

S&TPOST

JUL-SEP 2020

**Kalusugan
Kabuhayan
Kaayusan
Kinabukasan**

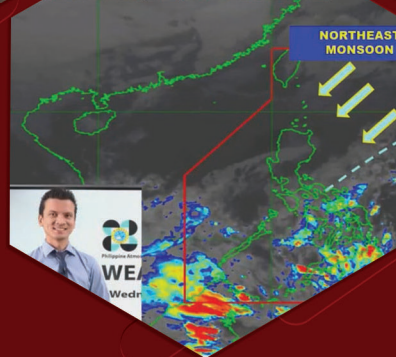


Study reveals challenges of working or studying at home during quarantine

Enhanced nutribun: Good for both undernourished and healthy Pinoys

Filipina lawmaker lauds DOST-FPRDI bamboo-framed face shield

Cebu startup offers more effective, efficient HR management system



**science
Bayanihan**

Science *bayanihan*, working together now for a better future tomorrow



In this time of the COVID-19 pandemic, we saw a lot of changes, particularly on how we do things and how we adapted to the challenges in many fronts -- in terms of restrictions in physical mobility, the way we dress up, the way we travel, the effect on people's emotional and mental health, and the altered social dynamics.

In fact, one of the most important aspect of life that was adversely affected by the pandemic is communication. As the information arm of the Department of Science and Technology, the Science and Technology Information Institute immediately pivoted to continuously deliver valuable information on science, technology, and innovation that is central to addressing the negative impact of COVID-19.

Thus, the 3rd Quarter issue of the S&T Post zeroes in on showing how the Filipino tradition of "*bayanihan*", of helping each other out, in times of crisis. Our account of stories in words and in photos showed that "*bayanihan*" was much alive with the many collaborative initiatives, projects, and programs of the Department, its agencies, research and development institutes, sectoral councils, and regional offices.

Our featured stories are actual accounts of people from the DOST family, the government at large, the academe, industry stakeholders, and the science community that bonded to act as one; working together in the spirit of collaboration to find solutions to lessen the ill-effect of COVID-19.

True to form, this "*bayanihan*" spirit enabled our scientists, researchers, engineers to develop new products and services by harnessing the power of science, technology, and innovation in partnership with other government agencies, local government units, the academe, start-up tech companies, and international organizations like the World Health Organization for the solidarity trials.

Taking off from our previous issue, we again gathered stories of triumphs and heroism focusing on scientific innovations under the four thematic areas of *Kalusugan, Kaayusan, Kabuhayan, and Kinabukasan*.

To say the least, we are proud to feature these science-related stories that inspire, engage, and convert our readers to appreciate science, technology, and innovation because we want it to be part of their daily lives; not only during the pandemic but also in the better normal. So, let these pages touch you lives and share with us the passion to bring science, technology, and innovation to work for us at all times.


NORLY B. VILLAR
Executive Editor

**S&T
POST**

VOL. XXXVIII No. 3

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The S&T Post is published by the
Department of Science and Technology-
Science and Technology Information Institute
(DOST-STII)
with editorial office at DOST Complex,
Gen. Santos Avenue, Bicutan, Taguig City.
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#BEATCOVID19

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INFO UPDATES

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REUSABLE FACE MASKS

And DOST Philippine Textile Research Institute of DOST-PTRI sa publikapagulangang ng Taytay IGGU at mga pribadong sektor ay gagawa ng 500,000 reusable face masks. Gagamit ito ng Textile-coating technology para sa treatment at finishing. Makikipagulangang din ito sa Power Fashion Inc. upang makapag produce gamit ang local fiber textiles.

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SMART PHONE THERMAL SCANNER

Mas pinahusay pa ng Advance Science and Technology Institute o DOST ASTI ang kanilang research sa pagdevelop ng maliit na thermal camera na maaaring ikabit sa Smart phone na magagamit bilang temperature scanner.

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SCHOLARSHIPS ONLINE APPLICATION

Ang Science Education Institute o DOST-SEI ay mayroong available na online application systems para sa DOST Scholarships. Patuloy din ang pagproseso nito sa pagbibigay ng allowances in advance sa mga iskolar nito.

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GAMOT NGA BA ANG Saging SA COVID-19?

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DID YOU KNOW?

Pareho lang ba ang SARS at COVID-19?

Hindi. Ang virus na nagdulot ng COVID-19 ay may kaugnayan sa SARS, genetically, ngunit bahagyang magkaiba ang sakit na dulot nila.

Ang SARS ay mas nakamamatay ngunit bahagyang nakakahawa kumpara sa COVID-19. Wala ring naitalang outbreak ng SARS.

Source: World Health Organization (WHO)

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STRESS KA BA?

Malungkot o balisa? Hindi mapakali? Sabi ng mga psychologists, ang estado ng iyong utak ay nakakaapekto sa iyong kalusugan.

Source: DOST-PH

#ResistStressPahamakItongPagkabalisaSaCOVID19

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Covid-19 MYTH OR FACT

#StopTheSpread

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Healthy Food Options ngayong ECQ

Hand ng DOSTV

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GOOD NEWS!

DOST-PRODUCED 3D-PRINTED FACE SHIELDS, NAIPAMAHAGI NA!

PRODUCED BY DOST-HIRDC

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TIPS PARA SA MGA Bored AT HOME

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ANO NGA BA ANG PACK OF HOPE?

Ang RTE (ready-to-eat) ay proyekto ng DOST-ITDI na layuning makatulong sa mga taong biktima ng sakuna. Tinatawag itong disaster food ready-to-eat at no preservatives added.

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DID YOU KNOW?

106 RxBox for vital signs monitoring delivered to PGH

Ikabit ito sa mga payante for vital signs monitoring. Data will be collected and there is the advantage of less physical contact for our health workers.

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DID YOU KNOW?

1 test kit = 20 tests

Ang isang locally-made COVID-19 test kit ay maaaring makapagbigay ng 20 test.

One (1) test by the local COVID-19 test kit costs P1,320.

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COVID-19 UPDATE

PRESIDENT DUTERTE HAS ORDERED AN ENHANCED COMMUNITY QUARANTINE OF ENTIRE LUZON.

Strict home quarantine, transportation will be suspended and provision for food and essential health services will be regulated.

Source: GMA News Online

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VIDEOS

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CLICK HERE



PAHAYAG TUNGKOL SA PAMAMAHAGI NG 300 FOODS

Arund 3,000 packs ang naipamahagi na sa mga lungsod sa pamamagitan ng DRRMO sa NCR at 187 boxes sa Divao City.

Tawag Ni: [Name]

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DOSTv The WeekEnd Wrap Up

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COCONUT OIL, LUNAS SA COVID-19

KASALUKUYANG PINAG-AARALAN NG MGA EKSPERTO ANG PAGGAMIT NG COCONUT OIL, BILANG PANLABAN SA COVID-19

DOSTV DOSTPH DOSTUPH DOSTPH

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ABOUT THE COVER

To carry the theme of 'Science Bayanihan' in the time of pandemic, the cover design incorporates the 4Ks of Kalusugan, Kabuhayan, Kaayusan, and Kinabukasan as banner messages that support the many collaborations and initiatives of the Department of Science and Technology to address the negative impact of COVID-19. The design incorporates images of the 'bayanihan' spirit set in a stylized manner using hexagonal shapes in tile formation that represent cohesive movement of people and resources to create products and services that address the pandemic. The shade of red used as the predominant background conveys the emotion or passion of the department to harness the power of science, technology, and innovation in finding solutions to existing problems.

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Science communication, a priority in the time of pandemic, says DOST exec

By: Allan Mauro V. Marfal, DOST-STII

WITH THE emergence of the pandemic caused by Coronavirus Disease-2019 or COVID-19, reliable and well-researched content and materials have indeed become more imminent-to be able to explain science facts in simple terms that even non-scientists will understand.

This was the gist of the message shared by the Department of Science and Technology-Science and Technology Information Institute (DOST-STII) Director Richard P. Burgos during the department's virtual flag-raising ceremony on 03 August 2020.

"Due to COVID-19, we learned to adapt and to fully embrace technology so that we, as an agency involved primarily in science communication, can continue to deliver science to more people and preserve their right to be informed, to be educated, to be inspired, to be engaged and to take action," said Dir. Burgos.

Aside from the threat brought by COVID-19, the entire country is also confronted by another enemy, the widespread disinformation and misinformation about this pandemic, causing people to be anxious, to panic and to make wrong decisions that affect our lives negatively.

Dir. Burgos emphasized that in addressing the issue of proliferating "fake news", the DOST-STII played a proactive role, not only in promoting the efforts and noble works of our Filipino scientists and researchers, but also providing the needed clarification and explanation at this critical time so that our audience would understand the crisis better and respond appropriately.



Virtual pressers and digital broadcasting

Director Burgos said that virtual pressers have become the new normal and tools for the Department to give the public up-to-date information about COVID-19. Since 30 April 2020, the DOST-STII has been broadcasting the weekly online news program "DOST Report" every Friday, 4:00 PM, in DOSTv Facebook page. Anchored by DOST Secretary Fortunato T. de la Peña, the secretary provides all the updates on the various efforts of the science department, from the area of research and development up to the technical services and consultancies.

Further, Dir. Burgos also said that the information institute organized special pressers



for the launching of some of the major programs of DOST like those for repatriated overseas Filipino workers called the iFWD Program; OneStore.ph online platform with mobile app; and Handa Pilipinas, a disaster resiliency campaign.

Incidentally, a mobile application called "DOST: Science for the People" was launched on 08 April 2020 to provide news updates about the agency's efforts against COVID-19, S&T innovations, and development programs that address major socio-economic problems of the country.

STARBOOKS: The first digital science library in a box

STARBOOKS, popularly referred to as the library-in-a-box, is an award-winning knowledge and learning resource of the Institute that provides students and teachers with greater access to the latest science, technology, and innovation (STI) information to supplement textbooks and other learning tools.

During the first semester of this year, Dir. Burgos shared that there were 320 STARBOOKS



WHAT'S NEW?



sites that were deployed all over the country, bringing the total to 4,800 since the program started in 2011. He also added that several partnerships have been formed by STARBOOKS with different organizations to promote STI. It includes the Department of Education, Philippine Rice Research Institute, FlipScience.ph, Unilab Foundation, TripplesPH, and Carl Balita Review Center.

Increasing DOST's online presence thru official Facebook pages

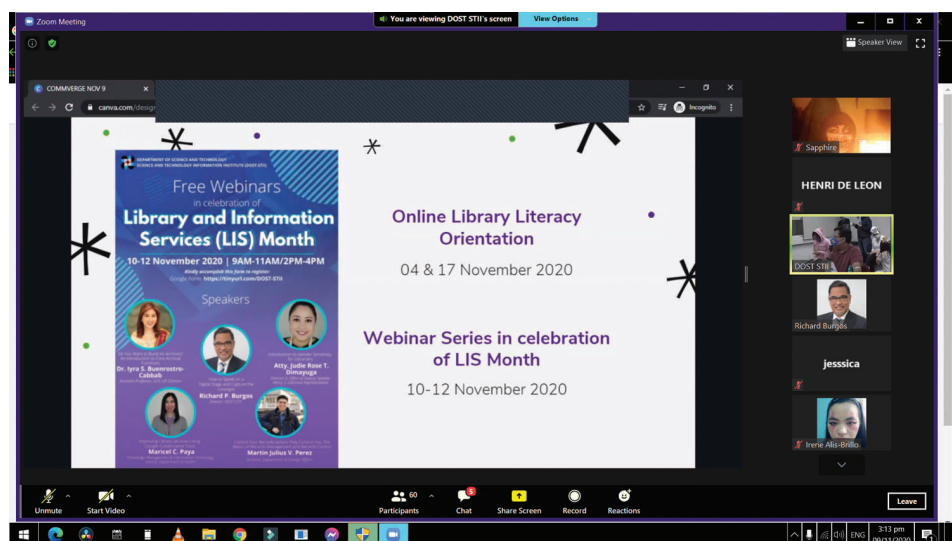
The information director also shared the significant spikes of two major Facebook pages of DOST. For DOST-Philippines, its page followers increased by 195% from August 2019 (7,541) to July 2020 (22,261). For DOST-Science and Technology Information Institute, its page followers increased by 77% from August 2019 (26,300) to July 2020 (46,600).

#ScienceJournoAko webinars

Since 2015, the DOST-STII visited different schools in the country to bring its #ScienceJournoAko writeshop, an advocacy program aimed at capacitating aspiring journalists and communicators to write compelling S&T stories. Despite the prohibition in face-to-face training, the Institute brought this service through the digital world by conducting a series of webinars during the quarantine period. Dir. Burgos shared that the three webinars conducted by DOST-STII focused mainly on science blogging, harnessing the power of Twitter and Instagram, and popularizing science stories. All three webinars gathered more than 300 participants composed of senior high school and college students as well as elementary and high school teachers nationwide, and even from abroad.

Gandingan Awards

DOSTv: Science for the People, the broadcast platform of DOST-STII, that aired over PTV-4, recently won three recognitions from



the Gandingan Awards of the College of Development Communication, University of the Philippines Los Baños: 1) Most Development-Oriented Livelihood Program; 2) Most Development Oriented Feature Story for the episode "Bakery sa Jail" and; 3) the highest award Gandingan ng Kaunlaran: Most Development Oriented Radio/TV Station/ Online Platform.

"The pandemic caught us by surprise but we quickly shifted to the new normal and became the channel for the world to feel the heartbeat, the vital signs of the DOST



championing Science for the People. The winds of digital fate blew in our favor as our main sails, STARBOOKS, DOSTv, are digital native," concluded Dir. Burgos.

DOST's scicom efforts cited in international book, 'Communicating Science'

By David Matthew C. Gopilan, DOST-STII

A BOOK chapter that appeared in the recently published book by the Australian National University on "Communicating Science" forever etched science communication or scicom products and services of the Department of Science and Technology (DOST) in the country's history and status of scicom.

The book chapter, "Philippines: From science then communication, to science communication" traced the history of scicom in the country from the pre-Spanish times up to the modern period. It was authored by three scicom practitioners coming from the academe and industry sectors. They are Assistant Professor Garry Jay S. Montemayor from the University of the Philippines Los Baños; Dr. Mariechel J. Navarro, former director of Global Knowledge Center on Crop Biotechnology; and Kamila Isabelle A. Navarro, a graduate of Master of Science Communication degree from the Australian National University.

Some works of the DOST that were cited in the book chapter are the annual National Science and Technology Week celebration which showcases the Department's various S&T "through innovative scicom methods" and the digital library-in-a-box called STARBOOKS or Science and Technology Academic and Research-Based Openly Operated Kiosks. Incidentally, STARBOOKS is one of the innovative products of the DOST-Science and Technology Information Institute (DOST-STII).

Further, the Science Explorer Bus and NuLab, DOST-Science Education Institute's (DOST-SEI) mobile science learning facilities for elementary and high school students were also mentioned. These facilities have interactive exhibits, learning materials, and laboratory equipment which give students from under-equipped schools a hands-on and fun experience in science.



Science and Technology Academic and Research-Based Openly Operated Kiosks or STARBOOKS is an S&T information pod that does not need the internet to operate. It contains thousands of digitized S&T materials in text and video formats. (Photo from stii.dost.gov.ph).



The book "Communicating Science" describes that science communication has flourished in 39 countries, including the Philippines. (Photo from press.anu.edu.au)



The centerpiece of the 2019 National Science and Technology Week at the World Trade Center, Pasay City was a visual symbol of the thrust of the DOST to promote innovation for inclusive growth. (Photo by Gerardo G. Palad, DOST-STII)

Also mentioned is Indie-Siyensiya, a filmmaking contest of the science agency administered by the DOST-SEI. It aims to promote a science culture among the youth and using cinema as a way to encourage more people to appreciate science.

Lastly, the official science and weather program of DOST was also cited. Called DOSTV, it airs science shows featuring Filipino scientists and their works, various programs and events of the Department, local technologies and innovations, weather reports, and science trivia. It is the Department's way of fighting the "low profile of DOST and science in the national consciousness", the book chapter reads.

The book was edited by some of the world-recognized experts in science communication like Toss Gascoigne, Michelle Riedlinger, Bruce V. Lewenstein, Luisa Massarani, and Peter Broks. It featured the status of scicom practice in 39 countries that included that of Philippines. The whole book and the book chapter on Philippine scicom can be downloaded for free from the website <https://press.anu.edu.au/>.

To learn more about the scicom products and services of the DOST, visit the Department's information and marketing arm, DOST-Science and Technology Information Institute via <http://www.stii.dost.gov.ph/> or follow the Facebook account <https://www.facebook.com/dost.stii>.

NuLab (right) and Science Explorer (left) are mobile facilities that provide students with an interactive and fun learning experience in science. (Photo from sei.dost.gov.ph)



DOSTv, the official science and weather program of the Department of Science and Technology, airs the DOST Report and various online platforms: www.dost.ph, www.dostv.ph/youtube, and www.facebook.com/DOSTvPH. (Photo from dostv.ph)





Department of Science and Technology Secretary Fortunato T. de la Peña announces future-proof initiatives through research and development programs and private sector collaboration. . (Photo by Henry A. De Leon, S&T Media Service)

DOST pushes future-proof technologies for the environment amidst the pandemic

IN ONE of his weekly reports to the Filipino people, Secretary Fortunato T. de la Peña of the Department of Science and Technology (DOST) mentioned that the DOST's new programs and initiatives are set to future-proof industries and the environment amidst the pandemic.

Among the programs the secretary mentioned are the Integrated Mapping, Monitoring, Modeling and Management System for Manila Bay or the IM4 Manila Bay Program and the Charted Dream.

The IM4 Manila Bay program aims to characterize Manila Bay and its watersheds and the link environments while the Charted Dream project aims to develop technology for the management and utilization of dredged materials from the Tullahan-Tinajeros Rivers system. The team from the DOST-Industrial Technology Development Institute (DOST-ITDI) and the Department of Public Works and Highways have already met to identify possible sampling sites and are already preparing initial laboratory analysis.

These projects are said to complement the government's current initiatives in cleaning

up the Manila Bay and its adjacent rivers and tributaries. "Sa kagustuhan nating mapaganda ang tubig at ang mga tributaries sa Manila Bay, mangangailangan talaga yan ng dredging," de la Peña explained. "Ngayon ano ang gagawin natin sa made-dredge na materials at yan ngayon ang proyekto ng DOST-ITDI, ianalyze para malaman kung ano ang pwedeng paggamitan ng dredged materials na iyan."

The Tullahan- Tinajeros River system is a 27-kilometer long river system and a major tributary of Manila Bay. It spans from La Mesa Water Reservoir in Fairview, Quezon City, all the way to Manila Bay. Incidentally, it is one of the most polluted waterways in Metro Manila.

The secretary also mentioned another DOST program, the Collaborative Research and Development to Leverage the Philippine Economy or CRADLE under the umbrella program called Science for Change.

The program aims to help create collaborative research and development between the academe and the industry by working with the private sector in identifying

problems while academe and other research institutions provide science-based solutions.

Currently, there are 18 new projects from 18 private companies that have partnered with 11 universities to work in the areas of new pharmaceutical products; research on the dietary fiber of sugarcane bagasse and the natural antioxidant on sugarcane; development of new materials from carrageenan; "soysage", a sausage derived from okra; and nursery tanks for shrimp production.

Apart from those, research will be conducted on the development of tomography imaging devices, semiconductor packaging and electronics products, and home energy storage and energy management.

The DOST Report, a weekly broadcast of the Science and Technology Information Institute of the Department of Science and Technology (DOST-STII), highlights those various initiatives and innovations of the DOST aired live every Friday through the DOSTv Facebook page and Youtube channel.



Department of Science and Technology Secretary Fortunato de la Peña recently announced the IATF's adoption of DOST recommendation for zoning on the World Health Organization solidarity trials for vaccine candidate. (Photo by Henry A. De Leon, DOST-STII)

Science chief reveals zoning for WHO solidarity trials

By Joy M. Lazcano, STII-DOST

IN HIS weekly department update and report to the nation, the Department of Science and Technology (DOST) Secretary Fortunato T. de la Peña revealed that the COVID-19 Interagency Task Force (IATF) has accepted DOST's recommendation for zoning on the solidarity trials for the vaccine candidates against COVID-19 that will be conducted this year.

Secretary de la Peña explained that there should be no competition in terms of the trials to be conducted and all are working together to find a solution to the pandemic.

The science chief added that there are eight trial zones where the vaccines will be tested. The eight zones will involve 13 hospitals in all. In the National Capital Region, there will be nine, namely: the Philippine General Hospital, Manila Doctors Hospital, San Lazaro

Hospital, Lung Center of the Philippines, St. Luke's Medical Center- Quezon City, the Research Institute for Tropical Medicine, Makati Medical Center, The Medical City, and St. Luke's Medical Center-BGC.

Other hospitals identified are in the provinces, namely: Vicente Sotto Memorial Medical Center, Chong Hua Hospital in Cebu City, De La Salle Health Sciences Institute in Cavite, and Southern Philippines Medical Center in Davao City.

Secretary de la Peña added that the World Health Organization solidarity trials will start this October and expected to be completed by the second quarter of the following year.

He also confirmed that the Philippines is in agreement with five COVID-19 vaccine developers that will enable clinical trial data sharing.

On the other hand, ventilators developed by groups of local developers are undergoing testing for its functionality at DOST's Electronics Products Development Center.

"Iyan ang unang hakbang, kapag pumasa sila diyan through a third-party evaluation ay maaari na silang magsimula ng clinical trials involving humans at yan naman ay popondohan natin," Secretary de la Peña said. Currently, there are three groups that are developing ventilators to help address the increased demand for it in hospitals due to the COVID-19 pandemic.

The DOST Report is a weekly broadcast of the Science and Technology Information Institute of the Department of Science and Technology (DOST-STII) highlighting the various initiatives and innovations of the DOST aired live every Friday through the DOSTv Facebook page and Youtube channel.

DOST, CEU ink agreement to promote S&T communication

By: Allan Mauro V. Marfal, DOST-STII

THE DEPARTMENT of Science and Technology-Science and Technology Information Institute (DOST-STII) and Centro Escolar University (CEU) Media and Communication Department inked an agreement to work together to promote science, technology, and innovation to a larger audience by creating compelling content for multimedia platforms.

This collaborative effort was formalized through the signing of a Memorandum of Understanding (MoU) held on 30 September 2020. The virtual signing was done by DOST-STII Director Richard P. Burgos and CEU President Dr. Ma. Cristina D. Padolina, together with DOST-STII's Communication Resources and Production Division (CPRD) Chief Norly B. Villar and CEU's Media and Communication Department Chair Ricky R. Rosales.

Under the MoU, DOST-STII will help capacitate CEU students, especially those

who are taking up the course of Media and Communication, by implementing activities on creating compelling S&T related content through science writing for print and online, scriptwriting and segment producing for digital broadcasting, and designing infographics for social media, among others.

These collaborative activities can be done through series of webinars [due to the pandemic] and regular onsite capacity building program.

On the other hand, the CEU's Media and Communication Department is expected to help DOST-STII to promote science, technology, and innovation, particularly the various research and development (R&D) projects and technical services of DOST agencies through their existing media platforms such as campus publications, radio stations, and social media pages.

Under the agreement, both parties can share their respective resources such as subject

matter experts and facilities in producing S&T content with the aim of boosting awareness and appreciation for science, technology, and innovation.

Director Richard P. Burgos said that since 2015, DOST-STII has been conducting various trainings in different campuses all over the country. With these, the institute sees the big potential for student-participants and the university's teaching staff to be strong partners in promoting science that can create impact in our lives.

"We are very grateful to CEU for knocking on our doors and gave us the opportunity to further enhance our services and commitment towards establishing a pool of communicators and hoping that in the years to come, we will be at the forefront of showcasing how science is indeed for the people," said Director Burgos.



In photo (from left to right): Dr. Ma. Cristina D. Padolina, CEU President and Chief Academic Officer; Richard P. Burgos, DOST-STII Director; Professor Ricky R. Rosales, CEU Communication and Media Program Head; Dr. Maria Rita D. Lucas, Dean of CEU School of Education, Liberal Arts, Music, and Social Work; and Norly B. Villar, DOST-STII Communication Resources and Production Division Chief. (Screenshot of virtual MoU Signing via Zoom)

4th Indie-Siyensya promotes science through film

By Marco D. Melgar, DOST-SEI

WITH A lineup of finalists that effectively portrayed the contest theme, “Communities Beyond the Naked Eye,” determining the best films of the 4th Indie-Siyensya Filmmaking Competition was surely a tough task for the Board of Judges. In the end, the title of Best Film for the Open and Youth Categories was conferred to entries that went beyond the criteria of scientific content, idea execution, and film technique.

The judges referred to the fourth criterion as “impact.”

For this reason, the films “Into the Minuscule World of Ants” by Heinrich Domingo of Quezon, Isabela and “Sansala” by Cyah Angela Somblingo of the youth organization Focus Cavite were hailed as the Best Films in the Open and Youth Categories, respectively.

These two creative filmmakers won against a total of 23 entries in the Open Category and 55 entries in the Youth Group Category.

Because of the pandemic, the victors were given their recognition on 30 September 2020 in an online awarding ceremony that premiered live at the Department of Science and Technology – Science Education Institute’s (DOST-SEI) social media page.

The film titled “Into the Minuscule World of Ants” documents the growing ant-keeping community in the Philippines featuring Youtube personality, Mikey Bustos, who has 3.3 million subscribers. Filmmaker Domingo, said that making the film made him realize there are many scientific groups and communities that are not popularly shown in the media.

“My exposure to the ant-keeping community showed me that there are hundreds of Filipinos venturing into scientific fields like biology that remain unseen. Also, shooting this documentary film made me see the alternative avenues where science is learned” he said.

He said he feels honored to have competed against great filmmakers with equally interesting tales and narratives, and that the win will inspire him to make more films.

“Our communities are filled with stories that need to be told. We do not need to chase stories. Instead, our local tales and narratives are more than enough to make captivating films.” said Domingo who earned a cash prize of PhP 100,000 and a trophy.

The second place in the Open Category was the film titled “Pauwikan,” a documentary about the nature and diversity of the turtle sanctuary in San Juan, La Union done by Gerylle Vanmarie Palabay of the Film & Media Arts International Academy. The entry won PhP 50,000.



Mikey Bustos, a social media sensation, is featured in the film titled “Into the Minuscule World of Ants”

Incidentally, Palabay’s “Pauwikan” also secured the Viewers’ Choice Award for receiving the highest number of votes during the film screenings. The film got the PhP 20,000 cash prize for this special award.

The third best film went to Edward Laurence Opena of Opena Cinematics / Cebu Normal University for his film, “The Man Who Talks to Fishes,” that narrates how a man enabled the Gilutongan Marine Sanctuary to become one of the country’s top marine sanctuaries. The third winner was awarded PhP 30,000.

Youth Category

In the Youth Category, winning film “Sansala” tackles microplastic pollution in the locale of Dalahican, Cavite City. The documentary film explores how microplastics gravely affect the environment and the people relying on the sea for their livelihood.

The young filmmaker, Cyah Angela Somblingo, who is a second-timer in the competition, referred to the win as their team’s “comeback victory” after placing second last year for their film, “Lambat.” This time, they bagged the top spot for PhP 100,000 cash prize. and the top trophy.

“This year was our comeback victory where we were able to finally get a hold of the title. Making a film alone and entering it in a competition is already a milestone for amateurs like us, and this victory was more than enough to stir our passion in filming,” Somblingo said.

The team considered this opportunity to echo to the residents of Dalahican the results of their microplastic experiment done during the making of the film as their most memorable experience.

“Educating people is something that we really enjoy. And being able to reach the hearts of thousands of people through a single film was like living a dream,” she added.

Completing the Top 3 in the Youth Category were the films “Sisto” by Ma. Diana Balansag from Bukidnon National School of Home Industries at second place and “Beyond: Escherichia coli” by Juliana Milanbilen from Tagaytay City Science National High School.

“Sisto” depicts the problems encountered by the people of Barangay San Miguel in Maramag, Bukidnon with the Schistosomiasis disease, while “Beyond: Escherichia coli” tackles the unseen community of the E.Coli bacteria and its nature. The films won PhP 50,000 and PhP 30,000 cash prizes, respectively.

DOST-SEI Director, Dr. Josette T. Biyo said, “We’re very happy with the films we received this year and we’re especially impressed by how they tell their stories effectively and in a manner that does not stay away from science.”

This year’s Board of Judges include Dr. Garry Jay Montemayor of the College of Development Communication, University of the Philippines Los Baños (UPLB); Director Seymour B. Sanchez from the De La Salle-College of Saint Benilde and Far Eastern University; Prof. Patrick Campos, Director of the UP Film Institute; renowned entomologist, Dr. Aimee Lynn Dupo of the UPLB Museum of Natural History; and Dr. Ruby Cristobal of DOST-SEI.

Indie-Siyensya, now on its fourth-year run, remains one of DOST-SEI’s main platforms to promote a culture of science in the country. The competition is also the agency’s response to the growing field of science communicators that use film as a medium of information dissemination and a creative way to effect behavior change.



The Enhanced Nutribun developed by the DOST-FNRI is an innovative solution to help curb malnutrition in the country.

DOST-FNRI banners Enhanced Nutribun virtual forum for CALABARZON

By Salvador R. Serrano, DOST-FNRI

PROSPECTIVE TECHNOLOGY adoptors in Region 4A or CALABARZON are the latest batch of participants of the Virtual Technology Commercialization of Enhanced Nutribun Forum conducted by the Department of Science and Technology's Food and Nutrition Research Institute (DOST-FNRI) on 08 September 2020.

Intended for micro, small, and medium entrepreneurs (MSMEs) in CALABARZON, the technology forum presented the DOST-FNRI's programs, projects and services, technology profile of Enhanced Nutribun, and the technology transfer and commercialization procedures.

The original Nutribun was reformulated by DOST-FNRI to make it more nutritious, delicious and softer.

Infusing innovative technology, the Enhanced Nutribun has become richer in energy, protein and micronutrients commonly deficient among malnourished young school children.

This innovative food product can be a convenient and nutritious alternative and supplement to hot meals previously served by the Department of Education's (DepEd) school feeding program and can be included in the food packs distributed by the Department of Social Welfare and Development (DSWD).

In compliance with the minimum health protocols to prevent the spread of COVID-19, the DOST-FNRI food products are also easier to distribute directly to households with school children to minimize physical contact

among large groups of people that is typical in feeding programs and food pack distribution in community centers.

The nationwide roll-out of Enhanced Nutribun also aims to provide livelihood opportunities to bakery workers, farmers as sources of raw materials like squash, and other related suppliers and service providers.

For more information on the Enhanced Nutribun and other food and nutrition concerns, contact: Dr. Imelda Angeles-Agdeppa, Officer in-Charge, Office of the Director, FNRI Building, DOST Compound, General Santos Avenue, Bicutan, Taguig City, Metro Manila; Direct Telephone Lines: 837-2934, 837-3164; Email: mjt@fnri.dost.gov.ph; Website: www.fnri.dost.gov.ph; Follow us on Facebook, Twitter and Instagram.

Filipina lawmaker lauds DOST-FPRDI bamboo-framed face shield

By Apple Jean C. Martin- de Leon, DOST-FPRDI

THE BAMBOO-FRAMED face shield developed by the Department of Science and Technology-Forest Products Research and Development Institute (DOST-FPRDI) recently caught the attention of a congresswoman who is known as an advocate of using Filipino-made products.

Representative Ann K. Hofer, 2nd District Representative of Zamboanga Sibugay and Chairperson of the House Committee on Foreign Affairs, used the bamboo-framed face shield during the Working Group Caucus of the 11th ASEAN Inter-Parliamentary Assembly (AIPA) last 14 August 2020.

Wearing the bamboo-framed face shield during the meeting, Rep. Hofer facilitated the discussion on "Mitigating Risks and Strengthening Economic Resilience in the Period of Pandemic." She was joined in the video conference by international delegates from Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Thailand and Vietnam, thus enabling her to showcase our very own innovation to combat the spread of COVID-19 disease.

To complete her all-Filipino made outfit, Rep. Hofer wore a piña mask and the DOST-FPRDI bamboo-framed face shield during the ASEAN AIPA meeting.

"We are thankful to the support given by the members of the House of Representatives to



Representative Anna K. Hofer of the 2nd District of Zamboanga Sibugay is shown wearing the bamboo-framed face shield during the 11th ASEAN Inter-Parliamentary Assembly. (Photo courtesy of the Office of Cong. Hofer)

"We are thankful to the support given by the members of the House of Representatives to this initiative," - DOST-FPRDI

this initiative," said DOST-FPRDI Director Romulo T. Aggangan. According to him, a number of representatives have either commended or

signified interest in adopting the bamboo-framed face shield including Ilocos Sur 1st District Rep. Deogracias Victor B. Savellano, Marikina 2nd District Rep. Stella Luz A. Quimbo, and Manila 4th District Rep. Edward V. Maceda.

The bamboo-framed face shield is one of DOST-FPRDI's initiatives in response to the need for more personal protective equipment amid the COVID-19 outbreak. Since April, the Institute has been distributing the face shields for free to various public and private frontline agencies around the country. DOST-FPRDI has also provided training and technical assistance to the local government of Cabuyao, Laguna in its mass production of the said face shields.

"With the support of our partners in Congress, we believe that more Filipinos will be able to use and benefit from DOST-FPRDI technologies. We will continue to find ways to help combat the global pandemic through R&D," ended Aggangan.

For more information, please contact them at (049) 536-2586 or 536-2377 or visit FPRDI's website, <http://fprdi.dost.gov.ph/>.

DOST-FPRDI pioneered the production of bamboo-framed face shield in the country. Bamboo is a perennial, woody-stemmed grass widely used in making handicrafts and furniture.





Engr. Junelyn Louvena B. Ruiz, PSTC Director Misamis Oriental (3rd from left) turns over the check to Hon. Mayor Emmanuel L. Jamis of LGU-Alubijid, along with the Project Focal Persons and project beneficiary groups AFI and BAFO. (Photo from PSTC-Misamis Oriental)

Marginalized fishermen, food processors get P 1M DOST funding

By Dayne Prin Talan, *PSTC-Misamis Oriental*

THE DEPARTMENT of Science and Technology (DOST) through its Provincial Science and Technology Center (PSTC) in Misamis Oriental provided financial assistance amounting to PhP 1,065,300 to the local government of Alubijid for its two projects under the Community Empowerment through Science and Technology (CEST) program on 22 September 2020.

CEST is one of the flagship programs of the DOST being implemented by its regional offices in tandem with the various DOST agencies and institutes. The program addresses the needs of communities in five entry points: health and nutrition, basic education, livelihood and enterprise development, water and sanitation, and disaster risk reduction and climate change adaptation.

The first project, entitled “Upgrading of Community Food Processing Facility in Barangay Baybay, Alubijid, Misamis Oriental – D2”, is seen to benefit the Alubijid Foods Inc. (AFI). AFI is a group of food processors in Alubijid and a recipient of a CEST project in 2017. Recently, they received consultancy services to acquire a License to Operate certificate from the Food and Drug Administration, additional packaging

and labeling interventions, and upgrading of food processing equipment.

“Daghan kaayo salamat sa DOST nga gibulig gayud sa amo gikan pa sauna hangtud karon. Wala gyud mo nagkulang sa mga support bisan pa man sa kakulian karon sa pandemic, naa lang gihapon mo hangtud karon. (Many thanks to DOST for its support to us since then. The agency never failed to support us even in this time of pandemic.),” said Elvie M. Labis, president of AFI.

The second project is the new and improved fish drying facility for the Baybay Aquatic Fishermen Organization (BAFO), a registered group of fisherfolks in the municipality. A Solar Tunnel Dryer and Dehydrator, a safer way for fish preservation, will be turned over to the proponents as an alternative to sun drying. The project also includes training on current Good Manufacturing Practices (cGMP), capability building, laboratory tests, and initial packaging and labeling support.

“Salamat gyud (DOST) kay ang among pangandoy, ang among gipangayo sauna kawayan ra para bularan sa isda. Pasalamat mi kay naa pa diay labaw pa ato nga dili kawayan ang

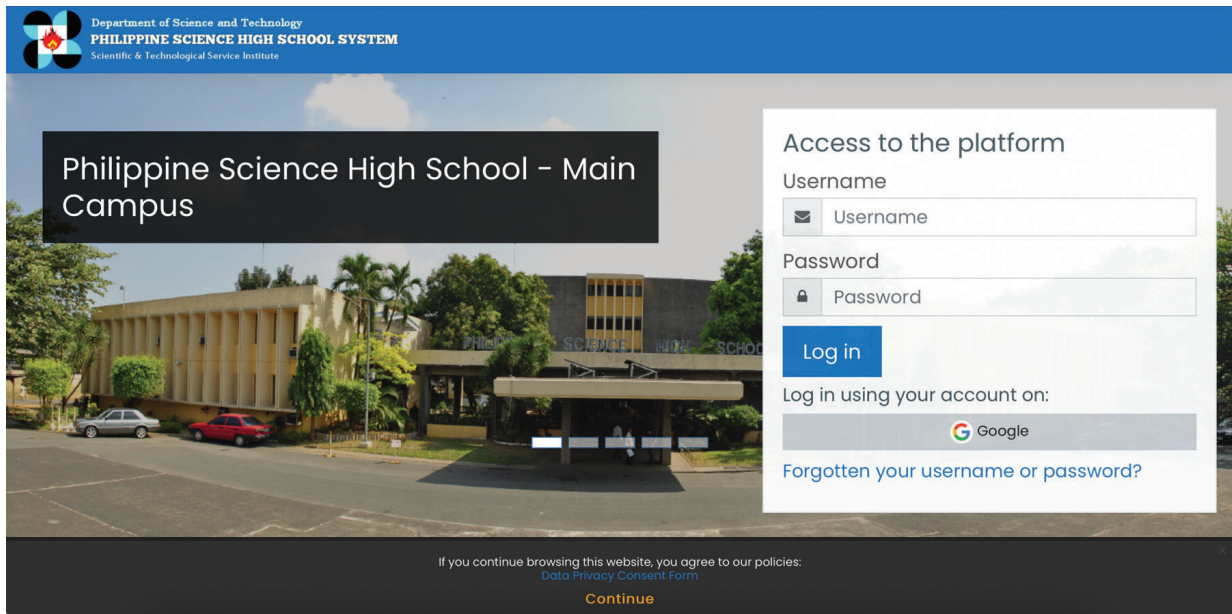
moabot sa amo. (Thank you so much to DOST. We only asked for bamboo as means to dry our fish, but DOST was able to grant us equipment that is much better than we expected.),” said Pedro D. Momo, BAFO president.

The funds for the two projects in LGU-Alubijid came from the allotted prize (project proposal-based) awarded to the proponents as the Best CEST Community in Region X during the celebration of the 2019 National Science and Technology Week (NSTW). Implementation of these projects will help promote more economic development activities in the municipality and is expected to uplift the socio-economic status of the said marginalized communities.

“Pasalamat kay Ma’am Beng ug sa kauban sa DOST. Kini makahatag gayud ug dakong kaayuhan sa among fisherfolks dinhi sa lungsod sa Alubijid. Hinaot unta nga magpadayon pa ang suporta sa amo. Daghan Kaayong Salamat. (I thank Ms. Beng Ruiz and all the staff of DOST. These projects bring about great help to our fisherfolks in Alubijid. We hope that you continue to support us. Thank you very much.),” said LGU-Alubijid Mayor Emmanuel L. Jamis.

Pisay uses remote learning system amidst pandemic

By Allan Mauro V. Marfal, DOST-STII



Screenshot from the DOST-PSHSS website

THE YOUTH today are introduced to the computer and digital media long before they learned to read and write.

As we begin to shift towards blended learning under the new normal, the Department of Science and Technology-Philippine Science High School System (DOST-PSHSS) or Pisay is one of the educational institutions that quickly adapted and make necessary adjustments when it comes to crafting their modules and developing the skill set of their teaching personnel.

With less than a week before the opening of its classes for the new academic calendar year, Pisay will introduce to its 16 regional campuses an online learning management system which is suitable for generations who are becoming more and more technology-savvy.

Called Knowledge Hub or KHub, it contains libraries of teaching guides for Pisay teachers and students to have a one-stop-shop for all their academic needs for the coming years.

“Tulad ng tradisyunal na classroom, dito nakikipag-usap ang mga guro at mag-aaral. Maaaring ilagay ng mga guro ang kanilang tala at pagsusulit para makuha at masagutan ng mga estudyante. Nilalayan nito na mapagaan ang pang araw-araw na gawain ng mga guro at mag-aaral,” said Francis Joseph Serina, information technology officer II from the Office of the Executive Director of DOST-PSHSS during an episode of the DOST Report aired by the DOSTV.

Just like the traditional classroom, the teachers and students talk here. The teachers can put their records and examinations so that students can access and answer them. It aims to lighten the workload of the teachers.

KHub has various features, and Campus KHub is one of them. It is where teachers meet their students in the absence of face-to-face classes. Subjects with individual rules or courses can be seen here, only students enrolled in these subjects.

It also has a feature called “Badges” that gives rewards to students. If the exercises are done correctly, the next activity can already be unlocked. Through this, the assessment will be quicker and there will be an assurance that the students have already mastered the skills for a particular subject. Additional to that, the teachers can also upload other learning materials such as records for the recitation and written tests.

“Kapag ang guro naman ang nakapasok, makikita niya ang mga asignatura na nakatakda para sa kanya at mga tala ng panayam na gagamitin niya para sa kanyang asignatura.” said Serina.

Aside from uploading materials, it is easy to repeat a test using KHub, since it serves as the learning and teaching repository. There are also learning resource materials from the DOST-Science and Technology Information Institute, Department of Agriculture, previous researches from academe, and many others that can be accessed.

Also accessible in KHub is the guide in conducting webinars that was developed and prepared by the Research and Policy Academic Division of Pisay.

“Bagamat ang KHub ay fully online, iminumungkahi namin sa mga mag-aaral na i-download ang mga student learning guide para makapag-aral pa rin sila kahit walang internet connection o offline mode,” said Serina.

KHub is fully online, and the students can download the student learning guide so they can still study even they don’t have an internet connection.

To ensure the effectiveness of its implementation, Pisay developed a bridging program using distance learning. It is non-graded and designed for Pisay scholars. Serina explained that this is to fill in the learning topics that were removed due to the suspension of classes during the 4th grading period of the previous school year.

In addition, the teachers and students will also be given an allowance to facilitate remote teaching and learning.

As part of their preparation for the remote learning that started in 01 September 2020, the Department of Science and Technology-Philippine Science High School System (DOST-PSHSS) developed the Knowledge Hub or KHub to help the students and teachers of 16 campuses of Pisay to have a one-stop-shop for all their academic needs and adjust to the situation under the new normal.



Zamboangueña makes healthy ice cream using DOST tech

By Allan Mauro V. Marfal, DOST-STII

PEOPLE ENJOY ice cream as a dessert but we know it can have an effect on our health. So why not make a dessert that is enjoyable and good for you at the same time?

This is how a young businesswoman named Clarice Angelica Hau envisioned her ice cream store in Zamboanga City when she opened Sugar and Ice Confections, the first-ever manufacturer of artisanal ice cream in the city.

Hau's products are made of ingredients that ensure the high quality of ice cream delights. To date, the company already offers 30 ice cream flavors to their local customers.

"Ice cream is a better idea if it is also a healthy treat. During this time, people are now looking for healthier alternatives in their choice of food. At Sugar and Ice Confections, we would like to produce a product which is enjoyable but at the same time would not compromise the health of our customers," said Hau.

To further improve her ice cream product and make it more delicious and healthier, she reconnected with her alma mater, the University of the Philippines Los Baños (UPLB), where she finished a Bachelor of Science degree in Food Technology.

In 2018, the Sugar and Ice Confections and the UPLB, through its Institute of Food Science and Technology, submitted a research proposal related to the production



of symbiotic ice cream to the Department of Science and Technology (DOST) under its Collaborative Research and Development to Leverage Philippine Economy (CRADLE) of the Science for Change Program.

"The healthy innovation of symbiotic ice cream for Sugar and Ice had urged and motivated us to proceed with this project," said Hau during an episode of the DOST Report aired on 14 August 2020 by the DOSTv. Incidentally, DOSTv is the broadcast platform of the Science and Technology Information Institute of the DOST that provides S&T information to the public.

Symbiotic ice cream is a mixture of prebiotic and probiotic bacteria that can be mixed in ice cream. After almost two years, the research team from the UPLB discovered that ube (purple yam) flour has natural prebiotics which is a good source of food for beneficial bacteria or probiotics.

The UPLB has introduced to Sugar and Ice Confections the use of ube flour as prebiotics and probiotics or good bacteria to create what is called "functional ice cream".

"We are happy to report that we have accomplished the four out of the five objectives of the project. We (UPLB) were able to develop the prototype of the symbiotic ice cream and just studying the other properties of ube and procedures before they hand it over to Sugar and Ice Confections," said Bryan Rey R. Oliveros, an assistant professor from the UPLB-Institute of Food Science and Technology.

Meanwhile, Hau shared that once the project ends, they will convert the existing formulation of Sugar and Ice Confections to symbiotic ice cream formulation.

"We will try to come up with different flavors that are suitable for symbiotic formulation. Once we establish the process of production, we are eyeing to distribute it outside Zamboanga City and if possible, nationwide by 2021," concluded Hau.

Cebu startup offers more effective, efficient HR management system

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

A **LOCAL** startup firm in Cebu developed a comprehensive and customizable system that would allow human resource groups to devote more time to creating and planning programs related to career advancement, skills development as well as the creation of an ideal workplace for their employees.

Called Payruler, this web-based application is tailor-fit for HR process automation of different businesses in the country. The project is supported by the Department of Science and Technology (DOST) through a grant under the business incubation program.

This innovation answers the common dilemma of the HR department that spends a great deal of time on administrative tasks instead of actual strategizing, creating, and planning for the company and its most valuable resource.

Co-founder Timmy de Jesus said that Payruler would minimize or eliminate some clerical and manual work of the HR staff and allow them to focus instead on the role of being a strategic business partner.

She shared that a study from Stanford School of Business indicated that 60% of the time of HR staff is spent on administrative tasks and other filing activities and only 40% is devoted to actual creation of strategies and planning for the company.

"When we created Payruler, our overarching goal is to take care of all repetitive administrative things so that our HR people could focus more on strategic things," said de Jesus in her interview in one of the episodes of ExperTalk Online that is broadcast in the DOSTv Facebook page.

Payruler has customizable modules that cover the employee's life cycle. These are Hire for Recruitment, Identify for Employee Information, Track for Timekeeping, Compute for Payroll, Employee for Self-service, and Analyze for Analytics Purposes.

De Jesus shared that currently, Payruler has more than 100 companies in Metro Manila and Cebu that are now using and enjoying their services and platforms.

Meanwhile, as most of the areas in Metro Manila and Cebu are still

under the community quarantine which limits the movement of people, Payruler's web login feature has supported the work from home arrangement of their clients.

De Jesus also shared that they are also planning to integrate a contact tracing app in their system called WeTrace. It is a community tracing app that can be used for patient mapping, case reporting, and location tracking.

"Some of our clients are asking us when we go back to the office after all the work from home stuff, how can we ensure that our employees are safe? That is the reason why we would like to integrate WeTrace in our app to add another layer of protection for the employees of our client," explained de Jesus.

DOST's role on Payruler's growth

De Jesus shared that the essential part of their growth as a company was when DOST

helped them to have a conducive environment for developing innovative and game-changing ideas.

"DOST has been at different points in the life of Payruler. Aside from providing us our first home, they opened the doors for us in terms of opportunities to build game-changing products for our client through a grant they offered us," said de Jesus.

From 2018 to 2019, Payruler has received a research grant from the DOST-Technology Application and Promotion Institute (TAPI) under the Technology Innovation for Commercialization (TECHNICOM) program.

Currently, the said company is housed at the Cebu Business Incubator in IT (CEBUNIT) at the University of the Philippines (UP) Cebu that is also supported by the DOST- Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD).



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Payruler is a startup company supported by the Department of Science and Technology (DOST) that provides web-based application, tailor-fit for HR process automation of different businesses in the country. (Screenshot from the Payruler website)

Study reveals challenges of working or studying at home during quarantine

By Geraldine Bulaon-Ducusin, DOST-STII

blog-adp.ph

CONTRARY TO popular assumption that working and studying from home might bring relief, an online survey during the pandemic shows otherwise.

In an online survey of 288 Filipinos conducted between April and May this year, while the country is on an Enhanced Community Quarantine (ECQ), many respondents expressed that the top two things wherein they experienced most difficulties with are: working or studying at home and their income being greatly affected by missing work days.

Another finding is that while the internet was cited as the main source of information on COVID, newspapers, despite being cited as source of information by some respondents, was reported as being the most trusted source.

In the assessment about the government's response and pronouncements related to the pandemic, the respondents believe that the medical experts are the most reliable source of information.

In terms of coping with the pandemic, the overall mechanism employed by the respondents is primarily acceptance. This is followed by self-distraction.

The study, "Feelings, Cognitions, Behaviours of Filipinos During the COVID 19 Pandemic," was conducted by Dr. Maria Cecilia

Gastardo-Conaco from the Department of Psychology at the University of the Philippines Diliman. The study investigated people's feelings and responses to the COVID-19 pandemic across the timeline of the pandemic and through various government actions.

Dr. Conaco, however, warned that given the nature of the online survey, wherein most of the respondents are likely to be middle class, and have access to internet, the study is prone to bias. It does not capture fairly the complete representation of the various sectors of society. But the results can still be useful in furthering future studies on the feelings, cognitions, and behavior of Filipinos during pandemic.

The study was the first in the series of five COVID-19 related project webinars organized by the National Research Council of the Philippines of the Department of Science and Technology (DOST-NRCP). The projects, billed as KTOP-COVID: Kapakanan ng Tao sa Oras ng Pandemya – COVID-19 that ran from June 23, 2020 - August 2020 broadcast at 10:00 – 11:00 in the morning in the Research Pod, a Facebook page of DOST-NRCP.

The second webinar was conducted on 07 July 2020 titled, "Content Analysis of Government Policies and Issuances Regarding the 2020 Pandemic" presented by Dr. Laured

I. Hernandez - professor, Department of Behavioral Sciences, College of Arts and Sciences, University of the Philippines Manila.

Other webinars conducted were the following:

July 21: Gender-Specific Insights Based on COVID-19 Epidemiological and Socio-Economic Data, Dr. Jomar F. Rabajante - UPLB Biomathematics Team, Mathematics Division, Institute of Mathematical Sciences and Physics.

August 4: Scoping on Mental Health and Psychosocial Support Services (MHPSS) in the Philippines in the time of COVID 19 Pandemic, Dr. Elizabeth P. De Castro - professor (retired) Department of Psychology, University of the Philippines.

August 18: Defining a Gender-responsive Work-from-Home (WFH) Scheme in a Post-ECQ Scenario, Dr. Marieta Banez Sumagaysay - executive director, DOST-NRCP.

Research and development make change happen across research disciplines including the Social Sciences and the Humanities. The Department of Science and Technology-National Research Council of the Philippines (DOST-NRCP) is a policy advisory body that also provides grants to S&T researches, including social sciences.



(Photo Credits: Florencia G. Palis)

Filipino farmers transplanting rice seedlings. “There is a need to pay attention on rural services for agricultural extension including hassle-free and practical mechanisms of providing capital to farmers,” according to Dr. Palis, who conducted the study on *Filipino Rice Farmers and Their Aspirations for Their Children*.

65% of Filipino rice farmers want their children to take on city jobs

By Geraldine Bulaon-Ducusin, DOST-STII

FARMERS BELIEVED their children will not have a future if they become rice farmers. Most farmers want their children to obtain college education so they can work on non-farming jobs in urban areas or abroad.

Around 65% of the farmers wanted their children to stay away from rice farming, while only more than a third of them (35%) wanted their children to be rice farmers too. These are based on a study on “Aging Filipino Rice Farmers and Their Aspirations for Their Children,” done by Florencia G. Palis of the University of the Philippines Los Baños.

A farmer household survey was conducted among 923 farmers who were randomly selected from the three provinces representing each of the three big islands: Isabela for Luzon, Iloilo for the Visayas, and Agusan del Norte for Mindanao. The survey was complemented by in-depth interviews and focus group discussions to further understand the lives and situations of Filipino farmers.

The overall average age of farmers was 53 years old, ranging from 50-59 years at the average age level in the three covered provinces, and 16 to 89 years at the individual age level. Majority of them had elementary education, and on average they spent only eight years in school, or an equivalent level of 2nd year high school before quitting. The number of years that the farmers are engaged in farming ranges between 22 to 30 years. There were more men farmers (70%) than women farmers (30%), and mostly are married

A farmer household survey was conducted among 923 farmers who were randomly selected from the three provinces representing each of the three big islands: Isabela for Luzon, Iloilo for the Visayas, and Agusan del Norte for Mindanao

(85%). The average household size was five and the average number of children was four.

“The risk associated with rice farming as a means of livelihood further discourages parent farmers to aspire for their children to be like them. The uncertainty in yield and income is real to them and they attribute it to unpredictable weather situations, unstable output price and input costs, and natural disasters like heavy rains, floods, and drought, including pest and disease infestations,” Palis explained.

As one of the study informant, Aling Tasya (not her real name), said, “My waist and back are painful, especially during and after transplanting the rice seedlings. I need to bear these pains so that I can provide some food for my family.”

Tatay Berto (not his real name), another informant recounted, “My grandson, a vocational graduate, worked in the Middle East. He gives monthly support to his parents. He already bought a rice field and his parents are managing it. My daughter’s family is no longer borrowing money to use as capital in their farm production. They have also improved their house.”

Non-farming jobs are seen to be better as these are placed on a higher level than doing farm labor. If there are farmers who want their children to follow in their footsteps, they are more likely the older farmers who wanted that

someone in the family manage the farm and continue the rice farming tradition.

The research also finds that Filipino rice farmers are trapped in the cycle of poverty since most of them have insufficient capital to commence rice cultivation. Farmers branded themselves as borrowers or *mangungutang*. With high input costs, they are forced to borrow money from informal lenders who charge them high-interest rates, or traders who require them to sell their produce immediately after harvest with a low paddy price.

“There is a need to pay attention on rural services for agricultural extension including hassle free and practical mechanisms of providing capital to farmers,” according to Dr. Palis. Agricultural extension should not only focus on dissemination of technological innovations but social innovations as well to achieve impacts in improving the lives of Filipino farming households and farming communities. In this manner, farmers and their children may aspire for farming occupation or business if it has a better pay-off.

This research appeared in the Philippine Journal of Science (PJS), a publication of Science and Technology Information Institute of the Department of Science and Technology (DOST-STII). PJS is also available online.



(Photo from Philippine News Agency)

Health & Safety First!

DOST prepares for WHO Solidarity Trials

Giving priority to the health and safety of those who will participate in the World Health Organization (WHO) Solidarity Trials to find a vaccine for COVID-19, the Department of Science and Technology (DOST) is now looking into all the necessary preparations and safeguards.

DOST Secretary Fortunato T. de la Peña is carefully studying the Memorandum of Agreement (MoA) that the Philippines will sign under the World Health Organization (WHO) Solidarity Trials.

“Masaya naming tinatanggap ang hamon na pabilisin ang paglabas ng vaccine laban sa COVID-19,” said Secretary de la Peña. “Ngunit hindi namin ikokompromiso ang bilis para sa kaligtasan ng ating mga mamamayan. Upang mapangalagaan ng husto ang kalusugan at kapakanan ng mga sasali sa vaccine

trials ay masusing nakikipag-ugnayan and DOST sa ibat-ibang ahensya ng pamahalaan kagaya ng DOH, DILG at FDA.” (We are happy to accept the challenge to expedite the release of a vaccine for COVID-19 but we are not compromising safety for our people over speed. To fully safeguard the health and welfare of those who will participate in the vaccine trials, we are closely coordinating with the different agencies of government like DOH, DILG and FDA.)

DOST sits as co-chair of the Sub-Technical Working Group (Sub-TWG) on COVID-19 Vaccine Clinical Trials created under IATF Resolution No. 39 that was issued on 22 May 2020. The Sub-TWG on COVID-19 Vaccine Clinical Trials is spearheaded by the DOST together with the Department of Health (DOH), Food and Drug Administration (FDA), Research Institute for

Tropical Medicine (RITM), Department of Foreign Affairs (DFA), Department of Trade and Industry (DTI), and the National Development Company (NDC). These agencies continue to plan the appropriate steps and measures to ensure that the process or roadmap for the vaccine trials will not adversely affect the participants.

Responsibilities of agencies in the vaccine trials

Despite the many multilateral and bilateral partners being considered by the DOST, the agency ensures that the COVID-19 vaccine clinical application adheres to the processes approved by the Sub-TWG for Vaccine Clinical Trials. This, in turn, is endorsed to the Sub-TWG for processing of the necessary requirements and documents needed. Thereafter, it will be reviewed by the Vaccine Expert Panel (VEP) and the Ethics Review Committees. The last step involves FDA, the authorized agency that will make the final decision on who will be allowed to conduct the clinical trial. Individually, these agencies are tasked with the following:

- DOST - sits as the chair of the Sub-TWG for Vaccine Clinical Trials. Part of the mandate of the department is to conduct research. It is also taking the lead to promote bilateral partnerships, together with the DFA, in relation to clinical trials.
- DOH - acts as co-chair of the Sub-TWG for Vaccine Development. The department is co-member of the DOST with regard to health research in line with the Philippine National Health Research System established under RA 10532. With this, the DOH and the DOST are partners with reference to clinical trials. The DOH is also tasked to oversee the hospitals that will join the clinical trials and other entities with connection to operational and logistics management of clinical trials.
- FDA - is the lead agency that evaluates and approves applications for the conduct of the clinical trials in the Philippines. As a regulatory agency, the FDA will monitor the entities approved to conduct the clinical trials. With or without the vaccine trials for COVID-19, the FDA is the agency authorized to approve any vaccine that will be released and sold to the public.

Roadmap of COVID-19 Vaccine Trials

The first step to find a vaccine is the country's participation in the WHO Solidarity Vaccine Trials that will be led by Dr. Jodor Lim of the Philippine General Hospital. To date, there were hospitals identified in NCR, Cavite, Cebu City, and Davao City as trial sites. To ensure the safety of those who will participate in the vaccine clinical trials, the DOST created the Data and Safety Monitoring Committee (DSMC).

Aside from the WHO Solidarity Vaccine Trials, the Sub-TWG is now coordinating with six pharmaceutical companies that signed the Confidentiality Data Agreement (CDA) allowing the VEP to study the results of their Phase I and II clinical trials. These companies are Sinovac, Sinopharm, and Anhui Zhifei from China; Gamaleya from Russia; the University of Queensland, CSL, and Seqirus from Australia; and Adimmune Corporation from Chinese Taipei.

The Sub-TWG still requires these companies to submit complete requirements and documents so they can study them extensively to ensure the safety of the participants to the clinical trials.

“Maraming balita din na kumakalat ukol sa vaccine trials na kailangang bigyan ng linaw. Tumutulong ang aming ahensya upang magkagawa ng FAQs on Vaccine Trials kasama ang DOH,” dagdag pa ni Secretary de la Peña. “Ilalabas ito sa government website sa susunod na araw.” (There are some news circulating about the vaccine trials that need to be cleared. The agency is helping out to create FAQs on vaccine trials together with the DOH and this will be released in government websites in the coming days.)

Because of the pandemic, there might be parties who will exploit the situation, so the public is advised to be extra careful since there is still no approved vaccine as the DOST continues to work closely with the Sub-TWG, DOH, and FDA for the clinical trials that will be conducted in the Philippines.

Black market vaccines, not approved

“Muli’t muli ang DOST ay nagpapaalala sa publiko na wala pang aprubadong bakuna laban sa COVID-19. Hinihikayat namin ang publiko, para sa kaligtasan ng lahat, na ipaalam sa kinaukulan gaya ng Philippine FDA, Philippine National Police o National Bureau of Investigation kung may mapag-alamang impormasyon ukol sa mga napapabalitang kontrabandong bakuna na ipinagbibili,” said Secretary de la Peña. (Time and again, the DOST reminds the public that there is still no approved vaccine against COVID-19. The public is encouraged, for the safety of all, to inform the Philippine FDA, Philippine National Police or the National Bureau of Investigation if they have any information about contraband vaccine that is being sold.)

The public is advised to consult or refer to reliable and official government sources of information regarding COVID-19 Vaccine Clinical Trials and visit the websites of DOST-PCHRD, DOH and <https://covid19.gov.ph/>. Inquiries can also be sent through email: covid19vaccinetrialsph@gmail.com for correct and accurate information.

Laguna LGU produces DOST–FPRDI’s bamboo–framed face shield

By Apple Jean C. Martin- de Leon, *DOST-FPRDI*

The Forest Products Research and Development Institute of the Department of Science and Technology (DOST-FPRDI) and the local government of Cabuyao City recently signed a Memorandum of Agreement (MoA) for the mass production of bamboo-framed face shields to augment the need for personal protective equipment for frontliners battling COVID-19.

Under the MoA, the DOST-FPRDI will provide the design, specifications and other requirements needed to produce the face shields. It will also give technical assistance on steam bending, the process wherein the bamboo strips for the frame are subjected to heat to flex them and become pliable to the desired form.

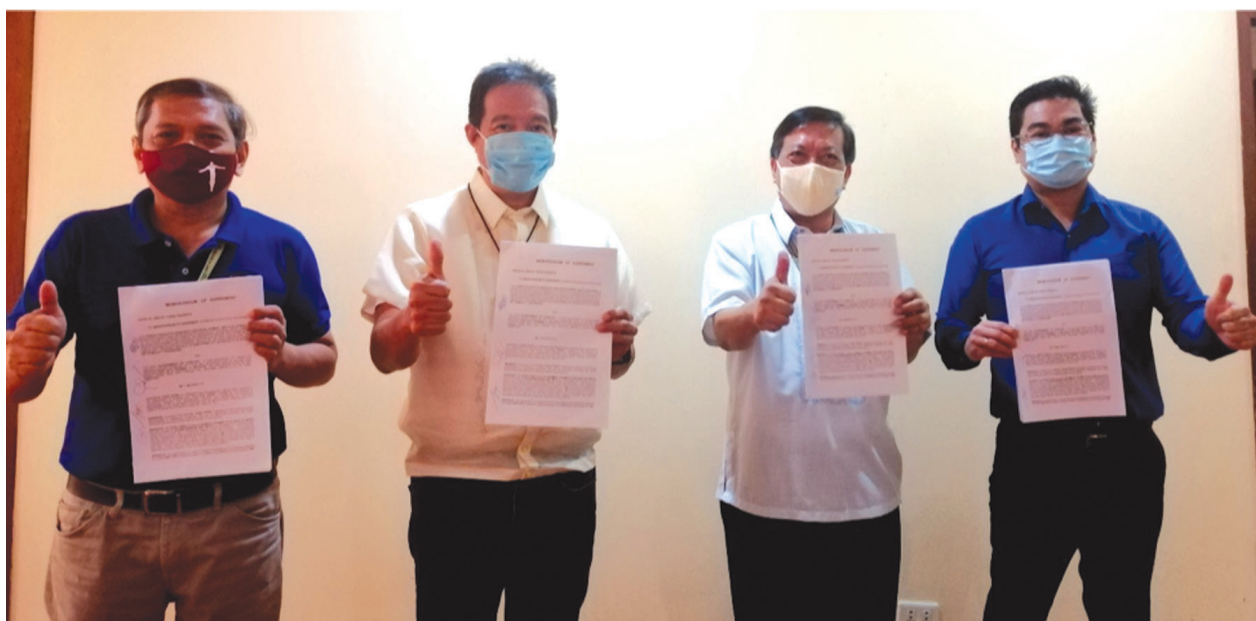
“Locally producing the face shields will not only save us money as we don’t need to buy commercially, it will also create jobs in our city. It will be a much needed source of income for the people who will be hired in this project,” said Cabuyao City Mayor Rommel A. Gecolea.

Production will be supervised by the City Cooperative and Livelihood Development Office in partnership with the City

Agricultural Office. According to Gecolea, they also intend to tap DOST-FPRDI in their project that aims to grow bamboo along river banks.

The bamboo-framed face shield is one of DOST-FPRDI’s initiatives to help protect the public against COVID-19. To date, the Institute has donated at least 2,000 bamboo-framed face shields to different LGUs, rural health units, public and private hospitals, restaurants, banks and funeral establishments in Laguna; NGOs and government offices in Nueva Vizcaya, Occidental Mindoro and Palawan; the Bureau of Jail Management and Penology in Victoria, Laguna; the Public Attorney’s Office in San Pablo City; DOST- Technology Application and Promotion Institute; Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA); DENR- Ecosystems Research and Development Bureau; and University of the Philippines Los Baños.

For those interested in adopting DOST-FPRDI technologies, please contact Grecelda A. Eusebio, Chief of the Technology Licensing and Promotion Section, DOST-FPRDI at (049) 536-2377 / fprdi@dost.gov.ph.



(Left-Right) Posing after the MoA signing last 30 June 2020 are DOST-FPRDI’s Technology Innovation Division Chief Rico J. Cabangon, Cabuyao City Mayor Rommel A. Gecolea; DOST-FPRDI Director Romulo T. Aggangan; and Cabuyao City Legal Officer Aldrin Panopio.

Virtual technology training webinars offer livelihood opportunities

By Apple Jean C. Martin- de Leon, *DOST-FPRDI*

Looking for livelihood opportunities while at home during this pandemic?

The Department of Science and Technology-Forest Products Research and Development Institute (DOST-FPRDI) offers online training webinars — for FREE! This is DOST-FPRDI's way of extending its support to the forest-based and allied sectors amid the COVID-19 pandemic.

"The DOST-FPRDI believes that the physical distancing we are currently experiencing should not hinder learning. Thus, the Institute is shifting to the use of online platforms to continuously provide technical assistance and training to our clients," explained Dr. Maria Cielito G. Siladan, Chief of DOST-FPRDI's Training and Manpower Delivery Services Section (TMDSS).

According to Siladan, the virtual technology training webinars are divided into three levels:

- Level 1 is a lecture-type discussion that provides an overview of the DOST-FPRDI technology. It will discuss the science behind and the advantages of the technology, as well as its potential as a business venture. The session will last for not more than 1.5 hours and will be conducted via Google Meet.
- Level 2 involves showing an audio-visual presentation detailing a step-by-step guide to the processes/ technologies. This level aims to provide an opportunity for the participants to appreciate the technology by watching the processes involved and discussing them further with DOST-FPRDI experts afterwards. Same as with level 1, this session will last for not more than 1.5 hours and will be conducted via Google Meet.
- Level 3 is a supervised, face-to-face, hands-on skills training. After going through levels 1 and 2, those who are decided to learn the skills can progress to this stage. This will be conducted physically at the DOST-FPRDI for a maximum of only five (5) participants per session to abide by the minimum health protocols and social distancing. The training is arranged by the interested parties with the TMDSS staff.



As an initial offering, the Level 1 discussion of bamboo-framed face shield production was held last 30 June 2020, while the Level 1 webinar on charcoal production and briquetting was conducted on 04 August 2020.

Among the interesting topics featured were bamboo-framed face shield production, charcoal production and briquetting (conducted last 04 August), fossilized leaves processing, engineered bamboo production, engineered bamboo product development, handmade paper production, handmade product development, bamboo processing, bamboo furniture making, wood preservation and treatment, non-wood preservation and treatment, anti-microbial personal hygiene products, and basic finishing.

For interested parties, the training schedule and registration details are posted at the DOST- FPRDI Facebook page (<https://www.facebook.com/fprdi>). Electronic certificates of participation will be given to Levels 1 and 2 attendees, while a certificate of completion will be awarded to those who will undergo the Level 3 training.

For more information, kindly contact Dr. Maria Cielito G. Siladan at (049) 536-2377 or email at tsd.tmdss@fprdi.dost.gov.ph.

DOST–MIMAROPA, DOST–FNRI bring food technologies to MSMEs

The Department of Science and Technology-MIMAROPA (DOST-MIMAROPA), in collaboration with the Food and Nutrition Research Institute (DOST-FNRI), organized a virtual technology forum last 10 July 2020 that introduce food technologies developed by aimed at helping micro, small, and medium enterprises (MSMEs) in the MIMAROPA Region level up.

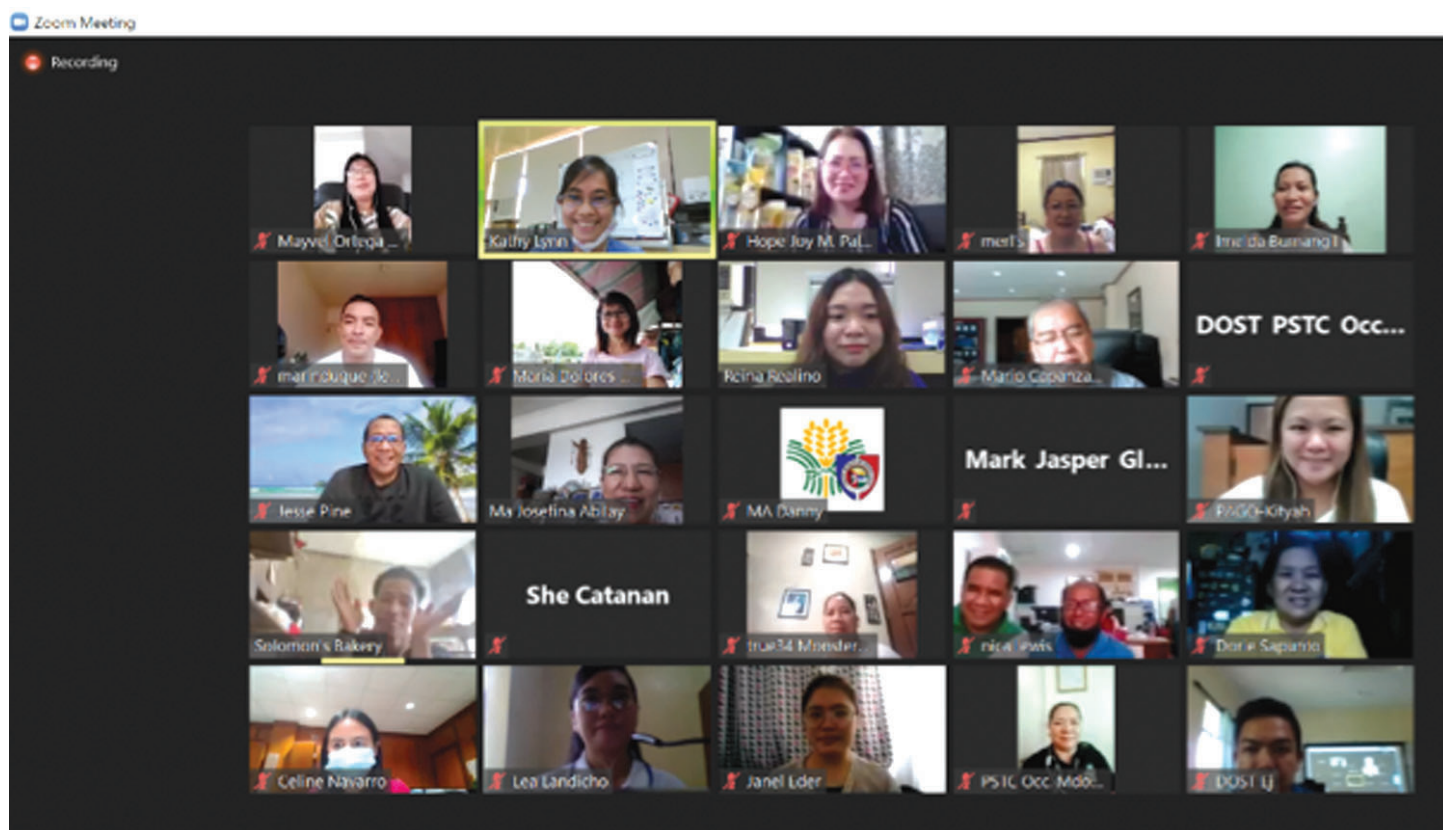
With COVID-19 putting more people at risk through disrupted health and nutrition services, job displacement, and income losses, DOST-MIMAROPA and DOST-FNRI joined hands to provide MSMEs with valuable technologies in terms of improving access to healthy food and economic opportunities.

Different DOST-FNRI-developed technologies that are ready for adoption and commercialization were presented to a total of 29 MSMEs from MIMAROPA, mostly from the food processing sector and local government units. A number of technologies were presented that included the following: fortified foods or foods enriched with additional nutrients like Iron Rice Premix, Iron Fortified Rice, and Iodine-Rich Drinking Water (Tubig

Talino); Stabilized Brown Rice; Emergency foods for disasters and calamities like Brown Rice Bar; Ethnic Foods; and Squash Supplemented products.

More technologies on nutritional food were also introduced like the Complementary Foods breast milk or formula milk for infants or children to provide them with the needed nutrients. Showcased were the different variants, namely: Rice-Mongo Blend, Rice-Mongo Sesame Blend, Rice-Mongo Crunchies, Rice-Mongo Curls, Ready-to-Eat Complementary Food (Paste) for Infants and Young Children (MOMSIE), and Micronutrient Growth Mix 6 (MGM 6).

Other newly developed technologies that MSMEs can engage in included Extruded food, Frozen food, Ready-to-Fry Sweet Potato Fries, Rice-Mongo Curls and Baby Food Blend with Carrots, Micronutrient Growth Mix 9 & 15 (MGM 9 & 15), Sweet Sorghum Flour, and Multi-nutrient Extruded Rice Kernels (MNERK).



Attendees of the Virtual Orientation and Technology Forum organized by DOST-MIMAROPA and DOST-FNRI.

During the virtual forum, the DOST-FNRI also discussed the technical aspects of adoption and commercialization of the said technologies including the R&D cost, equipment cost, proposed selling price, and licensing fee.

An enhanced and more nutritious version of the Nutribun, popular in the 1970s, was developed by DOST-FNRI that is now called the E-Nutribun, was also showcased during the technology forum. The vitamin-enriched bread is said to be reformulated to be softer and packed with micronutrients mostly from squash. It was developed primarily for use during feeding programs implemented by the government and in providing enough and nutritious food for families facing hunger especially during the COVID-19 pandemic.

With the positive business prospect for the E-Nutribun, eight MSMEs readily showed interest in adopting the technology and were invited to the soft launching of the product held last 29 July 2020. Following the soft launch, three MSMEs from Marinduque and Romblon immediately submitted their letter of intent, which is the first step towards the adoption of the technology.

Other food technologies that sparked interest from other MSMEs included the following: MGM 6, Brown Rice Fruity Bar, Tubig Talino, Rice Mongo Curls, Iron Fortified Rice, Pancit Canton Squash, and Stabilized Brown Rice.

On the other hand, DOST-MIMAROPA serving as the Fairness Opinion Board (FOB) Secretariat, is currently coordinating with the MSMEs who are interested in licensing Tubig Talino and Stabilized Brown Rice. The participants were briefed on the specific requirements for the licensing of the said technologies.



Screenshot of the virtual poster of the technology forum.

The FOB is composed of experts tasked to assess whether a proposed technology transfer transaction between a Government Funding Agency/Research Development Institute (RDI) and a technology licensee/business is fair to the government by issuing a Fairness Opinion Report (FOR). (Source: DOST-MOMAROPA)



Batangas' egg production industry gets major boost from DOST-funded study

By Allan Mauro V. Marfal, DOST-STII

The town of San Jose in the province of Batangas is known as the Egg Basket of the Philippines since it produces over 70,000 metric tons of eggs each year.

Egg production in San Jose started as a backyard industry way back in the 1960's but egg farmers recently evolved into becoming agro-industrial entrepreneurs with the help of the younger generation who introduced the "veterans" to innovative agricultural practices.

In 2009, the people of San Jose were challenged because of the oversupply of eggs produced by an estimate of seven million chickens. Fortunately, with the help of the Batangas Egg Producers Cooperative or BEPCO, the egg farmers were able to develop different products from eggs such as liquid egg and frozen egg.

Again, in 2017, the farmers of San Jose faced another trial. Cases of Bird Flu infestation greatly affected the livelihood of most of the resident-farmers in San Jose.

"Milyon-milyong itlog ang natambak sa aming bayan. Kaya napaisip kami kung anong maaaaring gawin sa mga surplus na itlog para

mapakinabangan pa ang mga ito," said Cecille Virtucio, BEPCO Managing Director.

(Millions of eggs piled up in our town. So, we need to figure out what could be done with the surplus of eggs to make the most out of them.)

This paved the way for the collaboration between BEPCO and the University of the Philippines (UP) Diliman when they submitted their research proposal to the Department of Science and Technology (DOST) under the Collaborative Research and Development to Leverage Philippine Economy or (CRADLE) program.

Dr. Patricia V. Azanza, the project leader of the said study and professor at the College of Home Economics in UP Diliman, shared that their goal in this project was to make powder or granules from low-edible eggs or that of low-quality.

"Pinag-aralan namin ang kalidad ng mga bulok na itlog o soft-shell egg, maruming itlog o dirty egg, at basag na itlog o checked egg kung alin sa kanila ang maaaring idevelop na pulbos at granule. Bakit natin ninanais na gawing granule at powder ang mga low-value



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na itlog? Sapagkat mahaba ang shelf life nito kaya matagal itong mapapakinabangan ng industriya at nakadagdag pa rito na sanay na silang gamitin ito,” explained Dr. Azanza.

(We have studied the quality of soft-shell eggs, dirty eggs, and checked eggs and evaluated which of them could be developed into powder and granule. Why do we want to make low-value eggs into granule and powder? It has a longer shelf life that the industry can take advantage of for a longer period.)

According to the study, they found that dirty eggs are the most ideal and suitable to be developed as granule and powder. BEPCO members were taught on how to properly wash and use the eggs so that the product they will sell in the market has quality and is safe to use.

Said collaboration resulted in the development of Egg White Powder which is ideal for baking cakes and bread. It can also be used in making mayonnaise and meringue.

“Ang aming proyekto sa ilalim ng CRADLE ay nagbigay sa amin ng pagkakataon upang makapagbigay kami (UP Diliman) ng prototype na pulbos sa BEPCO. Matapos nila itong ma-evaluate ay naipamigay na ito sa indutriya sa loob lamang ng tatlong buwan,” said Dr. Azanza.

(Our project under CRADLE gave UP Diliman the chance to provide

prototype powder to BEPCO. After their evaluation, it was distributed for the use of the industry in just three months.)

Dr. Azanza added that they will be transferring the developed technologies in bulk to BEPCO once they have adjusted the design of their teaching aide suitable for virtual procedures. Incidentally, the machines developed at the DOST Food Innovation Center in UP Diliman were the ones used for the project.

“Napakarami naming natutunan mula sa proyektong ito, bukod sa paggawa ng egg white powder, sa tulong ng DOST at UP Diliman, naging instrumento kaming mga nasa kooperatiba sa pagtugon sa mga pangangailangan ng ating mga egg farmers dito sa aming bayan (San Jose, Batangas) at pagbibigay ng pangmatagalang solusyon sa mga problemang maaaring makaapekto sa kanilang kabuhayan,” said Virtucio.

(We have learned so much from this project, apart from the production of egg white powder, with the help of DOST and UP Diliman, we, in the cooperative, have become instrumental in addressing the needs of our egg farmers here in our town (San Jose, Batangas) and provided long-term solutions to problems that may affect their livelihood.





Rubber tree farmers find productive use for deadwood

By Juliemar V. Purificacion & Rizalina K. Araral, *DOST-FPRDI*

Rubber tree farmers in the municipality of Naga in Zamboanga Sibugay recently expressed their gratitude to the Forest Products Research and Development Institute of the Department of Science and Technology (DOST-FPRDI) for creating new jobs and extra source of income using a technology that brought back “life” to deadwood.

With the project “Processing and Utilization of Senile and Unproductive Rubberwood (*Hevea brasiliensis*) Trees for the Production of High Value Furniture, Mouldings and Joineries”, the farmers were able to convert senile rubberwood trees or deadwood into high-value products such as quality home and school furniture.

“We are very grateful to DOST-FPRDI because of what we have now,” said Esperidion M. Salburo, chairperson of the Tambanan Agrarian Reform Beneficiaries Multi-Purpose

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TARBEMCO's chair Esperidion M. Salburo during the closing ceremony of the DOST-FPRDI training on furniture making.

Rubberwood can be turned into exquisite furniture such as this center table, which won 3rd place during the 2019 Rubberwood Furniture Design Contest.

Cooperative (TARBEMCO). "Without their help, the old rubberwood trees in our community will only be used for fruit crates, pallets, and firewood. Now, we can also use them to make premium products like furniture, doors, door jambs and other builders' woodworks that will bring in much needed income for us."

Rubberwood can be turned into exquisite furniture such as this center table (shown in photo), which won 3rd place during the 2019 Rubberwood Furniture Design Contest.

In the last two years, DOST-FPRDI was able to conduct a series of training for TARBEMCO members to teach them how they can maximize the use of old, unproductive rubberwood trees. Of TARBEMCO's 298 members, 78 have

already attended the DOST-FPRDI's trainings on harvesting and sawmilling, rubberwood preservation and treatment, kiln drying, woodworking machine operation and maintenance, furniture making and basic finishing. The rubber tree farmers also received a complete line of processing equipment and facilities necessary for every stage of furniture production - from sawmilling to finishing.

"We are now inspired to plant more rubber trees because we have realized their value," said Chairperson Salburo.

The TARBEMCO plantation currently has 210 hectares of senile rubberwood trees that can yield as much as 31,500 cubic meters of valuable lumber that can be converted to high value products.



Mr. and Mrs. Saguinhon (left and right), proprietors of JRED Food Processing, are shown with PSTD Fuertes in front of their coffee processing facility during its recent launching in Malitbog, Bukidnon.



Kape Roger of Bukidnon acquires FDA license to operate

By Nova Belle Calotes, *DOST-Bukidnon*

MALAYBALAY CITY - JRED Food Processing, a coffee processor based in Malitbog, Bukidnon, was awarded a License to Operate (LTO) by the Food and Drug Administration (FDA) early this year.

Famous for its Kape Roger or Señor Rogelio brand of coffee, the company is a longtime proponent of the Department of Science and Technology (DOST) under the Small Enterprise Technology Upgrading Program or SETUP, a program that aims at assisting micro, small, and medium enterprises to level up.

DOST-X has been assisting JRED Food Processing since early 2018. The agency linked them to a series of free trainings, and seminars that include Good Manufacturing Practices and Food Safety. Since the approval of their SETUP proposal, the firm's proprietors, Mr. and Mrs. Saguinhon, have been accommodating experts in the field to help them improve their enterprise.

Incidentally, Kape Roger also sought the services of consultants paid by DOST to assist them in their documentary and physical requirements to avail of the FDA's License to Operate. Their manuals and their actual plant layout were most critical requirements of the FDA that have been provided for free to them through SETUP.

Other than free training and one-on-one consultancy, Kape Roger was also able to upgrade its facility with higher specifications and brand-new equipment

through SETUP. Some of the modern equipment they acquired were the coffee pulper, grinder, continuous band sealer, and the roasting machine.

With the acquisition of the LTO, the firm aims to expand its current market to include supermarkets throughout Northern Mindanao, plus the establishment of coffee shops in Cagayan de Oro City and Malaybalay City.

Kape Roger also acquired their Intellectual Property Rights (IPO) on its official brand, Señor Rogelio. The recently granted IPO allows them to enjoy exclusive rights on their brand, which they have worked so hard to establish.

The Small Enterprise Technology Upgrading Program or SETUP is a flagship program of the DOST that enables MSMEs to address their technical problems and improve productivity and efficiency through the infusion of appropriate technologies that will improve products, services, and operations; human resource training; technical assistance and consultancy services; and design of functional packages and labels.

For MSMEs who want to avail of SETUP assistance, the agency only requires initially a Letter of Intent and any inquiry via email at bukidnon@region10.dost.gov.ph or Facebook chat to DOST Bukidnon FB Page. For more information, please contact Ms. Julie Anne H. Baculio, Science Research Specialist I (stpromotions@region10.dost.gov.ph, 0917-709-3706).

OFW finds wood products making a profitable business

By: Allan Mauro V. Marfal, DOST-STII



Benjie Inocencio was an Overseas Filipino Worker (OFW) in Kuwait for three years before he decided to start Journey Woodblock Enterprises located in Taguig City. Through DOST's Small Enterprise Technology Upgrading Program or SETUP, Benjie's business grew and was able to generate livelihood for the unskilled carpenters in their area. (Screenshot from DOST Report episode aired via DOSTv Facebook page on 11 September 2020)

Witnessing how his father ran the day-to-day operation of their furniture business, Benjie Inocencio learned to appreciate the craft and the business. Because he was exposed to this enterprise at a young age, he learned the ins and outs of the woodworking and furniture making industry. Seeing the great potential of the business, Benjie was inspired to follow in his father's footsteps and looked forward to fulfill his lifelong dream.

Ready to spread his wing, Benjie went to Kuwait to work in a furniture company after college to gain more experience. However, since he does not have any certificate of employment to present, he was hired initially on a floating status and was assigned in the Sand Department.

"When I went there (in Kuwait), the huge challenge for me was to find a perfect job or task. I have never been employed when I was in the Philippines, I used to do commission works as a carpenter and freelancer," said Benjie.

Benjie's determination to prove something and his eagerness to expand his knowledge were enough to find his perfect footing in his company. After six months, he eventually got promoted as a CNCC programmer.

When Benjie was about to establish a stable career in Kuwait, he still felt the urge to have his own company, and use the same kinds of machines and technologies in furniture making in the Philippines.

With the passion for the craft and desire to have his own company, Benjie opened Journey Woodblock Enterprises in 2012. It produces high quality solid wood furniture like modular cabinets, kitchen cabinets, built-in closets, countertops, drop ceilings, bed frames, double-deck beds, and other customized items.

The company also offered interior design, fit out, and renovation for condo units and commercial spaces. Because of their quality work, they were recognized as one of the design leaders in space management, and their commitment to innovation and modern design yielded for the company a comprehensive portfolio of kitchen and closets ideal for condominiums, homes, offices, mall spaces, schools, and other institutions.

In 2015, Benjie learned about the Small Enterprise Technology Upgrading Program or SETUP of the Department of Science and Technology (DOST) and how it can help micro, small, and medium enterprises (MSMEs). Wasting no time, Benjie applied for assistance to upgrade their production capability with the acquisition of a CNC Router Machine and an Edge Banding Machine, that resulted in increased production output and efficiency, improved product quality, and increased business opportunities.

In 2020, the company again availed of the SETUP assistance to acquire a CNC Router with Automatic Tool Changer that will automate their milling process. With the growing demand for their products and services, the company realized the need to further improve their production capacity through the acquisition of upgraded production equipment.



Through SETUP, Journey Woodblocks Enterprises was able to increase its production output by 43% from 70 to 100 boards per month and improved its sales by 57% from seven million in 2015 to 11 million in 2019.

Furthermore, the company also achieved smooth and precise production process through the elimination of rejects in production from eight to just three boards per month. This resulted in increased savings by as much as Php 100,000 per month by eliminating the outsourcing of processes.

According to Benjie, the terms of DOST for their SETUP beneficiaries are very ideal for many small businesses.

“You have three years to pay and you have a lead time of six months. It is almost free because, in the first six months, you were able to get the return on your investment immediately. DOST is creating a way for us to pay them back,” said Benjie.

Benjie ended by sharing his gratefulness to DOST’s SETUP as it becomes a source of inspiration for many aspiring Filipino entrepreneurs and he hopes that many more Filipinos would benefit from it, just like him.



Enhanced nutribun: Good for both undernourished and healthy Pinoys

By Geraldine Bulaon-Ducusin, DOST-STII



Racky Doktor, owner of Nutridense Food Manufacturing Corporation, shows off the Enhanced Nutribun that is now commercially available. (image grab from FB page of NFMCI)

Nearly fifty years after the “nutribun” came out in the 1970’s as a part of the government’s feeding program, the current Philippine government has now developed an enhanced version of the bun to address hunger brought about by the COVID-19 pandemic.

But just how enhanced is DOST’s enhanced nutribun? Will it address the call of the Department of Social Welfare and Development’s Feeding Program During Community Quarantine or Other Similar Emergencies?

Nutrition in a bun

Nutrition-wise, the Department of Science and Technology-Food and Nutrition Research Institute's (DOST-FNRI) enhanced version answers the children's need for micronutrients, energy, and protein requirements.

Unlike the largely wheat-based nutribun of the 1970's, mainly produced for the undernourished [children] sector of the population, the enhanced version can also be consumed by those who are healthy. The enhanced nutribun is made from squash that is rich in vitamin A, a nutrient that is commonly lacking in the regular meal of children.

Based on the 2018 Expanded National Nutrition Survey, children aged 6-9 years old have 63.1% vitamin A inadequacy, while those in the 10-12 years old bracket have 76.1% vitamin inadequacy.

The enhanced nutribun has more micronutrients like iron and vitamin A. The texture is softer and weighs 160- 165 grams per piece, which makes it easier for children to hold and bite. Each serving has 504 calories, 17.8 grams protein, 6.08 milligrams iron and 244 micrograms vitamin A. A piece of enhanced nutribun already provides 60% of requirements for vitamin A.

"The product is not only good for young children but also for the other population groups, particularly, pregnant and lactating women, and our senior citizens. Even the well and healthy population need products like the enhanced nutribun. It tastes good, and we are not limiting consumption to the undernourished. You may taste it to believe us, then look at the nutrition label," Engr. Rosemarie G. Garcia, Chief Science Research Specialist of DOST-FNRI, said.

A bun made by local nutrition experts

In a story published by Esquire two years ago, "A History of the Nutribun, the Well-Intentioned Bread from the '70s," the Philippine government's Nutribun program happened this way: the U.S. through its Food for Peace program facilitated the donations of wheat flour and non-fat dry milk powder as the primary ingredients for the Nutribun



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program of the Philippines. Ruben William Engel, a nutrition advisor at the time, and his team of nutritionists working for USAID Nutrition, developed the bread formulation. The U.S. Wheat Associates provided technical assistance to the local bakeries handling the production of the nutribun. Each bun had 500 calories and 17 grams protein.

The current formulation, however, is done by an all-Filipino team from DOST-FNRI. They started reformulating enhanced nutribun from the original formulation of squash bread, which the Institute developed way back in 2003. It was not copied from any foreign formulation. It was developed by Filipinos for Filipino consumers focusing on the needs of school age children, 6-9 years old.

While there are other products, the bun instead, is being used to address the nutrition problem. A liquid product is more difficult to distribute than a solid, and multivitamins are usually synthetic. According to DOST-FNRI, based on the 2018 Expanded National Nutrition Survey, covering 14,556 school-age children, bread or pandesal is in the top five food sources of the total energy intake. And in developing any product to address a nutritional problem, the one which is the most commonly consumed should be used.

There are specific nutritional problems that the enhanced nutribun is targeting, and it uses a local vegetable as one of the ingredients, of which there are plenty in the Philippines.

A 'public good' bun technology is free for local entrepreneurs

The technology on the production of enhanced nutribun is a "public good technology" and it is available for local entrepreneurs. DOST-FNRI will give it for free to qualified entrepreneurs who have technical capability to commercially produce the product (i.e. with a GMP compliant facility or working towards it, willing to invest in equipment and raw materials), and has a legal identity (a registered and taxpaying company, etc).

During the enhanced nutribun's soft-launch last July 2020, there were three potential technology adopters: Century Pacific Corporation; Nutridense Food Manufacturing Corporation (NPMC) and Aretei Foods Corporation.

Both Nutridense Corporation and Aretei Foods Corporation have already signed licensing agreements with DOST-FNRI. They were both trained on the production. NPMC started the operation in their newly built facility on 07 October 2020 and have received orders since then. Aretei Food Corporation, on the other hand, is still producing their puree at DOST-FNRI, but it has also started receiving orders for this.

Because of their belief on the benefits of the bun, NPMC even donated 250 enhanced nutribun to a locked-down barangay in Pangasinan during that time.

Also, in October, Regions II and IV-A conducted virtual tech transfer training, virtual site visits, and ocular inspection



Weighing each bun before putting them in individual packs ready for shipping.

for the technology adopters of enhanced nutribun. In Region II, there are four licensees: the AJ's Bread and Pastries; J.A. Fruits and Vegetable Processing; Quirino Livelihood for Everyone (Q-life); and J's Bakeshop & Delicacies.

In Region IV-A, there are 14, the Gem See's Cakeshop; Swisspharma Research Laboratories Inc.; San Jose Workers MPC; MRG Food Products/Malou's Bakery; Magifrance Bakeshop and Café; Doughpro Manufacturing & Trading Corp.; LGU-Mauban, Quezon Province; Panaderia Pantoja, Inc.; Golden Wheat Bakery; El Richard Bakery; Anica's Home Bread Store; Momilo Mio; Congw. Angelina "Helen" D.L. Tan, MD; and Amira's Buco Tart Haus.

Since there is no more charge for technology licensing, the primary cost will only be the setting up of the facility and the purchase of equipment that will largely depend on the scale of production. DOST-FNRI's pilot plant engineers will assist the entrepreneurs in terms of the plant lay out and the listing of equipment to be purchased.

Based on the assumptions and computation of the Institute's engineers, the return on investment in enhanced nutribun is more than 30% with payback period of 2-2.5 years.

Entrep's experience with DOST technologies

Nutridense Food Manufacturing Corporation (NPMC) was among the first three to sign up for the technology of DOST-FNRI.

Racky Doktor, owner of NPMC, said their company, which has a mission of helping reduce malnutrition through production and distribution of research-based food technologies, signed up immediately after learning about the enhanced nutribun because the product is very nutritious, timely, and needed by both children and adults.

NPMC officially opened their nutribun facility on 26 October 2020 which signifies their readiness to cater to the needs of DepEd and DSWD Feeding Programs. However, Doktor also sees an opportunity in offering a nutrient-filled bread to the general populace, so they can also avail of its nutritional benefits, especially in this time of pandemic. Aside from distributing in Pangasinan, where their plant is located, the company also plans to supply other areas to the extent that their capacity will allow.

The enhanced nutribun, likewise, contributes to the labor force of NPMC,

with the 24 employees added, so as not to affect their existing production of other products. They will also be needing additional staff for deliveries as orders come in. The buns will be distributed via direct delivery, thru distributors, via online or pick-up from NPMC office at Malanay, Sta. Barbara, Pangasinan.

Being an adopter of several DOST technologies, Doktor advises those who plan to get into business using locally developed technologies, such as the OFW retirees, or any regular Filipino with these: "First, personal discernment of why an investor should go into an investment is a must. Second, investing into a developed technology is an advantage. Third, locally developed technologies yield better results."

Estimated 1M children to benefit from DOST enhanced nutribun

In the '70s, 30 million nutribuns were given to 200,000 children. However, DOST-FNRI cannot give the exact number of children who will benefit from its enhanced nutribun since the distribution will depend on DSWD, DepEd and the LGUs. Garcia said the Institute's rough and conservative estimate is that one million children may benefit from the product.

"We have more malnourished children now, than in the 70's," Garcia said.

DOST-FNRI is a research and development institute that develops the product and transfers it to partners who commercialize the product, who in turn bring these to the intended consumers. For the enhanced nutribun, DepEd, DSWD and DTI expressed support for the product. In fact, DepEd and DSWD have already set aside the funds to give the products to the children for free through their school and supplementary feeding programs, respectively.

DOST-FNRI is inviting Filipinos, especially those who are in business, to partner with them in commercializing and producing the enhanced nutribun, and to bring it not only to school children but to all those who want nutrition in a bun!

Matuto at kumita!

Cook your way to wealth with ube processing

By DOST-ITDI

Have you ever wondered how you can reach financial freedom in spite of the COVID-19 pandemic? If you are out of a job or thinking of career change and just feeling cooped up at home, there is an easy way of earning from “ube”.

Let the Industrial Technology Development Institute of the Department of Science and Technology (DOST-ITDI) teach you 55 simple and cheap ways to prepare meat, fish, fruits, and vegetables. Those with excess physical energy can also try their skill in learning 14 machine-based technologies.



Earn from ube processing the healthful way

The DOST-ITDI, as a mover to develop technologies and solutions that support the growth of industries, also provides for every “Juan” and “Juana” a source of livelihood that’s reasonably affordable.

These technologies are simple, adaptable, and useful in any situation, be it normal times or trying times like during disasters and the current pandemic.

One of the ways, by which one may venture into to earn something extra is ube (purple tam) processing. DOST-ITDI prepared a variety of ways to process ube into jam, powder, candy, and flakes.

These are commonly used as primary ingredients in cakes and other pastries, flans, and ice cream, among others.

While we can indulge our sweet tooth with ube, it is also good to know that ube has a similar nutritional profile similar to sweet potato, which is high in healthy carbs, vitamins, and fiber.

Incidentally, the purple variety was found to have extra-high levels of antioxidants that can promote overall health.

Ube Processing is Series No. 5 in the “Kitang-kita Na sa TekPinoy.biz Series of DOST-ITDI” and is an online reading material for those interested

to earn while at home during the quarantine period. It can be accessed at https://drive.google.com/drive/0B1_71hu42aWrX1UwTINiRFd2Y3M.

Interested would-be entrepreneurs can request for online techno demonstration of other technologies included in the series.

For more information, write to Nelia Elisa C. Florendo, Chief Science Research Specialist, Technological Services Division, Industrial Technology Development Institute, DOST Complex, Bicutan, Taguig City 1631, Metro Manila or call telephone number (02) 8837-2071 Local 2265.

2020 Nat'l Informatics Olympiad goes online

By Marco D. Melgar, DOST-SEI

After bagging a bronze medal in last year's International Olympiad in Informatics (IOI), the organizers behind the country's participation in the prestigious plum wasted no time—pandemic and all—to put together the best team to challenge the world in programming.

The IOI is a yearly competitive programming competition for secondary school students from more than 80 countries. It involves a series of individual contests on computer programming, hence, each participant is awarded a medal depending on his/her final score.

Last year, Dan Alden Baterisna from De La Salle University Senior High School won the bronze medal at the 31st IOI held on 4-11 August 2019 in Baku, Azerbaijan. He was joined by Dion Stephan Ong from the Ateneo de Manila Senior High School, Steven Reyes from Saint Jude Catholic School, and Ron Mikhael Surara from Philippine Science High School – Bicol Region Campus. Last year's IOI tallied a total of 322 participants from 83 countries.

For this year, the National Olympiad in Informatics – Philippines (NOI.PH) Finals kicked off online on 08 August 2020 to serve as the selection phase to determine the official representatives for this year's IOI. The NOI.PH is an annual programming contest for Filipino high school students organized by the group of the same name.

For the NOI.PH, 30 finalists vied for the precious spots in the national team roster. The top two students in the NOI Finals automatically took the first two slots. The remaining two slots were chosen based on their performances in the NOI Training season.

Marte Soliza, who is among the organizing minds of NOI.PH, is positive that the competition will promote



Last year's national team members at the 31st IOI held on 4-11 August 2019 in Baku, Azerbaijan: (L-R) Ron Mikhael Surara from Philippine Science High School – Bicol Region Campus, Dion Stephan Ong from the Ateneo de Manila Senior High School, Dan Alden Baterisna from De La Salle University Senior High School, and Steven Reyes from Saint Jude Catholic School. (Photo courtesy of NOI.PH)

programming as an expertise among the youth.

"In this digital age, you need computational thinking to thrive. Cultivating that is one of our goals as we train high school students and challenge them in the NOI Finals. Although there are unfamiliar challenges to overcome, we are fortunate enough to push this event through despite the pandemic," Soliza said.

He also thanked the Department of Science and Technology – Science Education Institute (DOST-SEI) for backing the competition and the country's participation in the IOI.

"We thank the DOST-SEI for their timely support without which we might've fallen from our crutches," he noted.

Dr. Josette T. Biyo, DOST-SEI's director, likewise thanked NOI.PH for providing a platform in developing the country's future problem solvers.

"We thank NOI for sustaining this program that manifests your belief in the excellence of our students in the fields of science, technology, engineering, and mathematics (STEM). This year's NOI will surely be a showcase of gifts in coding or programming," Biyo disclosed.

Filipino scientists bag awards during 2020 NRCP scientific confab

By Hans Joshua V. Dantes, *DOST-PNRI*
Photos from DOST-PNRI

SCIENTISTS AND researchers from the Department of Science and Technology - Philippine Nuclear Research Institute (DOST-PNRI) recently bagged several awards at the Annual Scientific Conference and 87th General Membership Assembly of the National Research Council of the Philippines of the Department of Science and Technology (DOST-NRCP). Dr. Lucille Abad and Dr. Custer Deocaris of the DOST-PNRI Atomic Research Division were among the 10 awardees for Outstanding Filipino Researchers under the DOST-NRCP Achievement Awards.

Awardees in this category were recognized for their significant contributions to their respective fields and research advancements that benefited the different sectors of the economy.

Dr. Abad, DOST-NRCP awardee for DOST-NRCP's Division of Chemical Sciences, is a Scientist III and a Civil Service Commission Dangal ng Bayan awardee. The hardworking scientist is currently the chief of the Institute's Atomic Research Division.

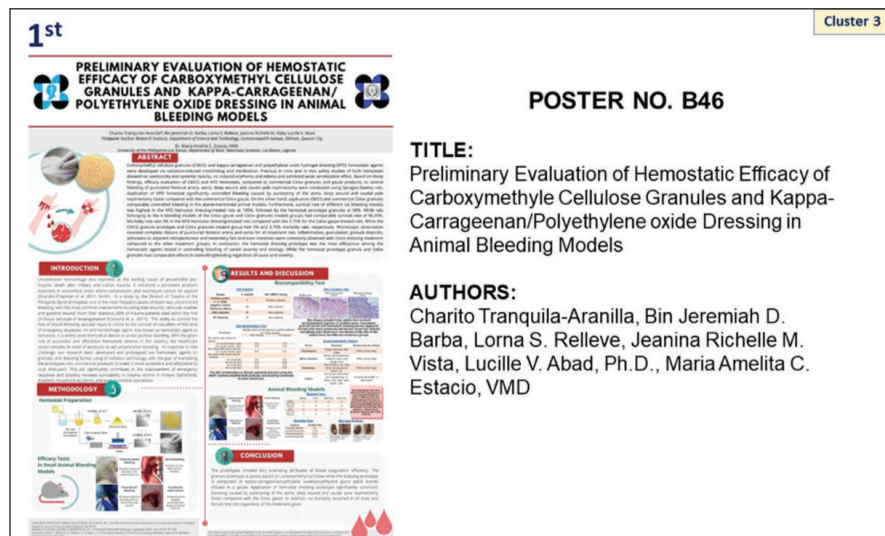
She is a radiation chemistry specialist who served as lead project coordinator for various projects by the International Atomic Energy Agency involving radiation processing for agricultural, industrial, and medical purposes.

Among her major R&D projects are the Carrageenan Plant Growth Promoter that increases the yield of rice up to 60% and other crops and the Hydrogel Wound Dressing for burns, wounds, and bedsores.

On the other hand, Dr. Deocaris is the DOST-NRCP awardee for the Division of Biological Sciences and currently a senior science research specialist at the DOST-PNRI's Biomedical Research Section. He was the former Research Chief at the Commission on Higher Education.

Dr. Deocaris is a multi-awarded S&T broadcast journalist and also a DOST Balik Scientist with a wide range of postdoctoral work in neuroscience, sports science, and embryology.

In addition to the Achievement Awards, the Institute's chemistry researches clinched first place in Cluster 3 of the conference's 2020 Scientific Poster Competition. Scientist I Charito Tranquila-Aranilla, Dr. Abad, and DOST-PNRI Chemistry Research Section researchers Lorna Relleve, Bin Jeremiah Barba, and Jeanina Richelle Vista, along with Dr. Maria Amelita Estacio of the University of the Philippines Los Baños, were cited for their poster titled



The winning scientific poster of DOST-PNRI's chemistry researchers.



Dr. Lucille Abad (left) and Dr. Custer Deocaris (right) from DOST-PNRI were among the 10 awardees for Outstanding Filipino Researchers under the DOST-NRCP Achievement Awards.

"Preliminary Evaluation of Hemostatic Efficacy of Carboxymethyl Cellulose Granules and Kappa-Carrageenan/ Polyethylene oxide Dressing in Animal Bleeding Models"

The said winning research poster highlighted DOST-PNRI's development of radiation-processed hemostats that are used to reduce or stop the bleeding in wounds during emergencies and surgical procedures.

Incidentally, DOST-NRCP's annual conference and general assembly, which was

held online this year, adopted the theme "Research for Public Good" to highlight its thrust towards increased accountability and inclusivity in its objectives and research directions.

Serving as an advisory body, DOST-NRCP is a collegial body of scientists and researchers that provides policy recommendations and invaluable support to the country's ever-growing R&D efforts which contribute to national development.

Malacañang confers Gawad CES Award to DOST Region II director



All smiles. DOST-II Regional Director Sancho A. Mabborang proudly shows his Gawad CES Award. (Photo from DOST-II)

WHEN THEY say that public service is a public trust, Engr. Sancho A. Mabborang, long time regional director of the Department of Science and Technology (DOST) Region II, is an epitome of what a public servant is all about.

The hardworking director of Cagayan Region was recently conferred the Gawad CES Award by the Career Executive Service Board (CESB) of the Civil Service Commission in simple but solemn ceremony at the Malacañang Palace as testament to the unparalleled government service of Director Mabborang.

Director Mabborang dedicated his service to promoting and strengthening the use of science, technology, and innovation in the region to create economic opportunities that will pave the way for inclusive growth and development. He is well known for spearheading the sustainable implementation of one of the DOST's flagship programs, the Small Enterprise Technology Upgrading Program or SETUP that helps the micro, small, and medium enterprises (MSMEs) become more competitive.

This added laurel was also achieved through the effective implementation of the OneStore, the marketing platform for SETUP beneficiaries to enable them to sell their unique Filipino products here and abroad. Director

Mabborang, with a vision of empowering MSMEs by giving them opportunities for growth, also advocated the development of the OneStore.ph, the first government e-commerce portal in the country that enables local MSMEs to market their products for free to more clients.

Moreover, the dedication of Director Mabborang to research and development (R&D) was instrumental in the installation of an R&D Unit in the Regional Office; proactive engagement with the consortia composed of the academe and other industry stakeholders; and establishment of R&D Centers.

Lastly, Director Mabborang currently holds the chairpersonship of the Regional Research and Development Committee that also contributed to his getting the award because his position enabled him to sustain and nurture a thriving R&D ecosystem in the region.

The humble regional S&T director believes that this award is another milestone, not only for him but, for the entire regional office and the different Provincial S&T Centers composed of equally dedicated staff and officers. In fact, Director Mabborang also dedicates the award to all science workers with the hope that it will serve as an inspiration to every employee

to work the extra mile in the name of public service.

Other awardees who shared the same virtual stage were DOST Undersecretary for Research and Development Dr. Rowena Cristina L. Guevara and Dr. Alexander R. Madrigal, regional director of DOST IV-A. Gawad CES recognition includes a plaque with the Presidential Seal, a statuette, and a prize money amounting to P100,000.00.

GAWAD CES award is a Presidential award that recognizes members in the Career Executive Service (CES) for their exemplary performance and significant contributions in the fields of innovation, information and communication technology, administrative reforms, social services, and public policy. It also recognizes exceptional accomplishments of government employees to encourage consistent performance and to promote excellence in the CES community.

The award was created under Executive Order No. 715 that was signed by President Gloria Macapagal-Arroyo on 28 March 2008. The said order effectively upgraded the former recognition program in the CES which is the Search for Outstanding CEO.

A quiet team with roaring success: Young innovators invent soundproofing product

By Jachin Jane O. Aberilla, *DOST-STI*

IF YOU are working from home or attending online classes because of the pandemic, you are surely distracted by the constant barking of your pet dog, your neighbors' dog, the chicken's crow, your family chatting from behind, or the loud noise of the vehicles passing by.

We all want a quiet place to concentrate and focus on what we are doing and to avoid distractions during online meetings and classes. One solution to address this is to soundproof your working space.

Infrastructures ranging from conference rooms to classrooms, and even our homes have little or no acoustical and insulating treatment applied. Soundproofing will prevent the passage and reverberation of sound in the room. However, soundproofing may be very expensive and tedious.

Aspiring to solve this problem, a group of young innovators from Angeles City Science High School introduced Hibla, an acoustic and insulating material made locally from available natural fibers.

Team Hibla, composed of Neil David C. Cayanan, Shaira C. Gozun, and E'vanRelle M. Tongol along with their mentor Lolita G. Bautista came up with a product made out of abaca, bamboo, and water hyacinth that offers an acoustical treatment by trapping the sound waves into its voids thus lessening the noise and reverberation present in an enclosed area.

In an interview with the team, Cayanan shared that the project started when the team noticed that whenever they have school events in the AVP room of the school, noises are heard from the other room.

Because of this, the team was inspired to think of a way to lessen the noise produced within learning environments such as classrooms, resulting in a more conducive learning area that will build more focus for students.

They researched and found that commercially available acoustic panels are relatively expensive.

Cayanan shared that they looked for alternative materials and found locally available fibers like, abaca, bamboo, and water hyacinth to have potential sound absorption properties that are not fully studied yet.

In fact, the Philippines is also one of the leading exporters of abaca and bamboo fibers, Cayanan highlighted.

"There is also a growing need for reducing water hyacinth in Pampanga and Laguna Lake because it causes flooding in certain areas. To be able to use this water hyacinth to solve another problem is like hitting two birds with one stone", Cayanan added.

Hibla: the soundproofing product

Sharing the process of producing the product, Gozun said that the team came up with three versions of absorption materials made of abaca, bamboo, and water hyacinth with polyester as the carrier fiber. In an experiment, they compared each material to existing absorption materials and found that the material made out of water hyacinth performed the best in terms of the sound absorption coefficient

The Hibla panels, referring to their product, can absorb a large portion of noise, especially in high frequencies with Abaca (59%), Bamboo (58%), and Water hyacinth (82%) in 6300 Hz, respectively. The three biomass fibers also possess heat-insulating properties of up to 353.37°C, 348.69°C, and 277.41°C, respectively, the team reported.

Moreover, the product is capable of absorbing sound waves from low to high frequencies, controlling noise and reverberation in a given room. Aside from sound absorption, the team said that it also slows down the flow of heat in a specific area, thus adding coolness and comfort.

The panels made from Hibla fibers are feasible to be used in classrooms, recording studios, theaters, and the like by layering, between walls, acoustical furniture, curtains, seat cushions, panels, and as three-dimensional wall art panels.

Social impact of Hibla

Aside from being a cheap alternative, Tongol, one of the team members, shared that the product is eco-friendly and less harmful. The Hibla panels guarantee quality products having high tensile strength and fire-retardant properties. They are made with proportions of natural fibers locally harvested in the Philippines making them environment-friendly.

The team also reported that a large number of acoustic panels presently available in



Team Hibla composed of Neil David C. Cayanan, Shaira C. Gozun and E'vanRelle M. Tongol along with their mentor Lolita G. Bautista presented their research in the Philippines in the Acoustical Society of America (ASA) in San Diego, California in May 2019.

WHO'S WHO?



Raw Hibla products are made of bamboo, water hyacinth, and abaca with polyester.

the market are made from pure synthetic fibers. Mentioning a study by Singh and Bhalla in 2017, pure synthetic fibers appeared to have negative effects on human health such as skin irritation and respiratory problems. Hibla panels, on the other hand, have a blend of natural fibers that proved to have no health risks.

To add, the commercial cost of Hibla panels is relatively cheaper than its competitors with a price of ₱50.00/sqm while a commercial brand (one of the most common imported acoustic panels available in the market) has an approximate price of ₱166.67/sqm.

The team also saw the implications of this project as a source of employment. Producing the product can empower thousands of local farmers of abaca and bamboo.

"The use of abaca and bamboo fibers in Hibla panels will boost the abaca and bamboo industries in the country while promoting Filipino ingenuity," Cayanan said.

Moreover, the team reported that the

use of water hyacinth fibers will help lessen the impact on aquatic biodiversity and flooding worldwide.

The journey to success

Coming up with a sound absorption product that can compete with existing commercial products is not an easy journey for these young innovators.

In terms of testing, Gozun shared that the school does not have the right equipment to be used for testing so the team had to travel back and forth from Pampanga to testing centers like the Philippine Textile Research Institute of the DOST in Taguig.

"We have to leave our classes, together with our mentors just to visit testing centers thus sacrificing our academics a bit," Gozun said.

For the acoustic side of the testing, the team had to send their product to Riverbank Acoustical Laboratories, Illinois, USA for the

standard test method for Impedance and Absorption of Acoustical Material.

However, in terms of financing the research, the team never had a problem because they were one of the DOST-PCIEERD's Young Innovators Program grantees in 2018.

"We were grateful because we will not be able to produce this product if we were not able to receive support from DOST", Cayanan added.

Lolita G. Bautista, the mentor of Team Hibla, said she is lucky and proud of the team that she formed. She is also grateful for the support of DOST-PCIEERD in their research even after the contract of the grant.

"Ang mga bata, mayroon silang magagandang idea. Kailangan lang nila ng suporta para maisagawa ito. Sana ipagpatuloy ng DOST ang kanilang pag-suporta sa mga kabataan na nahihilig sa research and development," Bautista said.

"For the students na natatakot na gumawa ng research or to take on STEM, do not be afraid to go outside the box. In research, failure is inevitable. Failure is not the opposite of success. Failure is part of success," Cayanan added.

"Research is not a smooth journey, it will never be, and it will always have ups and downs but one thing is for sure — the lessons from the experience will be worth it in the end. And if ever you face challenges, it is normal, do not be afraid to seek guidance from your mentor," Gozun added.

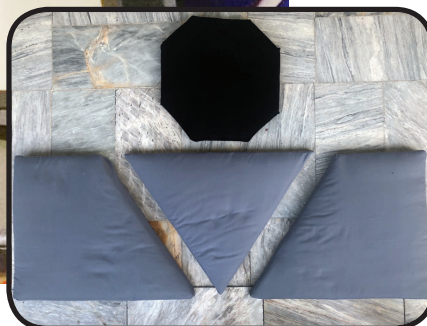
Team Hibla wins big

The team bagged several awards and recognition because of their invention.

Just last 3 August 2020, among the 46 hopeful projects from 22 countries, the team bagged the silver award in the Physics and Engineering Category of the Global Science and Technology Bowl (GYSTB) 2020. GYSTB is an international student science competition in biology, chemistry, physics, and engineering organized by the Hong Kong Federation of



A room with Hibla acoustic panels.



WHO'S WHO?

Youth Groups and supported by the Innovation and Technology Commission.

The team was also one of the best six projects of the National Science and Technology Fair (NSTF) in 2019 and represented the country in the Intel International Science and Engineering Fair last May 12 to 17, 2019 in Phoenix, Arizona, USA. Team Hibla amazed the judges from the Acoustical Society of America granting them with the Honorable Mention Award.

Moreover, the H&P Medical Research Group in Phoenix, Arizona headed by Dr. Kiril Pandelisev awarded the team as the “Best of Philippines - ISEF 2019”. This paved the way for the team to be invited to the 178th Biannual Meeting of the Acoustical Society of America on December 2-6, 2019 in San Diego, California, USA. The project was presented at the said meeting under the Architectural Acoustics Session in Sustainable Acoustics and was honored as Best Student Paper Award (1st Place) by the technical committee on Architectural Acoustics.

The Hibla panels research is now officially published in the Acoustical Society of America (ASA) - Proceedings of Meetings on Acoustics (POMA).

The team, together with the Philippine Textile Research Institute (DOST-PTRI), has also successfully filed patent applications both for the process and the product of the research study.

The future of Hibla

The team aims to target the acoustic and thermal insulation industry for commercialization. According to Global Market insights, the acoustic insulation market has a projected growth of up to 751 B in the global market by 2025.

Their goal is to produce the Hibla panels commercially to be sold to non-woven textile manufacturers, construction firms, government organizations, government-owned spaces (libraries, museums, hospitals, etc.), private institutions (hotels, theaters, religious buildings, etc.), non-government organizations, recording studios, and school classrooms and facilities.

With the groundbreaking product of these young innovators, soon we will be able to have a quiet place to study, work, and relax even after the pandemic.



Team Hibla during the DOST-PCIEERD Young Innovator's Program Forum on 16 July 2019 at The Heritage Hotel, Manila.



Team Hibla bagged the silver award in the Physics and Engineering Category of the Global Science and Technology Bowl (GYSTB) 2020.

We'll be back!



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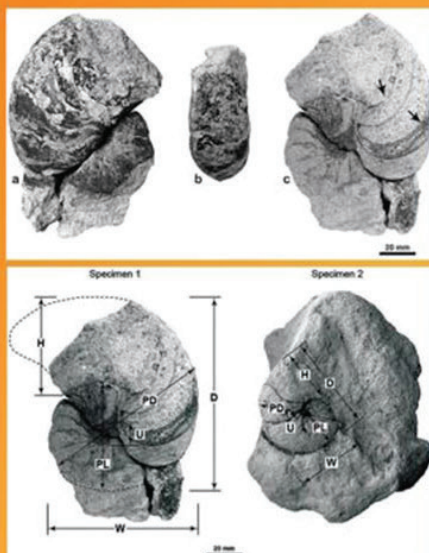
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Philippine Journal of Science

Volume 149 No. 3
September 2020

ISSN 0031 – 7683
<http://philjournalsci.dost.gov.ph>



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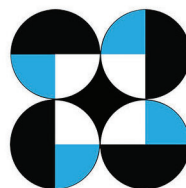


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