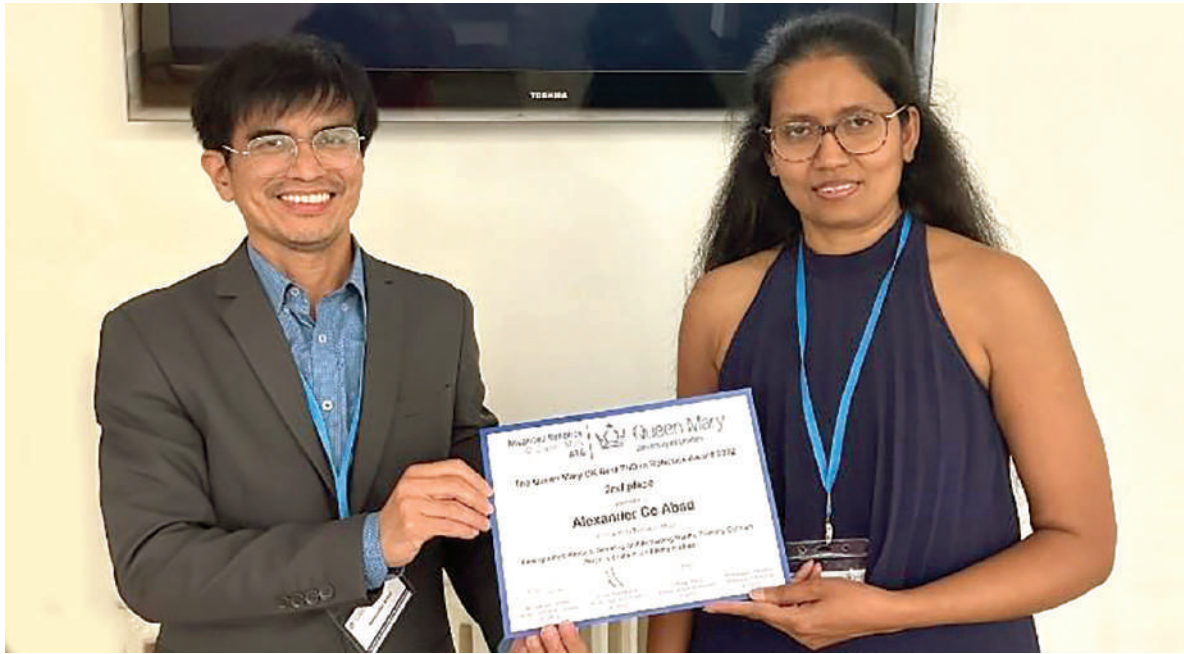
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Filipino professor wins robotics award in UK

By Kristine Erika L. Agustin, DOST-STII



Dr. Alexander Co Abad (left) and Dr. Anuradha Ranasinghe (right)—photo from Liverpool Hope University’s official website.

A Filipino professor and international postgraduate student in England bagged second place for the Queen Mary UK Best PhD in Robotics Award for inventing a novel sensor that could measure force, vibration, and temperature that could be used in telemedicine and telerobotics.

Dr. Alexander Co Abad, who completed his doctoral degree in Computer Science and Informatics at Liverpool Hope University and an assistant professor in the Electronics and Computer Engineering Department at De La Salle University, made history as the first Filipino to place in the top three of the competition.

The 43-year-old innovator was recognized for his study titled “Fine-grained Haptics: Sensing and Actuating Haptic Primary Colours (force, vibration,

and temperature),” which he presented during the 2023 TAROS (Towards Autonomous Robotic Systems) Conference, the longest-running international conference on robotics and autonomous systems hosted by the United Kingdom, held on 14 September 2023.

The HaptiTemp sensor that Abad developed is a silicone-based sensor that can detect different levels of temperature and recognize tactile images, movement of objects, and vibration with human-like capabilities by using only a low-cost silicone sponge readily available in the market.

This invention aims to be beneficial in the fields of medicine, space exploration, material texture analysis, and telerobotics.

The Queen Mary UK Best PhD in Robotics Award is sponsored by the Center for Advanced Robotics at Queen Mary University of London and is open to all candidates who have completed their robotics doctoral degrees from universities within the UK.

Abad expressed gratitude for the support of the Department of Science and Technology - Engineering Research and Development for Technology Foreign PhD scholarship, and the Mme. Maillefer Study Program of De La Salle University–Manila; as well as his supervisor, Dr. Anuradha Ranasinghe, a senior lecturer in Robotics at Liverpool Hope University whose works also focus on haptics, human-robot interaction, perception, and haptic-based miniaturized sensors.

Science helps promote inclusivity through use of Filipino sign language

By Kristine Erika L. Agustin, DOST-STII

In a bid to create an inclusive community for the deaf and hard of hearing persons, the Department of Science and Technology - Science and Technology Information Institute (DOST-STII) conducted a two-day training workshop on Filipino Sign Language (FSL) as a way to promote effective and inclusive communication.

Held recently at the DOST-STII Mini Theater, the workshop aimed to equip the institute's employees with knowledge of the deaf culture, basic sign terminologies and communication, and the application of FSL to address communication gaps among persons with disabilities (PWD). This initiative is

envisioned to provide better service to the public by addressing their special needs.

“Language is a very powerful tool that bridges gaps and connects people from all walks of life. And in our pursuit of creating an inclusive working environment, it is important that we recognize and embrace the languages used by all members of our community,” DOST-STII Director Richard P. Burgos said in his opening remarks.

Learning the FSL is also proof of the agency's commitment to creating a workplace that advocates for equal opportunities and respect for diversity,

and where “everyone's voice is heard regardless of their abilities,” the director added.

The deaf community has its own culture and language, wherein the conventional practices of hearing individuals may be inapplicable, Dean Edward A. Dimaguila, sign language trainer and evaluator at the Philippine Registry of Interpreters for the Deaf, said during his presentation, and these differences must be acknowledged in cultivating an inclusive workplace.

“*Mayroon silang mga shared life experiences kahit sila ay apart from each other. And, sometimes,*

continued next page



Aiming to promote an inclusive workplace, sign language interpreter Jordan S. Madronio and deaf assist and trainer Aileen G. Santos introduce the use of Filipino Sign Language to the DOST-STII employees in a training workshop held at the DOST-STII building.

TECHNOLOGY & INNOVATION

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the experiences are not very good. Sometimes the experiences are that of alienation and neglect from us, hearing [community],” he added.

(They have shared life experiences despite being apart from each other. And, sometimes, the experiences are not very good. Sometimes, the experiences are that of alienation and neglect from us, hearing [community].)

Dimaguila also urged the participants to communicate with the deaf people to effectively practice the FSL, as they are the real experts in the said sign language.

He also emphasized that despite tackling only the primary signs and application of FSL, when used in the proper context, with accurate facial expression and body movement, it becomes a whole sentence that the deaf community could understand.

“Please don’t be afraid na *makipag-communicate sa mga deaf kasi sila ay ... walang kausap. Kaya tayo kapag nakita nila na nagta-try tayo, nageffort tayo na magsenyas kahit kaunti, kahit mali-mali, very patient ang mga deaf na magturo sa atin,*” he said.

(Please don’t be afraid to communicate with the deaf people because ... they have no one to talk to. So, if they see us trying and making an effort in doing sign language little by little, even if it is inconsistent, the deaf will be patient to teach us.)

According to the World Health Organization, over 700 million people, or one in every 10 people, are estimated

to have disabling hearing loss by 2050. Hearing loss may be categorized as mild, moderate, severe, or profound, which could affect one or both ears of an individual.

Dimaguila also cautioned against using terms such as hearing impaired, deaf-mute, deaf and dumb, and hearing deficient when referring to deaf people, which are found offensive by the deaf community. The terms “deaf” for people with little to no hearing, and “hard of hearing” for people with mild to severe hearing loss can be used instead.

Emerging and evolving FSL

The FSL has been recognized as the national sign language of the country through Republic Act No. 11106, or the Filipino Sign Language Act of 2018, which mandates that the FSL be used as the medium of communication of the government in all transactions involving people who are deaf or hard of hearing.

However, Dimaguila noted that no universal sign language exists, as signs and gestures vary in every country.

Sign language interpreter, Jordan S. Madronio also encouraged the attendees not to limit the signs they use by the book since sign languages continue to evolve and new signs emerge.

“*Ang senyas nagbabago rin. Kaya kami, nagugulat na lang kami kahit alam na naming sumenyas; it’s a lifelong learning ... ‘Yan ang katunayan, sabi ng isang [linguist], na ang senyas ay evolving. Ibig sabihin lumalago kasi ginagamit ... Ibig sabihin buhay ang*

lenggwahe ng senyas,” Madronio explained.

(The signs also change. We are surprised even though we know how to do sign language; it’s a lifelong learning ... That’s the proof, according to a linguist, that signs are evolving. It evolves because it is being used ... It means the sign language is alive.)

Among all, the most important benefit of learning the FSL is that it could help advocate for the needs and rights of the deaf and hard of hearing communities, chief of the Information Resources and Analysis Division, Alan C. Taule said in his closing remarks.

“It can also advocate for raising awareness of deaf culture and the challenges faced by these communities. In conclusion, learning sign language is not only a valuable skill but also a means of fostering inclusivity, enhancing communication, and promoting cultural understanding,” he said.

Taule also urged the participants to expand and include in their peer group those who are deaf or hard of hearing, who definitely can contribute to various activities.

The event also held interactive sessions, including interpreting songs and constructing simple conversations using basic sign language, led by Aileen G. Santos, deaf assist and trainer at the Philippine Registry of Interpreters for the Deaf.

The training workshop was organized by the DOST-STII PWD Committee.

DOST and MBIE host the 2023 Global Research Council Asia-Pacific Regional Meeting



The Department of Science and Technology (DOST) of the Philippines co-hosted with the Ministry of Business, Innovation and Employment (MBIE) of New Zealand the 2023 Global Research Council (GRC) Asia-Pacific Regional Meeting from 18-20 October 2023 at the Sheraton Manila Hotel in Pasay City.

The three-day event welcomed over 120 delegates from different countries mainly in the Asia Pacific region. Centering on the topic “Sustainable Research,” the 2023 GRC Meeting promoted data sharing and best practices among its members, as well as the expansion of public support for research and development (R&D). International organizations and research institutions from across the globe shared their views and ideas on top current and emerging regional issues.

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Inter-Regional Network through One Health Approach to Combat AMR Program



Installation, Training and Quality assurance for the accelerated solvent extractor (ASE), one of the equipment used in the program.



Sampling of Poultry Fecal Matter and Sewage Water Waste Materials from Nerona Poultry Farm.



Project team briefed on machine learning and AI applications in environmental studies.



On-site learnings on sampling at the program study sites in different parts of the Philippines together with CLSU researchers.

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DOST & MBIE...from page 7

In his keynote message, DOST Secretary Renato U. Solidum Jr. said “Sustainable research is the key to addressing the most pressing global challenges of our time like health, climate change, social inequality, and the degradation of landscapes and ecosystems. By investing in R&D, we have access to problem-solving approaches that include considerations of economic and social sustainability.”

The DOST secretary cited initiatives to create a supportive and sustainable environment for antimicrobial resistance (AMR) research through mobilization of resources and prioritization of R&D initiatives for diagnosis, surveillance, and control of AMR. Currently, the DOST and its Councils are supporting 22 R&D projects with a total funding of approximately 435 million pesos.

One of the R&D programs that addresses AMR is the Inter-Regional Network through One Health Approach to Combat AMR Program or 1NetAMR. This ongoing program aims to establish an inter-regional network to combat AMR using a One Health framework in the country. It also aims to determine the magnitude of AMR contamination in various settings along with the socio-cultural and socio-economic factors affecting these contaminations, in selected areas in Luzon, Visayas, and Mindanao through

collaborations among higher education institutions.

The DOST is also at the forefront of providing support to research, development, and innovation initiatives on the circular economy, ensuring wastes generated are reduced. In promoting a circular economy, DOST funded the Center for Environmental Technologies and Compliance which provides innovations in environmental technologies and supports the local industries to comply with the environmental standards. Studies from this will be used to determine proper waste management technology appropriate for the National Capital Region.

Another sustainable DOST project under the IM4ManilaBay Program is the Project IWASTO which aims to describe and assess the solid waste management (SWM) activities in selected cities that are part of the Manila Bay watershed, and to develop integrated solid waste information and technology management system considering current conditions and future scenarios. It also aims to set up appropriate waste utilization technologies to process biodegradable and plastic wastes in selected communities. Information regarding SWM, such as waste characteristics and available facilities including forecast trends are also systematized and made available online.

On the other hand, a flagship initiative dedicated to addressing the pressing issue of climate change is the Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines, or SARAI program. SARAI’s core mission revolves around the creation of crop advisories that seamlessly integrate local weather data and drought forecasts with farm management practices. Specifically, it focuses on optimizing nutrient and water management while proactively monitoring insect pests and disease threats.

“We have a big role to play in steering the wheel to the path of sustainability,” says DOST Undersecretary for R&D Leah J. Buendia. “International and multilateral platforms such as the Global Research Council remain to be largely significant such as in providing an avenue where possible partners from across the world can jointly identify key challenges and collaboratively work on them.”

The Global Research Council is a virtual organization, composed of the heads of science and engineering funding agencies from around the world, dedicated to promoting the sharing of data and best practices for high-quality collaboration among funding agencies worldwide.

Nuclear tech can offer solutions to challenges posed by climate change - Sec. Solidum

By Allan Mauro V. Marfal, *DOST-STII*

As the 51st Atomic Energy Week (AEW) kicked off on 4 December 2023, Secretary Renato U. Solidum Jr. of the Department of Science and Technology (DOST) sees several opportunities for nuclear science and related studies to help address our concerns on climate change.

“A week ago, we participated in the Conference of Parties (COP) 28 held in Dubai, and the message is clear. Climate change is a problem that we all need to look into. We will be victims of global warming, so we need to act, and nuclear technology would play crucial roles in addressing our concerns on this,” said Sec. Solidum.

He emphasized how nuclear science and research studies provide solutions as an alternative energy source for power, as well as in developing new breeds of agricultural crops resistant to heat or requiring less water, minimizing the impact on our food supply.

“The protection of the environment will also utilize nuclear technology. Although we believe the Philippines is not a major contributor to greenhouse gases, we should look at these pollutants from a health perspective, not only from the climate perspective because we will be affected by pollution, aside from the increased temperature and changes in rainfall patterns all over the country,” added Sec. Solidum.

Meanwhile, apart from its well-established roles in medicine, agriculture, and industry, the science chief said that the renewed campaign towards the inclusion of nuclear power in the energy mix adds a new dimension to the roles of DOST-PNRI. This includes not only mastering a potentially invaluable power source for economic progress but also ensuring safety, security, and responsible use.

“This is the reason why the country’s science department has its full support for the efforts of the Nuclear Energy Program Inter-Agency Committee (NEP-IAC), as well as the establishment of a unified independent regulatory body for ionizing radiation sources through the bill for the Philippine National Nuclear Energy Safety Act pending in Congress,” said Sec. Solidum.

Gearing up the next generation towards a Nuclear Philippines

The 51st AEW is being celebrated at the DOST-PNRI with institutional partners and guests from 4-7 December 2023 at the PNRI grounds in Commonwealth Avenue, Quezon City.

With the theme “Gearing up the next generation towards a Nuclear Philippines,” this year’s celebration becomes even more thrilling with the inaugural Philippine Nuclear Science Olympiad. Open to junior and senior high school students nationwide, the competition offers cash prizes, meals, and certificates to the top five awardees. Additionally, the highest achiever will represent the country in the first-ever International Nuclear Olympiad scheduled for August next year. Notably, this marks the first in-person AEW celebration since the pandemic.

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“I also find particularly commendable the AEW’s theme for this year, which is Gearing up the Next Generation Towards a Nuclear Philippines. It is quite timely and consistent with the DOST’s renewed thrust towards reaching out to the youth, inspiring more to take up science-related courses,” said Sec. Solidum.

The four-day celebration also features technical sessions where DOST-PNRI researchers and experts share how their various research studies could offer numerous alternative solutions to several pressing concerns in different sectors and communities.

On the other hand, a Gender and Development (GAD) Forum will also be held on 07 December 2023, where there will be an in-depth discussion on how individuals, irrespective of gender, can thrive in this technically demanding field such as nuclear science. The said forum also explores the social dimensions of nuclear S&T, discussing applications, fostering equitable environments, compliance with the Safe Spaces Act, and cultivating positive dynamics in labs and offices.

Of course, one of the main highlights for the participants will be the guided tours and exhibits to all the service

facilities at the DOST-PNRI. These include Isotope Techniques, Radioactive, Atomic Structure and Radioactivity, Nuclear Analytic Techniques, Radiation Protection, Radiation Processing and Radiochemistry, Cytogenetics, Microbiology, Food Irradiation, Wound Dressing, Sterile Insect Techniques, and Irradiation Technologies, among others.

“With a still-stigmatized perception of the word ‘nuclear,’ it is best that we slowly change such notions by educating and fully informing our young generation. In this day and age, when misinformation is easily proliferated by certain individuals who undermine and disregard the impact they can make on our country’s future, it is my hope that through AEW, we will be able to shed light on this crucial and social topic of nuclear science and technology,” said DOST-PNRI Director Carlo A. Arcilla.

Messages of support from the partners

“This week, (AEW) acts as a lighthouse, shedding light on the amazing developments and prospects that come from the field of atomic energy. It explores the many facets of nuclear science and provides insight into how it can be used in the industry, agriculture, medicine, and sustainable energy generation, among

other fields,” said Dr. Leila P. Areola, director of Bureau of Learning Delivery of the Department of Education.

For his part, Civil Service Commissioner (CSC) Chair Karlo A. B. Nograles said that people generally respond with awe and fear when they hear the word atomic. He pointed out that it is inspiring to know that energy is harnessed when an atom is divided. On the other hand, it is distressing that the same energy can be used for destructive purposes.

“History has shown that atomic power has greatly contributed to the industrialization of the world and has ushered infinite advancement possibilities. Through the years, the DOST-PNRI has utilized the accordance of atomic energy for the benefit of our people and our country. Many of its exemplary initiatives have had a nationwide impact on public interest, security, and patrimony,” said Chair Nograles.

The annual AEW celebration is one of DOST-PNRI’s platforms for communicating to the public on the latest nuclear and radiation-related innovations. It is also a venue for scientists, industry professionals, educators, students, and the public to get together to understand and appreciate the contribution of nuclear science in various fields and nuclear S&T’s growing role in the country’s larger development policy.

Updates on AEW 2023 can be accessed at <http://aew.pnri.dost.gov.ph>. Further, the different programs and some of its activities will be simulcast across various PNRI’s social media platforms to reach audiences that are not able to participate in person.

The annual AEW celebration, as mandated under Presidential Proclamation No. 1211 in 1973, aims to generate awareness among the Filipino people about the beneficial uses of nuclear science and technology.

For more information on AEW 2023, visit the DOST-PNRI Facebook page at <https://www.facebook.com/PNRI/DOST/> or please contact the Institute at information@pnri.dost.gov.ph



During the opening ceremony of the 51st Atomic Energy Week happening at DOST - Philippine Nuclear Research Institute. Running for four days, the event showcased the advancements of nuclear science and cutting-edge research. The first day of the celebration also featured messages of support, the official launch of the 1st Philippine Nuclear Science Olympiad, formal commencement, and general promotion activities to increase awareness and understanding of atomic energy. (Photos by Rachel M. Rieza, DOST-STII)

Breaking misconceptions on nuclear applications through science communication

By Rhea Mae B. Ruba, DOST-STII



DOST-Science and Technology Information Institute and DOST-Philippine Nuclear Research Institute collaborated in conducting a two-day Science Journo Ako training workshop on 29-30 November 2023 to spread awareness of nuclear energy through science communication.

Through conducting rigorous research, the Department of Science and Technology-Philippine Nuclear Research Institute (DOST-PNRI) continuously explores and promotes the peaceful benefits of nuclear energy in various sectors including agriculture, food and nutrition, medicine and health, and environmental protection.

DOST-PNRI aims to disseminate the benefits of nuclear energy to the public through the utilization and application of science communication, employing effective strategies to dispel circulating misconceptions of its dangers.

On 29-30 November 2023, a week before the 51st Atomic Energy Week (AEW) celebration, the DOST-PNRI collaborated with the DOST-Science

and Technology Information Institute (DOST-STII) to conduct a science communication training workshop under the Science Journo Ako Advocacy Program.

Called 'Science Journo Ako: Uncovering the Benefits of Nuclear Science,' the workshop was attended by selected students from Quezon City Science High School and Philippine Science High School-Main, with the aim of enhancing their capabilities in science communication, especially in writing science stories and crafting science content.

Significance of Science Awareness

"When people think about nuclear, the first thing that comes to their minds is a

nuclear bomb, connected to the Atomic bombings of Hiroshima and Nagasaki. Consequently, people develop a negative view of nuclear energy," shared DOST-PNRI Deputy Director Dr. Vallerie Ann I. Samson.

According to Dr. Samson, the other beneficial uses of the nucleus resulting from nuclear energy are not highlighted in the media. She hopes that through the Science Journo Ako training workshop, student participants will recognize and appreciate the benefits and positive aspects of the nucleus, especially its peaceful purposes.

"Your writing skills can contribute to the promotion of nuclear technology. Also, it will help you communicate its benefits to

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TECHNOLOGY & INNOVATION

BREAKING MISCONCEPTIONS... from page 11

your family, friends, and acquaintances,” she emphasized.

Meanwhile, DOST-STII Senior Science Research Specialist Rodolfo P. de Guzman agreed that the benefits of nuclear energy must be communicated to the people. He explained that one way to boost awareness is through developing the writing and communication skills of young learners.

“There are many research projects and innovations, but the public is not aware of their purpose. Communication plays a crucial role in breaking or unbreaking perceptions,” underscored de Guzman.

He observed that science news is dwindling with limited articles in the science and technology section of newspapers. He anticipates that this training workshop will increase the interest of the younger generation in exploring science and motivate them to craft compelling and engaging stories related to science.

Learning and Understanding Science Communication

During the two-day training workshop, the DOST-STII Science Journo Ako team invited a pool of science experts and advocates who lectured about science and news writing, social media content creation, basic photography, and photojournalism.

Ruby Shaira F. Panela, a veteran science writer and researcher from the International Rice Research Institute, shared ideas and concepts that a science journalist or communicator must know in her presentation titled ‘Basic Science Writing.’

Panela emphasized the crucial role of incorporating and prioritizing news value. “When writing science stories, the most

important thing on this news value is impact and relevance since it pertains to the relationship of the story to the audience,” she said.

Another speaker, Mark Joseph N. Tinao, a science content creator, explained that in gaining and building newsworthy content, the most interesting information should be provided in the opening statement of a social media post.

As presented in Tinao’s lecture ‘Effective Science Communication on Social Media: Educational Content Creation,’ communicating science to the public is not easy; therefore, social media posts or videos must possess both creative and informative content. “As science communicators, we need to present information based on knowledge that is verifiable,” Tinao reminded.

In connection with having a head-turner science content, DOST-STII resident photojournalist Henry A. de Leon talked about the features and functions of DSLR cameras and Smartphone cameras, which produce photos that tell stories.

Participants’ learnings from the three lectures were applied through the workshops provided by the resource speakers, where they conducted interviews, took photos, and shot videos in the vicinity of DOST-PNRI.

This Science Journo Ako training workshop is conducted yearly by DOST-STII through partnerships with other institutions, state colleges or universities, and organizations. It aims to spread the culture of science communication and address issues and concerns in the field of science.



Student participants from Quezon City Science High School and Philippine Science High School-Main Campus applied the knowledge they gained in the two-day Science Journo Ako training workshop by conducting interviews and taking photos and videos that they utilized for their science communication outputs.

Astronomy experts from Southeast Asia convene in PH for SEAAN 2023

By Kristine Erika L. Agustin, *DOST-STII*

Southeast Asian countries reveal the latest astronomy studies and developments in their respective countries as they convene in Manila for the 13th Southeast Asia Astronomy Network Meeting (SEAAN 2023).

SEAAN 2023 was attended by representatives coming from member nations Brunei, Thailand, Indonesia, Philippines, Malaysia, and Myanmar, hosted by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) of the Department of Science and Technology (DOST) and the National Astronomical Research Institute of Thailand (NARIT).

With the theme “Radio Astronomy Development in Southeast Asia,” the assembly aims to discuss the future and developments of radio astronomy in the region, along with the experts in astronomy and astrophysics and foster new collaboration among member countries.

The country representative for the Philippines shared the initiatives of DOST-PAGASA in astronomy development during the meeting, including the National Time Consciousness Week and 30th National Astronomy Week.

Free planetarium shows and telescoping and stargazing sessions were also offered to the public during the Global Astronomy Month, World Space Week 2023, and



Photo grabbed from DOST-PAGASA's Facebook page

Dark and Quiet Skies event, said Rosario C. Ramos, chief of Space Science and Astronomy Section of DOST-PAGASA.

She also cited the advantage of media collaboration for the increased number of participants during World Space Week 2023.

“In the planetarium, we usually have 100 or 200 visitors per day but during this time, we had more than a thousand visitors because of the media collaboration,” she said on 28 November 2023.

The two astronomical facility projects under DOST-PAGASA are also set to be completed before the year ends, Ramos said, namely Mindanao Regional Planetarium in Misamis Oriental and Visayas Regional Planetarium in Cebu.

Meanwhile, Saran Poshychinda, executive director of NARIT, said that since 2009, 2.6 million people have been served by the research institute, while more than 600 thousand people joined their activities from October 2022 to September this year.

Among the developments in their country are the 2.4-meter telescope

located on the highest mountain in the country, Doi Inthanon, and the 40-m radio telescope that can operate up to 115 gigahertz, located outside the city of Chiang Mai; while they also operate telescopes in Chile, US, China, and Australia, he said.

“We’re now developing many things in-house, including spectrographs and microwave receivers, as well as some state-of-the-art optical instruments,” Poshychinda added.

He also shared the two major research facilities in Thailand: the Thai National Observatory and the Thai National Radio Astronomy Observatory, which would start its full-sized operation in January next year.

Regional observatories were also opened to the public as part of their outreach infrastructure, with Khon Kaen, which was opened in November.

Astronomical observatories

Indonesia representative Hesti R T Wulandari, lecturer at the Institut Teknologi Bandung (ITB), introduced two of their observatories as part

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TECHNOLOGY & INNOVATION

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of astronomy development in their country; including the institute's Bosscha Observatory, which is now a national scientific heritage and is celebrating its centennial anniversary; and the National Astronomical Observatory in Timau, marking its 55% completion with the installation of its secondary mirror.

In terms of radio astronomy, Wulandari said they started with projects on small radio telescopes with students in 2008. She added that they are also planning for the conversion project of telecommunication antennas to radio telescopes, which still needs funding to materialize.

Wulandari added that Indonesia is also planning to build a radio telescope for the Timau National Observatory, and ITB is holding a collaboration with the Shanghai Astronomical Observatory for the installation of the VGOS (VLBI Global Observing System) Radio Telescope at the Bosscha Observatory.

"We really hope that collaboration among SEAN countries can be strengthened in the coming years," she said.

Telescope for All

Hazarry Haji Ali Ahmad, secretary general of The Astronomical Society of Brunei Darussalam, shared the developments in their country, including their astronomy outreach, offering the "Telescope for All: Making Space for All," which introduced the telescope and the relevance of astronomy to the public, especially the underprivileged communities.

Ahmad also highlighted the advantage of high internet penetration in Brunei, which helped them promote astronomy on digital platforms and find opportunities for collaboration with other countries, as well as their contribution to the global development of Islamic Astronomy with their records of the new moon sighting observation.

However, the biggest challenge in Brunei is having no professional astronomers, as cited in the 10th SEAAN. But Ahmad is hopeful that the establishment of a national astronomy observatory would address this issue, which is set to materialize in five years.

Progress in Malaysia

Hasan Abu Kassim, professor at Universiti Malaya, also presented the astrophysics and astronomy progress in Malaysia, particularly the Malaysia Space Exploration 2030, which aims to explore the national space sector ecosystem and the return of the Global Malaysian Astronomies Convention 2023 after being postponed in 2020 due to the COVID-19 pandemic.

The Center for Astronomy and Astrophysics Research in Universiti Malaya also helped in the development of establishing a Radio Cosmology Research Laboratory focusing on cosmology and solar; an Optical Astronomy Research Laboratory for spectroscopy, photometry, and sighting of new moon; and a Theoretical Physics Research Group focusing on astrophysics, he added.

Kassim also shared the National Planetarium for STEM Promotion in Malaysia's initiative to create a database of Malaysian astronomers to provide awareness to the public.

Astronomy education

Dr. Yee Yee Oo, rector of Kyaukse University, shared the developments in astronomy education in Myanmar, including the shift in the basic education system from KG+Grade 10 to KG+Grade 12, with Space and Universe as the focus of the Science subject in Grade 9.

Currently, they are trying to reorganize staff and students to work in the Astrophysics area, she added.

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has been using a very accurate clock, specifically a rubidium atomic clock for timekeeping. The rubidium clock is one of the two most widely used atomic clocks in the world (the other one being the more accurate cesium clock).

The rubidium clock in the DOST-PAGASA station is equipped with a receiver that receives timing signals from at least four orbiting satellites in the Global Positioning System (GPS) within its range. These satellites are each equipped with up to four atomic clocks which are periodically updated from a cesium atomic clock based in Boulder, Colorado.

This system keeps the DOST-PAGASA clock synchronized to the UTC. GPS is the same technology being used for modern navigation consisting of 24 satellites that broadcast their location, status, and precise time. Precise time is necessary for the GPS to work, as this will be used to compute the exact location of a receiver using geometry principles.

To sync your timepieces, just visit the DOST-PAGASA website (<http://bagong.pagasa.dost.gov.ph/>) and get the official Oras Pinas.

For more updates about Oras Pinas campaign, please visit the DOST Philippines official Facebook Page: <https://www.facebook.com/DOSTph>.



One Nation, One Time:
Pilipinas ON Time
NATIONAL TIME CONSCIOUSNESS WEEK

DOST instills culture of punctuality to the young in time for National Time Consciousness Week

By Allan Mauro V. Marfal, DOST-STII

In an era marked by incessant distractions, the art of respecting and valuing one another's time often takes a back seat, which may cause, in some instances, inconvenience to both parties. The pressing demands of modern life, coupled with a myriad of diversions, contribute to the oversight of responsible time management. The consequence, however, extends beyond the individual level, impacting relationships with family, friends, partners, and coworkers in ways often underestimated.

Recognizing the critical need for a cultural shift towards time consciousness, the Department of Science and Technology (DOST) is set to take the lead, once more, in promoting the National Time Consciousness Week (NTCW) in 2024. From 1-7 January 1 to 7, under the resonating theme "G na G! Oras Pinas para sa Bagong Pilipinas," the DOST aims to synchronize all timepieces across the nation, creating a unified commitment to punctuality and respect for each other's time.

As the New Year unfolds, the DOST emphasizes the significance of instilling a habit of punctuality in the minds of every Filipino. Beyond the mere ticking of the clock, the department envisions a broader impact on the fabric of society,

recognizing that the habit of being on time is a cornerstone in all aspects of businesses and activities.

The theme for 2024 speaks directly to the heart of the matter, urging Filipinos to embrace a culture where time is regarded with utmost importance. "G na G! Oras Pinas para sa Bagong Pilipinas" encapsulates the spirit of enthusiasm, vibrancy, and commitment towards a new and punctual nation towards a progressive society.

At its core, this year's NTCW theme is designed to focus on the younger generation. The DOST aims to impart the value of punctuality to the youth, emphasizing the profound impact of time management on their future success. By cultivating an understanding of the essence of time, early on, the department believes that young Filipinos can harness this knowledge as a powerful tool in shaping their personal and professional trajectories.

The Philippine Standard Time (PhST) Act of 2013

This advocacy aims to promote the new Pilipino time which is under Republic Act No. 10535 or The Philippine Standard Time (PhST) Act of 2013.

The law requires all national and local government agencies as well as broadcasting companies to adhere to and display the PhST in their respective offices. This makes these entities not only united but also in sync with each other, a perfect gesture of synergy needed to efficiently run a bureaucracy.

The DOST-Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) is tasked to be the official timekeeper.

However, it was started in 2011 as an advocacy campaign which was called as "Juan Time", a play of words on "One Time" (single or unified time) and "Juan" being the common name for Filipinos.

Thereafter, the main campaign was rebranded two years ago into "Oras Pinas" which hopes to institutionalize the new Filipino culture of being always on time and having only one time as a nation.

The GPS and the atomic clock

The PhST must be kept according to the Coordinated Universal Time (UTC)—the world's official time. How does this office ensure that we get the correct time all the time? Since 2003, DOST-PAGASA

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DOST eyes PH to be the Gold Standard in disaster and climate information services

By Allan Mauro V. Marfal, DOST-STII



The Department of Science and Technology (DOST) hosted a side event during the 28th Conference of Parties (COP) held on 01 December 2023, in Dubai, United Arab Emirates, and shared how Filipinos, often known as victims of disasters, can become victors through numerous science and technology (S&T) interventions.

With the title “From Victims to Victors: Accelerating Data Governance for Climate Action in the Philippines,” the

DOST shared on the global stage the practical use and applications of two of the most recognized multi-sectoral collaboration works led by the country’s science department: the Impact-Based Forecasting and Early Warning System and GeoRiskPhilippines Initiative.

“Disaster is a wicked problem. By this, it means that disasters have complex interdependencies so that the root of the problem defies clear-cut definitions. The associated risks cascade and compound unpredictably, and therefore there is no

single solution to address the problem. My dream today as Secretary of DOST is that the Philippines will be the Gold Standard in Disaster and Climate Information Services. And I hope to share our learnings with the rest of the world,” said DOST Secretary Renato U. Solidum Jr.

Sec. Solidum shared that the inherent complexity of disasters necessitates a comprehensive approach involving both the government and society, prompting the Philippines to implement

a whole-of-government strategy for building and maintaining a resilient information system. This initiative aims to bolster the country's Disaster and Climate Risk Reduction and Management policies and programs, the Secretary explained.

"Disaster is and will remain an intractable problem. But it is and will be a preventable problem if we have the right information at the right time to craft our strategies," Sec. Solidum said.

Disaster Risk Reduction and Climate Change R&D agenda

For Disaster Risk Reduction and Climate Change R&D agenda, the DOST identified eight Key Result Areas, reflecting the Priorities for Action of the Sendai Framework for Disaster Risk Reduction (SFDRR), and identified six Dimensions of Resilience, reflecting the concerns in the SDG or Sustainable Development Goals.

Through the Agenda, the DOST encourages prospective research partners to contribute to the global agenda on climate change, disaster risk reduction, and sustainable development.

"One emerging cross-cutting priority is digital transformation. With the frequent experiences of the Philippines to disasters and the imminent threats of climate change,

there is a need for robust scientific data that allows us to prevent, adapt, and mitigate. Through data and governance, we change the Filipino narrative of resilience," said Sec. Solidum.

GeoRisk Philippines Initiative

In her presentation, Mabelline T. Cahulogan from the DOST-Philippine Institute of Volcanology and Seismology (PHIVOLCS) said that GeoRisk

Philippines is a platform to share hazards, exposure, and other risk information to help people, communities, local governments, and national agencies prepare and plan on how to reduce the risks from natural hazards.

Its goal is to be the country's central source of information for accurate and efficient hazards and risk assessment that will help the government increase the nation's resilience to natural hazards.

She mentioned that the five data aspects of GeoRisk Philippines are data, technology, people, policy, and leadership.

Cahulogan explained to the attendees that GeoRisk Philippines can provide summary reports of the tsunami exposure level of barangays, municipalities, and provinces across the country. It calculates the area's population that is exposed to tsunami risk, as well as the different heights of possible tsunami with their corresponding number of affected persons in case of the disaster.

GeoRisk Philippines consists of an integrated platform, namely; HazardHunterPH, GeoAnalyticsPH, GeoMapperPH, Map and Feature Services, 3D Earth Risk, and Plan SmartPH.

Multi-Hazard Impact-Based Forecasting in the Philippines

On 26 April 2023, the DOST-Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) officially launched the five-year Multi-Hazard Impact-Based Forecasting and Early Warning System for the Philippines Project or the GCF-IBFPh Project.

Thelma A. Cinco of DOST-PAGASA emphasized that the project aims

to meet the pressing demand for a proactive and inclusive climate risk management approach in the Philippines. The initiative centers on a people-focused, multi-hazard impact-based forecasting, and early warning system, covering flood, landslide, severe wind, and storm surge.

Cinco added that this endeavor will usher in a paradigm shift, transitioning from conventional weather forecasts to a comprehensive multi-hazard impact-based forecasting and early warning system.

"Through a concentration on impacts, disaster management agencies, local government units, and the general public can enhance their comprehension of risks. This heightened awareness is more likely to prompt appropriate actions. By envisioning the potential disaster risks not just for their community but also for their families and themselves as individuals, people are empowered to make more informed and proactive decisions," Cinco pointed out.

Sec. Solidum believes that Filipinovation, a Filipino word coined to describe ingenuity, represents how knowledge drives innovation, innovation drives productivity, and productivity drives economic growth. But it is also an evolution of how Filipinos are not merely surviving disasters but instead creating solutions to face them.

"We envision redefining Filipino resilience from merely surviving to living, coping, and adapting to risks. When we recognize the power and influence of science, technology, and innovation, we realize that we are not powerless against hazards and risks. We believe that through STI, resilience is possible, and that Filipinos can come out as Disaster Victors, not disaster victims," Sec. Solidum ended.

STARBOOKS tests students' mettle in first-ever Whiz Bee

By Jacqueline R. Parairo, *DOST-STII*



The Top 20 contenders for the STARBOOKS Whiz Bee ponder their answers during the semifinals round of the competition held at Governor Ferrer Memorial Integrated National High School on 28 September 2023.

Students from Governor Ferrer Memorial Integrated National High School (GFMINHS) showcased their intellectual prowess during the first-ever Department of Science and Technology-Science and Technology Information Institute (DOST-STII) STARBOOKS Whiz Bee in General Trias, Cavite.

“It was historic on the part of Governor Ferrer Memorial Integrated National High School to host and, at the same time, conduct this kind of very important

activity,” said Dr. Ramy R. Dalida, Principal IV of GFMINHS, in his opening remarks. “Thank you so much, DOST-STII, for this opportunity na ibinigay niyo po sa amin, sa aming mga teachers at sa aming mga learners.”

More than ninety students from Grades 9 and 10 competed at the beginning of the contest on 26 September 2023. The top twenty contestants made it to the semifinals round held on 28 September 2023. The five best scorers out of the

group battled head-to-head during the grand finals later the same day.

Alex G. Mahabague emerged victorious as the first-ever STARBOOKS Whiz Bee Champion, followed by Jewel Rose T. Bacquian as First Runner Up, Anthony Gelenno L. Caliweg as Second Runner Up, Jankia Iju P. Vallejos as Third Runner Up, and finally Aeron Karl A. Talosig as Fourth Runner Up. The winners received medals and gift certificates from the event’s sponsors.



The winners of STARBOOKS Whiz Bee (L to R: Anthony Gelenno L. Caliwag, Jewel Rose T. Bacquian, Alex G. Mahabague, Jankia Iju P. Vallejos, and Aeron Karl A. Talosig) proudly present their medals, certificates, and prizes after the conclusion of the event on 28 September 2023, in General Trias, Cavite.

“Nahirapan pa rin po kasi konti lang din po ‘yung time ng paghahanda. Sa tingin ko po, practice lang po talaga before mag-start ang Whiz Bee,” Whiz Bee Champion Mahabague answered when asked about his experience during the contest and his path to victory.

The Whiz Bee questions were curated by GFMINHS teachers from the STARBOOKS library and covered topics involving mathematics and science.

The aim of STARBOOKS Whiz Bee is to contribute to improving the quality of mathematics and science education by encouraging students to strive for excellence in the subjects with the help of STARBOOKS.

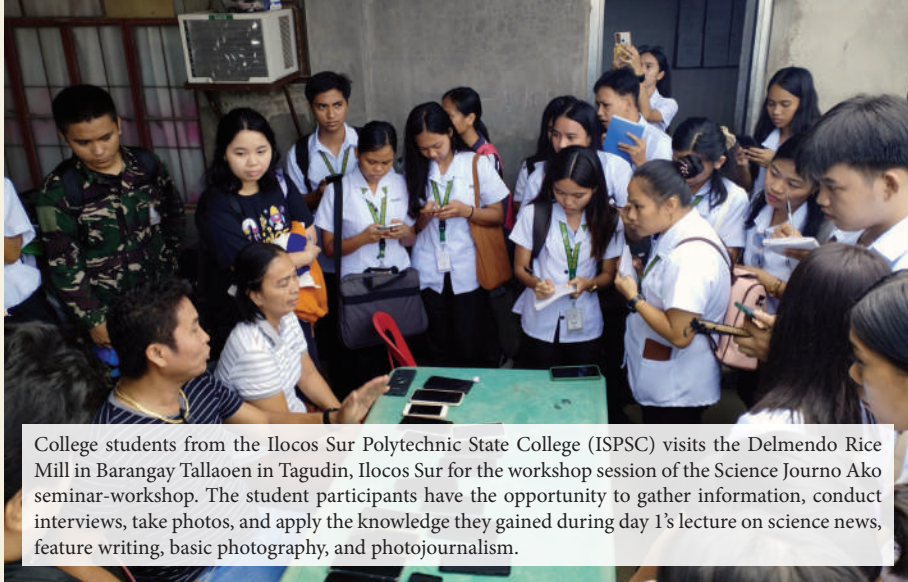
On the other hand, winners of the DOSTv and GFMINHS’s Video Making Contest for teachers were also awarded cash prizes. Mathematics teacher Jeziah Jahziel T. Bombay won First Place while Loren Mae P. Montealto and Myrose G. Noche got Second and Third Place, respectively. The video making contest was part of the seminar-workshop given by DOST-STII for the teachers who attended the recent Science Journo Ako lecture with DOSTv segment producer, Antonio Capinpin, as the resource speaker.

“From the Department of Science and Technology-Science and Technology Information Institute, ito ang aming promise sa inyo: tulong-tulong tayo para sa isang maunlad, mapanatag, at mapayapang bayan,” DOST-STII Director Richard P. Burgos said in his video message during the event.

STARBOOKS, short for Science and Technology Academic and Research-Based Openly-Operated Kiosk, is an interactive kiosk system developed by DOST-STII. It aims to provide Science, Technology, and Innovation (STI) information to students and other constituents in geographically isolated and economically challenged schools and communities throughout the country through digitized formats set in a user-friendly interface. Incidentally, both the STARBOOKS and DOSTv are two of the flagship programs of the institute that have been included in the National Priority Plan of the National Economic and Development Authority, and received numerous awards for being innovative and game changing.

Educ, IT, psych students of Ilocos Sur Polytechnic State learn SciComm skills

By Allan Mauro V. Marfal, DOST-STII



College students from the Ilocos Sur Polytechnic State College (ISPSC) visits the Delmendo Rice Mill in Barangay Tallaoen in Tagudin, Ilocos Sur for the workshop session of the Science Journo Ako seminar-workshop. The student participants have the opportunity to gather information, conduct interviews, take photos, and apply the knowledge they gained during day 1's lecture on science news, feature writing, basic photography, and photojournalism.

Over the years, the Department of Science and Technology - Science and Technology Information Institute (DOST-STII) has been providing capacity-building activities to students, media practitioners, academic researchers, and other professionals on various skills related to science communication.

It allows them to learn how to popularize science and create engaging content on the practical benefits of various scientific applications and concepts and how they could impact the lives of every Filipino.

This series of activities is coined by the DOST-STII as the Science Journo Ako advocacy, wherein they envision building a large pool of science communicators, regardless of their profession, to help us not only in promoting the important roles of science but, most importantly, in ensuring that all our decisions in our lives are based on science.

Since 2015, it has been held 54 times, partnering with different institutions, addressing specific gaps and concerns when it comes to science communication.

On 5-6 October 2023, the Ilocos Sur Polytechnic State College-Tagudin campus was the most recent partner of the Science Journo Ako advocacy. Through its College of Arts and Sciences, the DOST-STII trained 66 students who are taking up Bachelor of Education majors in Science and Mathematics, Information Technology, Psychology, and Public Administration.

With the title “Science Journo Ako goes to Ilocos Sur: The So What? of your Science Stories,” the student-participants learned beyond the 5Ws and 1H of the science story and dove deep into its relevance to the public.

“We are very grateful for the opportunity given to us by the DOST-STII. Not only for offering us free training but also for opening our eyes that science communication is everybody’s business, not only in the media and journalism industry. Our students, who are future math and science teachers and IT professionals, can be instrumental in promoting the culture of science, especially once they possess these communication skills,” said Dr. Ederlina

M. Sumail, the campus administrator of ISPSC Tagudin campus.

Meanwhile, DOST-STII Director Richard P. Burgos said that it brings him immense joy to know that the various college departments within ISPSC, despite having limited journalistic background, have expressed keen interest in acquiring diverse science communication skills.

“I would like to emphasize that our objective in providing this kind of training to non-journalism or communication majors, like yourselves, is not to persuade you to shift your courses or career paths. Rather, it is to equip and inspire you to create science-related content that is both impactful and accessible, even as you continue to excel in your respective fields of study. This is because science is experienced by all of us every day,” said DOST-STII Director Burgos.

Writing Popularize Science Stories

One of the presenters was Krixia Subingsubing, a youthful yet seasoned science-beat journalist hailing from the Philippine Daily Inquirer. She offered valuable insights into uncovering more engaging story angles from a multitude



of sources, including scientific journals, technical presentations, and expert interviews.

Subingsubing stressed the importance of selecting a compelling story angle, particularly in the realm of science. She encouraged us to consider existing issues or challenges that scientific research and technology could address promptly.

“Crafting science narratives involves bridging the gap between experts’ proposed solutions and their intended beneficiaries. Amidst the raw data at our disposal, let’s extract those crucial details and weave them into our stories,” Subingsubing advised.

She also suggested self-evaluation for story ideas by asking key questions: Does it unveil new discoveries? Has this topic been covered extensively? Is it relevant to the public? Would it captivate your family and friends? Are there significant implications?”

Subingsubing emphasized the need for thorough research and critical thinking when reporting on scientific topics, reminding us that our science stories wield influence as they shape decisions in people’s daily lives.

“Our science narratives carry significant weight, as the information we convey and how we present it can serve as the foundation for individuals making choices in their everyday existence,” Subingsubing asserted.

The dynamic young speaker also shared strategies for conducting interviews with scientists and researchers, ensuring a comfortable atmosphere for them to share essential and captivating data regarding their projects and research.

“Science writing extends beyond the conventional 5Ws and 1H; it delves into the ‘so what’ of our articles. These narratives present data and discoveries that can impact our lives. Let’s transform our science stories into agents of societal change, enabling our readers to make well-informed decisions.”

Art of Visual Storytelling

Another resource speaker was Aileene Camille Dimatatac, a seasoned environmental photojournalist and professor at the Polytechnic University of the Philippines (PUP). Aside from the technical side, she shared various tips and approaches to capture the best angles in their photos, especially covering events and stories related to the environment and science.



Dimatatac said that visual storytelling is more than just taking photos but creating an image with a story, impact and is aesthetically pleasing to the eyes; it is both a technical and creative process, which combines your knowledge of your camera and storytelling.

“Practice and practice! Walk and walk! Read and read! This is the key to being a successful photojournalist. Don’t stop making visual stories that matter. Remember photography is for all, you are not limited by your course or discipline to excel in this field,” advised Dimatatac to aspiring photographers and photojournalists.

Learning in the Field

To appreciate and apply the principles shared in the lectures, the student-participants visited the Delmendo Rice Mill in Barangay Tallaoen in Tagudin, Ilocos Sur for a workshop session. The student participants had the opportunity to gather information, conduct interviews, take photos, and apply the knowledge they

gained during lectures on science news, feature writing, basic photography, and photojournalism.

Afterward, the participants worked on their science news and feature articles and photos with captions, and some of them were discussed by the resource speakers.

Director Burgos shared that with Science Journo Ako, the DOST-STII aspires to empower a great number of individuals to embrace the art of science communication, a skill so important today in light of advancements in science and the abundant technological resources available at our fingertips.



“You are probably familiar with the phenomenon of heartthrobs. When a heartthrob passes by, your gaze follows, or you take a second look. Who is that? That’s exactly the kind of effect we want to produce when you create compelling science stories, and that’s what we hope to achieve at the end of this session,” said Director Burgos.



Medalists from seven International STEM Olympiads were given the Youth Excellence in Science (YES) Award for their performance in their respective competitions last 10 October 2023 in Novotel Manila, Quezon City.

Pinoy International STEM Olympians honored by DOST officials, bring glory to the country

By Jacqueline R. Parairo, DOST-STII

The country’s best and brightest young minds in Science, Technology, Engineering, and Mathematics (STEM) gathered for the Presentation of the 2023 Philippine Teams in International STEM Olympiads at Novotel Manila in Quezon City held on 10 October 2023.

Medalists, participants, and coaches from various International STEM Olympiads were in attendance, as well as members of the media and several honored guests, including Department of Science and Technology-Science Education Institute (DOST-SEI) Director Dr. Josette T. Biyo.

“Napaka-importante nitong event natin dito, to recognize students, high school students, na nanalo sa international science and mathematics competitions na ginanap sa ibang bansa,” said

Dr. Biyo. *“Hindi basta-basta maka-represent ang Pilipinas sa isang kumpetisyon sa international events. Kasama sila sa mga pinakamatalinong bata sa buong mundo.”*

Dr. Biyo stressed the importance of these competitions in inspiring the youth to pursue further education in the STEM strand.

“*Napaka-importante nito kasi ‘yung training nila, I would like to believe, starts as early as elementary... Bata pa lang sila, I’m sure na interested na sila sa science and mathematics. Nag-iintensify ‘yung kanilang pag-hone ng skills through organizations really organizing events at the local, national, and even trying to participate in international competitions,*” she explained.

The cream of the crop amongst the high school students who joined the local and national Olympiads were chosen to participate in grueling International STEM Olympiads, namely the International Mathematical Olympiad (IMO), International Biology Olympiad (IBO), International Chemistry Olympiad (IChO), International Physics Olympiad (IPhO), International Olympiad in Informatics (IOI), International Geography Olympiad (iGeo), and International Olympiad on Astronomy and Astrophysics (IOAA).

The mentors explained that these Olympiads spanned several days and included both theoretical and practical examinations that lasted five to six hours a day. Most were the first fully

face-to-face competitions since the COVID-19 pandemic began in 2020. Participants were trained for a few weeks prior to the contest proper.

“Although this is our highest registration count so far, to be honest, I think medyo mababa pa siya,” said Kevin Charles Atienza, team leader of the Philippine IOI team. “Malaki ‘yung student population ng Philippines, and I really think we have a lot of talent here. Unfortunately, it’s very hard to reach them for many different reasons, partly dahil maraming schools ay di pa ganun ka-developed ang curriculum nila, partly hindi pa sila aware na nag-eexist ‘yung competition na ito, and partly dahil mahina ang support from the schools.”

Despite this, all Philippine teams bagged medals in each of the competitions.

“I am grateful for the opportunity to be part of this established yet dynamic effort that develops our economy’s young talent,” shared Filbert Ephraim Wu, Silver Medalist of the 64th IMO and Bronze Medalist of the 35th IOI. “To DOST-SEI, we are grateful for your comprehensive

support of the Olympians. Your support enables equitable opportunity for Filipino youth to excel at the highest level in STEM, regardless of individual resources.”

DOST Secretary Dr. Renato U. Solidum Jr. congratulated the Olympians for their exemplary performance before they were awarded the Youth Excellence in Science (YES) Medals.

“We at the DOST are very proud to celebrate and honor each of you for your contribution to the fearless spirit of grit and perseverance while continuously pushing the frontiers of lessons, thus paving the path for the future generation to follow in your footsteps,” he said. “Allow me to take this opportunity to thank you for bringing honor to the country.”

The Philippines will be participating once more in the seven International STEM Olympiads in 2024. Local and national Olympiads will be conducted a few months prior to their international counterparts.



Filbert Ephraim Wu, who bagged Silver and Bronze Medals in the 64th International Mathematical Olympiad and the 35th International Olympiad in Informatics respectively, recounted his experiences during the events.

DOST-Day Care Center receives school equipment from the Metrobank Foundation, Inc.

By Rhea Mae B. Ruba, *DOST-STII*



DOST Secretary Renato U. Solidum Jr. (right) receives the plaque of recognition as one of the board of judges of the 2023 Metrobank Foundation's search for Most Outstanding Filipinos. The recognition was awarded by Metrobank Foundation, Inc. President Aniceto M. Sobrepeña (left) during the turnover of school equipment to the DOST Day Care Center. (Photo by Henry A. De Leon, DOST-STII)

Foundation's Search for Outstanding Filipinos into the school equipment.

"I also remember that to develop science, technology, and innovation in our country, which will be the key to change our nation, it is important to provide an answer to the question of how we can encourage the young generation to involve themselves in science and technology. So, I have been asked for a long time, and my answer was to start with children, specifically toddlers, kindergarten, or nursery," emphasized Secretary Solidum.

According to the science chief, he was beyond grateful to extend Metrobank Foundation's generosity to the DDCC students. "Definitely, this is one of the happiest moments in my life, remembering and helping the children. Because it's a chance for them to benefit from technology and learn from it," the Secretary said.

The Department of Science and Technology (DOST) was fortunate to receive school equipment from the Metrobank Foundation, Inc. for its DOST-Day Care Center (DDCC) through the initiative of DOST Secretary Renato U. Solidum Jr., who converted his token of appreciation into a donation. The turnover took place at the DDCC building in the DOST Bicutan Compound, Taguig City on 13 December 2023.

The donated school equipment includes two flat-screen televisions, one refrigerator, one portable speaker, and seven tablets, aiming to advance and improve the education system, specifically the children's learning habits.

With the optimistic goal of prioritizing the needs of DDCC students, Secretary Solidum converted his reward as one of the judges in the 2023 Metrobank



DOST Assistant Secretary and DOST-wide GAD Focal Person Diana L. Ignacio, DOST Secretary Renato U. Solidum Jr., Metrobank Foundation, Inc. President Aniceto M. Sobrepeña, and Metrobank Foundation, Inc. Excellence Awards Unit Head Kenny Ralph S. Fernando (L-R), welcome the donations to the DOST Day Care Center as the students were granted school equipment to advance and improve their learning. (Photo by Henry A. De Leon, DOST-STII)



National Book Store (NBS) Foundation Director Bea Andrea A. Torres (middle in red) presents the design perspective of the Department of Science and Technology (DOST) Day Care Center to DOST Assistant Secretary for Administrative and Legal Affairs Dr. Diana L. Ignacio (3rd from left) during the kick-off ceremony of the partnership between the DOST and NBS on 15 December 2023, at the DOST Day Care Center (DDCC) in Bicutan, Taguig City. With them are DOST-STII Director Richard Burgos (leftmost), DOST Usec. Sancho Mabborang (2nd from left), DOST Director Cesar Pedraza (rightmost), and volunteers from Bayan Ni Juan.

NBS, the country's largest bookstore and supplies store, through its social arm NBS Foundation, will partner with DOST to transform its facility into a learning center by providing books, school supplies, learning materials, and redesigning the center through activities such as painting murals and donating furniture.

Meanwhile, Metrobank Foundation, Inc. president Aniceto M. Sobrepeña revealed the selfless act of the DOST Secretary in choosing to share his reward, serving as their corporation's appreciation for its two-day hard work in carefully and thoroughly selecting the Most Outstanding Filipinos.

"We make sure that we honor our distinguished jury members. He immediately chose you (DDCC). The DOST Secretary willingly donated his reward publicly. Very selfless," Metrobank President Sobrepeña affirmed.

In his message, he requested the constant support of DOST Secretary in the search for Most Outstanding Filipinos, especially in the category of

teachers, particularly to encourage more applicants from the Philippine Science High School System (PSHSS).

Other partnerships and collaborations that will strengthen the synergy of Metrobank and DOST are expected to be implemented by Metrobank. "We'll be happy to work with DOST to further implement our advocacy. What else can we do and help? We are a funding agency. We are not that enormous, but we are one of the most active foundations in the whole country," Metrobank President Sobrepeña added.

The DOST secretary also looked forward to the significant results of having more partnerships and collaborations with Metrobank to develop opportunities for the country. "I think this is our way of

showing and expressing the bayanihan spirit of the Filipino. If we work together for the common good, we will transcend all the hurdles that the Philippines seems to be facing," Secretary Solidum expressed.

The DDCC learning environment was launched this year for the five students after its building's major renovation. It served as one of DOST's gender mainstreaming initiatives to help DOST personnel ensure the continued care of their children while they are at work. Upon receiving the support, the DDCC management hoped to be fully operational next year, and with the donation, they are expecting a greater number of children could avail of better education in their foundation years.

#ScienceJournoAko features stories written by our participants during the science journalism workshops. Witness the brilliance of young minds as they showcase their exceptional written outputs. From captivating articles that demystify complex scientific concepts into creative feature stories, each piece is a testament to the dedication and creativity of our budding science journalists.

Hemostats: The Game Changer in Emergency Situations, Stops Bleeding in its Tracks

By Rosian Valery L. Delos Santos & Rayniel G. Raquinio (Grade 9 students)
Coach: Romel A. Abalos, Gabu National High School

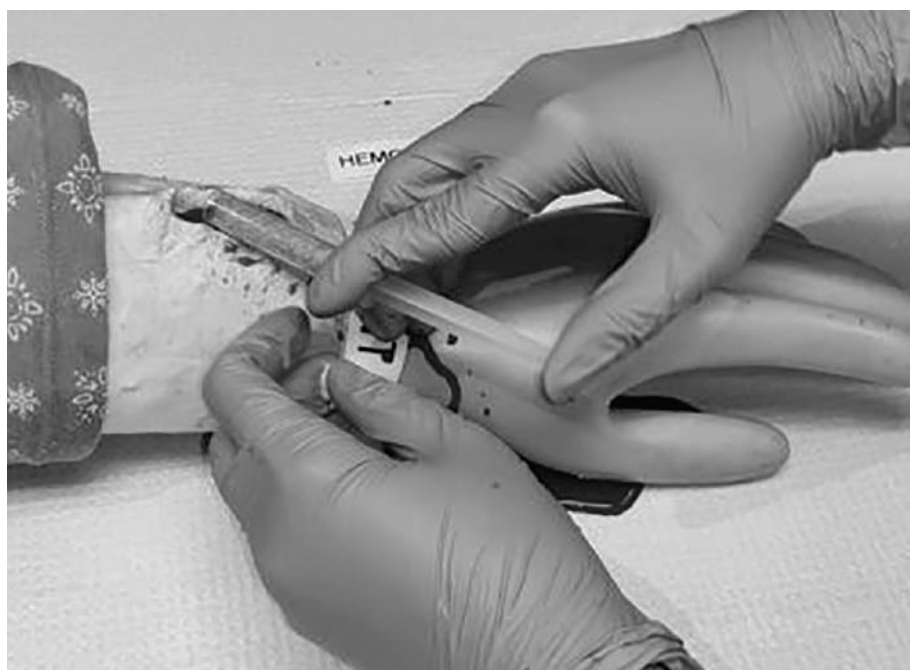
Hemostats strike a delicate balance between reducing or stopping the bleeding in injuries while also preventing excessive clotting. (Photo from DOST-Philippine Nuclear Research Institute)

Hemostats are used to lessen or stop bleeding from surgical incisions made during an emergency situation or from severe wounds. The hemostats produced by the Department of Science and Technology - Philippine Nuclear Research Institute (DOST-PNRI) are comparable in performance to commercial hemostat products based on in-vitro and animal studies.

DOST-PNRI researchers used radiation to safely modify natural and water-soluble polymers to produce hemostats which are biocompatible (non-toxic, non-allergenic), sterile, and which do not damage the wound site nor cause a burning sensation.

DOST-PNRI says that hemostats are used to stop bleeding especially for trauma patients and usually for accidents and disasters that cause a deep wound. Because of it, the patient may lose plenty of blood before the patient arrives at the hospital, so they put or inject the hemostats to the deep wound of the patient to stop the continuous flow of blood.

The cellulose that was used for hemostats was made of wood pulp. DOST-PNRI uses radiation technologies to process the cellulose to allow the



crosslinking of its polymers, which will improve the absorption quality of the cellulose. So the hemostats would be easier to put or inject to the patient's deep wound. And it would be faster and stronger to clog the coagulation of the blood. That gives enough time for the patient to arrive at the hospital to be properly treated. The texture of hemostats granules that was joined with the blood can be easily removed by professionals so the doctors or physicians can start the medical procedure.

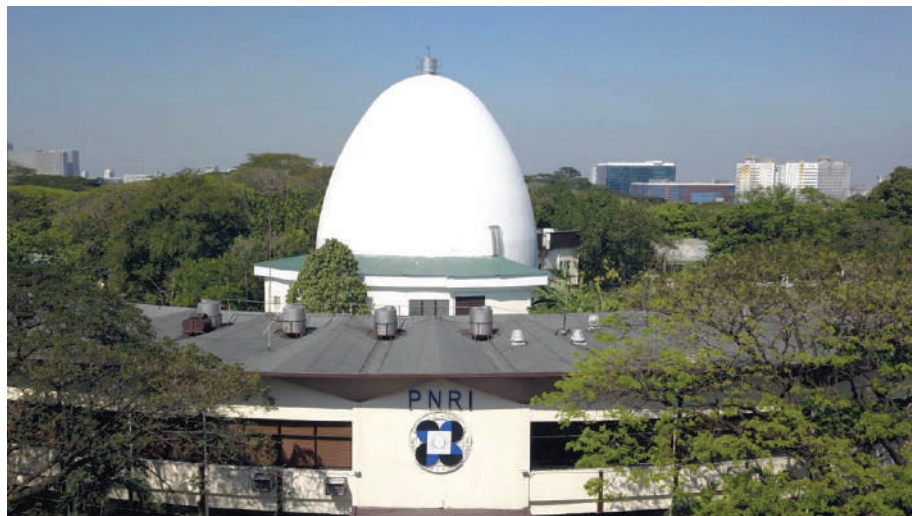
DOST-PNRI also says that because it is plant-based, it doesn't have any side effects. It is biocompatible, and it was

sterilized using radiation processing, so it is safe to insert into our body. Currently, hemostats are undergoing clinical trials in Metro Manila. DOST-PNRI also said that they are hopeful for its success so they can conduct market studies to see if it can compete with the prices of currently available hemostats.

Hemostats serve three purposes in the treatment of urgent wounds. Hemostats were initially made to clump tiny blood arteries to stop bleeding. To grip and hold unto superficial fascia while eroding and debriding wounds is another usage. The deeper regions of a wound can be exposed, explored, and visualized using this product.

Radioactive Egg?: The DOST-PNRI reactor in an EGGshell

By Ramil Ramones and Leanna Montecino, Quezon City Science National High School



The Department of Science and Technology, also known as DOST, is known for pioneering and leading Filipinos towards the scientific world. As of today, DOST's Philippine Nuclear Research Institute (PNRI) is the institute with the most accomplishments and awards garnered throughout the years.

Visiting PNRI's compound, however, will pique everyone's curiosity. Just as you enter the facility, it is easy to notice the white dome, shaped like an egg, in the distance. What is that big egg over there? A big egg in an institute that studies radiation? Many people might find this funny at first, but what they do not know is that this egg houses the one and only operating nuclear reactor in the Philippines, called the Philippine Research Reactor-1 Subcritical Assembly for Training, Education, and Research (PRR-1 SATER).

Looking at this hard-boiled egg, not much is known about its architectural history, aside from the shape serving as a sturdy structure against earthquakes. But what we do know is the history of the heating yolk inside it. Following its conversion in 1988, the reactor pool suffered a leak,

leading to its shutdown. It reopened to the public as a subcritical reactor, now having an external source of neutrons to control the rate of fission. As intimidating and life-threatening as it sounds, it is inherently safe as it produces no energy and heat and can only be used for training and educational purposes, not for power generation.

So how can this be beneficial for us? As a training and experimental ground for researchers and students, it is used for manipulating isotopes, a type of atom with the same number of protons but a different number of neutrons, the analysis of radioactive materials, and the calculation of expected radiation amounts.

How is this all possible? Firstly, tap water is deionized to remove any unnecessary minerals and impurities, achieving the ideal conductivity, temperature, and pH level. Then, they can load in the fuel cell and start operating the reactor. Monitoring the water quality ensures the safety of the fuel, avoiding corrosion of the fuel's encasing, especially in the middle, where all of the Uranium-235 is concentrated, preventing leaks and potential dangers.

All of these processes are possible with the help of nuclear fission! As one knows, fusion is the process of merging two objects; this time, fission would mean the opposite. Nuclear fission refers to the splitting of a heavy nuclide, a type of atom characterized by the number of protons and neutrons in its nucleus, to produce energy. These processes happen inside the fission reactors, where they harness neutrons.

Harnessing neutrons takes a lot of time, in addition to analyzing them. Initially, DOST-PNRI's consoles were bulky and full of buttons that you had to press and interpret simultaneously. But as technology progressed, these data are now stored in one computer and displayed on a few monitors. But on a larger scale, even if technology has advanced, these neutrons are still way too fast for us to detect. In order to analyze these particles, a graphite layer, acting as a moderator, is wrapped in the interior, slowing down the neutrons and helping us to have a closer look at these subatomic particles. Then, a plotter records the power level and reactivity of the neutrons and the pH level and temperature of the water. From there, experts in related fields can interpret the data and do something useful and beneficial with it.

However, harnessing nuclear energy is expensive, and this somehow limits our potential to explore its capabilities. When used correctly, these processes are useful in the medical fields to test the capabilities of these radiation as a form of therapy or in agriculture to improve food production and seedling growth. Since nuclear energy in the Philippines is still vast and unexplored, its potentials could be slowly uncovered by the future researchers of today's generation.

Inabel: The Timeless Art of Weaving Stories in Threads

By Sher France Adiah Tagata and Lovely Chllevyh Joymarie Calumag, *Ilocos Norte National High School*



The skillful hands of Ilokano weavers bring back the enchanting artistry of Inabel, weaving the rich history and culture into every thread. Ms. Josie Garlitos, 44 years in the field of weaving, demonstrated the use of the “pag-abelan” or the weaving machine that was featured at the Centennial Arena, Laoag City for the “Rambak Ti Siyensya” Regional Science, Technology, and Innovation Week celebration.

As one of the Philippines’ beautiful attractions, Ilocos Norte is unique with its amazing cultures and traditions. In the vibrant tapestry of the Philippines, nestled among the mountains and vast rice fields, there exists a cultural gem that threads through history, heritage, and time. It’s known as “Inabel,” a traditional handwoven fabric that carries the soul of the Ilocanos. In the rhythmic clatter of looms and the intricate patterns of their deep-rooted significance, Inabel weaves stories of the Philippines’ rich and diverse cultural heritage. Then and now, the province of Ilocos Norte has always been very popular both in and outside the country because of its cool natural beauty.

“Abel” is the Ilocano word for weave, and “Inabel” can be interpreted to mean any kind of woven fabric. Along with its exquisite designs, Inabel is also versatile, adding to its attractiveness. The patterns and motifs of Inabel frequently reflect the daily lifestyle of the weavers and our natural landscapes, emphasizing their

connection to the environment and to their ancestors. The Ilocos weavers are evidence of the resourcefulness and creativity of Ilocanos, and their efforts to preserve and promote Inabel are such an honor. Cotton Inabel fabric comes in both plain and patterned varieties. The softness, lovely patterns, and durability of Abel cloth are well-recognized and treasured. The Abel cloth has a strong and colorful material that makes it unique in some way.

The traditional process of weaving Abel cloth is enchanting and, at the same time, captivating, making it more fun to foster a renewed appreciation for this heritage art form. In weaving Abel cloth, it begins with preparing the cotton, from picking cotton balls, removing seeds, pounding or beating, twisting using a spindle, and winding the cotton yarn into the skeiner. Inabel is more than just fabric; it represents our Filipino culture and resilience that keeps our communities and generations connected. The weaving structure is somewhat complicated since the pattern is intricate, but making Inabel

is useful to our daily lives as it holds a profound significance today by preserving centuries-old designs and patterns that depict the lives and culture embedded in the very fabric of the region’s indigenous weaving tradition. For many local Filipinos, weaving is a significant source of income as well as a key component of our culture. For communities bonded by enduring tradition and innovative thinking, it serves as a unifying force.

Younger generations of Ilocanos should be encouraged to learn and keep this tradition alive. Our ancestors have brought Inabel into the spotlight, showcasing its unique beauty on international platforms and encouraging people to embrace our tradition. One needs to be aware of the cultural importance woven into each piece of Inabel to fully enjoy it. The designs and themes frequently reflect the natural surroundings and the weavers’ daily routines, demonstrating their ties to the land and their ancestry. Weaving Inabel has a significant contribution to our fashion and home decor, and Inabel has transcended generations, embracing modern styles while preserving its traditional essence.

Inabel is a piece of living history, an art form that bridges the gap between past and present, tradition and innovation. It reminds us of the importance of preserving our cultural heritage and celebrating the artistic talents of generations past and present. As Inabel continues to find its place in the modern world, it stands as a testament to the enduring spirit of the Filipino people and their unwavering commitment to keeping their rich traditions alive, one thread at a time. Let us pay tribute to the hands that skillfully weave each item as we enjoy its beauty, conserving the spirit of this extraordinary trade for future generations.

PBBM kicks off Handa Pilipinas 2023 Visayas Leg on Supertyphoon Yolanda's 10th anniversary

By Jacqueline R. Parairo, *DOST-STII*

The Visayas Leg of Handa Pilipinas 2023: Innovations in Disaster Risk Reduction and Management Exposition kicked off on 8 November 2023 in commemoration of the 10th anniversary of Supertyphoon Yolanda at the Summit Hotel in Tacloban City, Leyte.

Bearing the theme “STY Yolanda Remembered: Understanding Risks and Preventing Disasters”, the three-day event highlighted the important technological innovations that the Department of Science and Technology (DOST) has developed when it comes to risk reduction and management, specifically for disaster preparedness, response, rehabilitation, and recovery.

The opening ceremony was attended by participants from local government

units, national and regional government agencies, regional disaster risk reduction and management councils, volunteer organizations, non-governmental organizations, members of the academe, and representatives from the private sector.

Persons of note also gave speeches during the ceremony, including DOST Secretary Renato U. Solidum Jr., DILG Secretary Benjamin C. Abalos, Jr., Leyte Governor Jericho L. Petilla, Tacloban City Mayor Alfred S. Romualdez, House Speaker Ferdinand Martin G. Romualdez, and most importantly, President Ferdinand “Bongbong” R. Marcos Jr.

“Putting our experience at the heart of this event reminds us of the calamity that brought unimaginable destruction to the Visayas, to the Philippines. It serves

as a poignant reminder of the power of nature, and our vulnerability to that power,” said President Marcos Jr. in his speech.

Stressing the need to prepare for any untoward event brought by natural hazards, the President said that there is a need to remember valuable historical information. “More importantly, it underscores the importance of disaster risk reduction and management in the Philippines... We owe it to ourselves and to the future to learn from this experience and make sure that such devastation will be mitigated or, somehow, prevented.”

“The government remains committed to advancing our country’s disaster resilience. Of course, we have to recognize the role of the Department of

continued on page 31



President Ferdinand “Bongbong” R. Marcos, Jr., together with DOST Sec. Renato U. Solidum Jr. (right, foreground), inspects various technologies and innovations laid out during the Opening Ceremony of the Handa Pilipinas 2023 Visayas Leg on 8 November 2023 at the Summit Hotel in Tacloban City, Leyte. (Screenshot from RTV Malacañang Youtube channel)



Fiberglass boats provided to fisherfolks in Roxas previously affected by Typhoon Odette.

Palawan fisherfolks receive 66 fiberglass boats from DOST MIMAROPA under the Typhoon Odette Recovery Project

By DOST-MIMAROPA

The Department of Science and Technology (DOST) MIMAROPA Region and its partners provided fiberglass boats to beneficiaries of Typhoon Odette Recovery Project in a ceremonial turnover held at the Roxas Dome, Roxas, Palawan on 10 November 2023.

Fisherfolks from Roxas received 66 boats while beneficiaries from Dumaran received 75 boat hulls for their ongoing boat fabrication. Production of boats are also still in process for the municipalities of Araceli, Cagayancillo, San Vicente, and Taytay.

This initiative stems from a project initiated by DOST-MIMAROPA, implemented with assistance from the Western Philippines University

and funded by the National Disaster Risk Reduction and Management Council (NDRRMC). It is specifically designed to provide science and technology interventions, contributing to the recovery of fishing livelihoods in communities impacted by the typhoon across the six municipalities.

On 17 December 2021, Typhoon Odette made its 9th landfall in Palawan and severely damaged the community's sources of food and income, which left them grappling for resources even years after its devastation.

Through this project, fisherfolks were provided with fiberglass boats, fabrication training, and 6,000 pesos per beneficiary under a cash-for-work-scheme.

The beneficiaries especially took part in building their own boat, with guidance from experts and got skills training that will surely help give more livelihood opportunities to the community.

DOST Sec. Renato U. Solidum Jr. urges the local government to emphasize the creation of science-based policies and programs. "Mahalaga rin na ang ating mga planong gagawin ay nakatuon sa paghahanda at pag-iwas sa mga darating na sakuna ... sa pamamagitan ng pakikipag-ugnayan sa ating mga scientific institutions tulad ng akademya at DOST," Sec. Solidum said in his keynote speech to the community.

DOST has been implementing community-based rehabilitation projects through scientific and technological



Recipients of the fiberglass boats with DOST and project partners

efforts that help accelerate the recovery of communities affected by calamities.

DOST MIMAROPA Regional Director, Dr. Ma. Josefina P. Abilay also emphasized the importance of taking care of the fiberglass boats as part of the project and urged everyone to consistently preserve the marine environment.

“Ipinagkakatiwala po namin sa inyo ang mga bangka na ito kasama ang hangarin na makakatulong ito sa inyo. Inaasahan namin na makakadagdag ito sa inyong kita at makaka tugon sa inyong mga

pangangailangan. Amin lamang pong hinihiling na pangalagan ninyo ang bankang ito. Gayundin, may karapatan po tayong mangisda subalit wala tayong karapatan na sirain ang ating karagatan sapagkat ang susunod na henerasyon ay aasa rin sa mga yamang ito,” Dr. Abilay added.

The turnover ceremony was led by DOST Secretary Renato U. Solidum Jr, alongside DOST-MIMAROPA Regional Director Dr. Ma. Josefina P. Abilay, Roxas Mayor Dennis Sabando, Vice Mayor Reynaldo Pacho, Provincial Board Member Angela Sabando, and Provincial S&T Office in

Palawan Provincial Director Pacifico T. Sariego III.

In attendance were representatives from the Office of the Civil Defense, Provincial Government of Palawan, Provincial DRRM Office, and from the municipalities of Dumarán, Araceli, Taytay, San Vicente, and Cagayancillo.

Other collaborative partners for the project include the Provincial Government of Palawan, Provincial DRRMO, Local Government Units (LGUs), and the respective Municipal Agricultural Offices (MAOs) of Northern Palawan.

PBBM kicks...from page 29

Science and Technology in this undertaking,” the President continued.

President Marcos Jr. also recognized the many efforts of the DOST in developing modern technologies that will address the natural hazards. “The DOST has been instrumental in developing cutting-edge technologies for disaster risk prevention, mitigation, preparedness, response, and recovery. I am confident that the technologies featured in this event will be of great help during relief and rescue operations... I implore everyone to maximize the use of these technologies, to fast-track the widespread adoption and commercialization.”

Sec. Solidum Jr., likewise, emphasized the significance of building the country’s resilience and how it will help the prosperity and security of the economy.

“As we build the Philippines’ resilience, we are making Filipino communities more prosperous and secure than before. In the Department of Science and Technology, we believe that disaster risk reduction and wealth protection yield economic development,” he said in his opening

message. “As we commemorate the 10th year anniversary of Super typhoon Yolanda today, we are reminded of its lessons and experiences. First, science is the most crucial input to our resilience strategy. Second, science works with the right information, right communication strategy, right action at the right time. Third, we, the whole of nation and society, we all make the science work through our cooperation and collaboration.”

The Visayas leg exhibit of Handa Pilipinas features around 60 technologies. According to Sec. Solidum Jr., it aims to raise public awareness on preventable and solvable problems, and to introduce innovations and Filipino-made technologies that are ready to be maximized by their fullest potential for disaster prevention and mitigation, preparedness, response, rehabilitation, and recovery.

“Driven by our people-centric innovations, Handa Pilipinas sa Bagong Pilipinas,” said Sec. Solidum. “With science, technology, and innovation, with our multi-stakeholder collaboration, and the Filipino bayanihan spirit, we can be victors over disasters.”



Some of the paintings by DOST-SEI Director Josette T. Biyo showcased in her exhibit “STEM and Art.”



Department of Science and Technology – Science Education Institute (DOST-SEI) Director Josette T. Biyo proudly and happily narrated her painting journey at the event titled “STEM and Art” held on the National Youth Science, Technology, and Innovation Festival celebration on 25 October 2023.

The combination of science and art was one of the unusual events in earthly lives. Science stands for systematic exploration that involves observation and exploration while art speaks for freedom of expression that involves creativity. In unparalleled definition, one is objective, another is subjective.

Amid the seemingly opposite purpose of science and art, the Department of Science and Technology – Science Education Institute (DOST-SEI) Director Josette T. Biyo took courage in proving that these fields can be integrated to form attraction and innovation. An evidence of this fusion happened on the 25th day of October 2023, when the DOST celebrated the 2023 National Youth Science, Technology, and Innovation Festival (NYSTIF).

For the first time in her life, Dir. Biyo accepted the invitation of the DOST-SEI Gender and Development Committee to showcase her paintings through an exhibit. Through the support of her family, friends, colleagues, and other acquaintances, the general public witnessed that the power of science and art can be inherited by a woman.

Science and Art converged in one persona

By Rhea Mae B. Ruba, *DOST-STII*



The launching of Director Biyo painting and poetry book was also part of the “STEM and Art” event, in which limited copies were given to some of the attendees.

Collab for education and aspiration

Titled “STEM and Art,” the exhibit of Dir. Biyo successfully launched various paintings with Japan as its main subject. This is to honor and recognize the strong partnership of DOST and Japan in developing and sustaining DOST Human Resource Development Programs.

The dedicated and empowered female leader with a small planet named after her proudly shared that DOST-SEI had already expanded its foreign graduate scholarship programs by building collaboration with other countries, including Japan. Concurrently, 73 scholars enjoyed the benefit of studying science-related courses in the top universities of Japan. Aside from this, joint efforts with Japan include teaching training, science promotions, and entrepreneurship programs for DOST-SEI scholars.

The expanded and advanced science education for the DOST-SEI scholars decorated her stint in the institution. Alongside the professional fulfillment of her duties and responsibilities as a leader and public servant, the artworks made especially for Japan symbolized the satisfaction of her long-time personal aspiration.

“Visiting Japan in line with work enabled me to experience these various seasons

and inspired me to paint its beautiful landscape, as well as write poems about its culture. After 45 years, I kept my promise at last,” she joyfully said.

The other side story was Director Biyo fell in love with Japan during her first visit to this place in 1987. She witnessed and became fascinated of Japan’s offering of majestic views of natural beauty such as gardens and forests, as well as its cultural and architectural expression of temples. These captivating sceneries urged Director Biyo to tell herself, “One day, I will paint you, not just in my memory.”

Passion for learning and discovering

A self-taught artist - this is how Director Biyo described herself. She did not experience formal training for holding a brush, mixing a color, and painting on a paper. However, she never let herself miss these opportunities of reading, watching videos, observing galleries and museums, talking to artists, talking to salesperson in art shops, and talking to farmers, where her painting journey started to flourish.

In the past six years, the passion for painting sprouted in the life of Director Biyo. Through her paintings, the beautiful places and landscapes were preserved and shared. Aside from these, her paintings commemorate the significant events in the Philippines that she had

witnessed while carrying out the mission for DOST-SEI. This includes the Typhoon Haiyan’s aftermath in 2016, and Marawi siege in 2016, and Mt. Mayon eruption in 2018,

Director Biyo’s paintings became more and more special as the captured moments, emotions, and concepts were accompanied and narrated with poems. With this, she personally figured that this fascinating form of art can be more than just a hobby, as she said, “My goal is to make each practice painting a masterpiece so that when I give it away, I will make that person very happy.”

Priceless happiness was collected and treasured by Director Biyo upon freely sharing and giving her masterpiece with family, friends, colleagues, and other acquaintances. She was also surprised that others opted to purchase it, which signifies that her hobby can yield money.

According to her, she also went through having doubts and fears about her own abilities. But the passion for learning and discovering herself and life prevailed. Now as seen in the life of Dir. Biyo, women’s intellectual abilities, skills, and voices were recognized and strengthened in the fields of science and art. She represents a woman who can possess a diverse persona of being a mother, an educator, a science advocate, a leader, and now, an artist.

“Never let anyone tell you that you are too old or too young to do something,” said Dir. Josette T. Biyo, an exemplary Filipina scientist and artist.

DOST-NRCP presents studies to combat antibiotic resistance

By Jacqueline R. Parairo, *DOST-STII*

The National Research Council of the Philippines (NRCP), through the Department of Science and Technology (DOST), conducted its 7th Annual Basic Research Symposium at the Heritage Hotel Manila in Pasay City last 19 October 2023.

Bearing the theme “Exploring Untapped and Rare Environmental Sources for Advancing Medicine and Pharmacy”, the event featured presentations of research done by members of the academe from various universities, particularly from the University of the Philippines (UP) Los Baños, Diliman, and Cebu.

“The annual symposium organized by the DOST-NRCP serves as a crucial platform for mobilizing scientists and experts,” said DOST Sec. Dr. Renato U. Solidum Jr. “It facilitates the dissemination of research findings, the exchange of knowledge, and the alignment of research studies with national interest and the concerns of the general public.”

“Through our research and exploration, we hope to bring us closer to our goal of uncovering the potential natural remedies and cures that can improve the well-being of our communities,” said DOST-NRCP President Dr. Leslie Michelle M. Dalmacio. “By providing a space for researchers to share their findings and engage in meaningful discussions, we are laying the foundation for future discoveries.”

Included in the symposium were the studies “Bat Guano against Pathogenic Bacteria” presented by Dr. Marian P. De Leon; “Bacteriocins from Lactic Acid Bacteria: A Natural Product against Mastitis in Dairy Cattle” presented



The presenters of the 7th Annual Basic Research Symposium gather onstage to answer questions from the audience held on 19 October 2023.

by Dr. Rodney H. Perez; “Mining the Microbial Dark Matter: Metagenomic-driven Approaches for Natural Product Discovery” presented by Dr. Ron Leonard V. Dy; “Cultivating the Uncultivable: Isolation of Novel Bacteria using iChip” presented by Dr. Jose Enrico H. Lazaro; “Antibiotic Discovery in Mainit Springs” presented by Dr. Fleurdeliz Maglangit; and “Alternative Approach to Bioprospecting for Oligotrophic Bacteria and Yeasts in Mount Makiling” presented by Mr. Noel H. Tan Gana.

In line with the DOST’s priority programs of human resource development and job creation through science, technology, and innovation, all these studies were funded by the department and the NRCP.

The presenters discussed the importance and the challenges of overcoming antimicrobial resistance (AMR), which has emerged from the overuse of antibiotics, both by humans and livestock. AMR occurs when bacteria and microbes, such as parasites, viruses, and fungi, change in response to the use of medicines. As AMR rises, novel antimicrobials must be found to combat it. The researchers each highlighted different sources of these new antimicrobials in their studies, most of which can be found in the country’s natural resources, particularly in caves, mountains, and springs.

“As we see the rise of antimicrobial resistance, there is an urgent need to find new, effective antimicrobials,” Richelle

Ann M. Manalo-Cabalanan of the NRCP’s Pharmaceutical Sciences Division said. “We are fortunate that the Philippines is blessed with an abundant landscape. These unconventional sources could be game changers in our fight against antimicrobial resistance.”

“Today’s presentations underscore the vital role of collaborative and interdisciplinary efforts in advancing our research,” Manalo-Cabalanan also said. “Bringing together diverse experts not only enhances each other’s contributions but also fosters an even more holistic approach.”

Student collaborators from UP Los Baños and Mapua University also presented their own studies and respective posters while the main presenters commented on their projects.

“Today’s basic research symposium is more than just academic enterprise. It is an opportunity to ignite our passion for science in the hearts and minds of the general public especially the youth,” NRCP Executive Director Dr. Bernardo N. Sepeda said. “We, from the DOST-NRCP, are committed to the dissemination of knowledge through platforms like the basic research symposium.”

The NRCP promotes and supports the continuing improvement of the research capability of scientists by providing grants-in-aid for studies that would hone the expertise of scientists and their staff.



NorMinCoHRD and CHRDC Participant during the Cultural Attire Fashion Show



Mr. Reyes presenting his research poster during the contest proper.

NorthMin health researchers secure four wins at the 16th PNHRs Week Celebration

By Linreb G. Mondero, *DOST-X*

Health member-researchers of the Northern Mindanao Consortium for Health Research and Development (NorMinCoHRD) secure four wins at the 16th Philippine Health Research System (PNHRs), a platform for researchers, experts, and enthusiasts to showcase their groundbreaking contributions and innovative approaches to health research.

Emerson Paul D. Somontan and Prince Eroll V. Reyes, Level 4 Radiologic Technology students of Iligan Medical Center College (IMCC) were awarded first place for both Oral Research Paper Presentation and Research Poster Contest (Student Category) with their innovative research on the Development of X-ray shielding material using egg shells and crab shells.

On the other hand, Jibe Labenz L. Nebato of MSU-IIT secured first place in the Research Poster Contest (Professional Study) with her research entry titled *PLANTastic Treasures: The Antioxidant, Anti-Inflammatory, and Anticancer Potential of Subanen and Mamanwa Traditional Medicinal Plants*”.

The region’s vibrant cultural heritage took center stage as first place in the cultural attire fashion show. Dr. Lesley C. Lubos of Bukidnon State University (BukSU) stood out in the vibrant and intricate attire of the Manobo tribe, captivating the audience and judges alike with his impeccable representation of cultural heritage.

“Stepping onto the runway as a winner of the cultural fashion show is not just a triumph of style; it’s a harmonious fusion where science, culture, and fashion

gracefully intertwine, proving that innovation and tradition can walk hand in hand down the catwalk of progress,” he said.

Participants said that the region’s success was a manifestation of the region’s abundant R&D ecosystem. Delegates have not only showcased their respective expertise but have also ignited a beacon of hope for the future of healthcare.

This year’s PNHRs was conducted at Tacloban City on 8-11 August 2023. The annual PNHRs is celebrated every second week of August. This year’s theme is Sustainable Development: Resilience through Health Research highlights the crucial role of health research and innovation in achieving our sustainable development goals in the post-pandemic era.

Smart and sustainable communities in CALABARZON get needed push from DOST

By Mary Crystalline T. Araracap, DOST-STII



(L-R) Dr. Kok Chin Tay, Chair of the Smart Cities Network and Executive Director (ASEAN) of the Smart Cities Council; Dr. Piyush Sinha, Chief Business Officer of the L&T Technology Services, Ltd.; Dr. Stephen Ho, Group Chief Operating Officer of the Skylab Holding Pte Ltd. give talks on how to make cities smarter. (Photo: Roberto Manuel Jr.)

When we hear the word “Smart Cities,” the idea that comes to our mind are robots, the country of Singapore, high-end security scanners, 5G internet connection, and other technologies that help us alleviate our daily life basis with just a single press of a button. During the 2023 Regional Science, Technology, and Innovation Week in CALABARZON, the back-to-back celebration featured the theme: “Siyensya, Teknolohiya, at Inobasyon: Kabalikat sa Matatag, Maginhawa at Panatag na Kinabukasan,” a different viewpoint on “Smart Cities” was delivered to the public.

Kok-Chin (KC) Tay, Chair, Smart Cities Network Executive Director (ASEAN), Smart Cities Council, gave the basic concept and implementation of Smart and Sustainable Cities in ASEAN. In his presentation, a Smart City, as defined by the Smart Cities Council, “[A city] that uses information and communications technology (ICT) to enhance livability, workability, and sustainability... [done by] collecting, communicating and ‘crunching’ [data].” According to Tay, there’s a huge difference between a digital economy and a smart economy, a digital economy connects only entities, cities, and businesses; while a smart economy

collects and analyzes data that provide intelligence that can help in designing a city that would be in lined with the UN Sustainable Development Goal 11, that has green sustainability, social sustainability, and economic sustainability while facing rapid population growth and it can adapt to climate change.

A Smart City, in conjunction with ISO 37120, should focus on environmental, social, and governance that will contribute to the lives of its people. Tay said there are three things to attain a good smart city. First, the local leaders must be people-centric by serving citizens with greater empathy, through designing policies and services that are inclusive, seamless, and personalized for all. Second, developing operational efficiency and command centers with the use of geographic information systems or GIS-enabled tools allow residents to plan and coordinate among agencies more productively and efficiently especially during a disaster, and wise use of natural resources and eco-friendly transportation that can help minimize air pollution and promote green spaces for better health of the people.

The Philippines’ key development challenge to creating markets is the insufficient creation of good quality jobs. Tay said our country should embark on a Smart City Roadmap implemented with innovative solutions and service providers that create good quality jobs. Tay further said that it starts with the Mayor himself and the local leaders should have a will and envision for his/her area to be a Smart City.

The question posed was how we can make the Philippines a smart nation, given the challenges such as the archipelagic setting with predominantly rural areas with indigenous communities, and slower internet connection?



SETUP (DOST-NCR, official website)



Memorandum of Agreement (MOA) signing for the DOST Innovation, Science, and Technology for Accelerating Regional Technology-based (iSTART) development program with the City of Carmona.

Dr. Piyush Sinha, Chief Business Officer of L&T Technology Services, Ltd. said that being an archipelagic country used to be a challenge, particularly in logistic, but given their advancement in connectivity, at least sharing some of the basic data around islands, will help in terms of creating an open data platform. Despite the slower connection, the municipality can do digital literacy programs for the indigenous groups, and then they can be part of this journey.

Dr. Stephen Ho said it is not necessary to have a 5G connection. What is important is to have a consciousness of communication aided even with simple technology. Second, for ecology and agriculture, it is how one optimizes the production. There's the technology that will be coming, especially taking into consideration the environmental impact, particularly on irrigation. After one optimizes the production, the next question is, "How will you bring it to the market?" "There is blockchain technology that allows one to have good quality products from farm to the fork.

Furthermore, technology is also part of the solution for logistics as food security is one of the biggest issues happening now. Ho added that the DOST is helping with the solution by promoting innovation on food shelf life, and creativity, and involving the younger generations. As DOST is modernizing the process of traditional farming, it is also attracting younger talents, whatever their group is, to get



Commitment signing between government agencies supporting the establishment of Smart Cities was also conducted with the DAP, DILG, and DICT.



Memorandum of Understanding (MOU) signing with the Smart Cities Network and the City of Santa Rosa (Photo by: Henry A. de Leon)

involved in the process. It is not only about technology itself but how one will train/ manage to pass on the knowledge to the youth and encourage them to be part of the solution and at the same time teach them how to make best use of technology.

The 2023-2028 DOST strategic pillars adhere to the promotion of human well-being; wealth creation; wealth protection; and sustainability where technologies support the circular economy programs, environmental protection, and conservation through further R&D. One of the flagship programs of the DOST is the Small Enterprise Technology Upgrading Program (SET-UP) wherein micro, small, and medium enterprises (MSMEs) are encouraged to adopt DOST's technological innovations to improve their operations, enhance the quality of their products, and boost their productivity and competitiveness.

Additionally, the activity also highlighted the presentations from Local Government Units (LGUs) by Engr. Mildred M. Purificacion, planning and development coordinator of the City of Carmona, Cavite and EnP. Ermin V. Lucino, city planner of Sta. Rosa, Laguna. Various signing activities were also conducted during the event: (1) a Commitment signing between government agencies supporting the establishment of Smart Cities with DAP, DILG, and DICT; (2) a Memorandum of Understanding (MOU) signing with the Smart Cities Network and the City of Santa Rosa; and (3) Memorandum of Agreement (MOA) signing for the DOST Innovation, Science, and Technology for Accelerating Regional Technology-based (iSTART) development program with the City of Carmona.

DOST with Isabela State University and LGU Cauayan were the pioneer agencies that supported the implementation of the Smart City initiative in Isabela Province.

Students learn responsible use of AI tools in SciComm fields

By Caryl Maria Minette I. Ulay, DOST-STII



Student-participants engaged in learning responsible use of AI in communicating science information.

More than 200 junior to senior high school students from 15 educational institutions in Metro Manila and nearby provinces now have a better understanding and appreciation of how Science Communication and various Artificial Intelligence (AI) tools can complement each other.

These students participated in a forum facilitated by the Department of Science and Technology-Science and Technology Information Institute (DOST-STII) for the National Youth Science,

Technology, and Innovation Festival (NYSTIF) on 25 October 2023, at the Philippine Convention Center Tent in Pasay City.

The forum, titled “AI at SciComm: Recipe for Success or Disaster?” is a DOST-STII advocacy event aimed at activating young people’s interest in communicating science with the creative assistance of Artificial Intelligence (AI) to reach a wide and diverse audience.

“AI is not here to take away our jobs but to make us more efficient in what we do,”

remarked DOST-STII Director Richard P. Burgos, referring to how AI helps save time and energy in performing tasks that cannot be easily done without advanced tools.

The essence of communicating science to the public

Prof. Avril Adrienne Madrid of the University of the Philippines Los Baños-College of Development Communication

Several industries have placed their bets on the

potential of AI to bridge the science information gap in communities for development and safety against disasters.

Five out of ten Filipinos do not seek science, according to Prof. Avril Adrienne Madrid, one of the speakers. She presented the study highlights of the University of the Philippines Los Baños-College of Development Communication on the perspective of 1,200 Filipinos regarding science. This study serves as the basis for creating a harmonized science communication framework.

According to Madrid, Filipinos often perceive science as a technological innovation rather than a subject in school. They view science as abstract, while technology is seen as real. They are more interested in the products of science than the processes behind them.

“Science Communication is any social conversation about science in everyday life. As a Science Communicator, it is our responsibility to make science visible and usable,” said Prof. Madrid.

The speaker presented some initiatives of UPLB to provide the public with fun and meaningful exposure to science-based information. She specifically discussed



Speakers gladly entertains interesting queries about AI and science communication during the open forum.

Healthy Eating, Active Lifestyle, for Planetary Health (HEAL-PH). This mobile application, powered by AI, can automatically identify food in images, categorize it according to food groups, and provide nutritional content per serving.

Using HEAL-PH, users can measure the right portion of meals and track movement, burned calories, water intake, and length of sleep. With the help of AI, proper nutrition and diet can be appreciated and taken seriously by adolescents and young adults who can monitor these health statistics on their mobile devices from time to time.

Responsible use of AI and its integration to Science Communication

Meanwhile, Prof. Benjamin M. Vallejo Jr. of UP Diliman-Institute of Environmental Science and Meteorology advocates the principles of responsible AI use adopted by UP students. “AI cannot

replace us because it still needs human agency. Humans still have full control over the expected results,” explained Prof. Vallejo Jr.

The professor advised students to choose AI tools with a commitment to human protection against abuse and data privacy.

Another speaker, Timothy James M. Dimacali, the head of UP Diliman College of Science-Science Communication Department, uniquely interprets the human interventions in AI services that have compromised the boundary between classical and contemporary arts.

“AI shows us that there are new ways of seeing the world and they help inform our artists,” stated Dimacali. While AI has made everything easier, it is still important to learn how to properly instruct AI to execute our own concepts, styles, and desired outputs. In this way, AI can be established as a tool for efficiency and

not to strip our credibility and creativity.

Reactor Dr. Johnrob Y. Bantang of UP Diliman National Institute of Physics emphasized the importance of equipping students with basic and advanced technology to prepare them for real-world challenges.

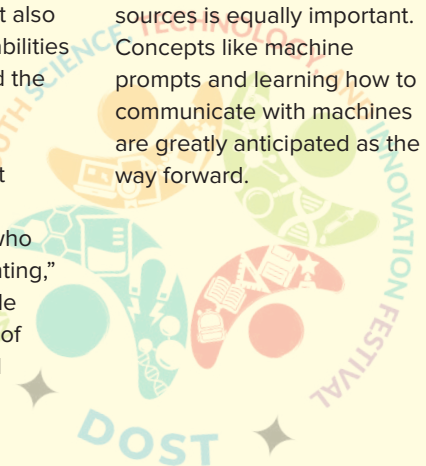
Dr. Bantang explained that integrating virtues into school tasks should encourage students to do good, seek the truth, and make ethical decisions. “We should not think of AI as a solution that will solve all problems in life. We must be responsible for matters that require not only critical thinking but also ethical and emotional abilities to find solutions,” noted the reactor.

“For me, AI is a tool just like a paintbrush. The person is still the one who creates a beautiful painting,” responded Rodolfo P. de Guzman in the context of the talk. He highlighted

that being knowledgeable about the responsible and innovative use of AI in science communication is a step toward narrowing the gap between science and the public.

The student participants particularly expressed their interest in learning how to validate the accuracy of AI-generated content and eagerly await opportunities to fully utilize AI tools.

According to the speakers, it is vital to be aware of the data mining limitations of AI, which can be found in the pop-up disclaimer. Cross-checking information with reputable sources is equally important. Concepts like machine prompts and learning how to communicate with machines are greatly anticipated as the way forward.





Steve Liddell of Street Science performs the grand finale of his science demonstration at the 2023 National Youth Science, Technology, and Innovation Festival held on 28 October 2023 at the Philippine International Convention Center in Pasay City.

Street Science mixes fun with learning in youth festival

By Jacqueline R. Parairo, DOST-STII

Steven “Science Steve” Liddell, founder of Street Science based in Brisbane, Australia, captivated the participants at his interactive science demonstration during the 2023 National Youth Science, Technology, and Innovation Festival (NYSTIF) held on 28 October 2023 at the Philippine International Convention Center (PICC) Forum Tent in Pasay City.

Science Steve explained the fundamentals of science in simple yet creative ways, starting off his program with a “magic” trick where a cup of water that seemed to disappear before the very eyes of his audience.

“When I explain something to you guys, and I show you what happens, that’s when it changes from magic to science,” said Science Steve. “When we learn science, we gain knowledge. We’re going to see beautiful things, but we gain knowledge as well.”

He went on to demonstrate several scientific concepts by engaging the crowd in hands-on experiments— small children and teenagers alike joined in on the fun. Participants got to experience the cold clouds formed by combining liquid nitrogen and boiling water, see the colors of the rainbow through a light diffraction film, and fold paper airplanes to understand Bernoulli’s principle in action.

Science Steve also wowed the audience by playing with fire— literally. He showed how flames change colors by adding different chemicals such as copper, potassium, and barium, therefore explaining how fireworks are made. For his show-stopping finale, he held fire with his bare hands by igniting flammable bubbles using liquid soap and gas.

“I’ve been a strong advocate for improving student outcomes through meaningful educational opportunities for a long time, and in setting up Street Science back in 2012. I saw an opportunity to engage kids and the wider community through high-energy stage shows, and engaging hands-on workshops,” Science Steve

said in his website. “My team and I strive to make learning fun, whilst providing the best in Science Education Experiences across a range of topics.”

Science Steve is a high school science educator who has a vision to take his engaging style of science education out of the classroom and on tour around the state. Street Science continues to inspire the next generation of scientists through high-energy science stage shows and engaging hands-on workshops. They also offer digital and e-learning options, with live-streamed broadcasts from their studio, along with Classroom Science Kits that deliver hands-on workshops to schools around Australia.

DOST-ITDI gives crash course on nanotechnology and 3D printing

By Jacqueline R. Parairo, *DOST-STII*

Students from various senior high schools and state universities received a crash course on the basics of nanotechnology and 3D printing during the Nanovation: Innovation Forum on Nanotech and 3D Printing held at the side stage of the 2023 National Youth Science, Innovation, and Technology Festival (NYSTIF), held at the Philippine International Convention Center (PICC) the Forum Tent last 27 October 2023. The forum was organized by the Department of Science and Technology-Industrial Technology Development Institute (DOST-ITDI).

“What comes to mind when you say ‘nano’? Small? Tiny? However, one thing can never be insignificant. As little as things may seem, there lies great potential to grow, improve,

and make something innovative,” DOST-ITDI Director Dr. Annabelle V. Briones said in her opening remarks. “Even the smallest idea can become great. So, we have come up with

this seminar to talk about nanotechnology among the youth, the hope of the country, and how it can shape your perceptions of the sciences.”

Dr. Persia Ada N. De Yro of DOST-ITDI’s Materials Science Division, on the other hand, gave the participants a rundown of the fundamentals of nanotechnology in her Introduction to Nanotechnology and Industry Applications talk. She discussed identifying nanomaterials by size, shape, and surface charge, as well as the ongoing nanotechnology research in the department, such as experimental techniques used in nanoparticle characterization.

“I was fascinated with these new materials,” Dr. De Yro said of her shift from metallurgical engineering to nanotechnology. “I was fascinated with the advancement [in technology]. I was amazed with that, and I wanted to be part of the advancement in my own little way.”

Meanwhile, Mark Anthony R. Agbayani, also from DOST-ITDI’s Materials Science Division, led a discussion on basic 3D printing, materials, and applications. He explained the process of 3D printing, its brief

history— starting from its conception in a science fiction short story to its eventual commercialization, the methods and types of printing techniques, the materials involved, and finally, its applications and the research endeavors involving 3D printing.

Students also took the opportunity to consult Agbayani for his opinions on their projects that relied heavily on 3D printing. He referenced his talk and discussed combinations of different materials to create the desired output.

DOST-ITDI is one of the department’s research and development institutes and undertakes multidisciplinary industrial research and development, technical services, and knowledge translation or technology transfer and commercialization. ITDI harnesses know-how in new technology and product innovation, and through the years, has emerged as a credible and reliable industry and government partner in accelerating growth and development in the country.



Dr. Persia Ada N. De Yro and Mr. Mark Anthony R. Agbayani of DOST-ITDI answer questions from the audience at the Nanovation: Innovation Forum on Nanotech and 3D Printing at the 2023 National Youth Science, Innovation, and Technology Festival held on 27 October 2023 at the Philippine International Convention Center, Pasay City.

Student designers recognized in nat'l streetwear tilt, urged to preserve culture in fashion

By Kristine Erika L. Agustin, *DOST-STII*

Student designers from Iloilo Science and Technology University bagged first place in Stitch-Off, a national streetwear competition promoting Philippine textiles, with their winning collection “Threads of Heritage.” (Photo from DOST-PTRI)

Student designers from the Iloilo Science and Technology University, Technological University of the Philippines-Manila, and Fashion Institute of the Philippines emerged as the top three winners of a national streetwear

competition during the 2023 National Youth Science, Technology, and Innovation Festival (NYSTIF).

Feril Izakiah and Seth Amuel B. Abellano of Iloilo Science and Technology University led the winners as they placed first in the Stitch-Off competition with their streetwear collection “Threads of Heritage,” which they showcased during the Stitch-Off Tech-Know Fashion Show organized by the Department of Science and Technology-Philippine Textile Research Institute (DOST-PTRI) held on 26 October 2023 at

the Philippine International Convention Center (PICC) Forum Tent in Pasay City.

“Magbagong-tatag” by John Michael B. Bouillon and Jali Rye S. Orquilla of Technological University of the Philippines-Manila; and “Nilikhay” by Anton Van R. Herrera and Rover B. Osias form Fashion Institute of the Philippines placed 2nd and 3rd, respectively.

The streetwear collections of the winning teams were exhibited on the runway

during the Tech-Know Fashion Show. (Photo from DOST-PTRI)

Recipients of special awards are Yllena Lorelei B. Leygo and Valerie M. Calango’s “Echoing the Spirit of Taraki” of Benguet State University for the People’s Choice Award; Karen Mae S. Testibia and Krizia Jane D. Boston’ “Bolador (Summer 2023)” of University of the Philippines Diliman for the Industry Choice Award; and John Michael B. Bouillon and Jali Rye S. Orquilla’s “Magbagong-tatag” of Technological University of the Philippines-Manila for the DOST’s Pick Award.

The Stitch-Off is a competition initiated by the Department of Science and





Technology-Philippine Textile Research Institute (DOST-PTRI), aiming to cultivate a deeper understanding and appreciation of Philippine textiles and its scientific component while providing a platform to showcase their artistry in textile designs with the use of sustainable and locally produced fabrics.

Mix of tradition and innovation

Pangasinan Representative Christopher “Toff” de Venecia, House Special Committee on Creative Industries chairperson, urged the student designers to preserve Philippine heritage in producing their creative works.

“While we’re soaring towards the future; we need to remember where we came from. We don’t create in a vacuum. We stand on the shoulders of those that came before us. That’s where Philippine textiles come in—carrying the stories and artistry of generations before us,” De Venecia said in his message of support.

He also emphasized the importance of the event, saying it does not only feature the designs and fashion but the future of a sustainable textile industry.

“They’re not just making clothes but they’re weaving stories and narratives and love for our culture. They’re preserving tradition

and they’re mixing it with innovation, the representative said.

“To our fantastic young talents, you got our cheers, our support, and all the good vibes that we can send your way this afternoon. Every stitch you make and every idea you explore is taking us a step closer to a brighter future for Philippine textiles and, of course, our creative future of being the number one creative economy in all of ASEAN by the year of 2030,” he added.

The Top 12 finalists, hailing from Benguet State University, SoFA Design Institute, De La Salle-College of Saint Benilde, University of the Philippines, Technological University of

the Philippines, Iloilo Science and Technology University, Pangasinan State University, and Fashion Institute of the Philippines-Ortigas Main, participated in the on-the-spot Streetwear National Competition held from 20-24 October 2023 at the DOST Compound where they brought to life their one-of-a-kind designs.

Their collections were showcased in the Tech-know Fashion Show held at the Philippine International Convention Center as part of the 1st National Youth Science, Technology, and Innovation Festival, also attended by esteemed designers and textile-garment producers.

P-pop group Alamat is PH textile institute's new TELAmbassador

By Kristine Erika L. Agustin, DOST-STII



P-pop group Alamat signs a memorandum of agreement with the DOST-PTRI as new TELAmbassadors.

Becoming true to its mission to champion Filipino culture, the P-pop boy group Alamat goes beyond music and is now officially representing Philippine textiles for the country's textile research institute.

The Department of Science and Technology-Philippine Textile Research Institute (DOST-PTRI) announced that the six-member group is the new TELAmbassadors of the agency during the first National Youth, Science, Technology, and Innovation Festival (NYSTIF).

Present in the signing of the memorandum of agreement are Alas, Jao, Mo, R-Ji, Taneo, and Tomás on 26 October 2023 at the Philippine International Convention Center (PICC) Forum Tent in Pasay City.

“Super grateful po kami and super honored kasi Alamat’s main goal is [to] promote Filipino culture and part of that is Filipino fashion kaya textiles play a big part in this mission kaya thankful po kami sa DOST-PTRI kasi naging ambassadors po kami,” Jao said in an interview with DOST-Science and Technology Information Institute.

The performers also expressed gratitude to DOST-PTRI for teaming up with their group and serving the same goal of promoting culture through fashion.

“Being united together in terms of achieving a goal ... Pinaka-importanteng bagay po sa amin ‘yun kasi parang one by one, we’re slowly uniting, and hopefully there will be more organizations that we get to unite,” Taneo said.

Alas said he is hopeful that their mission to promote

Philippine textiles would reach more people through the programs of DOST, and that as they wear Philippine Tropical Fabrics onstage, people will be inspired to do the same.

“Isa kasi sa goal ng Alamat yung hindi na lang siya suotin sa pang-event, gusto namin isuot siya sa pang araw-araw, na parang normal lang siya,” Tomas added.

While the members have been recently appointed as the TELAmbassadors, the collaboration between them



Alamat members showing off their sustainable shoes made by the DOST-PTRI under the SAFATOS program, tailor-fitted to the needs of performers.
(Photo from DOST-PTRI)

and the agency has long been established.

In their music video “Day and Night,” the P-pop group wore outfits made of natural textile fibers including blends of cotton-bamboo, cotton-pineapple leaf, and lyocell-pineapple leaf provided by the DOST-PTRI.

The group also showcased the sustainable Pinilian woven fabric as they performed during the 2023 FIBA Basketball World Cup on 25 August 2023.

SAFATOS program launched

Alamat graced the DOST-PTRI’s Stitch-Off Tech-Know Fashion Show with their songs, such as “Mahanari” and “Day and Night,” while wearing sustainable shoes developed by the agency

under their newest program, SAFATOS footwear 4.0.

SAFATOS, or Shoes and Footwear Accessories R&D on Textile-based Omnibus Solutions, was also launched during NYSTIF, aiming to improve and innovate the Philippine footwear industry.

Under the program are four projects namely Sustainable Textiles for Community-based Philippine Footwear Industries (STEP-In), Knitted Natural Textile Fiber-Based Spacer Fabrics for the local footwear industry (3D Warp), Size PH, and Flat-Knit.

STEP-In aims to develop sustainable textile materials to be used for footwear uppers, Mr. Philip Ajon Basat, Science Research Specialist II at DOST-PTRI, explained during his presentation.

He added that they have started to extract fibers from bananas and bamboo for yarn production that are thicker and sturdier than those used for garments and apparel.

Meanwhile, 3D Warp focuses on material development to produce a warp-knitted fabric that can be used for orthopedic and podiatric applications and establish a national foot sizing system through the Size PH project “in the hopes of making local footwear truly Filipino.”

Under Flat-Knit, Basat said they are also aiming to develop active and functional shoes, such as those that can be used in athletic applications.

The shoes worn by Alamat during their performance are products of the SAFATOS program, made of sustainable

materials and specifically designed to be used by performers.

Alamat has been making a name in the music industry since its debut in 2021 and is known for being a multilingual and multiethnic group, with the members themselves hailing from different provinces.

Their debut single “kbye” features the diversity of the Filipino language using seven of it in its verses: Tagalog, Ilocano, Kapampangan, Cebuano, Hiligaynon, Bicolano, and Waray-Waray.

Proudly celebrating Filipino culture and tradition while serving the music and textile industry, Alamat truly embodies the innovation that meets with tradition, living up to its name as a legend.



Pisay scholars from DOST-PSHSS Southern Mindanao Campus proudly showcased their music video composition titled “Syensya at Teknolohiya” as they performed live during the National Youth Science, Technology, and Innovation Festival (NYSTIF) celebration at the Philippine International Convention Center (PICC) Forum Tent.

INDAK AGHAM, HIMIG KAUNLARAN

sets to level up youth appreciation in science, technology, and innovation

By Rhea Mae B. Ruba, *DOST-STII*

Greater youth appreciation for the value of science, technology, and innovation (STI) emerged as the primary focus of the Department of Science and Technology-Philippine Science High School System (DOST-PSHSS) through the “Indak Agham, Himig Kaunlaran” music video competition at the Philippine International Convention Center (PICC) Forum Tent during the National Youth Science, Technology, and Innovation Festival (NYSTIF).

“We created the Indak Agham, Himig Kaunlaran as a promotional activity for the Department of Science and Technology (DOST). Our goal is to promote science, technology, and innovation to the people. Through a simple jingle, we aim to showcase

the significance of science, technology, and innovation,” expressed DOST-PSHSS Executive Director Lilia T. Habacon. [Ginawa namin ‘yung Indak Agham, Himig Kaunlaran as a promotional activity for the Department of Science and Technology (DOST). We aim to promote science, technology, and innovation sa lahat ng tao. Sa simple jingle, gusto naming ipakita ‘yung kahalagahan ng science, technology, and innovation.]

The 16 DOST-PSHSS campuses united successfully in establishing Indak Agham, Himig Kaunlaran. Each campus submitted an original music video related to the promotion of STI, intending to make its products and benefits more appealing to the youth.

Pisay Music for Science Expression and Promotion

DOST-PSHSS students, also known as Pisay scholars, applied their passion for learning and understanding STI by producing lyrics and composing melodies that complemented cinematography and storytelling.

The artistic song composition and expression of PSHSS-Southern Mindanao Campus (SMC) were hailed as the overall champion of Indak Agham, Himig Kaunlaran, beating other campuses from Luzon, Visayas, and Mindanao.

PSHSS-SMC's winning song, titled "Syensya at Teknolohiya," aims to uplift the minds of Filipinos, especially the younger generation, on the benefits of understanding, adapting, and utilizing the products of STI, as well as encouraging the younger generation to broaden their perspectives on the said field.

Other recognized campuses in this competition are PSHSS-Caraga Region Campus (CRC) for being the second-placer with their song "Unbreakable," PSHSS-Zamboanga Peninsula Region Campus (ZPRC) for being the third-placer with their song "Diwa ng Agham," PSHS-Main Campus (MC) for being the fourth-placer with their song "Sa Paglipad ng Bagong Pilipinas," and PSHS-CALABARZON Region Campus (CRC) for receiving the People's Choice Award and Secretary's Award with their song "Pinas-Sulong: Himig at Indak ng Agham."

These awarded campuses were recognized as the top five finalists of the Indak Agham, Himig Kaunlaran competition, signifying that their original songwriting composition and production garnered the highest votes from the judges' evaluation.

Through their unique expression and interpretation of science, these top 5 got the opportunity to perform their music video live on the stage of PICC on 27 October 2023.

Pisay Music for Skill Empowerment

DOST-PSHSS Executive Director Habacon proudly congratulates the Pisay scholars for showcasing their talents in singing and dancing, as well as applying their creative minds in producing original music, proving that the 16 campuses are academically and institutionally active and competitive.

"This competition showcases the unique abilities and talents of the Pisay scholars since focusing solely on academics results in difficulties. It's a big break for them to know themselves through appreciating and expressing their knowledge of science, technology, and innovation in a different format," underscored Executive Director Habacon. [Sa kompetisyon na ito, ipinapakita naming 'yung ibang klase ng kakayahan at talento ng Pisay kasi mahirap naman na puro academics. It's a big break for them, para bang kinikilala nila ang sarili nila kung saan inaappreciate nila at ineexpress nila ang kanilang kaalaman sa technology, and innovation in a different format.]

In the message of the DOST-PSHSS executive director, she expressed that the institution encourages Pisay scholars to excel in both academics

and extracurricular activities, as it significantly helps them in their personal and professional growth.

"Harness your talent. It is better that we are developing a well-rounded person who is not only good in terms of having knowledge of science, technology, and innovation but also good in empathizing with other skills," she added. [Harness your talent. Kasi maganda na we are developing a well-rounded person na andun 'yung hindi lamang good in terms of having knowledge of science, technology, and innovation but also good in empathizing with other skills.]

The Indak Agham, Himig Kaunlaran stands as one of the promotional activities of DOST-PSHSS for STI, wherein the academe aspired to promote, enhance, and instill awareness and appreciation of STI to the youth.



DOST-PSHSS Southern Mindanao Campus was hailed as the overall champion of the Indak Agham, Himig Kaunlaran music video competition, beating the other 15 campuses from Luzon, Visayas, and Mindanao.

Youth Witness the Championing of Mobile Apps Asserting the Planetary Health Diet Movement

By Caryl Maria Minette I. Ulay, *DOST-STII*



The champs of FlexPHD Mobile App flexes their triumphant smiles as they wrapped up the tech-showcase among youth audiences in the NYSTIF main stage.

The top three winners of the Food is Life Exemplified: Planetary Health Diet or FlexPHD Mobile App Development Competition were showcased among young audiences at the National Youth Science, Technology, and Innovation Festival (NYSTIF) on 27 October 2023, at the Philippine International Convention Center in Pasay City.

“The more colorful your plate is, the healthier you are, and this planet will be,” said Dr. Glenn B. Gregorio, Director of the Southeast Asian Regional Center for Graduate Study

and Research in Agriculture (SEARCA).

By filling half of our plate with fruits and vegetables, we are taking steps towards the Planetary Health Diet (PHD). This diet promotes plant-based food selections to obtain healthier sources

of protein and essential nutrients, thereby reducing our risks of chronic health diseases like diabetes and high blood pressure.

What makes this diet more interesting is that we can also learn about food culture to patronize traditional cuisines,

expand our knowledge of cooking methods to maximize food nutrients, and help minimize food waste, thus reducing our carbon footprint. With these FlexPHD apps, good deals are further extended for us to attain wellness.



Representative of Team Ediscape from the University of the Philippines-Western Visayas showcased the concept of the “Local Food Terminal”; a click-to-order and delivery app that may help farmer entrepreneurs to expand their market and networks.

The runners-up: Local Food Terminal and Sustainsia

Harmonizing local farmers to digitally market their produce is the core of the app called Local Food Terminal developed by Team Ediscape from the University of the Philippines-Western Visayas. The app is comparable to the system of food delivery apps, providing local farmers a classified online platform to sell their products at reasonable prices and reach a wider customer base.

Farmers can also receive market forecasts such as availability and the right time to market and connect with potential and sure buyers. Assistance with production, logistics, and financial linkages are also benefits of this innovation.

Meanwhile, the Sustainsia app developed by Team PlanEATarians from UP Los Baños gamifies the dieting experience into a fun and enjoyable activity. The app features personalized diet suggestions such as total energy and caloric requirements and allows manual input to track water intake and exercise duration.

The AI assistance of this app can identify images of food and provide consumers with healthy food recipes, enabling an affordable and suitable Planetary Health Diet for Filipinos.

The second tier: VICTU App

VICTU was created by Team MAPA from the Philippine Science High School-Eastern Visayas Campus with the goal of optimizing cafeteria management while offering healthier food options for students.

This app has specialized homepages for canteens, consumers, and farmers. The canteen’s page enables operators to schedule recipes, take online orders, and process payments using QR codes.

Meanwhile, the consumer’s page displays the weekly menu with meal nutrient descriptions and allows viewers to browse PHD-related content. Farmers can also benefit from the app by listing their products and locating nearby canteens that need a supply of their produce.

The Champ: HEAL PH

The HEAL PH mobile application clinched the title for the FLExPHD mobile app

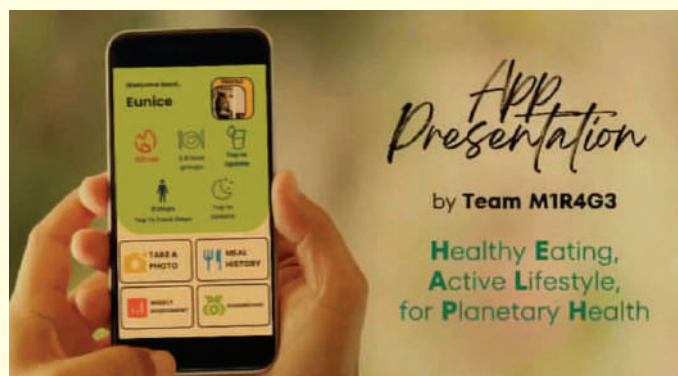
development competition. Team M1R4G3 from UP Los Baños initially launched HEAL-PH to assist UP students in adopting healthy eating practices modeled after the Planetary Health Diet.

This AI-powered mobile app can identify food in photos and deliver nutritional information per serving to match personal diet details. Users can also track their caloric intake, water consumption, number of steps, and sleep duration to assist them toward a healthier lifestyle.

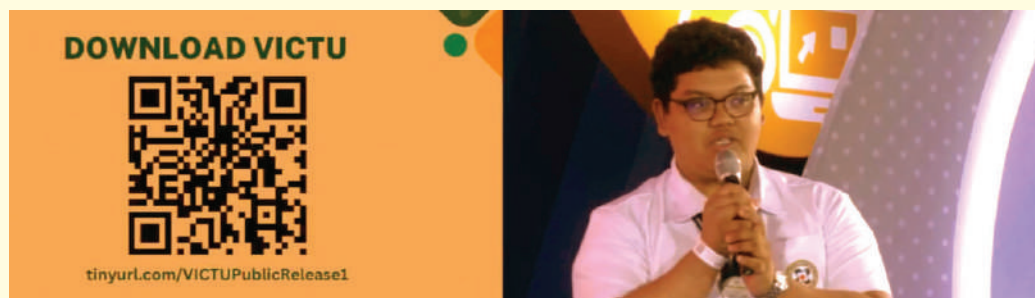
“By starting with you, our younger generation, we can

make a significant impact on our food habits and ultimately on our health, one app at a time,” encouraged Ms. Maridon U. Sahagun, Undersecretary for Scientific and Technical Services and DOST, in trying PHD apps once they are available for public use.

In partnership with SEARCA, the competition was organized by the DOST-National Academy of Science and Technology (NAST), and the DOST-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCARRDD).



The PHD app of them all. Team M1R4G3 from UP Los Baños introduced the Flex PHD mobile app winner, Healthy Eating, Active Lifestyle, for Planetary Health (HEAL PH) that offers comprehensive features to adopt healthy eating practices and healthier lifestyle through personalized diet details and recommendations



Team MAPA composed of young and innovative students of the Philippine Science High School-Eastern Visayas Campus invited audiences to test Victu App that features an optimized cafeteria management system while offering healthier food options and food and diet information to students.



NSTW 2023

November 22-26, 2023
ILOILO CITY





Nat'l S&T celebration opens in Iloilo City as DOST highlights Pinoy-Made Technologies in Maritime Transport and the Blue Economy

By Allan Mauro V. Marfal, DOST-STII



On 22 November 2023, history was made as the country's largest annual Science, Technology, and Innovation Week (NSTW) celebration opened at the Iloilo Convention Center in Iloilo City.

Spearheaded by the Department of Science and Technology (DOST), this marks the first time the NSTW has been held outside Metro Manila.

"Bringing the NSTW to Iloilo City this year indicates how the DOST values and prioritizes a whole-of-society approach by aligning our products and services to foster inclusive development, create more livelihood and career opportunities for Filipinos, especially in rural areas,

and, most importantly, promote the blue economy," Sec. Solidum said.

Sec. Solidum shared that this year's NSTW focuses on creating and protecting wealth for a sustainable blue economy.

"Our country, being an archipelago, is teeming with rich marine resources that contribute to employment generation, enhance the business economy, nurture our diverse cultural heritage and traditions, and promote inclusive growth in the regions.

Sec. Solidum said that the blue economy is one of the 12 key operational areas included in the Pagtanaw 2050 produced by the DOST-National Academy of Science and Technology in 2021.

He further explained that under this framework, the DOST takes an active role in developing programs that will ensure the protection, conservation,

and sustainable utilization of our marine resources and related endeavors, including the use of alternative sources of power like wave energy, creating livelihood opportunities in the fisheries sector and shipbuilding industry, maintaining balance in our marine ecosystem, and promoting viable eco-tourism projects for sustainable development.

"This initiative is just the beginning of a new approach to fulfilling the DOST's four strategies we call the four pillars namely; Human Well-Being, Wealth Creation, Wealth Protection, and Sustainability.

DOST projects in Western Visayas on Blue Economy

Sec. Solidum shared that the country's science department has several programs and projects in the Visayas that address the blue economy, development initiatives that we implement together with our partner state colleges and universities (SUCs) and industry players.

"For one, we have the development of the hybrid trimaran, a sea vessel with multiple engines and an alternative renewable energy system using ocean wave energy. This is a collaboration of the DOST with Aklan State University, Maritime Industry Authority (MARINA), local government officials of Aklan, and Metallica Shipyard," shared Sec. Solidum.

He also mentioned that the DOST-PCAARRD has contributed to the creation of the ARAICOBEB system, a cost-effective survey tool for assessing coastal benthic habitats. This system allows for faster and broader monitoring of both coral and non-coral sites.

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DOST taps Converge to make biggest S&T celebration in Iloilo City accessible to every Filipino

Press Release from DOST-STII and Converge ICT Solutions Inc.

The Department of Science and Technology (DOST) taps Converge

ICT Solutions Inc. as the official connectivity partner of the upcoming 2023 National Science, Technology, and Innovation Week (NSTW) in Iloilo City. This will ensure accessibility of all activities targeting over 10,000 participants

The NSTW will take place from 22-26 November 2023, in four separate locations in Iloilo City: Iloilo City Convention Center for the main science and technology (S&T) exhibits, Captain John B. Lacson Training Ship and Museum of the Philippine Maritime History, National Museum of Western Visayas for the Natural Fiber and Textile Exhibits, and at Festive Mall for the Tek-tienda Bazaar with an array of locally made products from DOST SETUP adopters.

This marks the first time the DOST is bringing the national S&T celebration to the region. Ilonggos will have the opportunity to witness and enjoy the latest innovative products and services developed by Filipino scientists, researchers, innovators, and engineers nationwide.

With the theme *“Siyensya, Teknolohiya, at Inobasyon: Kabalikat sa Matatag, Maginhawa, at Panatag na Kinabukasan,”* the focus will be on *“Creating and Protecting Wealth for a Sustainable Blue Economy.”* The celebration will showcase research and development-based products and

services addressing environmental and marine protection, aquatic and natural resources, and their impact on various sectors across the country.

“Despite the centralization of activities in Iloilo City, the DOST still aims to make the event accessible to people in other areas through livestreaming services on our official social media channels and websites. And we appreciate Converge ICT Solutions Inc. for sharing its resources and infrastructure in Iloilo City to provide reliable internet connectivity to three of the four sites,” said DOST Secretary Renato U. Solidum Jr.

“As an ICT company, Converge is proud to be an enabler of STEM and innovation in the country. As I’ve said before, there is no lack of talent among Filipinos, but we just need the proper ecosystem to develop our talents. We share in this celebration of NSTW with DOST as their official connectivity partner so that more people can have access to these science and technology activities,” said Converge CEO and Co-Founder Dennis Anthony Uy.

Prior to this engagement, DOST, through its DOST-Science and Technology Information Institute, recently forged a partnership with Converge through a Memorandum of Understanding (MoU) last September that sees the ICT company helping to make DOSTV programs widely accessible to Filipinos through Converge’s free streaming services such as BlastTV and Converge affiliate PKN Group’s Vision and Fiber TV.

The NSTW collaboration is the latest partnership activity between the Converge and DOST in their shared goal of building a culture of science within the Philippine population. Using the strong presence of Converge in

Region 6 will enable NSTW visitors to fully maximize their experience with reliable connectivity. Secretary Solidum considers this partnership one of the department’s milestones in going the extra mile in promoting science, technology, and innovation in the country.

Converge has been active in using connectivity to assist and enhance learning in the country, providing pure fiber connectivity to schools and universities during and after the pandemic to support e-learning at home. At the height of the pandemic in 2021, Converge partnered with the Philippine Science High School System (Pisay) to fiber connect their Learning Hubs nationwide. Pisay is one of the attached agencies of the DOST that provides opportunities to students under the STEM program to excel in their chosen fields and nurture their capabilities in science, technology, and innovation.

The 2023 NSTW celebration in Iloilo City will feature over 100 interactive exhibits and more than 40 technical forums, career talks, and technology launches. Notably, this year we will see simultaneous S&T activities in satellite venues within the city, complementing Iloilo’s cultural attractions while at the same time promoting local tourism with a dash of science.

The change in the celebration’s schedule from July to November, as per Proclamation 780 signed by former President Rodrigo “Roa” Duterte in August 2019, aims to maximize participation from schools, students, stakeholders, the business sector, and the public, aligning with the academic calendar of most universities, schools, and educational institutions.



Philippine Textile Congress capped off at 2023 NSTW in Iloilo City

By Kristine Erika L. Agustin, DOST-STII

The Department of Science and Technology-Philippine Textile Research Institute (DOST-PTRI) concluded this year's Philippine Textile Congress at the 2023 National Science, Technology, and Innovation Week (NSTW) in Iloilo City.

With the theme "Futures Thinking for Philippine Textiles," the congress aimed not only to convene textile academics but also to pave the way for increased economic activity and entrepreneurship in the industry, as stated by DOST Secretary Renato U. Solidum Jr. on Friday, 24 November 2023.

Sec. Solidum emphasized that the knowledge created should not merely be remembered but applied to action. He highlighted the importance of research, technology, innovation, and entrepreneurship, stating, "More benefits will redound to our kababayan if we can really do research, technology, innovation with entrepreneurship."

Beyond aesthetics, the congress underscored that the textile industry offers a stable source of income for Filipinos.

The Philippine Textile Congress served as a platform for collaboration among researchers, students, creatives, industry partners, and textile experts. It featured a 12-session research colloquium covering textile innovations, digitalization, designing, product development, education and training, as well as its significance in biomedical, security, and defense, with researchers from around the world. Innovation dialogues with

textile stakeholders in various sectors were also held for potential collaboration.

Textile program to be implemented in tertiary education

De La Salle-College of Saint Benilde Fashion Design and Merchandising Chair Olivia Lopez announced that the Commission on Higher Education (CHED) has approved the implementation of a Bachelor in Textile Design in their college for the academic year 2024-2025.

"The degree program, although design-based—we are a design-based discipline, is ideal for those who see creativity, technology, and science as important aspects of one's identity and culture and seek meaningful contributions for a greater cause," said Professor Lopez.

The program will use a transdisciplinary methodology in studying textiles, including fashion design and merchandising, architecture, interior design, industrial design, arts management, production design, and export management, explained Lopez.

"These programs all involve the use of textiles, either as a material, a product, or the systems and processes and management involved in producing textiles," she added.

The curriculum will be based on CHED Memorandum Order 43 series of 2017, outlining policies, standards, and guidelines for undergraduate programs in Fine Arts and Design, requiring three years or two terms for completion, Lopez noted.

"With the passion economy becoming mainstream, new kinds of careers, drawing upon a person's intrinsic curiosity will become the norm. And hopefully,



finishing a degree in textile design in the Philippines will become a norm. Sana po," Lopez said.

Green and sustainable textile market

Co-CEO and Chief Creative Officer of Bayo clothing, Anna Lagon, acknowledged DOST-PTRI's role as their partner in promoting sustainability and innovation in the fashion industry.

"The government's role through agencies like PTRI provides the necessary resources that cushion the financial strain of developing new supply chains," Lagon said. "This underscores the crucial role of purposeful partnerships in creating a supportive ecosystem for the advancement of sustainable textile development in the fashion industry."

Lagon shared that Bayo aims to achieve zero waste, zero carbon emission, and a circular economy business model. Besides locally made apparel, Bayo offers training and workshop opportunities to marginalized individuals for sustainable livelihood.

Additionally, Raymond R. Tan, a university fellow and current Vice-Chancellor for Research and Innovation at De La Salle University (DLSU), noted the growing interest of buyers in sustainable fashion and how Life-cycle assessment (LCA) could help certify that textile products in the Philippines are eco-friendly.

NAT'L S&T...from page 52

Meanwhile, another noteworthy project mentioned is the Reef Baybe, a coral reef decision-making tool and primer. This software integrates quantitative data and expert knowledge through a Bayesian belief network model, offering a comprehensive perspective on ridge-to-river-to-reef systems. The Reef Baybe aims to assist marine protected area managers and other users in making informed, data-driven decisions for the protection of coral reefs.

“These are just a few of the many programs we have developed and are still developing that focus on sustaining the blue economy. With all the S&T interventions we are doing in the regions, we plan to continue this approach by holding future NSTW celebrations in the provinces,” said Sec. Solidum.

What to expect during the national S&T Festivity in Iloilo City

DOST Undersecretary Maridon O. Sahagun, on the other hand, shared that aside from the technologies developed by our Filipino scientists and researchers focusing on preserving, conserving, and protecting our marine environment, this year's NSTW in Iloilo City definitely promises a very unique experience where we aim to marry science and tourism as interdependent, both necessary to boost inclusive and transformative socioeconomic development as we traverse the path towards the digital age.

You may get all the details about the 2023 NSTW exhibits and general program of activities at www.nstw.dost.gov.ph.

“Holding the NSTW to the regions enhances the learning experience in science, technology, and innovation. It allows our visitors to enrich their minds with valuable information while immersing themselves in the captivating sights and sounds of the region, particularly in Iloilo,” said Usec. Sahagun.

She believes that this experience provides an opportunity to delve into the rich and colorful traditions and culture of the Ilonggos, renowned for the world-class Dinagyang Festival and Paraw Regatta. Additionally, there's the chance to indulge our palates with the flavors of local food, especially considering Iloilo's recent declaration as the Creative City of Gastronomy by UNESCO.

The 2023 NSTW takes place at four venues simultaneously, with the main location being the Iloilo Convention Center, or ICON, where forums will be held. Other venues include the Capt. John B. Lacson Training Ship and Museum of Philippine Maritime

History for the Lawud: Maritime S&T Exhibit, the National Museum Western Visayas for the Hinabul: Natural Fiber and Textile Exhibits, and the Festive Mall for the

Bazaar. Here, visitors will have the opportunity to indulge their senses with unique products from DOST-assisted companies and communities.

“Through this event, we greatly acknowledge and embrace the vital role of science, technology, and innovation for socio-economic development and for achieving a thriving and progressive community,” said Iloilo City Mayor Jerry Treñas.

He added that In Iloilo, they are committed to fostering innovation and sustainable growth through various initiatives aligned with our vision in making Iloilo City a smart city.



Tan explained that LCA is a methodology used to evaluate the environmental impacts, both direct and indirect, of product systems. He emphasized the potential for the Philippines to reach lucrative export markets by offering certifiably sustainable fiber and textile products at a premium price.

However, Tan highlighted the shortage of human resources, particularly LCA users and experts in the industry, government, and academia. He mentioned an agreement between DLSU and PTRI to collaborate on various research projects and conduct training for scientists and researchers in PTRI to develop LCA expertise.

To conclude this year's congress, DOST-PTRI Director Julius L. Leaño, Jr. announced the third installment of the annual Philippine Textile Congress, scheduled for November 2024, with the theme “Fostering Transdisciplinary Textile Knowledge Generation and Translation.”



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Future and sustainable growth of the PH's Blue Economy takes center stage at the 2023 NSTW in Iloilo City

By Jacqueline R. Parairo, DOST-STII

The Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) and the Central Visayas Agriculture, Aquatic and Natural Resources Research and Development Consortium (CVAARRDEC) are exploring various prospects and livelihood opportunities for a sustainable blue economy in the Philippines.

As part of the 2023 National Science, Technology, and Innovation Week (NSTW) in Iloilo City, experts and researchers shared various studies on Thursday that could unleash the potential of the blue economy in different areas of the country, especially in the countryside.

The blue economy is an economic development model that focuses on the sustainable management and use of natural and other resources in the maritime sector. It aims to sustainably use ocean resources for economic growth and improved livelihoods while preserving the health of the ocean ecosystem. Given that the Philippines is archipelagic in nature, it possesses the right resources that can provide opportunities for growing the country's blue economy.

Dr. Jesrelljane A. Amper of Bohol Island State University gave a lecture entitled "Navigating the Storm: Understanding the Impact of COVID-19 on Small-Scale Fisherfolk in Danajon Bank and

Building Resilience for a Sustainable Blue Economy." She emphasized the importance of small-scale fisherfolk and their vulnerability, as well as the strategies they employed to overcome challenges, particularly during the pandemic.

"Small-scale fisherfolk, often overlooked despite their significant population, emerged as one of the most vulnerable sectors to the far-reaching impacts of the pandemic. Their vulnerability is rooted in economic factors since most of them rely on their daily catch sales and local market," she said. "In Danajon Bank, fishing is the core of daily life for

everyone, for both men and women. The majority depend on catching fish from the sea as their main source of income. During the pandemic, the no-sail policy disrupted the supply chain and market access, leading to severe consequences for the income and financial stability of small-scale fisheries households in Danajon Bank."

"Not only are fishing-related activities impacted, but the overall economic landscape has also been destabilized."

She went on to list the coping strategies and innovations developed by the fisherfolk in Danajon Bank in the midst of the pandemic, namely: adoption of kinship-based marketing channels, shift to post-harvest processing of fish (specifically drying and salting) to extend shelf life, diversification of



Dr. Jesrelljane A. Amper of the Bohol Island State University presents her study on the impact of the COVID-19 pandemic on small-scale fisherfolk in Danajon Bank on 23 November 2023 during the National Science and Technology Week in Iloilo City. (Screengrab from DOST-PCAARRD Facebook Live)

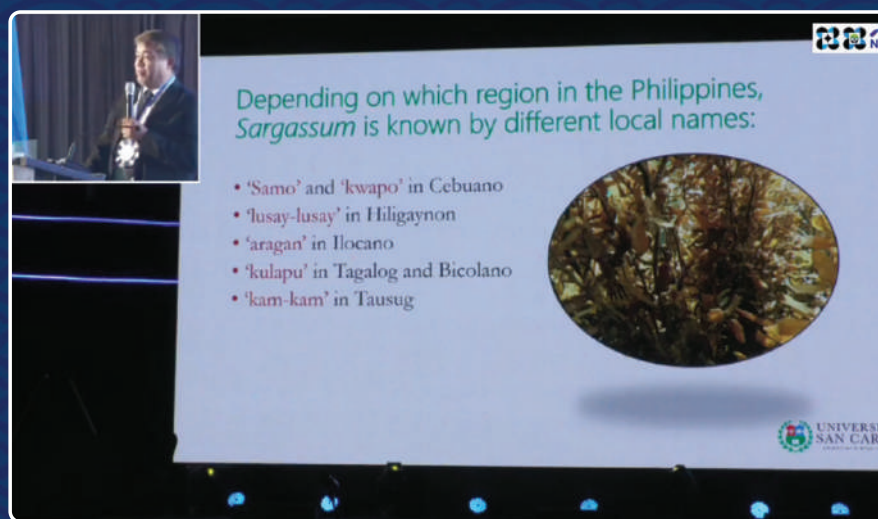
livelihood sources such as gardening, and substitution of traditional food and nutritional sources using seaweed-based delicacies such as puto, biscuits, and jams.

Considering the impact of the COVID-19 pandemic on small-scale fisherfolk, Dr. Amper and her team suggested using the sustainable livelihood approach and put forth some policy recommendations, such as streamlining and simplifying access to support programs, providing training in sustainable fishing practices, facilitating partnerships between small-scale fisherfolk and larger seafood distributors, and providing fisherfolk health coverage and financial support in emergencies.

Meanwhile, Dr. Danilo B. Largo of the University of San Carlos gave a presentation on his study entitled “The Culture of Sargassum in the Philippines: Present and Future Prospects for Blue Economy.” His lecture focused on this particular type of brown seaweed, its benefits to marine organisms, and all its potential uses to improve the country’s blue economy.

“Many of you may not be familiar with sargassum, perhaps because this marine organism is not easily seen, although it is very ubiquitous sometimes during the year, forming blooms that float around at the end of the year,” he explained.

“So, why are we interested in sargassum? What caught our attention? Sargassum... it is so abundant in other parts of the world, but on this side of the Pacific, we are trying to culture them. They form an underwater forest. They allow organisms to thrive – serving as habitat, shelter, feeding ground, nursery, spawning, and breeding grounds for a lot of marine organisms. No other seaweed in the tropics can compare to the size and biomass of sargassum,” he continued. “Other countries have already utilized sargassum for a wide range of applications.”



Dr. Danilo B. Largo of the University of San Carlos discusses the subject of his study, sargassum, and how they are known in different parts of the country, during the National Science and Technology Week on 23 November 2023 in Iloilo City. (Screengrab from DOST-PCAARD Facebook Live)

Dr. Largo listed some potential products that the Philippines can extract from sargassum, including sargassum alginate, which can be used in the food industry as an emulsifier, thickener, or stabilizing agent, or in the biomedical industry as a microencapsulating or radiography agent. Sargassum alginate is also being used to create bioplastics, which can be used in food packaging to reduce the use of synthetic plastics.

Sargassum is also seen to have anti-cancer and prebiotic properties, as well as antioxidative and antimicrobial properties.

Another important potential use for sargassum is seaweed-based animal feed, which will reduce methane gas emissions in cattle and therefore substantially mitigate the volume of greenhouse gases. Studies have also shown that aquatic animals fed with sargassum-based feed had improved immune systems.

However, despite its potential, sargassum is still not being used to improve the economy.

“There is still a standing policy of prohibiting harvesting, whether it comes from the natural population or from the cultured sargassum,” lamented Dr. Largo. “The solution here is really to introduce the culture of sargassum for a sustainable supply of seaweed and to spur the Philippine blue economy.”

Dr. Largo and his team attempted to develop hatcheries for different species of sargassum, of which there are forty to sixty to choose from in the country. They developed and produced two culture manuals and one primer for the responsible farming of sargassum and a proposed management strategy.

The two lectures were followed by question and answer portions, wherein students and members of the academe asked queries on the topics discussed and were answered by Dr. Amper and Dr. Largo.

This forum was part of the DOST-PCAARD’s Techno Fora covering various topics in the conservation and management of natural resources.



Local experts share opportunities on rainforestation, agriculture in Nat’l S&T Week in Iloilo City

By Jacqueline R. Parairo, *DOST-STII*

The Department of Science and Technology – Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD), in collaboration with the Visayas Consortium for Agriculture, Aquatic and Resources Program (ViCARP), organized a forum with the theme “Creating More Green Jobs through Science and Technology: Towards Sustainable and Empowered Communities” during the National Science, Technology, and Innovation Week (NSTW) in Iloilo City on 23 November 2023.

The forum focused on science and technology initiatives, including rainforestation and vegetable value chains, that can contribute to advancing the country’s green economy. Green jobs refer to employment that contributes to

preserving or restoring the quality of the environment, whether in the agriculture industry or the services sector.

Visayas State University OIC President Dr. Daniel Leslie S. Tan expressed in his opening remarks, “This activity is a suitable venue for sharing and exchanging information, knowledge products, and tangible experiences of resource persons. It can inspire others today to replicate and scale up such initiatives, leading to a sustainable community.”

In her inspirational message, Applied Communication Division Director Marita A. Carlos stated, “Today, we are fortunate to listen to updates on science, technology, and innovation that impact the green economy. It is interesting to note that the current government administration has included strategies for creating more green jobs in its Philippine development plan. Hopefully, through this forum, we can contribute to the development of sustainable and empowered communities.”

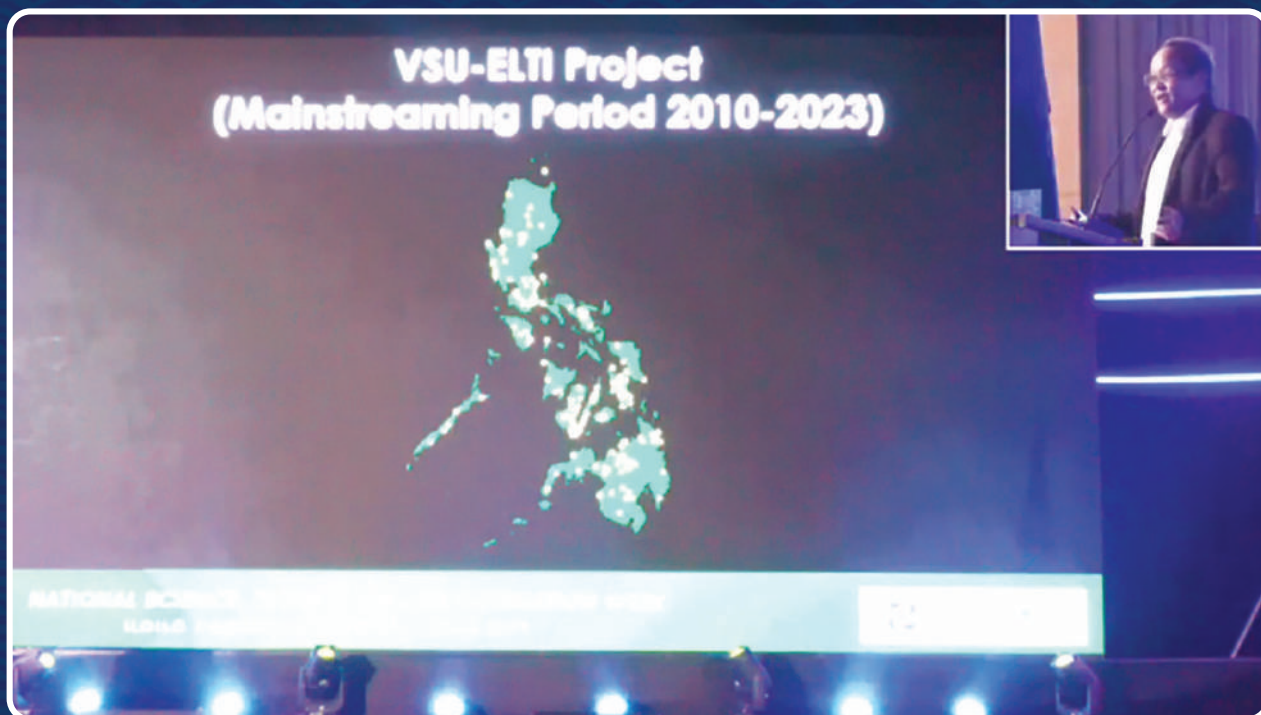
Dr. Marlito M. Bande of the Visayas State University discussed rainforestation in the Philippines, focusing on sustainability and community empowerment in his lecture. He presented the university’s

community-based initiatives in rainforestation in the country and Southeast Asia.

Rainforestation, a strategy to rehabilitate deforested watershed areas using indigenous tree species to preserve rainforest biodiversity while empowering forest resource-dependent communities, has been implemented by the Visayas State University for thirty-three years.

“It started as a research project from 1991 to 2000. We established demo farms and other research farms in Leyte. We mainstreamed these in 2010 until now, with the Environmental Leadership Training Initiative of Yale University,” said Dr. Bande. “This is already implemented all over the Philippines. The strategy here is to conduct training because, as the originator of the technology, the university has no resources to implement it nationally. One of the strategies is to empower, to train, to certify rainforestation trainers all over the country, and they will be the ones to advocate this, and then you will have a domino effect.”

After thirty-three years of implementation, rainforestation has demonstrated that native tree species used in forest restoration could result



in habitat restoration, biodiversity conservation, and productivity, community empowerment, provision of stable income to farmer adopters, and high carbon sequestration potential to mitigate global warming.

Dr. Zenaida C. Gonzaga, also from the Visayas State University, discussed in her lecture entitled “Developing Vegetable Value Chains to Meet Evolving Market Expectations in the Philippines” the importance of Good Agricultural Practices (GAP) and the vegetable value chain, with community empowerment among farmers being one of the tangible outcomes.

Dr. Gonzaga’s project has four components: training, food safety, socio-economics, and production. The project aims to improve the capacity of vegetable supply chains in the Philippines to deliver vegetables that better meet consumer expectations in terms of quality, food safety, nutritional value, and price.

“The acceptance of GAP-certified vegetables faces several challenges, including consumers’ limited knowledge of the value of GAP and price sensitivity, which continues to drive the preference for conventionally-grown vegetables over GAP-produced ones,” explained Dr. Gonzaga. “Established GAP-certified businesses have successfully carved out niche markets by creating their own supply chains, a capacity smaller players lack. Lastly, there is a price premium when demand exceeds supply.”

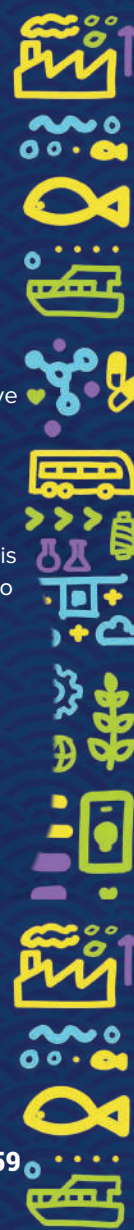
“If interventions fail to translate into monetary incentives, farmers will lack the motivation to engage in the cultivation and sale of GAP-certified vegetables. The capacity to sell certified vegetables is not a valued resource yet in most chains.”

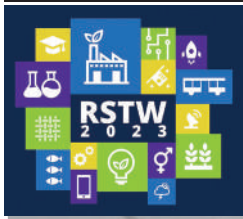
Close to two thousand visitors have toured Dr. Gonzaga’s GAP-certified farm in Visayas from May 2022 to November 2023. Most of these were students

on internships, their instructors, and farmers.

The two resource speakers answered audience questions after their respective discussions.

The “Creating More Green Jobs through S&T: Towards Sustainable and Empowered Communities” conference is part of a series of lectures called Techno Fora by the DOST-PCAARRD, covering various topics in the conservation and management of natural resources.





DOST leads forum for the creatives sector during 2023 RSTW NorMin

Attendees pose smiles after the conduct of the forum conducted at the iDEYA office in MSU-IIT.

By Kristel Rose C. Alvarico, DOST-X

As part of the celebration of the 2023 Regional Science, Technology and Innovation Week (RSTW) sa Amihanang Mindanao, the Department of Science and Technology (DOST) leads the conduct of S&T in Arts and Creativity Forum on 13 October 2023 at Mindanao State University - Iligan Institute of Technology (MSU-IIT), Iligan City.

The event was attended by participants from HULMA-Iligan: Creatives Collective, Lampakanay Weavers Association, DevCon Iligan, IDEYA, MSU IIT DOST Scholars Association (MIDSA), LGU Valencia City, and Adventist Medical Center College.

DOST-X staff Dorina Marie E. Ytang highlighted the role of the creative industry in the innovation and its unique potential to contribute to the attainment of the Sustainable Development Goals (SDGs).

“By finding research, fostering entrepreneurship and providing cutting-edge resources, the DOST empowers creatives to develop new forms of expression,

storytelling and entertainment, which in the long run bring economic growth, decent work, foster diversity and inclusivity through digital media and technologies,” added Ms. Ytang.

Presented during the forum is the DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD) research and development projects and DOST’s pioneering Grassroots Innovation for Inclusive Development (GRIND) Program.

Project manager for the creative Industry from PCIEERD, Engr. Jayson B. Nuval



Participants of the “S&T in Arts and Creativity Forum” participated in an open forum to know more about the programs and projects of the Department of Science and Technology for the creative industry.

Ms. Dorina Ytang, DOST-X staff giving her opening remarks on the forum, “S&T in Arts and Creativity Forum” on 13 October 2023 at Mindanao State University - Iligan Institute of Technology, Iligan City.

in the submission of proposals.

GRIND focal person, Ms. Paano shed light to the women’s association of weavers on the process through SalikLakbay. As a result, artists from the Lampakanay and HULMA:Iligan groups expressed interest in the program for further innovations on their basket making and weaving.

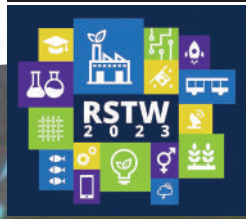
Under Republic Act No. 1194 or also known as the Philippine Creative Industries Development Act, DOST is mandated to promote the development of the creative industries by strengthening the rights and capacities of the creative films, artists, artisans, creators, creative workers, indigenous cultural communities, creative content providers, and other stakeholders

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introduced the programs supported by DOST focusing on the music, footwear, cultural heritage, science museum, game development, film, animation and visual arts domains.

DOST-X representative Rashia Mae Desa E. Paano shared the GRIND Program and pointed out the opportunities for any innovations on livelihood, endangered crafts, agriculture, waste management, heritage foods and heirloom recipes, ethnobotanicals, and innovations addressing health hazards and circular economy at the grassroots level.

Among the highlights of the event is the open forum session where sectors from the handicrafts, theater, music, game development, design, and traditional arts exchanged questions, challenges and insights. On accessing project funding, the sector lead of PCIEERD’s creative industry, Ms. May-Rose B. Pariñas guided the participants of the step-by-step process and requirements



DOST Davao Inaugurates Four Projects during RSTW



By DOST-XI S&T Information and Promotion

The Department of Science and Technology Regional Office No. XI (DOST-XI) made a resounding mark on the scientific and technological landscape with the launching of four important projects during the Regional Science Technology and Innovation Week (RSTW) held on 9-10 November 2023 at the Tagum City Hall Atrium in Tagum City, Davao del Norte.

Projects introduced include the Sentro Mindanao which is set to revolutionize the way the people of Mindanao engage with science. Formerly dubbed as the “Science Centrum,” this innovative center features interactive exhibits and hands-on experiments designed to spark curiosity and nurture a love for science among visitors.

DOST-XI also introduced the Saliklakbay Program, initiated by the Grassroots Innovation for Inclusive Development (GRIND). Saliklakbay came from two (2) Filipino words, “saliksik” which means research and “lakbay” which means to go on a journey.

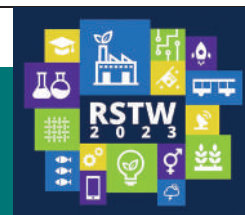
This program aims to empower local communities by providing support and resources for grassroots innovators. It recognizes that innovation is not confined within laboratories and research institutions, but rather found in the hearts and minds of ordinary citizens. The Saliklakbay Program seeks to foster these creative sparks to drive inclusive development through research and community engagement.

DOST-XI also launched a tool that measures the contribution of various programs, projects, and activities, particularly those aligned with Social Science, Education, Culture and Communications and Information (SECCI) towards the attainment of the Sustainable Development Goals (SDGs).

Dubbed as the SECCI for SDGs Scorecard, the tool shall also create a better understanding of the social, economic, and cultural dynamics that shape the lives of people. It was developed by DOST-XI together with the Hydrology for Environment, Life, and Policy-Davao Network.

Lastly, the Food Processing Innovation Center-Davao (FPIC-Davao), the innovation hub committed to developing ready-to-eat foods that are not only delicious but also highly nutritious, was also launched.

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RSTW Davao: Bolstering Science, Technology and Innovation in Agricultural Landscape

By DOST-XI S&T Information and Promotion



In a region known for its rich agricultural heritage, the recent Regional Science Technology and Innovation Week (RSTW) in Tagum City, Davao Region, emerged to be an avenue for farmers, students and researchers to be acquainted with innovative farming technologies and techniques that promise to revolutionize the agricultural landscape of the region.

The event welcomed a diverse group of individuals including farmers from different places, students taking up Agricultural and Biosystems Engineering, and even researchers who shared a common passion to harness science and technology for the betterment of farming.

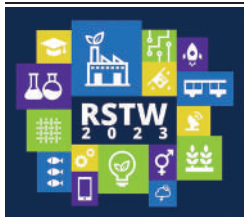
RSTW Davao was significantly amplified through the collaborative efforts of the Southern Mindanao Agriculture Aquatic and Natural Resources Research and Development Consortium

(SMAARRDEC) and the Department of Science and Technology Region XI (DOST-XI). As steadfast partners, SMAARRDEC played a significant part in the event's seamless execution as some of the distinguished speakers who shared invaluable expertise in the scientific fora came from their member institutions.

Department of Agriculture Regional Field Office XI Crop Protection Center Chief, Marilou Infante, presented the effective use of Trichoderma Harzianum in managing diseases affecting banana crops, an important staple in the region. By reducing the reliance on chemical treatments, this technique offers a more sustainable and environmentally friendly approach.

On a related note, Davao del Sur State College, Assistant Professor V, Dr. Juan P. Agudera Jr., demonstrated the use of liquid Trichoderma, a powerful biocontrol agent that aids in suppressing

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DOST DAVAO...from page 64

The FPIC-Davao ensures that people affected by crises, whether natural disasters or other emergencies, have access to sustenance when they need it most. Furthermore, advanced equipment like the Water Retort, Spray Dryer, and Vacuum Fryer transform raw ingredients into meals that can be stored for extended periods without compromising taste or nutritional value. In times of crisis, when access to fresh food may be scarce, these innovations are essential.

The RSTW celebration served as the ideal platform for DOST-XI to unveil these groundbreaking initiatives. Dr. Anthony C. Sales, regional director of DOST-XI, emphasized the importance of these projects in shaping the region’s scientific and technological landscape.

“Sentro Mindanao, the Saliklakbay Program, SECCI for SDG Scorecard, and the FPIC are all integral to our vision for a thriving, innovative Mindanao,” he said.

RSTW DAVAO...from page 65

plant diseases and enhancing crop yields. This eco-friendly solution offers a safer and organic approach to disease management in agriculture.

Engr. Ryan Abenoja, University of Southeastern Philippines Assistant Professor IV, introduced a Coconut Climbing Device that eases the challenging task of climbing coconut trees. This not only ensures the safety of coconut harvesters but also increases productivity in the vital coconut industry of the region.

Further, Engr. Mervin Gorospe’s innovations included rice transplanters that streamline the planting process and a novel abacca stripping device. These inventions are set to boost efficiency and productivity in the rice and abacca industries, respectively.

Senior Science Research Specialists of the Department of Environment and Natural Resources-Ecosystems Research and Development Bureau-Agricultural Research Development and Extension Center (DENR-ERDB-ARDEC) Forester Eduardo Sagarino and Forester Alex Palero, showcased the art of bamboo propagation, a technique with the potential to transform the region’s bamboo industry. By enabling

the efficient cultivation of bamboo, this technology holds the promise of boosting bamboo production and addressing various environmental challenges.

Forester Reylan Dave Evangelista, Community Development Officer III of DENR-ERDB-ARDEC, introduced clonal propagation technology, a game-changer in tree planting and reforestation. This technique allows for the mass production of identical tree seedlings, ensuring consistency and enhanced growth rates, which is crucial for reforestation efforts.

In the same manner, the project ROSANNA designed to address problems on the prevalence of agricultural diseases such as Black Sigatoka or Banana Bunchy Top Disease that affects the banana industry and the Halal Transparent Traceability System (HATTS) converged with other exhibitors in imparting knowledge about science, technology and innovation.

Project ROSANNA was implemented by University of Southeastern Philippines together with Hijo Resources, Inc. funded by DOST through the Collaborative Research and Development to Leverage the Philippine Economy (CRADLE) which aims to empower industry-academic

collaboration to pursue R&D initiatives that will address industry problems.

The mobile application collects banana data in the field through a QR code attached to a banana tree. This procedure helps determine the extent of damage caused by the disease and would serve as the basis for fertilizer application.

HATTS, on the other hand, integrates technology with the principles of transparency and traceability in the Halal industry.

Developed to meet the stringent requirements of Halal certification, HATTS provides a comprehensive framework that enables consumers, producers, and certifying bodies to trace the entire lifecycle of Halal products. It is a collaborative project of USEP, MS3 Agriventures Inc., DOST-XI and the Universiti Teknologi Petronas Malaysia.

The RSTW in Davao Region has laid the foundation for a future where agriculture and technology walk hand in hand, offering a brighter and more prosperous future for the region’s farming communities. This event not only showcased innovations but also sowed the seeds for a sustainable and tech-driven agricultural future in the region.

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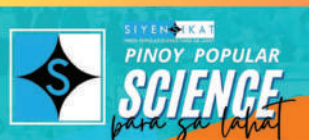


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