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# S&TPOST

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# Women in science, catalysts of change



The trailblazing astronomer, Maria Mitchell in 1871 said, "We especially need imagination in science. It is not all mathematics, nor all logic, but it is somewhat beauty and poetry." As the first recognized female astronomer in America, Mitchell was really ahead

of her time, having been elected as the first woman to the American Academy of Arts and Sciences because of her extraordinary mind and scientific genius.

Women in science is, to a certain extent, no longer a myth but a reality, much more today than a century and a half ago. In the Philippines, more and more women scientists, researchers, engineers, and innovators are making their mark with their contribution to the growth of science and technology worldwide. In fact, five out of eight Filipino scientists named in the 2021 Asian Scientist 100 list were women. Likewise, with the 42 National Scientists in the Order's history, 11 are female scientists who raised the standard of excellence with their valuable contributions in various fields of science. From discovering new species to building the first Philippine children's hospital, these Filipina mavericks continue to

empower aspiring female scientists in the Philippines to this day.

Recognizing their remarkable achievements, the first quarter 2022 issue of the Post pays tribute to these Filipina mavericks, as we celebrate Women's Month in March, with stories about their notable deeds that transcend boundaries of time and space.

A section of this issue of the Post is solely devoted to women of science; starting off with the article on Usec. Brenda' Garden, a fitting tribute to DOST's hardworking undersecretary of regional operations, Usec. Brenda Nazareth Manzano. Then, there are articles on the following: the woman-engineer behind Netflix, DOST's offering of STEM courses for women, a conflict-prone community in Zamboanga del Sur implementing GAD-centric projects, Bb. Pilipinas International 2021 Hannah Arnold's advocacy for science, and the DOST activities in celebration of Women's Month.

With the undeniable contributions of our women in science, the Post continues to reserve more space for them in the publication in our hope of inspiring our readers, both men and women, to support and value their works that make our lives much better today than yesterday. Read on and know more of the women of science, catalysts of change!

NORLY B. VILLAR Executive Editor

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# FIRST QUARTER 2022



# **ABOUT THE COVER**

The First Quarter issue cover of this year's S&T Post is a variation of the graphic form or drawing, representing women of diversity, looking outward to symbolize positivity, dynamism, vibrancy and the courage to explore science, technology, and innovation to make a difference in society. The colors pink, violet, and red rose symbolize the temperament of the celebration of International Women's Month in March. The women portrayed in the cover represent women in science, in general terms, who made a difference because of their works and achievements that contribute to nation building.

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Nation, One Time: Pilipinas ON TIME" promotes the use of PST nationwide and syncing of timepieces with the PST. The campaign also hopes to institutionalize the new Filipino culture of being always on time and having only one time as a nation.

The NTCW is observed during the first week of January of every year to instill the value of time and the need to respect the time of others, so that the people may realize the imperative of synchronizing the official time.

The ORAS PINAS is set by the DOST's Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA), the country's official timekeeper since 1978 as mandated by Section 6 of Batas Pambansa Blg. 8.

DOST-PAGASA sets the timing system that consists of a rubidium atomic clock, a Global Positioning System receiver, a time interval counter, a distribution amplifier, and a computer.

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

# It's Oras Pinas Time: DOST promotes synchronizing

# It's ORAS PINAS time again!

rom 1 to 7 January 2022, the
Department of Science and
Technology (DOST) leads in the
observance of the 2022 National
Time Consciousness Week with the
theme, "Bangon Pinas para sa Bagong
bukas: Sundin ang tamang oras" to
synchronize all timepieces across the
country. This advocacy to promote the
new Pilipino time is in accordance to
Republic Act No. 10535 or The Philippine
Standard Time (PST) Act of 2013.

This year's theme aims to advocate the use of the PST or the now called ORAS PINAS to help in nation-building and to support efforts to achieve sustainable development and inclusive growth by valuing time.

The main campaign launched last year, "ORAS PINAS" with the tagline "One

Ph time

# **Tekno Presyensya 2022**

# DOST-I gazes back at success and advances forward with iSTART

By Carla Joyce B. Cajala, DOST-I

he Department of Science and Technology (DOST)-Region I, in collaboration with DZAG Radyo Pilipinas Agoo, launched the first episode of Tekno PreSyensya 2022: Syensya ken Teknolohiya para kadagiti Umili featuring the accomplishments DOST-I for the Year 2021 and talking about the Innovation, Science and Technology for Accelerating Regional Technology-based Development (iSTART) program on 13 January 2022, via Zoom and DOST-I Facebook page.

The episode was attended by DOST-I Regional Director Armando Q. Ganal, DOST- Provincial Science and Technology Center (PSTC) Pangasinan Provincial Director Arnold C. Santos, and representatives from the two beneficiary Local Government Units (LGUs) of Pangasinan namely, LGU Balungao Municipal Agriculturist Officer Marilyn Lilagan, and LGU Alcala Municipal Planning Officer II Michelle Retoria.

Dir. Ganal highlighted the agency's accomplishments for the year 2021. He discussed the accomplishments of the Disaster Risk Reduction and Management (DRRM) unit, RxBox Project, Scholarship unit, Community Empowerment through Science and Technology (CEST), Regional Standards and Testing Laboratory (RSTL), Regional Metrology Laboratory (RML), Regional Project Management Office (RPMO), and Regional Science and Technology Promotion Program Center (RSTPPC). Director Ganal also gave an overview of the achievements of the 2021 National Science and Technology Week (NSTW) and Regional Invention Contests and Exhibits (RICE).

Director Ganal also discussed the iSTART program. He started on how it began



through the Memorandum of Agreement (MOA) with the Provincial Government of Pangasinan represented by Governor Amado T. Espino III. He then staged the accomplishments of the program in the six pilot municipalities of Pangasinan.

The iSTART program aims to support the gains of Pangasinan in the different fronts of development through science, technology, and innovation (STI). Further, it will review existing plans and determine the development fronts, identify appropriate STI interventions in the various development fronts where necessary through sectoral groups, and package technology-based sectoral development plans.

The program which is currently being implemented by the Office of the Governor in six LGUs as pilot municipalities focuses on disaster resilience, alternative energy, livelihood and enterprise, business, and waste management.

Provincial Director Santos reported the program's varied outcomes in the towns of Balungao, Alcala, San Fabian, Malasiqui, Bugallon, and Sual. When asked about the program's timeline, he stated that the agreement will go until March, but he is optimistic that the program will continue to benefit other LGUs in Pangasinan.

Ms. Lilagan and Ms. Retoria, representing the towns of Balungao and Alcala, respectively, expressed their gratitude to DOST-I and explained how this program might benefit their communities. With the aid of iSTART, they hope to make even more improvements in their communities.

Dir. Ganal hailed the towns for their cooperation in the effective execution of iSTART and encouraged them to use the program's benefits for the improvement of their communities in his closing message. "He also remarked the incessant efforts of the region to enhance science, technology and innovation."



Text and photo from PSTC-Cotabato

hirty-seven computer
units installed with DOSTSTARBOOKS were turned over
among identified beneficiaries
in the 2nd District of North Cotabato
province.

The turnover and distribution of complete set of computers took place right after the signing of the Memorandum of Understanding (MOU) on the implementation of the DOST-STARBOOKS between the Department of Science and Technology 12 (DOST-XII) and the 2nd Congressional District of the Province on 17 January 2022 at Boylyn Pensione Plaza, Kidapawan City.

According to DOST-XII Regional
Director Sammy Malawan, recipients
comprising LGUs/ ELCAC-barangays,
libraries, schools including Madrasas
(Islamic Schools) were identified and
endorsed by North Cotabato 2nd District
Representative Rudy Caoagdan.

STARBOOKS or the Science and Technology Academic and Research-Based Openly-Operated Kiosk Station dubbed as the first Philippine digital science library, STARBOOKS is a compendium of S&T information gathered from all over the world, making it a legit one-stop S&T info source.

Accessible even without the internet, STARBOOKS is an effective tool for knowledge and learning resources in remote or far-flung areas, in barangays to as far as "sitio" or a small community near the center of a barangay.

Regional Director Malawan emphasized that STARBOOKS is not only recommended for students and researchers but designed as well for inventors, entrepreneurs/ start-up firms, and MSMEs, and all sectors of society seeking relevant information and knowledge.

"This technology will give the opportunity to everyone to be more competitive", Vice Governor Emmylou Taliño-Mendoza said in her message as one of the witnesses in the signed MOU.

Vice-Governor Mendoza urged everyone

to value the assistance of DOST citing that even LGUs are encouraged to make necessary infrastructure available, like the library, in the promotion of knowledge and relevant information among the public so we would not be left behind.

Other guests who took part during the activity include City Councilor Marites Malaluan representing Kidapawan Mayor Joseph Evangelista; Mr. Tomas Moneva representing Congressman Caoagdan; Mayor Egidio Cadungon of Antipas; Mayor Rene Rubino of Arakan; and Mayor Jonathan Mahimpit of President Roxas.

Lauding their cooperation, Regional Dir. Malawan said, "As we [DOST] bring benefits of S&T closer to the people in the countryside, to your respective constituents, we are glad that we have supportive congressional, provincial and local government units in the Province of North Cotabato."

DOST Provincial Director Michael Mayo assured the recipients that the Users' Training for the DOST-STARBOOKS will be conducted the soonest as possible.

# Awareness does not guarantee smart technology adoption, study says

By Geraldine Bulaon-Ducusin, DOST-ST//

nowledge does not ensure the likelihood of businesses acquiring smart manufacturing technologies given the weak correlation between awareness and adoption."

This is according to Dr. Anthony C. Sales, DOST-XI Regional Director, who's also a member of the research team that conducted the study, "Level of Awareness of Smart Manufacturing Technologies and its Nexus to Adoption among Micro, Small, and Medium Enterprises in the Philippines."

Awareness on the smart manufacturing (SM) technologies does not necessarily translate to technology adoption, based on the survey of 496 out of the 7,497 cooperators of the Department of Science and Technology's (DOST) Small Enterprise Technology Upgrading Program (SETUP), a government initiative that assists micro, small, and medium

enterprises (MSMEs) in upgrading technologies to improve operation and increase competitiveness.

The study further reveals that mediumsized companies have a higher level of SM awareness and adoption than micro and small businesses. SM technologies include advanced digital, intelligent, and connected systems that emerged from the Fourth Industrial Revolution (FIRe), which replaced the manufacturing sectors' traditional technologies that has revolutionized the sector's operations.

The research, which aims to identify how aware the Philippine MSMEs are in terms of SM technologies and their level of adopting these technologies, focused on the nine SM technologies, namely, the internet of things, cyberphysical systems, artificial intelligence, radio frequency identification, robotics, big data analytics, cloud computing, 3D printing, and augmented reality.

Among the nine SM technologies, cloud computing and 3D printing were the most important technologies that can explain the variability of awareness and adoption among MSMEs, based on the study.

"One of our recommendations is for DOST SETUP 4.0 program to prioritize medium-sized companies, as they are more willing to provide more investments in adopting SM technologies – especially cloud computing and 3D printing," said Dr. Kenneth D. Barroga, also a member of the research team.

The research team also believes that the government institutions should strengthen technological awareness through scaling up knowledge on FIRe and SM knowledge-building activities in terms of facilitating national awareness programs, and developing informational materials to improve MSMEs' awareness, value perception, and financial access to adopt new technologies.

Despite the numerous advantages of SM, MSMEs are still at the beginning of this transformation, as shown in a related global study conducted in over 25 countries, in which few MSMEs have fully implemented approaches towards FIRe, and the majority are in their development stage.

Earlier studies cited that among the constraints that hinder MSMEs shift to SM technologies are knowledge, financial constraints, undeveloped capabilities among staff, and owner and employees' awareness about the importance of the technology.

The local context of the Philippines, said barriers were also observed as characterized by a lack of knowledge

CONTINUED ON PAGE 9

Table 4. The extent of SM Awareness among MSMEs, by business scale (n=496).												
Business Scale	Frequency (n)	Awareness Level				Overall weighted	Overall awareness					
		Poor	Below Average	Average	High	index	level					
Micro	321	35	167	104	15	0.231	Poor					
Small	140	13	54	62	11	0.251	Below Ave					
Medium	35	1	14	17	3	0.263	Below Ave					
MSMEs	496	49	235	183	29	0.248	Poor					

Table 5. The extent of SM Adoption among MSMEs, by business scale (n=496).												
Business Scale	Frequency (n)	Adoption Level				Overall weighted	Overall awareness					
		Poor	Below Average	Average	High	index	level					
Micro	321	290	28	3	0	0.111	Poor					
Small	140	126	14	0	0	0.110	Poor					
Medium	35	27	7	1	0	0.126	Poor					
MSMEs	496	443	49	4	0	0.115	Poor					

# DOST-NCR approves collaborative R&D project on development of RTD juice from indigenous crops

By Bianca Claudette R. Canlas, DOST-NCR

he Department of Science and Technology-National Capital Region (DOST-NCR) provided funding and technical support for the project entitled "Development of Ready-To-Drink (RTD) Juice from Indigenous Crop Yacon, Green Carabao Mango (Sweet Elena Variety) and Mint Essence," a collaborative research and development (R&D) project with the Lyceum of the Philippines University (LPU) and Vinoca Manufacturing, a SETUP-assisted enterprise processing natural drinks.

The project aims to look at underutilized Filipino fruits and develop alternative juice drink made from indigenous crops such as yacon (Smallanthus sonchifolius), green carabao mango (Mangifera indica), Sweet Elena variety, and mint essence.

Green mango is rich in antioxidant, acidic, and vitamin-rich properties, while yacon is positioned as a neutraceutical crop rich in phenolic acids, antioxidants, and flavonoids. Mint, is packed with phytonutrients that help produce enzymes for digestion.



The project will determine the physico-chemical, microbiological and sensory properties of the RTD made from these three plants found locally in the country. During the development of the RTD juice, product nutritional value, sugar profile and functional properties will also be characterized.

The DOST-NCR partnered Vinoca Manufacturing with food experts from LPU to develop diverse and innovative products from indigenous crops, and identify significant trends, drivers, and influences of the current marketing trend of RTD juices made of local fruits in the country.

This collaborative project will also help the beverage industry in exploring the transformation of local fruits into shelf-stable RTD juices.

# Food experts turn Okara wastes into flour for a soy-processing company in NCR, DOSTNCR funds collaborative R&D project

By Bianca Claudette R. Canlas, DOST-NCR



t was a long struggle for Queenbee Enterprises to process okara or soybean curd, a by-product of soybean milk processing, producing tons of wastes every day.

The Department of Science and Technology-National Capital Region (DOST-NCR) facilitated industry dialogues and brainstorming sessions between the Queenbee Enterprises and experts from the Polytechnic University of the Philippines to come up with a solution to process okara wastes into soy flour which may later be used in producing pastries, specifically pancake premix. DOST-NCR funded the project titled, "Development of Optimum Dehydration Process and Characterization of Soy-Residue for By-Product Utilization" to process okara wastes.

This project aims to determine the optimum dehydration process parameters for soy residue, and characterize the physicochemical, microbiological and functional properties of wet and dried okara generated from soymilk production. Dried okara derived from these tests will be optimized for food application.

Outputs of the project are an optimized process of producing soy residue flour, and a developed formulation for pancake premix which will later be marketed by Queenbee Enterprises as a part of its product line.

# Monitoring government accountability using e-Government

By Regine C. Pustadan, DOST-NRCP

overnment accountability is fundamentally about politics and power as it concerns the ruler and the ruled. The United Nations includes participation and accountability in the 2030 Agenda for Sustainable Development to combat corruption and instill public trust. One of the strategies advocated by the United Nations is the so-called open government data (OGD). Since 2010, the UN's Division for Public Institutions and Digital Government (DPIDG) has utilized the OGD or E-government.

In support of the 2030 Agenda for Sustainable Development, the National Research Council of the Philippines funded research titled "E-Government as a tool to monitor Government Accountability," NRCP Regular Member and National College of Public Administration and Governance (NCPAG) University of the Philippines Diliman alumna, Maria Pilar M. Lorenzo saw and acknowledged that gaps in transparency from the bureaucracy remain despite government accountability measures to resurface.

Lorenzo's research paper evaluated E-government as a new tool to monitor government accountability. To do this, she analyzed the E-government tool through the Governance framework, the criteria set forth by the United Nations (2004), and a local matrix devised by Siar (2005).

The Governance framework approaches its system with a tripartite paradigm—thus involving all the stakeholders from the government, business groups, and civil sector. Meanwhile, the United Nations has banked on the three components to analyze E-government. These include the availability of online services, telecommunication infrastructure, and human capacity. In essence, the UN (2004) sees E-government as "the use of ICT and its application by the government for the provision of information and public services to the people."

On the one hand, to focus on the technical and functional component of evaluating E-government, Lorenzo referenced Siar's (2005) local study on categorizing the web functions of government websites.

The research suggests that despite having good E-government practices, the



https://www.freepik.com/vectors/business

Philippine Government is yet to address implementation crevices. Factors such as limited technical capability, limited citizen participation, nondelineated information, a need for data policy with clear guidelines on accessing information, and end-user attitudes hinder the effective utilization of the E-government.

To fully realize and achieve transparency and curb corruption, Lorenzo recommends investing in seamless ICT that would promote a positive attitude among government employees. Further, to monitor government accountability, Lorenzo added a holistic approach that supports leadership, organizational administration, and social and cultural context.

### Awareness does...FROM PAGE 7

and skills competencies, weak technology base, and poor infrastructure.

The good news, though, is that the research team already collaborated with the Asian Productivity Organization (APO) and proposed a specific framework for SM in the Philippines, which the policymakers can use to drive SM transformation in the country and entice more MSMEs to embrace these emerging technologies to be at par with their competitors here and abroad.

The full discussion of this research appeared in the Philippine Journal of Science (Philippine Journal of Science

in the December 2021 issue of the Philippine Journal of Science, the oldest peer-reviewed journal in the country, The full discussion of this research appeared in the Philippine Journal of Science (Philippine Journal of Science Vol. 150 No. 6A, December 2021 Part A), the oldest peer-reviewed science journal in the country, published by the

Department of Science and Technology and managed by the Science and Technology Information Institute (DOST-STII). For detailed information on the study, you may visit the link https://philjournalsci.dost.gov.ph/publication/regular-issues/past-issues/109-vol-150-no-6a-december-2021-part-a/1469-philippine-journal-of-science-vol-150-no-6a-december-2021-part-a. Refer to Table 4 and 5 below for the results of the study.

# DOST, Davao City LGU ink MOA on upgrading Davao Food Terminal through packaging technology and logistics

Text and photos from DOST-XI S&T Information and Promotion

ith the vision of establishing the Davao Food Terminal Complex (DFTC) as the first hub of packaging technology transfer for fresh and semi-processed agricultural produce in Mindanao, the Department of Science and Technology-Industrial Technology Development Institute (DOST-ITDI) Packaging Technology Division and DOST Region XI, signed a Memorandum of Agreement with the Local Government Unit (LGU) of Davao City for the implementation of the DOST-

DFTC Project on 18 January 2022 via

NEOSYFYS

Zoom platform.

Funded under the DOST Smart Food Value Chain Program, this project aims to upgrade the existing post-harvest and packaging technology of fruits and vegetables at DFTC to reduce its handling damage and spoilage by 20%. Through DFTC, farmers will be able to directly sell their products to supermarkets, hotels, convenience stores, and fast-food chains and increase their income by 20-30% by enhancing the quality of products and reducing spoilage of whole and semi-processed commodities like mango, pomelo, papaya, lettuce, broccoli, and carrots.

A total of Php 4.3 M funding support from DOST for technologies and interventions such as transport packaging, modified atmosphere packaging, postharvest treatment, semi-processing, and design and branding will be provided under the project.

"Any packaging system should complement the appropriate logistical operation to ensure that the products reach their prime quality with the most economical cost; complementing and improving the facilities and services of the DFTC as a techno-transfer hub, not only to mitigate the adverse effects of COVID -19 but more so, to contribute to the

food security
in Region
XI," said
DOST-ITDI
Director

Sample packaging technologies of the agricultural produce

Annabelle V. Briones.

During the virtual ceremonial signing, DOST-XI Regional Director Anthony C. Sales, CESO III, highlighted the power and value of Science, Engineering, Technology, and Innovation (SETI), specifically the employment of S&T in the agriculture sector to help farmers who were badly affected by the pandemic.

Davao City Mayor, Inday Sara Duterte, showed her support for this initiative stating that this will not only help Davao City but also our neighboring regions whose economies largely depend on agriculture.

The farmers, represented by Macabatug Cooperative Federation Chairperson Nelson V. Tagud, also expressed their gratitude and commitment to this collaboration. Through this project, the farmers will continue to deliver safe agricultural products of good quality to the market.

In 2019, the Department of Agriculture-XI (DA-XI) and Davao City LGU, jointly opened the Php 74.8 M DFTC in Barangay Daliao, Toril which serves as a major drop-off point of various agricultural produce and trading center that directly links farmers to each buyer.

"We intensify our support through services for our smallholder farmers and advocate the leveling up of Philippine agricultural systems through technology and agripreneurship. Through our strengthened partnerships, let us continue to revitalize the agriculture sector through programs and projects that are industry-led, demand-driven, environment-friendly, market-oriented, and farmer-centered," DA-XI Regional Executive Director Abel James I. Monteagudo added.

# Innovative and sustainable textile programs launched during 2022 TELA Conference

By Jachin Jane O. Aberilla, DOST-ST//

he issues of climate change, sustainable environment, and circular economy can no longer be ignored if we are to help nurture planet Earth, the only home we've got. For years now, the Department of Science and Technology-Philippine Textile Research Institute (DOST-PTRI) has put this agenda at the forefront of its various R&D projects and activities.

On the occasion of DOST-PTRI's 55th

anniversary, it has launched several innovative and sustainable programs and products to advance the textile industry in the Philippines at the TELA Conference held virtually on 27 January 2022. The TELA Conference is also part of the celebration the Philippine Tropical Fabrics (PTF) Month.

With the theme, "Weaving a Creative, Sustainable, and Inclusive Future of Philippine Textiles, Today", the conference served as a venue to bring together the Philippine Tropical Fabrics stakeholders and active partners to witness the launching of the latest and sought-after PTF-related R&D programs and products.

In his message, DOST Secretary
Fortunato T. de la Peña emphasized
the growth in the textile industry with
the relentless and unwavering efforts of
DOST-PTRI.

"DOST-PTRI has launched and implemented numerous projects and initiatives that engaged the local textile producers in the regions by establishing innovation hubs. I joined PTRI in calling for the support of the textile industry by wearing textile Philippine products whether we are from the government or not. Truly, PTRI is alive at 55."

In her welcome remarks, DOST-PTRI
Director Celia B. Elumba highlighted
the importance of celebrating the
Philippine Tropical Fabrics Month to
sustain the gains and engage more
active participation from government
institutions and local industries on the
use of PTF as well as local natural fibers.

"The institute has been heralding natural textile development for decades and has championed the use of Philippine Tropical Fabrics. But without the systems, orientation, and strong collaboration among the national, the regional, the academe, and the industry, the potentials of the applied research in the textile industry will remain potential. It is our goal that this potential becomes real," Elumba highlighted.

DOST-PTRI introduced promising milestones and flagship programs the institute has been doing in recent years to advance the Philippine textiles industry, incorporating the collaboration mentioned by Director Elumba.







# Handloom Natural Textile Fiber-blended Weaving Yarns

Through the project titled "Finishing Technology for Philippine Natural Fiberblended yarns and Fabrics", the institute developed eco-friendly and sustainable weaving yarns with enhanced properties, performance, and aesthetics.

DOST-PTRI's natural textile fiber yarns for handloom weaving are made from cotton, pineapple, and abaca and available in multiple colors that was achieved using low impact dyeing or natural dyeing finished with singeing and mercerization. Singeing reduces hairs through combustion, while mercerization strengthens yarns using alkaline solutions.

These strengthened yarns are suitable for warp and weft handloom weaving and power loom weaving that can produce high-quality fabrics that are 100% Philippine-made natural yarns. Improving tensile strength with significant properties enhances the luster and durability of yarns. These yarns are already being used in llocos Sur, Isabela and Batangas.

# Spunlaids Nonwovens R&D Program

The program aims to provide an alternative raw material for spunlaid nonwoven through agricultural byproduct

utilization and biopolymers for nonwoven textiles. Industries can use these materials for packaging filtration in the agro-industrial, geotextile, and medical sectors.

The main application that the program aims to target is the packaging industry for tea bags and coffee filters and the agro-industrial and geotextile industry through the production of crop covers, geodesic domes, mulching fabric, and other geo-industrial products.

This initiative will build on the local capability toward self-reliance and provide textile innovations suited for regional integration while addressing proper waste management and circularity concerns.

As part of the program, the Nonwoven Innovation Center will also serve as a central facility for conducting research, development, and innovations to diversify the Philippine textile industry. Nonwoven production lines, specialized nonwoven textile equipment, and R&D lab are situated here.

### **Bamboo Textiles PH**

With the growing interest in sustainable textile materials and processing technology, bamboo emerges as an indigenous textile fiber source that has been continuously endeavored and



vigorously promoted by DOST-PTRI.

The Bamboo Textiles PH is a collection of the institute's R&D ventures on bamboo for green textiles applications to ensure quality and responsible production. It advocates the use of diverse Philippine bamboo species and their conversion to natural bamboo textile products.

With its expansion this 2022, it will explore a greener and more sustainable approach to natural bamboo textile fiber treatment. It will provide suitable processing technology adaptation and eventually establish innovation hubs in different parts of the country.

# The 2022 Philippine Textile Colloquium

The first-ever Philippine Textile colloquium will highlight research and development, including designs and innovations from textile materials like dyes, colorants, garment industry, digitalization, policy and trade research, consumerism, and product development.

It will bring together students, faculty members, industry, and research institutes to discuss textile as a material field of specialization. It also includes an exhibition and a fashion show that will showcase students' works, thesis, and designs.



# Digitalization of Handloom Weaving Industry R&D Program

Weaving spans centuries of tradition across different indigenous cultures. It represents the largest community in the creative textile sector. Employed by most women who represent one of the vulnerable sectors of our society, the proliferation of handloom textile is the livelihood of our weavers and living testament to our cultural roots.

In response to this problem, the DOST-PTRI launched the 'Digitalization of Handloom Weaving Industry R&D Program' to offer technological solutions supporting the anti-counterfeiting campaign for Philippine Handloom Woven Textiles.

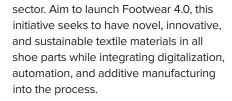
This program will address the counterfeit textiles in the industry and respond to

other challenges that the Philippine handloom weaving industry faces, including the profiling of the weaving industry demographics and the preservation of traditional knowledge.

# SAFATOS: Shoes and footwear Accessories R&D Towards Omnibus Solutions

The SAFATOS program (Shoes and footwear Accessories R&D Towards Omnibus Solutions) aims to provide material and digital solutions for the footwear industry. It strives to integrate the elements of Industry 4.0 in the Philippine footwear industry and provide S&T-based solutions to ensure local material availability and enhance the competitiveness of the local footwear industry.

The program seeks to include the power of computer-aided tools and digitalization in the textile and footwear manufacturing



The SAFATOS program includes two-component projects. First is the 'Sustainable Textiles for the Community-based Philippine Footwear Industries or STePHF-In'. It aims to promote high performance, locally designed, and locally sourced textile fiber and materials in shoes. It will prioritize computer-aided design, manufacturing, and quality control of the footwear. It will also explore new technologies such as personalized knitting of shoe uppers and functionalization of woven and knitted fabric.

The second project, '3D-Warp Knitted Natural Textile Fiber-based Spacer Fabrics for the Local Footwear Industry,' strives to innovate the use of spacer fabrics which are 3D fabrics that have highly customizable cushioning, starting with orthotic shoe insoles to address specific foot problems and customizing the fabric properties.

The program aims to develop a high-performance shoe material for customizable comfort augmented with orthopedic and mechanical performance testing.

In support of these innovations,
House Deputy Speaker and Antique
Representative Loren Legarda, in her key
speech, said "through these initiatives,
we endeavor to promote, preserve, and
sustain the main traditional textile methods
deeply rooted in the Filipino culture."

Also, during the Tela Conference, 2021 Binibining Pilipinas Miss International, Hannah Arnold, officially graced the 2022 TELA Exhibition that featured various research and development products developed in recent years.

To know more about these programs, visit DOST-PTRI's website (https://ptri.dost.gov.ph/) or email ptri.tips@ptri.dost.gov.ph.



# Rizal, innovating essential public services for public good

By Joy M. Lazcano, DOST-ST//

aving much free time during his exile in Dapitan from 1892 to 1896, Dr. Jose P. Rizal became quite detached from his revolutionary persona and took on a more scholarly pursuit. He focused and studied his environment that led him to create innovative solutions and conducted research in the areas of public health, livelihood, and public works, among others, that proved helpful to many people in Dapitan.

In this four-year interregnum, according to Department of Science and Technology (DOST) Secretary Fortunato "Boy" T. de la Peña, the national hero was considered a scientist and innovator in the webinar organized by the DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD) on 2 February 2022. The discussions focused on the quiet years of Rizal's exile when he immersed himself with the community and discovered scientific solutions that benefitted the people.

De la Peña, who was instrumental in the creation of the largest Rizal 3D-printed monument in the country installed at the DOST grounds last 30 December 2021, shared that the Great Malayan contributed in the upskilling of the fisherfolks in Dapitan as he introduced an improved fishing net called "pukutan." Rizal, with a natural inclination for agriculture, learned of this innovation from Calamba fisherfolks that helped increase fish yields.

To further help the small farmers, Rizal even imported farm machineries and implements from the United States.

His continued subscription to various scientific magazines such as the Scientific American kept him updated with progress



The resource speakers of the webinar Rizal, The National Hero as an Innovator led by (bottom-left, clockwise) Eufemio Agbayani, Dianne Tating, Josefina Celorico, and Engr. Janice Kaye Aquino

in the global scientific community. Finding much value in the information he got, he also invented the first brick making machine that he estimated can produce 6,000 bricks a day.

"His inventions," added de la Peña,
"were borne out of his bare hands and
imagination and the passion to serve the
people."

Even in his leisure time, Rizal was able to invent a fortune telling board game that he called La Sibylla Cumana, , a board game where there were 52 questions to choose from while a wooden top was spun to reveal the number by which the corresponding combination of numbers would intersect to indicate the page where the answer could be found.

According to de la Peña, the National Historical Commission of the Philippines (NHCP) believes that the board game holds some mysteries such as a possible secret message derived from the selection and arrangement of numbers

on the game, that until now has not been decoded

# Innovations ahead of his time

In his presentation, Eufemio Agbayani of the NHCP believes that in the case of Rizal's innovations, these were some of the things that he encountered and experienced during his many travels in Europe and in other places, which he brought to the community like Dapitan where they were non-existent at that time.

Agbayani explained "in Rizal's case, many of these innovations that Rizal had introduced were the things that he encountered and experienced while he was in Europe and other countries, and used it to benefit the lives of the people in Dapitan."

Agbayani added that Rizal's stay in Dapitan gave him so much time that enabled him to think of new things that could help the community. He also mentioned that Rizal was involved in developing the Linaw water works. The system allowed water to flow from the hills down to the towns of Talisay and Poblacion through gravitational force.

He shared that some parts of the waterways are still intact to this day although it is no longer being used.

Rizal also introduced the street lamps using coconut oil, an innovation that Agbayani believes during that time, greatly helped Dapitan that had no streetlights then.

He further stressed that Rizal helped the community as *perito agrimensor* or land surveyor, marking Dapitan's modern-day streets.

Aside from this, Rizal learned from a literature that the fruit of bakawan or mangrove can also be used as a sealant.

In his letter to Fr. Francisco de Paula Sanchez on 30 December 1892, Rizal described his experiment on the said fruit, where Agbayani pointed out, resulted in the improvement of the "recipe" used by Rizal from what he had read from a literature so that the concoction would not harden easily.

Agbayani added that the sealant was used to cover poke marks on wood.

### Insatiable appetite for learning

Rizal, not to sit in a quiet corner and let the time pass him by, endeavored in other useful pursuits that he knew would help the people in their daily lives. Other significant innovations mentioned during the webinar included Rizal's dedication to the farmers when he formed an abaca planter and harvester's association, to which he personally wrote the by-laws. Rizal wanted the planters to be able to improve their products, market abaca, and establish a cooperative store with moderate pricing of the abaca products.

He was also instrumental in innovating public health, being a medical doctor, when he encouraged the community to pump out swamp water and sanitize it to prevent the spread of mosquito-borne diseases and other disease-carrying parasites in the community.

He was, in fact, a one-man permanent medical mission that took him to far-flung communities to attend to the sick who had no means or access to medical care at that time.

Further on, his research on fresh water snails, led him to discover a parasite that causes Schistosomiasis disease. The disease, according to Rizal, could infect the urinary tract or the intestines and would cause symptoms that included abdominal pain, diarrhea, bloody stool, or blood in the urine. It is believed that those who with infection for a long time may experience liver damage, kidney failure, infertility, or bladder cancer. It may also cause poor growth and learning difficulty for children.

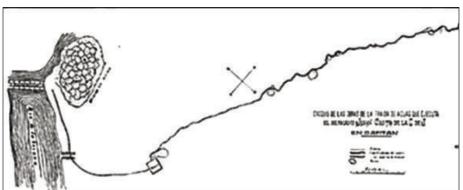
Agbayani also unraveled Rizal's *La Curacion de las Hechizados* that was considered as an early ethnographic research on *kulam* or magical spell. Agbayani underscored that Rizal tried to understand the concept of the supernatural where he combined his studies on ethnology, Filipino culture, and psychology. Although the study did not focus on the cure but it was understood as a work of Filipino psychology.

In the article, Curious Rizal Was Fascinated by the Paranormal by Bryan Anthony C. Paraiso which is also posted on the NHCP website, it talked about Rizal's monograph on bewitchment. He explained that "in the Philippines, the bewitched are those who suffer from a disease unique or unknown to quacks and whose cause cannot be attributed to the air, heat, cold, vapor from the earth, nor even to indigestion, the only pathogenic causes accepted in the country." Thus, Rizal "firmly asserted the manggagaway's bewitchment is an idea or evocation of suffering implanted in the victim's mind.

### Rizal to modern Filipinos

Agbayani concluded his presentation saying that Rizal's innovations were applications of what had been done elsewhere, [but] they served an important purpose to improve the lives of his fellow Filipinos. He underscored Rizal's cooperation with the wider academic community and his immersion in the

**CONTINUED ON PAGE 18** 





Rizal developed a gravity water system delivered through pipelines, which afforded the community with safe and clean drinking water. Currently, the pipes used are still in existence





# **Bataan Peninsula State University to offer Railway Engineering Program**

By: Zalda R. Gayahan, DOST-MIRDC

he Automated Guideway
Transit (AGT), an alternative
mass transportation technology
designed and developed
by the Department of Science and
Technology – Metals Industry Research
and Development Center (DOST-MIRDC),
is the most important factor that led to
the decision of the Bataan Peninsula
State University (BPSU) to offer Railway
Engineering as an additional program
under its College of Engineering and
Architecture.

The DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD), and the BPSU signed a Memorandum of Agreement (MOA) for the installation of the AGT at the BPSU on 27 January 2022. During the MOA signing, DOST-MIRDC expressed its full support to the project to promote innovations in railway technology.

Specified in the signed MOA is the timeline of the project. The construction of rail track, electrical room, and coach storage, testing and module development will be completed by December 2022. With this, the AGT laboratory facility will be launched also in December 2022. Incidentally, the Railway Engineering program of the BPSU will be offered to students by August 2023.

DOST-MIRDC Director Engr. Robert O. Dizon expressed the Center's full support

to the project. "I am proud to say that I am from Balanga. Balanga is my hometown. I am really proud that we will have here railway engineering using the AGT," Dir. Dizon said.

He shared with the audience the hope that eventually, we will see the real AGT plying around Balanga.

For more information about the AGT and other technologies developed by the Center, please contact the Technology Information and Promotions Section, Technology Diffusion Division, DOST-MIRDC at telephone numbers (02) 8837-0431 to 38 local 463, (02) 8837-0479 or email mirdc@mirdc.dost.gov.ph and also visit their website www.mirdc.dost.gov.ph.



# Celebrity chef Marvin Agustin supports DOST-PCAARRD's advocacy on food security

By Geraldine Bulaon-Ducusin, DOST-ST//

"Malaki ang papel ng siyensya sa pagsisigurado na mayroon tayong pagkain sa ating hapag kainan.
Tinutulungan ng ating mga siyentista at mga mananaliksik ang ating mga magsasaka at mangingisda upang mapataas ang kanilang ani, pati na rin ang kanilang kita."

his is what Dr. Rowena Cristina Guevara, undersecretary for Research and Development of the Department of Science and Technology (DOST), said during the recent launching of Flavors of Science Campaign, which recognizes the contribution especially of farmers, fisherfolk and scientists in ensuring stable supply of quality food for Filipino consumers and entrepreneurs.

The Flavors of Science campaign is an initiative of the DOST-Philippine Council for Agriculture, Aquatic, and Natural

Resources Research and Development that hopes to communicate to more Filipinos the value of the farmers' and fisherfolk's contribution and hard work to ensure quality produce.

It also aims to provide an opportunity for the public to appreciate the science behind the farm and fish products that they consume, most notably the scientists' involvement to find ways to increase yield through science-based solutions to ward off pests, control diseases, and develop products, among others.

To do this, DOST-PCAARRD collaborated with a renowned chef, restaurant owner, and celebrity, Marvin Agustin, to be its agri-aqua ambassador. Agustin will showcase food recipes out of agriculture and aquatic produce from DOST-PCAARRD's R&D. He will also feature the people behind the innovations and the places where these developments are happening.

As chef, Agustin advocates the country's self-sufficiency in food production, wherein big restaurants will use ingredients that are locally produced instead of sourcing them abroad.

"Bilang Pinoy, ah, masasabi ko na mas gusto ko sanang gumamit ng mga produce na talagang galing sa Pilipinas. Una sa lahat hindi lang talaga sa mapapatunayan natin na super fresh ito dahil galing sa ating bansa, hindi bumabyahe ng malayo. Ang maganda din dito ay nagkakatulungan ang maraming sector, ang mga farmers, kami as a consumer, tsaka business owner."

Agustin appreciates Markaduke, a native pig often used in lechon (roast pig), which was developed by Marinduque State College through the assistance of DOST-PCAARRD his extensive social media exposure, as well as his recipe and advocacy, will help inform more





Marvin Agustin and DOST Undersecretary Rowena Cristina L. Guevara, during the DOST-PCAARRD's launching of Flavors of Science campaign. (Image credits: Images grabbed from DOST-PCAARRD's video on Flavors of Science)

people about the science behind Filipino food, especially those that involve local R&D initiatives.

These R&D outputs are part of the Niche Centers in the Regions for R&D (NICER), a program of the DOST that collaborates with higher learning institutions to strengthen their R&D capability through

the use of appropriate knowledge and tools. Currently, there are 19 NICERs in the 17 regions nationwide that are focused on food production. The NICER program, which is part of the umbrella program called Science for Change Program (S4CP), aims to improve the country's R&D.

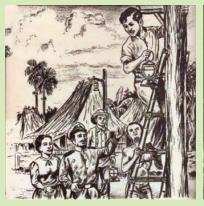
"Inaasahan ko na mas maraming tao lalo na sa ating kabataan ang magpapahalaga sa syensya at teknolohiya, at mabuksan ang kanilang mga mata at isip na may syensya sa likod ng bawat pagkain na inihahain sa ating hapag kainan," Guevara concluded in her closing remarks.

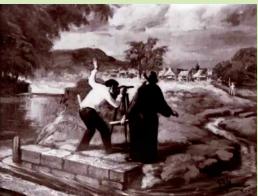
### Rizal, innovating...FROM PAGE 15

community which allowed for more beneficial innovations that have survived him and continues to help modern Filipinos to this day.

Moreover, the DOST found parallelism to what Rizal did more than a century ago, to what the department has always pursued—that is innovation. The DOST has its current community-based innovations such as the Ceramic Water Filtration system, a low-cost table-top water filtration system developed using nano-particles and are suitable during natural disasters and off-the-grid living. Another one is the Rainwater Collection system, a contraption of easy-to-assemble rainwater collection system made from durable materials that can easily fit into downspouts to collect and store water for household use.

Also presented was the Program Boondock, a Baguio-based engineering center, which developed cable carts that transport upland vegetables down to the





A sketch of the street lamps that Rizal introduced and his work as land surveyor that believed to have marked the modern-day streets in Dapitan.

trading post in the far-flung communities of Northern Luzon.

In her message, DOST Undersecretary for Research and Development Dr. Rowena Cristina L. Guevara said that it is her hope that through the forum, "We will be reminded that Dr. Jose P. Rizal was a scientist and an engineer who did not do science for popularity and recognition.

Dr. Rizal did science for change, he did science for the people."

Guevara added that both scientists and engineers have the possibility to become modern day heroes just like Rizal during his time. "And just like Rizal, we at DOST are committed in furthering our science, technology, and innovation efforts to make positive change happen."

# TagRobo kicks off new game, welcomes 15 battling schools

Text and photos from DOST-SEI

he Tagisang Robotics' final buzzer has been sounded.

In fact, the Department of Science and Technology

– Science Education Institute (DOST-SEI) showed off its new game offering for the local robotics competition, which will be a fully virtual robotics contest instead of the usual on-court varsity challenge.

The Institute revealed the new game in its 2021 Tagisang Robotics Technical Training held online last 13-17 December 2021. Veteran teams from Bangkal High School, Caloocan National Science and Technology HS, Makati Science

HS, Malabon National HS, Manila Science HS, Marcelo H. del Pilar National HS, Pasig City Science HS, Pitogo HS, Quezon City HS, Rizal HS, Rizal National Science HS, San Francisco HS, Sen. Renato "Compañero" Cayetano Memorial Science & Technology HS, Taguig Science HS, and Valenzuela School of Math and Science are slated to battle in the new game.

The Online Technical Training and Workshop taught the participants the basics of electronics, microcontrollers, and microcontroller-interfacing, as well as techniques in interfacing and programming their "mobots."

To build their microcontroller-powered mobots, DOST-SEI provided the school-teams—composed of four students and a coach—with a standard kit-of-parts (KOP) and student training kits.

Dubbed as the Tagisang Robotics Competition (TRC) 2.0 with the theme "Delivered", the game will be showcased in a 120cm  $\times$  120 cm playing field. The competition shall be divided into two parts—the qualifying matches called "heats", and the final competition.

The qualifying heats shall test teams through a master list of tasks to accomplish with corresponding points. Tasks may include basic mobot movement, line and color sensing, and motor control among others.

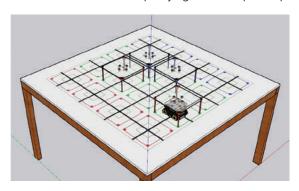
Teams will be given three heat rounds to finish, adequately scheduled between February to April 2022 to give ample time for teams to prepare. The Top 8 teams with the highest aggregated points will advance to the TRC Championship Round, which is



planned in May 2022. As per previous installments, the school with the highest points after the qualifying rounds will win the Best Team Award.

The Championship Round will task mobots to navigate around the playing field and sort colored pallets to their respective colored areas to simulate robotics applications in smart warehouse. The team that finishes the task with the fastest time will be crowned the TRC 2.0 Champion and will receive a cash grant and trophy from DOST-SEI.

The qualifying and championship



rounds will be conducted virtually where school teams will be asked to join via a web conferencing application. Participating school teams shall send the code remotely to the onsite team and will then be uploaded to a replica mobot to perform the tasks. This measure ensures the safety of the students while being actively involved in the competition.

DOST-SEI Director Dr. Josette T. Biyo said the new twists hope to sustain the teams' excitement in robotics and help them develop skills that can kickstart their journey in the fields of sciences and engineering.

"The new game is challenging enough given that we can't have face-to-face matches. But the test of skills and wits remains. For them to garner points, the tasks must be done successfully with mastery, efficiency, and speed in mind. So, we believe this TRC 2.0 will give them the thrill while enabling them to collaborate and learn from each other," said Biyo.

# Here's how you can use the Lagundi syrup or tablet if you're diagnosed with mild COVID-19

Text and photo from DOST-PCHRD

"Following the prescribed dosages is vital to ensure that the treatment using Lagundi will render positive results," the project leader of the Lagundi clinical trials, Dr. Cecilia Maramba-Lazarte, reminds the public.

esults of the Lagundi clinical trial conducted by the University of the Philippines - Manila (UPM) with support from the Department of Science and Technology - Philippine Council for Health Research and Development (DOST-PCHRD) show that mild COVID-19 patients may take specific dosages of the Lagundi tablet or syrup three times a day for ten days to improve their symptoms.

Adult patients may take the 600mg tablet or 5mL of the 600mg syrup thrice daily. Meanwhile, the dosage requirement for pediatric patients would vary depending on their age range. The

300mg syrup may be taken thrice daily by children, following the suggested dosage per intake:

- 2.5 to 5mL for ages 2 to 4
- 5mL for ages 4 to 6. and
- 5 to 10mL for ages 6 to 12.

Teens aged 12 and older may also take the 600mg tablet thrice a day. Following these guidelines, the use of the medicine may alleviate mild COVID-19 symptoms, especially the loss of sense of smell for patients.

While both the Lagundi syrup and tablet are considered to be over-the-counter medicines, patients are still advised to take precautions in using the products and avoid over-dosage. During treatment, the research team also recommends that patients continue to consult with healthcare professionals, isolate, and monitor vital signs.

"Our team conducted this study because we want to help our patients in battling COVID-19," Dr. Maramba-Lazarte says. "We hope that everyone who will use the Lagundi syrup and tablet will adhere to these evidence-based guidelines for best results," she adds.

"The Council has always been committed to supporting R&D initiatives that will help alleviate the healthcare burdens of the Filipino, which are not limited to COVID-19," DOST-PCHRD Executive Director Dr. Jaime C. Montoya says. "Part of this mission is to make sure that every initiative, such as this Lagundi clinical trial, will benefit and serve the needs of the Filipino," he adds.

Formulated under the National Integrated Research Program on Medicinal Plants (NIRPROMP), the FDA-approved Lagundi product has long been used for cough and asthma relief. Lagundi is also included in the homecare kit for mild COVID-19 patients of the Philippine Health Insurance Corporation (PhilHealth).

According to the latest case bulletin of the Department of Health (DOH), the majority of the confirmed COVID-19 cases are mild or asymptomatic. Home care and quarantine are currently allowed for mild and asymptomatic cases.



# DOST pushes 'nutribunship' for Odette victims

By Engr. Mario E. de la Pena & Jose Aldous R. Arbon II, *PSTC-Siquijor* 

s part of the government's relief effort to those affected by Typhoon Odette, DOST CALABARZON donated 1,000 pieces of Enhanced Nutribun to Provincial Science and Technology Center-Siguijor. The latter's beneficiaries are preferentially those projects which have availed of DOST's intervention under SETUP, GIA, and CEST. Its Samaritan spirit, however, extended to small communities other than those aforementioned. "I am very grateful to this initiative from DOST- CALABARZON. I thank the leadership of its Regional Director Emelita P. Bagsit, and the conscientious support of Officer-In-Charge, Office of the Regional Director, DOST VII Engr. Jesus F. Zamora, Jr. "It's heartwarming to know that we are pooling our resources together to give victims of Odette an assurance, more than what we share, that they are not left alone in their struggle," Engr. Mario E. de la Peña of PSTC-Siquijor said.

Enhanced Nutribun is a product of DOST-Food and Nutrition Research Institute (DOST-FNRI) food technology which primarily serves as a food supplement especially for young children. According to Dr. Imelda Angeles-Agdeppa, DOST-FNRI Director IV and Scientist II, Nutribun is nutritionally adequate in terms of vitamins, minerals, and dietary fiber.

In the context of the province of Siquijor, beneficiaries also include other than children but deemed members of a



DOST SIQUIJOR PSTC through Engr. Mario E. de la Peña distributed Enhanced Nutribun (From DOST IV-A) to the officers and staff of the Bureau of Jail Management and Penology and to the community of Persons Deprived of Liberty of the province of Siquijor.

community, organization, or association. This donation from DOST IV-A was distributed on 12 January 2022.

The first group to receive was the community of the Bureau of Jail Management and Penology together with those Person Deprived of Liberty; second was the Siquijor Women's Association for a Better Environment (SWABE); third was Youth Front Liners/ Sangguniang Kabataan Provincial Federation; and finally, the Siquijor Sewers Association.

Jean Clair Hibaya of BJMP said in her native language, "ang nutribun busok, lami, milky, humot, og dili hasol usapon. {The Nutribun is stuffy, healthy, delicious, milky, smells perfect, and is soft to the tongue}."

With a bite of the nutribun, Arlita Ferolin of SWABE quickly dropped her comment, "Lami kaayo. Imong mabati nga gitarong gyud ni og luto." (This is very delicious. One could sense this is carefully baked.)

Brylle Deeiah D. Tumarong, SK Federation Chair/Board Member of the Province of Siquijor said: "Well, I thought that this Nutribun would be just like those which appear good at the outside but nothing really inside. But after I have taken my first bite, my presumption died out. This is really a good creamy bread. I thank the donor DOST CALABARZON for extending its sympathy with us here in the island of Siquijor, and as a leader of the young people in the province, I know this would serve as energy-giver to the youth."

Finally, Mila Abne of Siquijor Sewers Association could only say "lami (it's delicious)," in approval.

Nutribun may be seen as a plain and simple intervention to fight malnutrition. But to children and families whose lives depend on it for a time, every bun means hope.

# Our fight against cancer—in the lungs and in civil society

By Allyster A. Endozo, DOST-ST//

nno Domini MMXXII. Year
2022 is upon us. New year,
new hope, as they say. The
Philippine Republic, still
reeling from the COVID-19 pandemic,
is set to choose its new leaders once
again. Those who will emerge triumphant
in the race would have their hands full.
A lot is at stake in this year's election—
grueling inequality, looming inflation,
hulking debt, Chinese hegemony, to
name a few. Amid crises, two leaders

stood out in history for their unapologetic passion and brilliance.

One by the name of José "Ka Pepe" Diokno fought vigorously for patriotic legislation against the economic and military interests of western imperialism and oppressive regimes. The other by the name of Miriam Defensor Santiago pounced fiercely on corruption and illegal operations catalyzed by political dynasties. Tragically, these firebrand

lawmakers each succumbed to lung cancer at ages 65 and 71: one having smoked very often, the other having none at all.

Lung cancer is the leading form of cancer worldwide with over 2.2 M new cases and nearly 2 M deaths in 2020. It is second only to breast cancer with 19,180 or 12.5% of the new cancer cases nationwide; yet, it is the most fatal of all types with 17,063 or 18.4% of cancer-related deaths. Its



Corazon A. Ngelangel, M.D., M.S., Ph.D. (image from Asian Hospital Charities Inc. via PCSI).





incidence, according to a study by the Lung Center of the Philippines (LCP) from 2000 to 2008, tripled among females hospitalized from 52 to 164 and doubled among males from 193 to 390.

Tobacco smoking is the cause of about 80% of lung cancer cases in females and about 90% of cases in males. In 2015, there were 16.6 million Filipino adults who kept feeding their smoking habit for PHP 678.40 every month, plus 3.6 million more exposed to secondhand smoke in the workplace. Apart from one's family history, even more risks include exposure to radioactive gas, industrial chemicals like asbestos and heavy metals, plus air pollutants such as coal and exhaust fumes.

Horrid symptoms abound for those unfortunate to develop lung cancer—from fatigue, sudden weight loss, and shortness of breath to chest pain and bloody cough. Its severity climbs up to Stage 2 when the cancer in the lung moves to the lymph nodes, Stage 3 when it reaches the mid-chest area, and Stage 4 when it spreads to other organs. As almost half of the diagnoses are already in late-Stage 4A, successful treatment and survival are hardly afforded to patients.

Curing lung cancer is by no means budget-friendly with around PHP 900,000 in total cost—too punishing for PHP 29,200 in PhilHealth case rates to cover. Yet as the health budget increased to PHP 268.4 B this year, so too may the LCP's capability for early screening, transplants, and information management via PHP 75 M in added funding. Resources are sorely needed, as the LCP hit 200% overcapacity in its emergency rooms and 100% in its COVID-19 wards last year.

Hope would not be lacking this time with the approval of the Universal Health Care Act and the National Integrated Cancer Control Act in 2019—which promise expanded PhilHealth packages, a national cancer center and control council, plus a free medicine assistance fund for all Filipino citizens diagnosed with cancer. These are all in line with the country's target, as per the United Nations' Sustainable Development Goal, of reducing premature cancer deaths by 30% in 2030.

Lung cancer—whether or not by the same poison inhaled for oneself and exhaled unto others—already robbed the Philippines of arguably two of the best presidents the country has never had;

yet still, it has kept preying on the next generation's brightest hopes. "Ignorance can be treated," the "Iron Lady" did say, and this is where communication would be most critical—so that Filipino children, in the dream that we share with "Ka Pepe," "may have a better life than we have had."

Sharing her knowledge and insights on lung cancer is Dr. Corazon A. Ngelangel, the President of the Philippine Cancer Society Inc. (PCSI)—a non-profit organization working towards cancer prevention and mitigation through information, education, advocacy, and services. As a cancer specialist, Dr. Ngelangel is a Professor Emeritus at the University of the Philippines College of Medicine and the Director of the Asian Cancer Institute at the Asian Hospital & Medical Center.

# Kindly explain what lung cancer is and how it arises within the human body?

Lung cancer begins when normal cells in the lung change—initiated by a carcinogen—breaking oftentimes the DNA, creeping pathologically to the molecular level then towards the whole cell, mutating uncontrollably and fast,

becoming a crazy-looking lesion, irking its surroundings, and making the patient feel symptoms eventually.

Carcinogens, or cancer-producing substances, promote lung cancer development by causing genomic alterations brought about by smoking and tobacco, excessive exposure to asbestos, radon, and air pollution. Unfortunately, some people have a genetic predisposition to develop lung cancer alterations in the EGFR, KRAS, and ALK genes constitute the primary changes detected in lung adenocarcinoma. At the molecular level, science reveals that alterations in the EGFR, ALK, ROS1. BRAF, and PD-L1 can now be inhibited by medicines that halt the signals driving cancer progression.

# How similar or different are the various types of lung cancer from each other?

Under the microscope, there are at least two major types of lung cancer—nonsmall cell lung carcinoma (around 85% of cases) and small cell lung carcinoma (around 15%). Non-small cell lung carcinoma includes different subtypes such as adenocarcinoma, squamous cell carcinoma, large cell carcinoma, etc. Structurally, molecularly, and pathologically, these lung cancer types are different from one another. No two cancers are the same.

# Which societal groups in our population are the most prone to lung cancer?

There is no societal group that is most prone to lung cancer. That is, whoever you are—if you are exposed to occupational hazards, tobacco, and unhealthy vices or lifestyle and diet, willingly or not—you are placed at a high risk of developing lung cancer. If you do not engage in good health practices, avoid these risk factors, go for cancer screening, and—if detected positive—get treated very early on.

It might, however, be also true that those who are underprivileged are more likely to be exposed to occupational hazards,

tobacco, and unhealthy vices or lifestyle and diet, which could increase the risk for cancer development. In addition—due to lack of financial support—they have less access to screening that detects cancer early on, which offers a greater chance for cure when cancer is treated early; they also exhibit scant health-seeking behaviors and are even prone to receiving health-related misinformation, causing further fears and delay in seeking treatment. These all lead to worse patient outcomes. And so, our government and society must intervene towards lifting these people from their underprivileged conditions.

# In which approaches and resources are there gaps in combating lung cancer?

The lack of programs for information dissemination and education on preventing cancer, such as a continued "no smoking" campaign, in schools and in the community is apparent, as well as the lack of funds for an organized nationwide lung cancer screening program. There is so much health-related misinformation on the Internet, which causes a delay in seeking proper care. In a publication, the delay in seeking standard-of-care treatment causes 2.5 times higher mortality compared to when treatment was sought early. Also, most of the screening, diagnostics, and treatment procedures are out-of-pocket procedures.

# Can you comment on our newly passed laws on cancer and universal healthcare?

The National Integrated Cancer Control Act or NICCA has provisions across the cancer care continuum involving whole-of-government, whole-of-society, whole-of-system, and life-course approaches. Furthermore, the NICCA program covers the processes of care across the cancer control continuum—risk assessment, primary prevention, early detection, diagnosis, treatment, survivorship, rehabilitation and reintegration, and end-of-life care—noting the transitions in care from one type of care to the other and reflecting life-course approach. We hope that the plans for this will be implemented

fully and wholly soon.

Accordingly, NICCA will complement and supplement the Universal Health Care Act to achieve in reducing premature mortality from non-communicable diseases—including cancer—by 30% between 2010 and 2030.

# Are there outcomes that, in a few years, you hope to witness in our country?

With good primary and secondary cancer control programs in our community, we could soon be finding less and less far-advanced lung cancers plus more and more early cases having a good prognosis. The LCP launched its screening program for early detection of lung cancer; we hope that this gains country-wide coverage. With good science and medicine, we are hoping to make this so-called "terminal" disease a chronic one—which gives hope to those who come down with this ailment. Lung cancer can be converted to a chronic disease that may be without symptoms. And with a multidisciplinary team approach to lung care management, we hope to share best practices for the benefit of our patients.

But it takes the village, so to speak, to make this happen—our government must make NICCA happen; our people and our community must work with our government to make this happen.

# Do you have a message to share with those who are actively fighting lung cancer?

Let's keep on fighting! Advocate for the prevention, early diagnosis, and early treatment of lung cancer—on behalf of the Filipino people or for someone afflicted with cancer. Prove cancer can be conquered. Lung cancer treatment has gone a long way, with tremendous improvements in multidisciplinary therapies aiming for long survival and cure. But always start with no to cigarette smoking, yes to early cancer screen, yes to early prompt treatment, and yes—we are here for you and each other.

# Nuclear medicine centre to rise at DOST-PNRI

By the Nuclear Information and Documentation Section, DOST-PNRI

he Philippine Nuclear
Research Institute (PNRI) of
the Department of Science
and Technology (DOST) on
08 February 2022 laid the grounds for
the construction of a nuclear medicine
center that will help make cancer
diagnosis and treatment more affordable.

Nuclear medicine refers to a medical imaging that uses small amounts of radioactive materials called radiopharmaceuticals. Injected to a patient, these radiophramaceuticals produce images and are tracked by physicians through the use of specially designed cameras. Images of target tissues produced by these radiopharmaceuticals help physicians diagnose or treat a variety of diseases,

including many types of cancers, heart diseases, and certain other abnormalities within the body.

Leading the groundbreaking ceremony was DOST Sec. Fortunato T. de la Peña, along with DOST Undersecretary for R&D Dr. Rowena Cristina L. Guevara and DOST-PNRI Director Dr. Carlo A. Arcilla. The facility, called the Nuclear Medicine Research and Innovation Centre, will house a medical cyclotron and Positron Emission Tomography- Computed Tomography (PET- CT) imaging centers.

As such, the Centre will be the first government facility that houses a medical cyclotron and PET-CT scanners in one integrated setting.

"Through this Centre, cancer staging and management will be more affordable and reachable to the common Filipino people," Sec. de la Peña said, emphasizing that the establishment of the Centre is "in line with the goals of universal health care for the Filipino people."

### **Cyclotron and PET-CT scans**

The Centre's medical cyclotron will produce the PET radiopharmaceuticals which will be used to produce images that will help physicians diagnose almost all types of cancers, heart diseases, and neurological disorders.

In contrast to invasive procedures where doctors make incisions or punctures,





DOST Secretary Fortunato T. de la Peña (middle) leads the groundbreaking rites of the Philippine Nuclear Research Institute's Nuclear Medicine Research and Innovation Centre which will help make cancer diagnosis and treatment more affordable. With him are (L-R, both photos) DOST Undersecretary for R&D Dr. Rowena Cristina L. Guevara and DOST-PNRI Director Dr. Carlo A. Arcilla. (Photo by Framelia V. Anonas, TDD-NIDS)

PET-CT scans are non-invasive, clinically-proven, cost-effective, and safe procedures in investigating the condition of a certain organ or to confirm the suspicion of a disease.

# Nuclear med training and R&D hub

According to Usec. Guevara, aside from helping make cancer diagnostics and treatment more affordable to Filipinos, the Centre will also become a training hub for human resources development in the fields of PET radiochemistry; PET radiopharmaceutical production and quality control; and hybrid imaging services.

She also said that establishing the Centre will step up the country's

researches in new and emerging radiopharmaceuticals other than F18 FDG; novel radioisotopes for PET like metallic radiopharmaceuticals; treatment modality and management in oncology; neuro-related degenerative diseases like Parkinson's, Alzheimer's, and others; PET application in studying pulmonary inspections due to Covid-19; and radiation metrics and safety.

The Centre will likewise enable multi-disciplinary and collaborative research among physicists, physicians, pharmacists, chemists, molecular biologists, and others.

"This is also a personal advocacy," said PNRI Director Arcilla who revealed that his own sister battled with cancer which was diagnosed late. "As this Centre will offer more affordable services, it will help in the early diagnosis of cancer which will have better chances of cure."

Further, he informed that the radiopharmaceuticals to be produced by the Centre's cyclotron facility will also be used in a cancer center that will be established shortly by the UP-Philippine General Hospital just beside the PNRI compound. The Centre is expected to complete its construction after one year.

This project is under the program "Innovating Nuclear Medicine Research and Services: Development of Emerging PET Radiopharmaceuticals for Early Cancer Staging and Assessment of Biologic Functions in Cancer Cells" led by Ms. Adelina DM. Bulos, with the assistance of DOST-PNRI S&T Fellow and former Balik Scientist Dr. Thomas Neil B. Pascual.

# DOST assists coco coir and salabat granules production in Zamboanga del Sur

By Jan Melvin Vallejo, DOST-IX

he Department of Science and Technology Regional Office IX (DOST-IX), through its Provincial S&T Center and in partnership with the Local Government Unit of Lakewood, Zamboanga Del Sur, recently turned over a Grant-In-Aid (GIA) assistance to Baking Small Coconut Association (BSCA) and Gasa ELCAC Women's Association (GEWA), amounting to PhP1.3 million.

The fund assistance will be utilized for the establishment of the Coco Fiber Production Facility and the Salabat Granule Processing Facility. Included in the things to procure are tools and materials for the said facilities; machineries such as the coco husk decorticating, motorized twining, coconut coir twining steel and pedal type,

weighing scale, ratchet-type looming, heavy duty juice extractor, cast iron, tables, strainer, stock pot, and the likes.

The services on physical, chemical and microbiological analyses are also included. In addition, interventions such as product development, execution of packaging and labeling, and the conduct of technology skills related training are being incorporated within the duration of project implementation.

BSCA is an association with 200 members, while the GEWA has 29 members. Both are startup associations engaged in coconut farming and ginger farming, respectively.

Coconut coir comes from the fibrous coconut husks inside the coconut shells, which is then processed into coco

twine or coco geo-net. On the other hand, salabat granule is a product of processed ginger.

The said event was attended by Domingo V. Mirrar, Municipal Mayor of LGU-Lakewood; Irenia Pamugas and Ela L. Antubo, both Councilors from Barangay Baking and Gasa; Quinciano Dadulo, Baking Small Coconut Association president; and personnel from PSTC-ZDS headed by Engr. Gerardo F. Parot – Provincial S&T Director.

For more information about DOST's GIA Program, and other programs and services, please call (062) 991-1024/ (062) 925-1838, or email us at dost9info@gmail.com or visit its Facebook page at www.facebook.com/DOSTRegion9.



# Science and technology is for the people

By Rosemarie C. Señora, DOST-STII

Photos by Gerardo D. Palad, DOST-STII

# Secretary Fortunato de la Peña conducts 2-day project visit to select DOST-assisted projects in CALABARZON



cience and technology for the people.

This has been the rallying mantra of the Department of Science and Technology (DOST) since 2016 – a coincidental but beautiful play on the acronym of its Secretary Fortunato 'Boy' T. de la Peña that sums up the vision of the department, and public service in general.

Six years later amidst the pandemic, Sec. de la Peña, or Sec. Boy to those who know him close, still rallies behind this cause as he remains committed to making sure science, technology, and innovation flourish in the regions.

This is seen/evident during his recent two-day project visit on 22-23 February 2022 to select DOST-CALABARZON's science and technology projects and partnerships in the region.

Along with the DOST-CALABARZON officials and staff lead by its Regional Director Emelita P. Bagsit, and other invited guests, Sec. Boy visited a total of ten DOST project sites in the region.

# DAY 1

# DOST Technology in the Region for Upscaling of Community Knowledge (DOSTRUCK)

First of his stop was the DOST Technology in the Region for Upscaling of Community Knowledge (DOSTRUCK), launched in November 2021 and currently stationed in Magallanes, Cavite which spotlights Cavite's coffee and is being operated and tested in partnership with the Cavite State University (CvSU).

The mobile hub which aims to help coffee farmers establish their own processing facility features the coffee roaster machine locally developed and designed by CvSU's renowned coffee expert, Vice President for Research and Extension Dr. Ruel M. Mojica.

Dr. Mojica said that the features of the mobile food processing hub can be replicated for other commodities like banana and sugarcane which can be developed to different kinds of products that will surely help farmers earn extra.

In a speech, Magallanes, Cavite
Mayor Jasmin Angelli Maligaya-Bautista
committed that some of the produce
of the farmers in Magallanes will be
supplied to the processing hub, and her
office will work to build a one-stop shop
where DOST products, along with other
native Magallanes products, will be sold
in a bid to promote Magallanes, Cavite
as an agri-eco tourism site.

This is affirmed by Sec. de la Peña, who cited as an example, the organic farmers of Angono which the DOST has been helping realize the benefits of employing science and technology to improve their harvest. He said that he hopes that coffee and other commodity farmers in Cavite, be able to duplicate the success of the Angono farmers whose produce are now being bought by their local government units.

Once the coffee farmers can establish their own processing facility, the DOSTRUCK will move to another area where it will serve its purpose.

# Gulayan sa Pamayanan Project with Caritas Manila, Inc.

The next project site visited by the group was the Gulayan sa Pamayanan Project with Caritas Manila, Inc.

Under the DOST-PCAARRD-funded project, "Employing Hydroponics and Vegetable Gardening Technologies to Alleviate COVID-19 Threats to Food Security in Selected Municipalities in Region IV-A," this project has been rehabilitating greenhouses in the Bukid Kabataan Center located in Barrio del Fuego, San Francisco, Gen. Trias, Cavite. An attached agency of DOST, PCAARRD stands for Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development.

The group was welcomed by Bro. Jazzner de Dios, program manager of Bukid Kabataan Center that supports residential care, education, and organic farming for children who have been abused, neglected, or abandoned.

This project aims to sustain food supply for the HAPAG-ASA Feeding program of Caritas Manila and to provide the organization with a revenue stream for further expansion. Through the assistance of DOST-CALABARZON via DOST Cavite as well as DOST-PCAARRD, the project will focus on the provision of technical and consultancy assistance, training, agricultural supplies, and management support.

The greenhouses in BK Center, through a partnership with DOST, is now equipped with Hydroponics technology focused on the safe production of fresh produce through advanced farming and sustainable food production methods.

# Doughpro Manufacturing and Trading Corporation

From Gen. Trias, Cavite, the group travelled to Silang, Cavite to visit Doughpro Manufacturing and Trading Corporation, which mainly supplies pizza crusts and other bread products.

Through the SETUP, DOST-CALABARZON was able to assist this baked goods enterprise expand their market reach by upgrading their

production bakery equipment such as rack oven, bread slicer, spiral mixer, and dough divider rounder with assistance worth P3,000,000.00. They are also now one of the technology adopters of the DOST-FNRI Enhanced Nutribun.

Founder Tess Ngan-tian, in a short message, inspired everyone present with how they started their business in 1987 by renting out food stall spaces in Mendiola. Manila and selling various products like hamburgers and siopao, and she and her husband ventured into pizza-making business, which later on availed of DOST services which resulted to decreased production time and increased production efficiency, lessened human contact in handling food compliance with current good manufacturing practices (GMP) and food safety requirements. They were also able to secure Food and Drug Administration License to Operate and Certificate of Current GMP and Hazard Analysis Critical Control Point (HACCP).

In a speech, Sec. de la Peña said he was surprised but at the same time, amazed that Ms. Ngan-tian even went to the United States of America just to study about pizza-making.

"Dito pa lang, makikita na natin na importante ang kaalaman sa technology," he added after saying that Doughpro is very much welcome to explore other DOST programs where they can avail services like the Business Innovation through S&T (BIST) if they want to have their own research and development for their products. He also said that Doughpro has been helping a lot of business stay afloat especially in this time of pandemic that a lot of people have started their own businesses.

Lastly, Sec. Boy said that even with his retirement, he pushes that partners look for opportunities to create wealth for the country.

"Kahit ako'y paalis na, isinusulong ko, pati sa ating mga partners, na magisip kung paano tayo makakacreate ng wealth para sa ating bansa. Magpakitang gilas tayo sa ibang bansa dahil hindi naman tayo ganoon kahuli sa ating mga kapitbahay. Ipakita natin kaya nating maging competitive sa bigger market,"

he ended in his short speech.

After the speech, Ms. Tess's son, Robert Ngan-tian, lead in touring the group especially Sec. de la Peña who shared that it was his first time visiting the said plant.

# Persons with Disability Organization in Carmona, Cavite, Inc.

From Silang, the group then went to Carmona, Cavite to visit the Persons with Disability Organization in Carmona, Cavite, Inc. (PDOCCI).

PDOCCI is a people's organization empowering persons with disability in Carmona, Cavite. The organization produces tofu and other soy-based products.

Cavite 5th District Representative
Dahlia A. Loyola expressed her gratitude
to DOST, saying that there is now an
extensive impact when it comes to
supporting persons with disabilities in
Carmona.

She was Carmona Mayor when DOST awarded facility in the livelihood center. Through Grants-In-Aid Community-Based Project (GIA-CBP), the DOST-CALABARZON was able to assist them in improving their products and processes by the provision of proper packaging and production equipment and so, there is now nine workers assisting in thrice a week production of more than 200 packs of tofu.

The agency also helped PDOCCI subject their products for shelf-life, nutritional facts, and microbial testing and analysis. PDOCCI is recognized as Best CBP adapter in the province last 2018.

"Maayos na po ang kanilang produce and looking forward na mas marami pa po kaming ma-produce. Marami pong persons with disability na reseller na nakikinabang po sa produktong ito.

Napakaganda na po ng packaging," said Loyola while adding that they are more than willing to accept more assistance from DOST which they value to help the community.

Ms. Dalisay Canada of PDOCCI, also thanked to DOST. "Lubos po ang

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- 1.) Cavite 5th District Representative Dahlia A. Loyola (in black) accompanies DOST Sec. Fortunato T. de la Peña (right) inside the tofu-making facility of the Persons with Disability Organization in Carmona, Cavite, Inc.
- **2.**) Doughpro Manufacturing and Trading Corporation founder Tess Ngan-tian tours DOST Sec. de la Peña inside their dough-making facility. Also in the group are officials from DOST-CALABARZON.
- ${\bf 3.)}\ DOST\ Secretary\ de\ la\ Pe\~na\ tries\ ``Tilbok', a\ brown-colored\ ground\ rice\ cake$  originally from Magallanes, Cavite that is made of grated buko, condensed milk, sugar, and food color.
- 4.) Doughpro Manufacturing and Trading Corporation founder Tess Ngan-tian (utmost right) explains to DOST-Secretary de la Peña (utmost left) and DOST-CALABARZON Assistant Regional Director Francisco III R. Barquilla (standing), and DOST-CALABARZON Regional Director Emelita P. Bagsit (second from right) the day-to-day operations of their plant.
- 5.) SM Sunrise Weaving Association President Remidios 'Reming' A. Valencia (middle) tours DOST-Philippine Textile Research Institute Director Celia B. Elumba

- (left) and DOST Secretary Fortunato T. de la Peña (right) inside their handloom weaving center.
- **6.)** DOST officials led by Sec. de la Peña poses in front Cabuyao Institute of Technology where one of the units of DOST-funded Universal Structural Health Evaluation and Recording System (USHER) is being monitored. With him are Cabuyao City Mayor Rommel Gecolea (in yellow) and USHER team lead by Dr. Francis Aldrine A. Uy (4th from right).
- **7.)** DOST Sec. de la Peña (7th from left) poses at the lobby of CDO Foodsphere, Inc. in Malvar, Batangas with DOST-CALABARZON staff led by Regional Director Emelita P. Bagsit (6th from left) and CDO Foodsphere, Inc. officials and employees led by CDO Foodsphere, Inc. Vice President Jason Ong (8th from left) after a short tour at the facility. Also in the group is DOST-Food and Nutrition Research Institute Director Dr. Imelda Angeles-Agdeppa (7th from right).
- **8.**) An employee at the egg processing facility managed by the Batangas Egg Producers Cooperative tours DOST Sec. de la Peña and DOST-CALABARZON Dir. Bagsit inside the facility. BEPCO is one of the SETUP beneficiaries that received equipment and training for the enhancement of their facilities.

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pasasalamat po namin sa walang sawang pagtulong ninyo sa amin sa mga assistance na ibinibigay po ninyo, na hindi kayo nag-aalinlangan na tulungan ang mga katulad namin na may kapansanan," she said.

For his part, Sec. de la Peña said that it is an advantage that their product is tofu which is popular and considered already as a staple food.

Further, he said that science and technology is for all, not only for universities or big companies, and that everyone should benefit from the technologies and products being developed especially the micro, small, and medium enterprises so that they may be able to produce quality products.

He also made a call to PDOCCI to always be mindful of the quality of their products.

"Pangalagaan natin ang ating quality para hindi tayo masira at parati kayong mag-isip ng bagong produkto na related sa tofu na maaari kayong matulungan ng ating DOST regional office," he ended adding that there is always a success waiting for those people who persevere.

### **Cabuyao City Operation Center**

After a short tour inside the facilities of PDOCCI, Sec. de la Peña then proceeded to Cabuyao City Operation Center to see the monitoring being done by Universal Structural Health Evaluation and Recording System (USHER) in the city.

As the Vice-Chair of the CALABARZON Regional Disaster Prevention and Mitigation Sub-Committee, the DOST-CALABARZON turned over USHER to San Pedro City and Cabuyao City in the province of Laguna, that can provide rapid assessment of critical government buildings and infrstructures in preparation for "The Big One". One of the units is currently installed in the Cabuyao City Hospital and is being monitored in the Cabuyao City Operation Center.

USHER is a DOST-funded technology and a research product commercialization project of the

Mapua University through Dr. Francis
Aldrine A. Uy, and the Department of
Science and Technology—Philippine
Council for Industry, Energy, and
Emerging Technologies Research and
Development (DOST-PCIEERD) that
monitors structural integrity of buildings
by complying with the National Structural
Code of the Philippines.

Simply put, it detects infrastructure damages post-earthquakes. During the visit, the Secretary witnessed a live demonstration of the said technology.

Sec. de la Peña in his speech during the visit said that though he will be leaving DOST soon when the country elect its next set of leaders, he is confident that the programs and projects initiated in the region during his stint will continue to flourish with the help of the competent and reliable DOST-CALABARZON staff and officials.

For his part, Dr. Uy recounted how he met Sec. de la Peña and how supportive the Secretary is from the start, and then thanked the DOST for giving its trust with the project.

Cabuyao City Mayor Rommel Gecolea also expressed interest to explore possible collaborations, like the Enhanced Nutribun with its filling that can be made with squash.

Cabuyao City is the largest producer of squash in whole Laguna province.

# De Castro Industrial Sales & Services, Inc.

The last stop for the first day of the project visit was the De Castro Industrial Sales & Services, Inc.

De Castro Industrial Sales & Services, Inc. is a Laguna-based enterprise engaged in the fabrication of rubbers and metals.

The company begun with four friends, each contributing a small amount for their starting capital. After two years of unsuccessful business, only Rosell D. Fordelon, together with husband Alan Fordelon, continued the business, while the rest withdrew their contribution.

In March 2007, the couple registered the De Castro as a machine

shop, and later on as a sub-contractor. Mr. Fordelon resigned from his work as sales agent to fully commit to the business. Then in 2011 they were able to acquire a lot at Mayapa, Calamba, Laguna on which they set up their machine shop and fabricator.

In 2018, through the SETUP, De Castro acquired a press brake machine and shearing machine, increasing their production capacity, having more organized work/production flow, and ability to compete with foreign manufacturers.

This metal fabricator is lauded as the Provincial Best SETUP Adopted in Laguna.



For the 2nd day of the project visit, Sec. de la Peña and the group first proceeded to the CDO Foodsphere, Inc.

### 7. CDO FOODSPHERE, INC.

In 2021, DOST-CALABARZON through its PSTC in Batangas initiated an Enhanced Nutribun Feeding Program for the children in Laurel and Talisay, Batangas. For this program, the agency partnered with CDO Foodspherer, Inc. technology adopter of the DOST-FNRI Enhanced Nutribun, to supply the said nutritious bread in the fight against malnutrition in the province.

After a short orientation, the group proceeded to the facility tour where current production averages from 5,000-10,000 pieces of Enhanced Nutribun per day. The shelf-life is up to seven days but studies being conducted show promising results of enhanced shelf-like of at most two months, being able to reach far provinces with limited delivery of goods.

According to the Senior Manager of the Bakery Operations of CDO, Mr. Natalio de Leon, the company is eyeing to adopt the flower-shaped Nutribun being currently produced by the machines to reach 20,000 pieces of Enhanced Nutribun per shift of production or up to 40,000 pieces per day.

In a short speech, CDO Foodsphere Vice President Jason Ong said that science plays a big role when it comes to business.

"lba ang nagagawa ng science, mas maganda kung ang science at business ay napagsasama. Sana magpatuloy pa ang partnership with DOST," he said.

For his part, Sec. de la Peña reiterated that science really is for everyone.

"Ang Science ay hindi lang para sa mga iskolar, para sa mga malalaking kumpanya, o unibersidad. Ang siyensya ay para sa lahat," he said.

He added that he is amazed with the current production processes that prefer local farm produce than imported products and hopes that more companies will.

# Batangas Egg Producers Cooperative (BEPCO)

The next stop for the day is the Batangas Egg Producers Cooperative (BEPCO) based at Brgy. San Luis, San Jose, Batangas.

BEPCO is an agricultural cooperative based in the San Jose, Batangas, dubbed as the Egg Basket of the Philippines.

Under the CRADLE, UP Diliman undertook the study to make the most out of the millions of egg wastes in San Jose. The study was able to granulize soft-shell and dirty eggs into egg white powder which is ideal for baking cakes and bread. BEPCO also received equipment and training under the SETUP for the enhancement of their facilities.

BEPCO Managing Director Cecille A. Virtucio, in a small program, presented the Egg Roadmap – a work in progress with five pillars including innovation where DOST, along with other stakeholders, will play a big part.

She said that the cooperative is targeting to commercially produce egg products with pharmaceutical and medical uses and innovation can help achieve this objective, most importantly.

"We need to be well-coordinated. We need to take care of the health of the people. We have to have a masterplan na implicit. Nagvo-volunteer po ang BEPCO to meet these objectives katuwang ng gobyerno with the right technology," she said adding that the cooperative hopes to be part of the war against poverty.

In response, DOST-CALABARZON Director Emelita P. Bagsit expressed the regional office's willingness to support this initiative.

"It is high time and providential – the presence ng FNRI regarding addressing malnutrition. I hope we take advantage of FNRI's initiatives in winning this war against poverty," she said.

For his part, Sec. de la Peña expressed his appreciation to BEPCO for presenting the roadmap. He agreed that eggs are really important to the Filipino nutrition and initiatives should be done to advance this objective.

"Tingnan natin kung paano natin mata-tap ang spirit of giving back, paano sila mai-involve para makatulong sa bayan. Salamat dahil ako'y natutuwa sa pagpirma ng commitment," he said referring to the document they signed for pledge of commitment.

### **SM Sunrise Weaving Association**

After a hearty lunch, the next stop was the SM Sunrise Weaving Association located in Sitio Sta. Margarita, Brgy. Munting Tubig, Ibaan, Batangas.

In partnership with the DOST-PTRI, the DOST-CALABARZON through its PSTC in Batangas provided the SM Sunrise with handloom weaving technology in 2018.

SM Sunrise is an association of women weavers in Ibaan, Batangas. At present, the association is recognized as the Regional Handloom Weaving Innovation Center in CALABARZON.

For full story, turn to (story on Ibaan Weavers). See page 36.

### **C&H Cosmetic Industry**

The last stop for the project visit was at the production plant of C&H Cosmetics Industries, formerly Da Twins Marketing, located at Brgy. Balat-Atis, San Antonio. Quezon.

C&H is a leading cosmetics manufacturer with humble beginnings.

Since 2014, they have worked with the DOST-CALABARZON in enhancing products and processes, which paved the way to a drastic increase of their production processes and sales as well as in the reduction of production rejects and energy consumption.

At the onset of the pandemic in 2020, C&H Cosmetics used equipment provided through SETUP and was able to pull off a new product line that adapts to market demands. The firm's products include alcohol and hand sanitizers that responds to the needs brought about by the pandemic.

Additionally, through the help of DOST-TAPI's LIGTAS COVID-19 Program, the firm was able to secure raw materials needed in producing these high demand items.

In 2021, C&H was awarded Best SETUP Beneficiary, Most Resilient MSME, and Most Industry 4.0 Ready MSME in the country.

They were also awarded: InJap Sia Outstanding Young Entrepreneur Awards: Finalist (2020), DTI Gawad SME: Best Innovative Product in South Luzon (2020), First Filipino Company with HALAL Compliant Manufacturing (2017), and First Filipino Cosmetic Company with HALAL Certification in Middle East (Prime Certification Accreditation; 2018).

In his speech, Mr. Henry Raca relayed their humble beginnings and how, despite the challenges brought about by the pandemic, they rose above the occasion and continually was able to provide jobs and source of income to their employees.

In response, Sec. de la Peña said that he was inspired by the story relayed by Mr. Raca adding that he wished that he is also a 'risk-taker' just like Mr. Raca.

"Sana magkaroon pa tayo ng mga ganitong ventures," he said.

Today, C&H Cosmetics Industry distributes its products locally and internationally and has started constructing their fully automated production facility that is set to rise in Brgy, Anilao, Lipa City.

# DOST's PhP 3M grant aims to upgrade bamboo processing in Dauin, NegOr

By Engr. Reinhold Jek Y. Abing, PSTC-Negros Oriental

umaguete City, Negros
Oriental - The Department
of Science and Technology
(DOST) in Negros Oriental
granted PhP 2.3 million to Kawayan
Collective, a bamboo processing facility
located in Dauin, Negros Oriental.

The funds will be used to build an ecodryer designed by DOST-Forest Products Research and Development Institute (DOST-FPRDI). The project also covers the procurement of a blade sharpening machine, drum sander, and laminating hot press machine.

"The project aims to enable the efficient and sustainable local production of innovative engineered bamboo products primarily for the domestic market while developing the capacity and skill-level of local suppliers—they would be able to process, treat and distribute beautiful, durable, Filipino bamboo as a sustainable construction material," said Atty. Gilbert R. Arbon, Provincial Science and Technology Center-Negros Oriental Director.

Through the project, the Kawayan Collective could increase its production of engineered bamboo panels and products from 132 panels to 300 panels monthly.

"DOST is making it possible for Kawayan Collective to kiln-dry our engineered bamboo for a mold-resistant finish so useful in a humid country and necessary for anyone trying to export products. We will also be able to double the size of our existing panels without adding more labor costs. We can pass those savings onto customers, making it easier







In this new age where almost all commodities were made instantly and can be purchased instantly with various shopping apps, there still remains a craft that is thriving to rise above these trends and prove that old is still gold.

# Ibaan women embrace science in art of weaving

By Rosemarie C. Señora, DOST-STII

ne of the oldest techniques of the traditional craft and art of handloom weaving that dates back to 1800s, is found in the Kulambo (mosquito net) Capital of the Philippines – the municipality of Ibaan, Batangas.

Handloom weaving is the interlacing of sets of warp and weft yarns to produce quality handwoven fabrics. Warp are set of yarns that run lengthwise of the woven fabric while the weft is the yarn that runs from selvage to selvage.

Local artisans call this technique as *habi* or popularly known as Habing Ibaan, with process consisting of *paghahanay* (warping), *pagpupulupot* (coiling), *pagsusulot* (drawing in), *pagpupuge* (preparing the warped thread), *pangingirkir* (winding), and *pagyayari* (weaving).

A period in our history chronicles that 90% of the mosquito nets used all over the country, called the popular Kulambong Ibaan, originated from the looms of Ibaan weavers using habihan, is a testament to the skills of the Ibaeño weavers. This also served as their *tagadugtong-buhay* or source of income.

Aside from kulambo, Ibaeños also started to weave fabrics and blankets out of colorful yarns and the most known source of this product is the Barangay Munting Tubig.

In 1991, weaving residents of the barrio formed Samahan ng mga Maghahabi ng Munting Tubig to enrich the weaving quality of Ibaan's handwoven fabrics.

Through the organization headed by Generosa 'Rosing' Macaraig-Quinay, considered as one of the master weavers of the barrio, the weavers received training from DOST and Department of Social Welfare and Development (DSWD), and financial aid from the Department of Trade and Industry.

Through the organization's initiative and the aid from government agencies, the Ibaan weaving industry prospered and came to be known, not only locally, but also abroad.

Unfortunately, due to importation of goods from other country such as China whose products are cheaper and mostly machine-made the price of local handwoven fabrics suffered and forced the weavers to stop weaving because of losses and debt. In 2008, Macaraig-Quinay, one with the most number of habihan, stopped the craft.

### Revival through women empowerment

Not all hope was lost though because in 2010, the local government of Ibaan (LGU Ibaan) started the revival of the industry in the place where it was becoming popular – at the Barangay Munting Tubig.

With the Santa Margarita Women's Organization, LGU Ibaan started forming a new association – the SM Sunrise Weaving Association – which later was established as a sustainable livelihood program of DSWD and LGU Ibaan.

Now headed by Remidios 'Reming' A. Valencia, its goal is to preserve and continue the skill, industry, and culture of making excellent handwoven products, and be later known as the leading handloom weaver in CALABARZON region.

#### **DOST's assistance**

In a visit by DOST Secretary Fortunato T. de la Peña on 23 February 2022 to personally greet the housewives and women weavers of the association, Ibaan Mayor Edralyn Joy A. Salvame looked back at how the DOST was able to help the association.

To revive handloom weaving business for the SM Sunrise Weaving Association, and hopefully convince the new generations to switch back to and boost the weaving industry instead of favoring foreign employment and industrial labor for the SM Sunrise Weaving Association, and hopefully convince the new generations to switch back to and boost the weaving industry instead of favoring foreign employment and industrial labor, DOST-PTRI in partnership with DOST Batangas provided the association with DOST-PTRI-designed handloom weaving technology.

Compared to their existing handlooms which are capable of doing two designs only, DOST-PTRI-designed technology is capable of producing 2,500 designs.

Mayor Salvame also relayed the challenges currently faced by the association.

"We are now having challenges with having it commercialized. We are seeing problems with flexibility of the threads, and the pattern designs," she said while remaining optimistic of further assistance and collaborations with DOST-PTRI.

"We are very thankful, at sana hindi po kayo magsawa. Welcome na welcome po kayo sa Ibaan, at kahit simpleng intimate program, asahan po ninyo ang ating advocacy will be sustainable. We assure you that the Ibaan municipality is a sustainable partner, and a dependable and reliable partner," she said.

To augment the needs of the association for more technology interventions, DOST



An old photo of Samahan ng mga Maghahabi ng Munting Tubig (Ibaan), Inc. (Photo courtesy of SM Sunrise Weaving Association)



DOST Fortunato T. de la Peña (in black) was greeted by the women weavers of SM Sunrise Weaving Association in Sitio Sta. Margarita, Brgy. Munting Tubig, Ibaan, Batangas.



SM Sunrise Weaving Association President Remidios 'Reming' A. Valencia (middle) tours DOST-Philippine Textile Research Institute Director Celia B. Elumba (left) and DOST Secretary Fortunato T. de la Peña (right) inside their handloom weaving center.

CALABARZON PSTC Batangas provided them with three units electric bobbing winder, one unit working table, one sewing machine for bags, packaging and labelling design execution, and threads under the Grants-in-Aids Program.

Advanced course on Handloom Weaving was also conducted as part of the weaving technology transfer for the benefit of the association on 13 to 17 August 2019. The association has also received training on basic weaving from DOST-PTRI, LGU-lbaan, and DOST Batangas on 24-28 September 2018.

The packaging and labeling design were also improved for better branding of their woven products. This also resulted to wider market through active social media marketing and continuous innovations of designs and products adaptive to market demands.

### A project for gender and development

In his speech, Sec. de la Peña commended the association for empowering its women and most especially for enabling its senior members in becoming productive members of the society.

"Nakita po natin ang project natin for gender and development. Lahat sila dito, kababaihan. Nakita rin natin ang pagiging productive ng ating elderly. At saka sila, ay meron silang common cultural background," said the Secretary.

He also said that the project is very well fitted among the current agenda of the government which is the Promotion of Science, Technology, and the Arts for Inclusive Development. He cited for examples of arts the textiles from DOST-PTRI and the forest materials from DOST-Forest Products Research and Development Institute that can be converted to artistic products that can be marketed like indigenous musical instruments.

"Natutuwa kami na may pagkakataon dito na ipakita iyong culture dito" he said while suggesting to conduct contest to search for new products and designs while still preserving their cultural root.

He also relayed that DOST-PTRI Director Celia B. Elumba suggested that there are other products that can be made with the cotton they are using for the mosquito nets.

"Innovate, at maging mabuting halimbawa sa ibang community. Sana ay magpatuloy ang ating collaboration," he ended.

The weaving association also expressed its gratitude for all the assistance they have received from DOST and is looking forward for more partnerships in the future.

"In behalf of SM Sunrise Weaving
Association, I humbly express my warm
gratitude to all people who unconditionally
extend their hands to help and promote
our products. To make it possible to
be exposed and be known locally, and
we hope to reach more beyond our
expectations. Thank you DOST, our
municipal Mayor Joy Salvame, and to all of
you," said SM Sunrise Weaving Association
president, Ms. Valencia.

The association was the first and only weaving community identified and assisted by PTRI in the CALABARZON region. Given this, the association was able to achieve its goal and is now recognized as the Regional Handloom Weaving Innovation Center.

### The engineer behind your smooth Netflix binge-watching is a Filipina

By Jachin Jane O. Aberilla, DOST-ST//





t's Friday night, you just got back home from work, changed into your "pambahay" grabbed popcorn, comfortably sat down on your couch and turned on the TV, and browsed on Netflix. Watching your favorite series or movie on Netflix is a perfect way to cap off the week. And did you know the person behind why we enjoy lag-free and quality binge-watching on Netflix is a Filipina?

According to a Facebook post from Philippine Science High School System, the engineer behind the Netflix revolutionary feature of buffer-free watching is Engineer Anne Aaron, an alumna of Philippine Science Main Campus, Batch 1994.

We got curious about the Netflix Director of Encoding Technologies and here's what we found out about her!

In an interview with Asian Journal in 2019, Engr. Aaron said growing up in the Philippines, she was a "math and science nerd" who determined early on that she wanted to be in that field of study. Because of her wit, she was then accepted to Philippine Science High School in Quezon City, the top science high school in the country in the country offering science, technology, engineering, and mathematics (STEM) education.

In college, she opted to take a double major in Physics and Computer Engineering at the Ateneo de Manila University. This time, she told Asian Journal that she was expected to become a management trainee in a multinational company. But she wanted to explore the world, so she took her chances and sent out applications to the best engineering universities—and got into the prestigious Stanford University.

Aaron then got her Ph.D. at Stanford
University where she was a member of
the Image, Video, and Multimedia Systems
Laboratory. Her research was one of
the pioneering works in the sub-field of
Distributed Video Coding.

Prior to working at Netflix, Aaron had technical lead roles at Cisco as Senior Software Engineer for FlipShare Video where she worked on the software deployed with millions of Flip Video cameras, Dyyno, an early-stage startup that developed a real-time peer-to-peer video distribution system, and Modulus Video, a broadcast video encoder company.

#### Working at Netflix

Anne Aaron's current role as the Director of Encoding Technologies at Netflix, together with her team, is responsible for generating media assets that deliver a compelling Audio/Video experience.

"We work on video, audio, images, and timed-text -- from analysis to processing, encoding, packaging, and DRM. On the streaming side, we strive to deliver a compelling viewing experience for millions of Netflix members worldwide, no matter where, how, and what they watch. For the Netflix studio, we build media technologies that can improve content production. I work with a team of stunning colleagues who are passionate about technology, our members, and the stories we share on Netflix", Aaron writes in her LinkedIn profile.

In her interview on Spot.ph, Engr. Aaron shares that her previous role as lead of Video Algorithms involves hiring and managing software engineers and research scientists, strategic



LEAP THROUGH THE WINDOW

Screencap from Black Mirror: Bandersnatch

decision-making on software architecture and research, project management, and cross-team coordination.

Her team made it sure that whatever you're watching—from the latest episode of a series to an old episode looks good whatever the device you are using or your internet connection speed.

"We want to make sure that you're enjoying the story and not distracted by the bad video quality. We do this by writing the software that encodes video to the best quality possible and conducting cutting-edge research to keep getting better." Aaron said in the interview with Spot.ph.

One of Aaron's team's major projects contributed in 2018 was the release of Netflix's "Black Mirror: Bandersnatch," an interactive, choose-your-own-adventure film under the science fiction series. It was the first hands-on release for the adult demographic in which viewers can make choices at various points throughout the film that would shape the storyline.

"'Bandersnatch' was a cross-team effort all from creating the content to delivering it seamlessly to our members. It's a very seamless experience and part of the seamlessness is in how you prepare the video stream — you have to put in points in the video where you can easily switch, but the viewer can't notice the switch," she describes. "So, my team, as partly

Philippine Science High School System

5h · ③

#### GALING PISAY: HUSAY NG PINAY

Meet **Engineer Anne Aaron**, alumna of Philippine Science High School - Main Campus (Batch 1994), who works as the Director of Video Algorithms at Netflix.

https://bit.ly/3nwuoUr



SPOT.PH

Meet the Filipina Engineer Who Makes Sure Your Netflix Doesn't Buffer

Philippine Science Highschool Facebook Post on Engr. Anne Aaron

coding, producing this video stream had to do a lot of work to adapt how we did the encoding so the switching points were seamless," Aaron shares Asian Journal.

#### A Woman in the field of tech

Aaron recounts some of her experiences of being a woman in a male-dominated field like tech. She told Spot.ph interview, "Earlier in my career, an executive told me that I had too much of a balanced life to be successful— 'You have a boyfriend, a family, and friends.' I told a

fellow Pinay and she said, 'Do you think he said the same thing to your male peers?'" It's these seemingly casual comments that eventually get to her over time. "I've had my share of biases and microaggressions, and many times they are subtle but can slowly chip at you.

According to On the Dot Woman, even though Anne had all of the excellent training her peers received, there were times she was underestimated. For instance, when Anne interviewed for an engineering position back then, she was denied and was instead offered a

managerial role. It was as if Anne, being a woman and a woman of color, "was still not technical enough for them."

However, at Netflix, where 43% of their employees are women, Engr. Aaron feels like she has a place to develop her career while also being a strong parental figure, according to Spot.ph. It all starts with the company placing importance on freedom and responsibility—not as individual values but as complements of each other.

"This means that employees are trusted with the freedom to make decisions and given the responsibility to do the right thing in all aspects of the job," she explains. The employees have a hold on their time, so their work at the office isn't counted by the hour (or days). Still, Engr. Aaron explains, "You are responsible for being excellent at your job."

Engr. Aaron shared that this allows her to be flexible with her time, which is especially important for a working mom with two kids and an equally busy working spouse. She said that she can arrive at any time, go home early, or take a day or two off if she needs to tend to her kids. The company's conscious effort to work for gender diversity is a welcome step. And she says she's lucky enough to have male allies who question and work towards a better environment for women in the tech industry.

"They recognized my abilities and helped advocate for me and my work." Their company culture also allows for open communication between employees, no matter the position. "Our strong culture of courage and feedback allows us to discuss these issues openly and candidly, which hopefully will lead to smart solutions. I'm comfortable asking tough questions, even to our CEO or Chief of Product."

With her accomplishments and achievements in the tech industry, she has received several recognitions, one of them being the most powerful female engineers of 2017 by Business Insider.

She also represents Netflix in international standardization groups, which lets her travel around the world to speak with other companies so they can work on technologies related to video and image coding, according to Spot.ph.

Engr. Aaron was also recognized by Forbes as one of America's Top 50 Women In Tech in 2018. In 2019, she was also awarded the SMPTE 2019 Workflow Systems Medal in recognition of her leadership, research, and pioneering work in the field of cloud-based video coding for streaming.

When Anne talked about how she easily worked with men while pursuing a career in STEM with On the Dot Woman, she thanked "strong male allies, like a professor at Stanford and a manager at Netflix, for giving her opportunities to flourish". She said that believes the "responsibility to foster an inclusive environment rests on both men and women." Now, Anne encourages young Filipino women not to shy away from pursuing careers in technology.





### DOST honors Usec Brenda L. Nazareth-Manzano with a garden

By Rosemarie C. Señora, DOST-STII

Photos by Henri A. de Leon, DOST-STII

garden dedicated in honor of a devoted and exceptional public servant was recently inaugurated inside the DOST Compound of the Department of Science and Technology (DOST) in Bicutan, Taguig City.

Called Usec. Brenda's Garden, it was a fitting memorial to commemorate the first death anniversary of former DOST Undersecretary for Regional Operations, Brenda L. Nazareth-Manzano who passed away on 4 February 2021.

In his speech, DOST Secretary Fortunato 'Boy' T. de la Peña said that though there are other ways to honor the late official who is known to beloved friends and colleagues as "Brend", having a garden dedicated in her memory is very fitting.

"Kasi sa garden, nandiyan ang beauty. Usec. Brend was a beauty in and out," said Sec. Boy adding that one thing she admired about her is that she appreciated the blessings that are with her.

Sec. de la Peña also added that Usec. Brend was a model of resilience, and with her background in Environmental Science, she was really an advocate of protecting the environment.

"When you look at the trees, you will see strength and Usec. Brend was a model A leader, mentor, and 'isa sa mga natatanging kababaihan ng DOST'

of being strong. She was a terminal case, but she worked as normal as possible. We even tricked her in going home to Zamboanga but she is persistent. We really had to convince her to go home to Zamboanga and be with her family," the Secretary recounted.

The Secretary further said that the Friday before the week she succumbed to her illness, she was still attending virtual meetings, even with difficulty.

The garden, an 8,000 square meter lot is now a living testament to the colorful life of Usec. Brenda, that will feature a bamboo hut to help visitors commune with nature; a bamboo bridge that will connect the main garden to the pathway into the vegetative trail; meditation garden; unique plants and flowers; and a labyrinth made of plants that symbolizes life, death, and rebirth.



"If she were here, ganyang ganyan ang ngiti niya," DOST Secretary Fortunato T. de la Peña said while pointing to the tarpaulin above bearing her photo and the announcement of the unveiling of Usec. Brenda's Garden.

#### **WOMEN IN SCIENCE**

The garden is also expected to promote progress, meditation, and spiritual healing, and will showcase some DOST technologies such as the engineered bamboo hut and bridge developed by the Forest Products Research and Development Institute of DOST (DOST-FPRDI), a marker by DOST-MIRDC (AMCen), and other unique features.

"There is something inside the DOST Campus na kailangan nating tandaan. Maganda ito dahil isa-isa nang tumatayo ang mga modern structures replacing the dilapidated buildings, just making sure na mayroong harmony ang mga architecture na lumalabas," de la Peña said referring to the 3D-printed Rizal marker and the Philippine Science Heritage Center or Salinlahi Museum, also located inside the compound.

The Secretary also said that this is a privilege that should be preserved by the Department.

"Nagkaroon na tayo ng reminders about

history. This is one of the government workplaces that there is some kind of serenity, and that is a privilege we have. Make sure that this should be preserved," he said.

The Department is literally the home of Usec. Brenda who, from being a scholar of the department which was originally established as the National Science and Development Board, she then entered public service after her graduation in college in 1983.

She graduated with a degree of Bachelor of Science in Chemistry and earned academic units in Master of Science in Management Engineering from Adamson University and a Master of Science in Chemistry from the University of Sto. Tomas. She also obtained a degree in Master of Science in Environmental Engineering from the Asian Institute of Technology in Bangkok, Thailand.

After graduating from college in 1983, she started working for the National Science

and Technology Authority (now DOST) then as a Science Research Specialist I. With hard work and dedication, she rose from the ranks to become the Officer-in-Charge, Office of the Regional Director of DOST-IX in March 1991, when she was just around 29 years old. She then took her oath as the full-fledged DOST-IX Regional Director in January 1992. Twenty-five years later, she became the DOST's Undersecretary for Regional Operations in January 2017.

A leader, mentor, and 'isa sa mga natatanging kababaihan ng DOST', she has served the Department for 38 long and fruitful years.

"Masarap alalahanin na kahit malungkot tayo a year ago, ngayon ay inaalala natin siya with joy and happiness in our hearts," said Sec. de la Peña.

Thank you and we dearly miss your presence, Usec Brend!



### A scientist's take on environmental crisis and what women can do

By Geraldine Bulaon-Ducusin, DOST-ST//



Espiritu said that scientist have come up with a very grim scenario that future wars will no longer be fought over territories or land. It will be fought over access to clean, potable water. (Photo credit: Lifted from Dr. Emilyn Espiritu's presentation for DOST-GAD's "Women at the Frontline of Climate Change")

his was according to Dr. Emilyn Q. Espiritu, Executive Director of Ateneo Research Institute of Science and Engineering, during a presentation on" Women at the Frontline of Climate Change," in the recent Women's Month celebration by the Department of Science and Technology - Gender and Development (DOST-GAD), where Espiritu initially gave a rundown of the six challenges confronting the environment: overpopulation, depleting water resources, soil erosion, solid waste mismanagement, loss of biodiversity, and the atmospherc pollution.

Espiritu said that people are witnessing a tremendous leap in industrial development, economic growth, population increase, but unfortunately these developments came at a price.

One of the six challenges cited is the exponential increase in the population which has been exerting pressure on water resources, such that scientist have come up with a very grim scenario that future wars will no longer be fought over territories or land. It will be fought over

"To be a woman is already hard enough, and to be working in the field of environment presents a number of challenges"

access to clean, potable water.

Espiritu cited the intergovernmental panel on climate change (IPCC) report which showed that the past seven years have been the warmest on record. The situation is so critical that the IPCC made a statement that "unless there are immediate, rapid and large-scale reduction in greenhouse emissions, it could take 20-30 years to see global temperatures stabilize."

Addressing the younger audience, Espiritu said "Yung mga kabataan diyan, 20 to 30 years, mga ilang taon pa lang kayo no'n, siguro kami, mga ano na kami non, pa-exit na kami nun. So this is your generation, ladies and gentlemen. This report is a reality check. While it is not my intention to

scare or discouraged you, the challenge for us now is: So what do we do about it? In particular what is the role of women scientists in protecting the environment?"

### The scientist's journey as a woman in the field of science

Espiritu grew up in an era when women had to contend with gender bias. She shared how her grandfather would tell her aunts this: "Magturo na lang kayo kasi mag-aasawa din lang kayo."

During her time, girls were always considered the last resort when it came to selecting contestants for science and math competitions because of then popular notion that girls can't do math and that science was a man's domain.

In the 1980's when she was starting out in her career, there were few leadership positions for women and the pay wasn't high. She also recounted incidences when some colleagues were even subjected to sexual harassment. They were trapped in jobs which they felt had minimal opportunities for promotion and higher salaries.

Having graduated with a degree in Marine Science in the early 1970s, Espiritu pursued a higher degree in Environmental Sanitation in the late 1980s, and eventually a PhD in Applied Biological Science majoring in Environmental Technology in mid 1990s.

Espiritu specialized in a field called ecotoxicology, which was still in its infancy back then, when the researchers were just beginning to understand what is the significance of various substances on the health of plants, animals, communities, and so on.

Espiritu's work was mostly focused on generating baseline data because that was what was needed at the time. Until she realized that generating data is not enough. It is important but it is not enough.

This realization came when she came by the statement by Sara Parkin in 1991, the former spokesperson of the British Green Party: "Our numbness, our silence, our lack of courage could mean that we end up the only species to have minutely monitored our own extinction. What a measly epitaph that would make – they saw it coming but didn't have the wit to stop it happening."

"I told myself there has to be a better way of doing things in order to preserve what remains of our resources, and to ensure a more sustainable future for everyone," Espiritu said.

That began her journey not just into monitoring and assessment and providing baseline data, but into capacity building, environmental policy, environmental advocacy, and so on.

She was doing researches on projects related to environmental monitoring, assessments, a job which allowed her to do field work in Manila Bay, in various lakes, rivers, mining sites and others.

Later, she also got involved in more management-related types of projects, capacity building, providing training programs on environmental management

for various institutions, eco labeling, environmental policy, etc.

She is currently doing research on plastics, specifically microplastics is various aquatic habitats like rivers and lakes.

Espiritu, addressing the audience said: "Let us be reminded that women hold up "half of the sky." Half the Sky is a book written by Nicholas D. Kristof and Sheryl WuDunn, about turning oppression into opportunities for women.

### Advise to the younger generation on science career

"The fact is, a science background serves as a good training for a variety of professions, not just in the field of environment," Espiritu said, especially encouraging the younger generation to find out more about the women scientists, both locally and abroad who contributed in the field.

She added that other than a background in science, one also needs luck, need passion, perseverance, and hard work to be successful in whatever it is they plan to do.

She added that s successful career in science, and in environment in particular, will require them to achieve a certain level of competency or a certain level of expertise.

She advised: "You have to be focused on your goals. And do not be afraid to take risks. Sabi ko sa mga estudyante ko, yung sa environment, eto yung mga hindi takot na madumihan ang mga kamay at paa."

She also encouraged young people to develop and strengthen their communication skills because there are different kinds of people that they'll have to address to help them understand what the problems are.

Her other pointers are for them to be confident about who they are and what they know, but at the same time to be open to change, and more importantly to publish their work to obtain affirmation from their colleagues in the profession, and enhance your reputation at the same time.

"It allows you to contribute to the knowledge in the field, for after all, we do science not just for the fun of it. Science is fun, yes. But we do science more importantly, to be of service to society."



(Photo credit: Lifted from Dr. Emilyn Espiritu's presentation for DOST-GAD's "Women at the Frontline of Climate Change") Dr. Espiritu encouraged the young people to check out inspiring women scientists.

### **Women in Science**

DOSTv joins the nation in recognizing women in science for the month of March - International Women's Month. Featured in ExperTalk Online, a weekly program of DOSTv, it focuses on different science experts and their contributions to science and technology in the country.



### Usec. Rowena Cristina L. Guevara, PH is the best place for female scientists

Dr. Rowena Cristina L. Guevara, undersecretary for Research and Development of the Department of Science and Technology revealed that almost half of the projects of DOST were handled by women, boasting of gender equality in the workplace. In fact, her office is dominated by female staff. "The Philippines is the best place for female scientists, engineers, and researchers in the world," she proudly shares.

In a Statista report in 2021, only Philippines, Mongolia, and Cambodia from Asia were included in the Top 10 countries with a "Share of women working in STEM fields." The Philippines followed the United States in the top eighth spot, with 47.1% and 47.7% ratio, respectively.

"Gev" as she prefers to be called, also gives importance to female representation in science endeavors. "Women's point-of-view gives balance to the discussion," she shares.



### **Dr. Cynthia P. Saloma**, the woman who anticipated pandemic

Dr. Cynthia P. Saloma is currently the Executive Director of the first genome center in the country - Philippine Genome Center (PGC). Her expertise in developmental biology, biomedical research, and molecular biology, in addition to the pioneering the conceptualization of a genome laboratory in the Philippines, led her to a spot in the PGC.

PGC is a product of a concept from four women in science (quatro marias, as their peers called them) prior to the pandemic in which Dr. Saloma is the youngest.

Dr. Saloma notes that we need more science-based decision making, "more people pursue careers in science and appreciate S&T," she wishes. Her message to young Filipinas who aspire to be in science someday: "if you have the talent in S&T, pursue it."



### Dr. Annabelle V. Briones, the industry tech leader

Dr. Annabelle V. Briones, Director of the Industrial Technology Development Institute of DOST is one of the only eight Filipino Scientists recognized in The Asian Scientist 100 in 2021.

Her work on the mosquito ovicidal/larvicidal (OL) trap system, which aimed at reducing the incidence of dengue fever, also received the Gregorio Y. Zara Award for Applied Science Research in 2020.

Dr. Briones, when asked about why science needs women said, "Kailangan natin ng mga gagawa ng inobasyon at teknolohiya na ide-develop (from) a woman's perspective". While we may assume that her interest to protect people from dengue came from the instinct of a mother to protect, care, and nurture, her other works also contributed much in the pharmaceutical and food industry.

Her leadership in the industry tech of DOST will drive more on the advancement of S&T in country. "Magiging advance pa ang ating bansa pagdating sa S&T at maaabot natin ang ating ambisyon 2040: matatag, maginhawa at panatag na buhay".



### **Stephanie B. Tumampos**, passionate science journalist and future PhD holder

I used to cover science events together with "Steph", but little did I know that she has a background in science. She used to work with Dr. Rogel Mari Sese, one of the few astrophysicists in the country.

Her familiarity with science made her an effective writer in the science column of BusinessMirror. After her stint as a journalist, Steph stepped on another milestone in her career, working on her PhD in Remote Sensing Technology at the Technical University Munich, Germany. She aspires to contribute more in the country once she gets her PhD, but for now she considers her communication skills as asset to relay science to the people.

When asked about the idea of women in science, she compares the now and then scenario for women in science, "[before] women were denied a chance to do research in a laboratory, [now] women can do research, side-by-side with men".



### **Gelmi Liberty M. Miranda**, engineer turned science communicator

"Gel" as we call her on set, is a Civil Engineering graduate. Her passion to create content led her to the creative industry and later became the mainstay host of DOSTv since its inception in 2016.

Prior to his hosting career, did you know that she used to edit TV broadcast materials in Eagle Broadcasting? It is surprising that she has a keen eye and ear for audio-visual details on everything we produce in DOSTv given that video editing is usually a maledominated field. In her opinion, "Women are more passionate about their crafts".

As host of DOSTv, she attended to nationwide events of the DOST and covered important stories like the recent Mayon and Taal eruptions. Moreover, Gel highlighted the importance of setting your heart in everything we do, "Let yourself go wherever your heart is content" she answered in an ExperTalk Online special episode in which she became the interviewee and not the host.



## DOST-STII: 35 years of building a culture of science

By Allan Mauro V. Marfal, DOST-STII Photos by Henri A. de Leon, DOST-STII

he Science and Technology Information Institute (STII), the information and marketing arm of the Department of Science and Technology (DOST), celebrated its 35th anniversary on 24 February 2022 held at the Sofitel Hotel in Pasay City.

The celebration highlighted the vital role of DOST-STII toward building a culture of science in the country through its numerous/various knowledge products and services.

The Institute's ability to pivot amidst the pandemic contributed a lot to continue delivering its services to the public. Webinars, virtual pressers, digital publications, and social media became the ideal route for the Institute, giving the public greater access to its science, technology, and innovation (STI) content and platforms such as DOSTV, STARBOOKS, S&T Post magazine, and even its science library through an online portal.

"DOST-STII continues its legacy of leading the way in revolutionizing the way we communicate science, technology, and innovation to the country and the world," said DOST Undersecretary for Research and Development Dr. Rowena Cristina L. Guevara.

Meanwhile, DOST Undersecretary for Scientific and Technical Services Dr. Renato U. Solidum Jr. stressed that for 35 years, amidst tough challenges caused by the pandemic, DOST-STII has put enormous effort and dedication to expand the reach of all of their science

Pinahinog ng Panahon,
Pinalakas ng mga Hamon
Sa Loob ng 35 Taon
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and 0 LIVE @ dost.stil

Amidst his busy schedule, DOST Secretary Fortunato T. de la Peña graces DOST-STII's anniversary celebration and congratulate the agency for spearheading science communication for 35 years. (Photo from Henry A. de Leon, DOST-STII)



DOST-STII Director Richard P. Burgos

communication related initiatives, thus allowing everyone to feel the true essence of science for the people.

Additionally, Solidum commended the Institute on how it kept up with the trends in the areas of digital communication.

For his part, DOST Secretary Fortunato T. de la Peña recognized DOST-STII's capability to utilize technology to raise public awareness on DOST and science and technology, and its efforts to improve the level of public trust on the department.

"Kitang-kita ko ngayon na ang DOST-STII ay nandoon na sa estado na ginagamit na ng husto ang teknolohiya. Mula sa information access sa library, STARBOOKS, DOSTv at iba pa nitong initiatives, we are now seeing how these facilities and channels provide a major boost to all of us as we would have various options on accessing faster and reliable S&T information and knowledge," added Sec. de la Peña.

I can say with confidence that in the year 2021, DOST-STII rises and uses its wings to lift higher. The wings that constantly lift us remain to be our mandate, mission, and vision, core values, and our people that are willing to serve, amidst the crisis and difficulties.

On the other hand, in his message, DOST Undersecretary for Regional Operations Engr. Sancho A. Mabborang expressed gratitude to DOST-STII for its utmost support and role in bringing science

communication to the regions through its projects, programs, and campaigns that showcase the impact of STI in the lives of Filipinos in the countryside.

Sharing his thoughts on the occasion, DOST-STII Director Richard P. Burgos

briefly narrated how the institute adapted and thrived in the face of the pandemic and despite the adversities and challenges the Institute experienced.

"I can say with confidence that in the year 2021, DOST-STII rises and uses its wings to lift higher. The wings that constantly lift us remain to be our mandate, mission, and vision, core values, and our people that are willing to serve, amidst the crisis and difficulties," said Dir. Burgos.



DOST-STII Director Richard P. Burgos (second from the left) together with DOST-STII FAD Chief Arlene E. Centeno (rightmost) and CSC-DOST-FO Director Margarita Reyes (leftmost) recognize Allyster A. Endozo winning the Best Special Feature in the 43rd Catholic Mass Media Awards during the PRAISE awarding ceremony of the DOST-STII's 35th year celebration at the Sofitel Hotel in Pasay City.

Director Burgos further disclosed that in 2021, the DOST-STII produced and developed 37,558 news stories and 4,621 social media contents plus generating online reach of the DOSTv digital broadcasts that exceeded 76.2 million, representing an increase of 78% over the previous year.

Meanwhile, STARBOOKS was installed in 449 new sites despite continuing travel and mass gathering restrictions brought about by the pandemic.

Validating some of these efforts, Dir. Burgos said that DOST-STII also saw its achievements breaking ground in several fields in 2021.

First, was an article originally published in the First Quarter 2021 issue of the S&T Post was awarded Best Special Feature in the 43rd Catholic Mass Media Awards. To be followed by the 18th Philippine Quill Awards as STARBOOKS was cited for Excellence in Government Communications Programs. Lastly, the Institute earned the Bronze Award (Maturity Level II) from the Civil Service Commission, a major step in its constant drive towards excellence in human resource management.

### Excellence in Science Communication

In the middle of the program, Stephanie B. Tumampos, a seasoned science journalist and a doctoral student at the Technical University of Munich, Germany shared her vast experience and learnings here and abroad as a science communicator. For several years now, Tumampos has been one of the media partners of DOST-STII in helping create a culture of science in the country.

"I would like to commend DOST-STII for its unfailing service to the Filipinos. As someone who has firsthand experience on DOST-STII services-from press conferences to STARBOOKS, to DOSTv, I can say that science communication is alive in the country," said Tumampos.



Stephanie B. Tumampos shares her presentation virtually from Munich, Germany where she is currently taking up her doctoral degree.

"I would like to commend DOST-STII for its unfailing service to the Filipinos. As someone who has firsthand experience on DOST-STII services-from press conferences to STARBOOKS, to DOSTv, I can say that science communication is alive in the country,"

In her presentation, Tumampos shared some of valuable insights that everyone should be remembered of as we continue to strive to effectively communicate science to the people.

For one, Tumampos said that science writers need to check on the information that they gathered and constantly examine them by asking credible sources, keeping in mind that the audience is a wide spectrum of people with different views, beliefs, and principles. She also added the it would be helpful if we, as communicators, are open but cautious.

Tumampos also pointed out that "science is not a definitive body of knowledge; it is a term we use to describe the incremental collection of information

and observation with world and space around us."

Lastly, she encouraged our scientists to be more open with our science and to work hand in hand with science communicators so that their science will be communicated very well to the public.

The celebration was capped with the recognition of partners and outstanding employees who all contributed to promoting science, technology, and innovation in the country. The outstanding employees were given trophies and cash rewards under the DOST-STII's Program on Awards and Incentives for Service Excellence or PRAISE.



### DOSTv, top awardee in Gandingan Awards

By Karl Raven A. Ramon, DOST-STII

or the second time in a row, DOSTv once again received Gandingan's major award "Gandingan ng Kaunlaran" or "Most Development-oriented TV/Radio Station/Online Platform on 26 March 2022 via an online ceremony organized by Community Broadcasters' Society of the University of the Philippines Los Baños.

It was in 2020 when DOSTv first received this major award. Director Richard P. Burgos (shown in photo, middle) presents the Gandingan and Anvil plaques awarded in 2020. As of this writing the awarding ceremony of the Gandingan Awards 2022 has not happened yet.

Grateful for the major award, DOSTv host Gel Miranda expressed her elation, "Truly this has made us promise more in giving science and technology information and news a part of our



daily lives". Gel notes that as science communicators, DOSTv will bridge the gap between science and the people, hence DOST's tagline - Science for the People, and the slogan of DOSTv as well.

Despite suspending its broadcast on TV and radio due to the pandemic, DOSTv's determination to continuously bring science and technology information paved the way to broadcast via online platforms, thus enabling it to still qualify for the award.

In another front, a feature article titled "Fides in Scientia: faithfully serving the nation" published in S&T Post, a quarterly S&T magazine, was also recognized and garnered the Best Special Feature award from the 43rd Catholic Mass Media Awards.

Both DOSTv (broadcast) and S&T Post (online and print) are communication strategies implemented by the Science and Technology Information Institute of DOST (DOST-STII) under the leadership of Director Richard P. Burgos. As the main driver of the information agency, he shared how DOST-STII used strategically all available platforms to reach greater number of audiences.

"Many surveys have established that, for our target audience, television is the number one source of information about science, technology and innovation. Since DOSTv started livestreaming six years ago, it has certainly come a long way. Synergistically with our other communication platforms, including our publications and on social media, we now have a communications network that effectively amplifies our messages to expand audience reach and engagement and increase awareness at the national level. The recognition that Gandingan and other bodies have bestowed on DOSTv serves to further heighten awareness and build credibility with our public. This could not have been achieved without the passion and commitment, the grit and excellence of our people. As Mario Andretti said, "Desire is the key to motivation, but determination and commitment to an unrelenting pursuit of your goal - a commitment to excellence - will enable you to attain the success you seek."

DOSTv, aside from being awarded with the major recognition, also garnered additional four awards recognizing DOSTv's unique storytelling and selection of topics:

- Most Development-oriented
   Online Video for Sinesiyensya:
   Paglaya (Native Chicken
   Story)
- 2. Most Developmentoriented Women's Program for ExperTalk Online: #WomenInScience Saving Environment thru Community Empowerment



- 3. Most Development-oriented Livelihood Program for **ExperTalk Online: Made in the Philippines Products Week**
- Most Development-oriented Science and Technology Program for DOST Report: DOST Drug Discovery in the New Normal

Also, Secretary Fortunato T. de la Peña of DOST was cited as the "Gandingan ng Agham at Teknolohiya" for hosting DOST Report produced by DOSTv.

In 2020 DOSTv's debut at the Gandingan Awards, three stories of DOSTv were recognized and awarded by Gandingan Awards. As one of the writers of DOSTv myself, we carefully choose our topics that are not usually touched by mainstream media and conducts thorough research, and these are the foundations of our unique content.

"The stories we tell are stories of real people whose lives were changed because of science and technology. Being recognized by the University of the Philippines Community Broadcasters' Society may help these stories to be heard by more people," DOSTv Program Manager, Resty Balila, thankfully said.

### S&TPOST

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# **40:** Making S&T publication more relevant in the changing communication landscape

### THE JOURNEY OF THE S&T POST IN FOUR DECADES

By Rodolfo P. de Guzman, DOST-ST//

our decades of bringing science news and stories to the public is quite a long time, but too short to think of the limitless possibilities a science and technology publication, like the S&T Post, can bring especially in this age of the internet where physical boundaries have literally disappeared.

As a communication platform, the science publication proved to be effective as a means to disseminate science-based information and news on what was going on in the local science community. It had also served as a tool for scientists, researchers, educators, and inventors to make their papers, discoveries and inventions known to the people.

Four decades past and the communication landscape has evolved and, like a living organism, it is constantly changing, metamorphosing into different shapes and sizes, not to mention the change in tone, character and personality.

And today, science news is being consumed in a much faster rate that forty years ago, where readers demand more compelling stories that can make a difference in their lives. But to appreciate the evolution of the in-house science publication, let us backtrack a little bit and see what was it like when S&T Post was born and took its first steps.

### BIRTH OF A SCIENCE PUBLICATION, A MUST AND A COMMITMENT

Four decades ago, the need for the National Science and Technology Authority (NSTA) to engage its publics with news stories through print publication became a must and a commitment, to move at a pace that was dictated by technology.

In 1983, the first issue of the then NSTA Post came out, the science publication that was very relevant to make Filipinos aware of how science and technology helped them improve their lives. It became the vehicle for the NSTA, the predecessor of the Department of Science and Technology (DOST), to produce science content that fed the minds of the public on the importance of science and technology, made by Filipinos, for Filipinos.

True enough, the publication became an effective tool to bring science and technology to the consciousness of the Filipinos with stories of scientific and technological discoveries that would make positive impact in their lives.

The NSTA Post bannered stories that inspired its readers to embrace science and technology as the generator of economic development. In 1989, the publication had a makeover when it was reborn with a new name, the current S&T Post, a short acronym for science and technology. With its new name came a new character to the publication as it churned out more stories that provided

value to its readers, not only in the scientific community but also in the academe and other stakeholders. It has become a strong vehicle for change, where stories were read by a wider audience when it became accessible in cyberspace.

In 1993, the publication, still sporting a tabloid format and mostly in black and white print, continued to chronicle science news both from the DOST and its attached agencies and regional offices to various science topics of great interest to its readers.

#### **SPREADING ITS WINGS**

At the turn of the millennium, in the year 2000, the monthly publication looked inward and saw the need to reinvent itself by sporting a new coat, so to speak. From B&W printed format in newsprint paper, it dressed up in bookpaper with colored front page. On that same year, the facelift did not stop and moved on to make it bolder by reducing it to letter size, making it more convenient for the readers. Still, it carried value adding stories on science and technology, and with 7,000 subscribers by November 2000, it was awarded by the Public Relations Officers of the Philippines as the Best Government Newsletter.

In 2003, its Editorial Board shifted gears and trekked the unchartered path by going quarterly, instead of the monthly issue, this time with more in-depth stories with more substance than mere news.

Then in 2005, aiming for more improvements, the publication was transformed into a magazine bearing a cover that portrayed the face of Philippine science as it featured stories involving prominent science personalities and experts as well as DOST officials who contributed to the growth of science and technology in the country. The enhancement of its content was matched by a more modern layout, dynamic design, and a classier look with the use of sophisticated materials. This brave move gave the publication a more human character, a magazine that even those who were not scientists can easily relate to.

After the physical makeover, the S&T Post mustered enough muscle in terms of enhanced content creation brought about by the active participation of information officers and writers within the DOST system with the birth of the DOST MediaCore, a formal organization of information officers from different DOST agencies and regional offices, with the Science and Technology Information Institute as overseer.

### THREE DECADES OF SCIENCE COMMUNICATION

In 2012, the S&T Post or nicknamed "Post" marked three decades of delivering news and feature stories about science.





technology, and innovation, a year that ushered in the firm conviction to make science news more relevant and attuned to the times.

To cater to a diverse audience and satisfy the need to publish valuable stories, the magazine now printed in full color, shifted to a more strategic approach by carrying specific themes per issue. Furthermore, stories were angled on the developmental aspect of new technologies and innovations that highlight the benefits to specific audiences, particularly those in the provinces. More success stories brought about by the use of science and technology were featured, creatively written and accompanied by photos that also mirror the story behind the narrative.

#### WHEN LIFE BEGINS AT 40, CHANGE BECOMES MORE INSPIRING

The saying, "Life begins at 40" is not far from the truth for the S&T Post as it marks its 40th year in existence this 2022 with more vigor, more passion and optimism.

The fourth decade saw the S&T Post metamorphosed into a magazine that makes science, technology, and innovation more palatable to ordinary citizens as the content and stories are woven into an easy-to-understand manner where concepts and scientific discoveries are popularized further.

Stories that matter. This has become the guiding principle in choosing stories to publish. The editorial team banked on stories that tell the narrative of the people in their journey to success by using science, technology, and innovation.

Since 2013 to the present, the S&T Post has published a great number of stories that showed how science and technology made a difference. Some of these included stories about people, communities and small entrepreneurs who changed the course of their lives by embracing science and technology.



In the 2nd quarter 2014 issue, the Post featured how SETUP helped a retired teacher-researcher from La Union establish an enterprise that processes purple yam into powder and how a husband-and-wife team from Zamboanga Sibugay automated their 'balut' processing business that served as inspiration to would-be entrepreneurs in the countryside.

For the 1st quarter 2015 issue, the Post featured DOST assistance to farmers in two barangays in Sogod, Leyte with the distribution of cultured abaca seedlings that will help revive the abaca industry and the rare opportunity that was given to a Pisay scholar living just across the Main Campus in Quezon City whose father is epileptic while his mother is a balut vendor.

Fast forward, the Post featured more stories relevant to the times like the special features published in the 1st quarter 2020 issue about the Taal Volcano eruption on January 12, 2020 and the innovative technologies developed to address the COVID-19 pandemic like the GenAmplify RT-PCR test kit of Dr. Raul Destura, RapidPass.ph virtual identification system to ease travel of frontliners and priority vehicles, face shields by DOST-Metals Research and Development Center and ReWear Face Mask using nanotechnology from DOST-Philippine Textile Research Institute among others.

By 2021, the Post was in full swing as it captured more compelling stories that featured, among others, the R&D initiatives to nurture Philippine indigenous music; a Balik Scientist whose work revolves around making nuclear medicine accessible to less fortunate Filipinos; a coral reef community in Batangas embracing 'citizen science'; and the tale of a scientist-priest and professor of biology and theology who is currently working on the genetically engineered yeast as possible means to orally introduce the forthcoming COVID-19 vaccines.

Incidentally, the feature article on the scientist-priest titled Fides in Scientia: Faithfully serving the nation through science written by Allyster A. Endozo of the Communication Resources and Production Division of the DOST-STII won the top plum in the 43rd Catholic Mass Media Awards in the Best Special Feature category.

### MAKING THE FUTURE HAPPEN TODAY

Looking beyond 40 years is not a wish but a promise. The current Editorial Board, the S&T Post Team is composed of young blood with bucketful of creative ideas with their sight way beyond four decades. Inspired by the many opportunities presented by modern technology in creating popular publications, the team is instituting maverick changes to make the publication more appealing, not only aesthetically but also its functionality, substance and form.

With younger consumers of news and content become bigger, the S&T Post is taking the way of the future today by embracing technology to publish a digital magazine housed in a website. This plan will reach a wider audience, across geographical boundaries, in just a click or swipe of digital and mobile devices.

As the future unfolds, S&T Post is bracing to ride the wave of change.

### Where no two seeds are identifiable, unity grows

By Jerome Benedict L. Alipasa, LPT, MPM, Angelicum Primarosa Montessori School



Aiming to instill the practical benefits of science and technology in the minds of young students, the Association of Science and Mathematics Educators of the Philippine Private Schools or ASMEPPS signed the Memorandum of Understanding (MoU) with the Department of Science and Technology-Science and Technology Information Institute or DOST-STII, by participating in the Institute's online library literacy program, science communication-related training, and subscription to several S&T publications. (Photos by Henry A. de Leon, DOST-STII)

he Association of Science and
Mathematics Educators of
the Philippine Private Schools
(ASMEPPS) is a professional
organization of educators with a
proud partner of the Department of
Science and Technology – Science and
Technology Information Institute (DOSTSTII) in bringing quality science and
technology education to the people.

It was in the year 2011 when ASMEPPS was already established as a household name to private schools in Region IV-A for its highly spirited interschool training events and competitions. And when the Association decided to step up the level of the playing field to our regulars to reach a broader audience who also

aspire science and math education excellence in schools.

With this objective in mind, ASMEPPS conducted the first-ever national battle of mathematics and science champions that was held in the City of Dasmariñas. The number of participants for the first few years were relatively small in number compared to the other events organized by the Association but the caliber of the participants, both coaches and students, and their performances were remarkable. The events of Science and Math Quiz, Scientific Creative Writing, Coloring, Drawing, On-the-Spot Poster Making, Search for the Mr. and Ms. YES-O, Environmental Dance and Science Investigatory Project all contributed to

the success of the national event, making it well-known and calendared in the activities of the schools.

The success of these activities resounded to the DOST's Science and Technology Information Institute, courtesy of the new member of their team who used to be a teacher and coach of the private institution from the Cordillera Administrative Region during the ASMEPPS National Battle of Champions. The success of this event made an impact which led to establish our linkage to one of DOST's most productive and excelling units.

This initial engagement opened a new chapter for the association that is just

known previously as a steady partner of the Department of Education and the Department of Environment and Natural Resources. Thereafter, our alliance with DOST was solidified with the signing of a memorandum of understanding after a series of meetings in the year 2018, allowing us to forge a partnership that will deepen the association's expertise.

The DOST-STII shared its kno-whow and experience to the association and its member schools through the science journalism training events and workshops. It further widened its reach through exhibition in the science and technology expo and nationwide launching of the STARBOOKS program. The return to ASMEPPS of the said events greatly helped the association to have a more reliable exposure, as it nurtured its relationship with DOST-STII. The association was also able to promote and help DOST-STII reach their goals through the adoption of the STARBOOKS program in the different private schools in Region IV-A and the distribution of printed S&T materials to different, especially the underprivileged, communities in the country. Furthermore, the outputs of the contests on science investigatory projects of the association were forwarded to DOST-STII to serve as part of the STARBOOKS content. During the contests, experts from DOST-STII served as judges who screened and evaluated the quality of the projects.

To this day, the professional relationship between DOST-STII, under the leadership of Director Richard P. Burgos, and the Association of Science and Mathematics Educators of Philippine Private Schools, under the helm of Prof. Eloisa E. Olivera as president, flourished compared to the previous years. The strengthened partnership can be attributed to its shared commitment to bring science and technology to the people, as well as to help uplift the quality of education of learners through healthy competitions that allow the

trajectory of these two organizations to reach significant milestones and amidst the new challenges brought by time.

Moving forward, the ASMEPPS and DOST-STII partnership is proof that the public and private sector, though different in function and organizational structure, are like seeds that are non-identical but one in its aspiration to promote science, technology, and innovation closer to the people. Indeed, they differ from each other but both strive to bear fruits amidst the challenges of the times.



Aiming to instill the practical benefits of science and technology in the minds of young students, the Association of Science and Mathematics Educators of the Philippine Private Schools or ASMEPPS signed the Memorandum of Understanding (MoU) with the Department of Science and Technology-Science and Technology Information Institute or DOST-STII, by participating in the Institute's online library literacy program, science communication-related training, and subscription to several S&T publications. (Photos by Henry A. de Leon, DOST-STII)





As part of their outreach programs for the year 2021, ASMEPPS distributed the copies of S&T Post, DOST's official publication, to various remote areas in Pilar, Sorsogon and Itogon, Benguet. (Photos from ASMEPPS)





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Science Journo Ako is an advocacy of the Science and Technology Information Institute of the Department of Science and Technology to help in popularizing a new space in journalism to the grassroots that is apolitical in views but rather discusses the many benefits of science and technology in the everyday lives of every Filipino

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