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S&T POST

Getting there

DOST's FORAY INTO TRANSPORTATION S&T

DOST launches food innovation hub in Tuguegarao

Broadcasters train up for responsible weather reporting

Dr. Nuna Almanzor JOB WELL DONE

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Patience is a virtue

Long queues of ordinary Filipinos are a common sight anywhere in Metro Manila. These chains of human beings brave the elements – from the searing heat of the morning sun to the agonizing rains, not to mention the annoying pollution and the dangers of flood-borne diseases. Worse, they have to wake up very early just to be in their respective workplaces trying to beat the clock. Yet, most do not usually reach their destinations on the expected time.Very sad, indeed; and patience is always tested.

Such unenviable sight, the monstrous traffic jams, and the conditions of public transportations are only three of the many situations that reflect the state of the transport industry. Undeniably, though, the government is very much aware of the problems and their root causes because numerous experts from all over had been tapped in various periods to identify possible answers to this never-ending problem, most probably.

Recently, stories have been circulating about some efforts from the department concerned. Worth mentioning, too, is the entry of the Department of Science and Technology (DOST) into the picture for the application of S&T in the industry. Some say that it has long been overdue.

For its part, the DOST through the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) and the Metals Industry Research and Development Center (MIRDC) has allotted significant time and resources for the sector.

More fittingly, for the third quarter issue of the S&T Post, we have featured for the first time transportation-related initiatives courtesy of the DOST and its agencies. Among these include the Automated Guideway Transit (AGT), the innovative Road Train, and the iconic tren, etc.

The entry of the DOST in this area, when protocols are properly observed, is one that can contribute to a much bigger outcome – inclusive growth. This is so because improved mobility, in reality, may lead to a better quality of life. Improved mobility may, after all, help define what is good in the things that the government does. If substantial time and resources have been infused into programs such as these, it is believable that good results can be expected.

Also true, however, is that criticisms surely abound. With this, the thinking Filipino might start to realize that there are items from the government that can offer some good changes. Some of these, however, need some time to prove their worth. These projects cannot be likened to an instant coffee or noodles that can be enjoyed once hot water is available. Perhaps, one of the messages that the Department is trying to convey is that Filipinos can bring solutions to problems of our own. There is no magic wand that can conjure the panacea for all these troubles.

Unquestionably, when all is set and done, improved mobility can be expected. If only everyone can understand that "patience is a virtue', then perhaps we can have a country we can truly be proud of.

Aristotle P. Carandang, PhD

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Department of Science and Technology (DOST)

DEPARTMENT OF SCIENCE AND TECHNOLOGY

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THIRD QUARTER 2014

S&T POST

WHAT'S NEW?

DOST NEWS

NSTW 2014

S&T NEWS

DISASTER PREPAREDNESS

MAIN FEATURE

OUR COVER

Getting There – the phrase connotes mobility, progression and success. DOST aims to take local transportation along this upward route to the top where technology is maximized for better public service, where the industry is globally competitive, and where commuters are satisfied. Various projects are now in the works to fulfill this aim – the Road Train, Automated Guideway Transit, the Fiberglass Rescue Boat, and facilities that will address the gaps in local aerospace manufacturing and customized local road vehicles design. Other initiatives are in the pipeline to make sure Philippine transportation "gets there….and stays there for the long haul." (Graphics & Layout: James B. Intia/Background Photo: Ray B. Intia)

DOST launches food innovation hub in Tuguegarao

By JOY M. LAZCANO
S&T Media Service, *DOST-STII*

TAPI Director Edgar Garcia, CSU President Romeo Quilang and Tuguegarao Vice Mayor Engelbert Caronan try the great-tasting but healthy vacuum fried okra and potatoes processed in the locally-developed vacuum fryer. The fryer and other DOST-developed food processing equipment are the main facilities in the Food Innovation Center recently launched at the Cagayan State University-Carig campus. The Center, the second of its kind in the country, is expected to spur the growth of the food industry in Luzon. *(S&T Media Service)*

THE DEPARTMENT of Science and Technology (DOST) Regional Office II launched the Food Innovation Center (FIC) during the opening day of the Northern Luzon Cluster Fair at the Cagayan State University - Carig Campus, Tuguegarao City, Cagayan. The Center is envisioned to help transform the agriculture-based Cagayan Valley into a food processing haven. A one-stop-shop food research and development center, it aims to improve the region's local food products to reach a sizeable share of the local and national markets.

Housed at the Center are locally developed food technology equipment designed to fit the needs of the local industry. Among such equipment are the vertical fill form seal for the packaging of solid food products; vacuum packaging for meat and dried fruit products; freeze dryer for dehydrating heat-sensitive food products; vacuum fryer; water retort for sterilizing glass and PET or polyethylene Therepthalate bottles; spray dryer for making powdered products; pulverizer/grinder for grinding corn, nuts, rice, and other grains; deep fryer for frying chips, crackers, and fries; dough mixer, noodle maker; noodle cutter; and single-screw extruder that is used in filling snacks and breakfast cereals.

According to DOST II Regional Director Urduja Tejada, Cagayan Valley may still be relying heavily on its agricultural products but it is now time to add more value to crops through processing and product development. On the competition in the processed food sector in the local market, Dir. Tejada is positive that with the Center, more local small entrepreneurs in the region will be able to create new products and expand through the equipment and services offered by the Center.

Aside from the food technology equipment, other services offered by the Center include the use of the research and testing laboratory, technology information system, trainings, consultancies, and packaging and labeling.

Mentioning the ubiquitous banana chips as an example, Dir. Tejada says that through the Center, the product packaging and label, usually plastic and photocopied paper respectively, can now be made more durable, attractive and competitive in the market.

"The product can also undergo shelf-life testing, nutritional labeling, food quality and safety testing," she says.

Meanwhile, CSU Chief Executive Officer Archimedes Articulo says that the Center can be a venue for the University to perform its various functions, such as instruction, research, extension and production, benefitting the students, faculty, community, enterprises, and cooperatives.

The Food Innovation Center at the CSU is the first in Luzon and second in the country, with the pioneering Center launched in Davao City last May. Another Center is expected to be established soon in the Visayas Region. *(S&T Media Service, DOST-STII)*

DOST-PAGASA no. 4 among top performing gov't agencies according to MBC

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

THE PHILIPPINE Atmospheric, Geophysical and Astronomical Services Administration or PAGASA, one of the agencies under the Department of Science and Technology, is one of the top 5 best performing government agencies and offices in the country, according to a survey by the Makati Business Club (MBC).

This was announced in a press statement issued by the MBC last August 11, 2014.

MBC's Second Semester Executive Outlook Survey, conducted from July 1-25, 2014, rated the performance of 62 government agencies and offices for the period July 2013-July 2014. Out of these 62 agencies, 43 garnered positive net satisfaction ratings from MBC members composed of senior business executives from the Philippines' largest corporations.

PAGASA joins this list of top performers for the first time, posting a score of 72.3 to claim the fourth spot overall. Of those surveyed, 84.6 percent said they were satisfied with the weather bureau's performance while 12.3 percent claimed they were not satisfied.

MBC cited the country's official weather bureau in particular, for its improvement in disseminating accurate weather forecasts to the public.

DOST-PAGASA was among those who debuted in the business scorecard in impressive fashion.

The circle of 5 best performing government agencies also includes the Bangko Sentral ng Pilipinas which is the frontrunner in the list, Department of Tourism which ranks second, Philippine Economic Zone Authority which ranks third, and the Securities and Exchange Commission on fifth spot.

Rounding up the top 10 list are the Department of Foreign Affairs, Department of Health, Office of the Presidential Adviser on the Peace Process, Department of Finance, and the Philippine Statistics Authority.

Founded in 1981, MBC is committed in the promotion of the business sector's role in national development and in addressing social and economic issues affecting the Philippines. (S&T Media Service)

OL Trap nominated for PAGASA award

The DOST-developed Ovicidal-Larvicidal (OL) Trap is a finalist to the PAG-ASA Award-NCR level by the Civil Service Commission. The Trap, composed of a black tumbler, a stick, and organic mixture, kills mosquito eggs and larvae by attracting mosquitoes to lay eggs on the lawanit stick saturated with the organic mixture.

DOST-PSHS system now use education apps in its campuses

By ALLAN MAURO V. MARFAL
S&T Media Service, *DOST-STII*

The Department of Science and Technology-Philippine Science High School System (DOST-PSHS) Deputy Executive Director and Officer in Charge, Dr. Rod Allan de Lara (3rd from left), Jojo Romarx Salas (1st from the right), representative of PSHSS Alumni Batch 1989, Mr. Jerome Locson (1st from the left), Program Manager of Google for Education, Director Virginia P. Andres (2nd from the left), Campus Director of PSHS Main Campus, Mr. Samuel Cheung (4th from the left) of Google Asia Pacific,Ms. Gail Tan (5th from the left), Head of Communication and Public Affairs of Google Philippines, and Mr. Hector Guballa (6th from the left), representative of PSHS Foundation during the launching of the adoption of Google Apps for education, which was held last August 29, 2014 at PSHS Main Campus in Agham Road, Quezon City. Google Apps for education contains various resources useful for learning such as Gmail, Google Drive, Calendar, and Sites that would let the students and teachers to discuss their lessons even in the online world. (Photo by Gerardo Palad, STII Media Service)-

STUDENTS OF the Department of Science and Technology's Philippine Science High School System (DOST-PSHSS) now have more ways to enhance their learning experience and make learning easier and more enjoyable via Google apps for education. The apps, a suite of free tools for faster and easier collaboration and communication, were recently deployed by the system to all 13 PSHSS campuses nationwide.

"The successful deployment of Google apps for the whole DOST-PSHSS not only ensures a collaborative environment, but also brings in new learning horizons to students by enabling them to reach out to new knowledge beyond classroom settings," said Dr. Allan Rod De Lara, deputy executive director and officer-in-charge of DOST-PSHSS. "This is a clear step to aid the learning experience of our students and to achieve PSHS's goal of being in rank with top science schools in Southeast Asia."

The apps include Google Hang-out, Gmail, Google Drive, and Calendar which were all demonstrated live during the PSHS-hosted "Gone Google Program for K-12 schools."

Using the apps provides mobility as users are able to collaborate from anywhere, inside or outside the campuses, on any computer and mobile device with an internet connection.

The apps are also free and thus reduces expenses and eliminates time spent in buying, maintaining, and patching software and servers.

Moreover, using the apps also promotes teacher innovation as they constantly develop and share new innovative ways of enhancing learning.

"By allowing more schools to gain tools that will provide them with an efficient instruction of learning, we secure an education environment where knowledge is readily available to many," said Samuel Cheung, regional manager of Google for Education.

Google Philippines also donated 180 tablet devices to selected PSHS campuses, enabling students, teachers and administration personnel to interact with one another more conveniently no matter where they are or what kind of mobile gadget they are using. The app will also enable them to streamline their academic tasks.

Several education institutes such as Department of Education, Commission on Higher Education, and Technical Education and Skills Development Authority have also migrated to Google apps for education.

Aside from DOST-PSHSS, Ateneo De Manila University-High School, Xavier University- High School, Paref Woodrose, Xavier School, Berkeley School, Immaculate Concepcion Cathedral School, St. Joseph Catholic School, Sto. Niño Parochial School, Our Lady of Hope Parochial School, and Holy Family Parochial School are also set to use the Google apps for education in their education management system.

Balik Scientist develops microcontroller to aid experiments

By JANINA MYN VILLAPANDO
S&T Media Service, *DOST-PCIEERD*

"WHAT'S THE problem? Let's solve it!" This is the mindset of an engineer, according to Dr. Romel Gomez, a Filipino professor at the Department of Electrical and Computer Engineering of the University of Maryland, in College Park, Maryland. As a teacher for over 23 years in the US, he has observed that students who are well versed in hands-on experiments perform better in all other aspects of education.

As they come across challenges, engineers constantly strive to finds means to resolve the problems, he said.

"Millions of students in this country are not given access to good quality instrumentation." Dr. Gomez told of his observation. "Even those fortunate enough to be in schools that have equipment often merely admire them behind glass covered shelves, collecting dust and inaccessible to the inexperienced hands of students."

Thus he developed the first prototype of a device that may enhance science education in the country. Dubbed VISSER -Versatile Instrumentation System for Science Education and Research, it is a programmable, hand-held microcontroller-platform that functions as the "brain" in which different sensors and other peripherals can be connected to perform different experiments. VISSER is designed to make it easier for teachers and students to switch from one experiment to another, allowing them to perform experiments on different topics in one day - ranging from biology to chemistry, to biology and climate science.

As a Balik Scientist of the Department of Science and Technology (DOST), Dr. Gomez came back to the Philippines in 2010 and 2011 and offered several workshops on microcontrollers at the University of the Philippines Diliman (UPD) and University of the Philippines Los Baños (UPLB).

He saw firsthand that even these prestigious institutions are deficient in some laboratory equipment. At this point, he realized that the very microcontroller he was presenting can be developed into an interface for science experiments.

According to Dr. Gomez, the VISSER project involves a five-step process. The first was the seminar-workshop that involved students from UPD, UPLB and the University of San Carlos Cebu to let them create their own versions of the experiments with the use of VISSER. Prof. Gisela Concepcion, Ph.D., the Vice-President for Academic Affairs of the University of the Philippines, a member of PAASE and a venture capitalist, was one of the first to support the workshops. The seminar in Cebu was also supported by Director Jean Tayag of the Commission on Higher Education (CHED).

In October 2012, Dr. Gomez and the VISSER team in UPD started working with the DOST in the execution of the second step. This involved the creation of the actual modules, integrating the inputs of the students during the workshops. The modules were improved and enhanced by the team led by Dr. Giovanni Tapang of the National Institute of Physics in UPD, along with Dr. Ranzivelle Roxas-Villanueva and Prof. Nelio Altoveros of the Institute of Mathematical Sciences and Physics, UPLB, Dr. Gay Jane Perez of the Institute of Environmental Science and Meteorology of UPD, Prof. Romarie Lorenzo of the Electrical and Electronics Engineering Institute, UPD andDr. Paul C. Hilario, Jean Cabangon and Jill Cabatbat of the UP National Institute of Physics.

At the moment, there are now 60 Filipino-made experimental modules in physics, chemistry, biology, environmental science and engineering that have been pilot-tested in different schools. The modules include the hardware, software, background material and laboratory manual. The third step was designed to gather feedback from actual users with regards to its usability, comprehensibility and other problems with instrumentation and the manual, The VISSER team has recently concluded the pilot-testing of the VISSER.

To ensure the scientific accuracy and assess the method of presentation, the modules had to be vetted by world recognized scientists. As member of the Philippine-American Academy of Science and Engineering (PAASE), Dr. Gomez presented his idea at their annual conference in Houston in 2012.

The fourth step involves PAASE members to review, revise and even rework the modules to guarantee the quality of the modules and laboratory manuals that will be used by both students and teachers. The final phase of the project would be the massive scale production of the devices and dissemination.

Bringing hope to future Filipino Scientists

The VISSER provides hands-on experience yet is inexpensive and versatile. According to Dr. Gomez, students can use it, modify it, break it, and even create their own.

In this age of technological advancements and innovation, there is a global demand for highly competitive scientists and experts. Thus, there is pressing need to educate and prepare students of today for them to acquire interest in the sciences and to be able to nurture their inherent inquisitiveness. As Dr. Gomez puts it, "we owe it to our own people to get them literate in the areas of science and technology."

VILLAPANDO

Fabulous opening for NSTW 2014

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

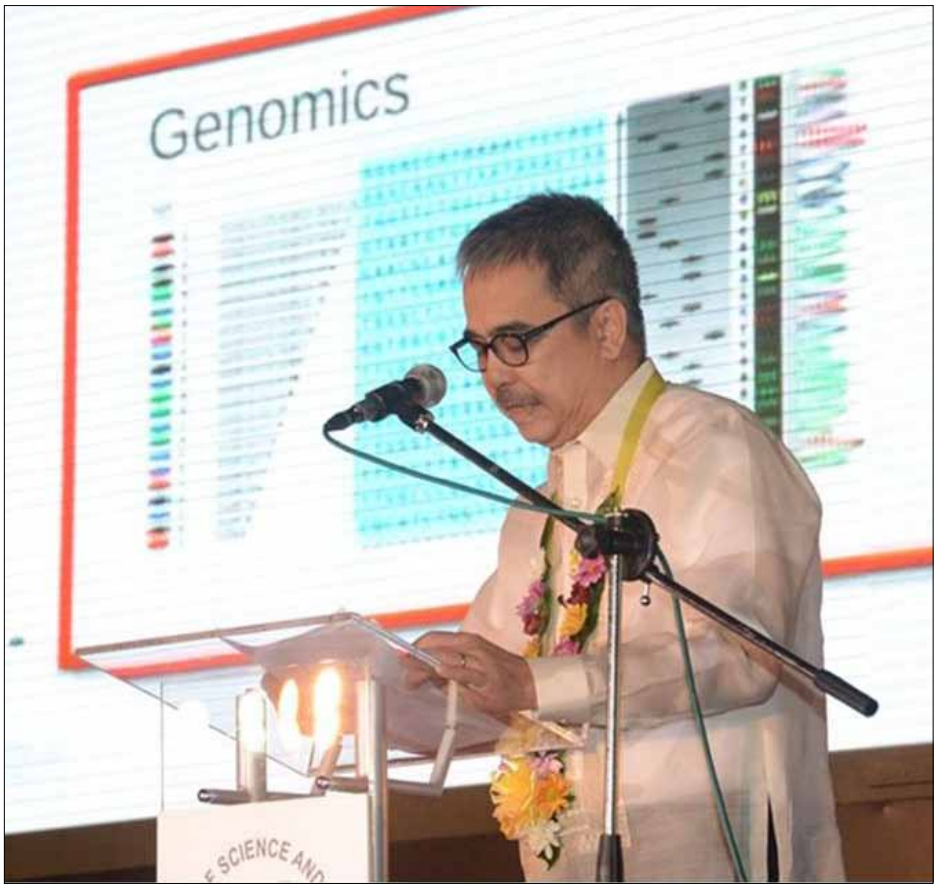
THE DEPARTMENT of Science and Technology's (DOST) 2014 National Science and Technology Week (NSTW) opened on a grand note at the SMX Convention Center, Mall of Asia Complex in Pasay City with the presence of no less than Senate Committee on Science and Technology Chairperson Sen. Ralph G. Recto and a unique production number by performers from the Cultural Center of the Philippines (CCP).

Sen. Recto enjoined members of the scientific community including DOST officials and guests to invest more on research and development (R&D) as he decried the lack of human resources in science and technology (S&T) related fields. "There are only 78 full-time R&D researchers for every 1 million Filipinos," he told the audience during the opening ceremony last July 24, 2014.

According to the senator, DOST correctly identified the 8 Outcomes or targets around which the Department's initiatives are built. These outcomes are agriculture, enterprise development, industry, IT-BPM, government connectivity, health, education, and disaster preparedness.

Recto said that the Department hit the target in identifying these needs and to meet these needs, S&T should be harnessed. Politicians can advocate for S&T in loud voices, declared Recto, "but only scientists can find the solutions."

Earlier, DOST Secretary Mario G. Montejo explained these 8 DOST Outcomes on which the 2014 NSTW exhibits and fora are based. "These outcomes are transformative, meaning they will change how we do things," he said, adding that these outcomes interweave with one another as strategies for fast-tracking national development especially with the coming ASEAN integration of 2015.



DOST Sec. Mario G. Montejo talks about genomics in his discussion of the 8 DOST Outcomes. (S&T Media Service)

Meanwhile, an artful and engaging number by CCP performers entitled "Experiencing Science Through Art" – a parade of 18 creatures and fairies representing the different DOST agencies – made for a grand opening salvo for NSTW. Clad in colorful and

Senate Committee on Science and Technology Chairperson Sen. Ralph G. Recto affirms the key role of science and technology (S&T) in national development while lamenting the lack of professionals working in S&T. (S&T Media Service)

creatively crafted costumes, the performers glided, swayed and moved on stage to depict the role of science in human life.

Also featured was the soft launching of the One Stop Laboratory Services for Global Competitiveness (ONE LAB) and the 2014 NSTW Awards. The awardees were Dr. Grecebio Jonathan D. Alejandro for Outstanding Research and Development Award for Basic Research ("Molecular phylogeny and taxonomic revision of the Philippine endemic Villaria Rolfe"), Dr. Rhodora V. Azanza for Outstanding Research and Development Award for Applied Research (Detection and Mitigation of Technology and Early Warning System for Philippine Harmful Algal Blooms and Molecular Studies of HAB Causative Organisms and Associated Bacteria), Tessie C. Nuñez for Outstanding Technology Commercialization Award for her successful commercialization of makapuno, and Dr. Reynaldo V. Ebora for Outstanding Science Administrator Award in recognition of his contributions as head of the National Institute of Molecular Biology and Biotechnology, UP Los Baños.

Performers from the Cultural Center of the Philippines sway, glide and move their way onstage to depict science through art in a thoroughly engaging production number during the NSTW opening ceremony last July 24, 2014. (Photos by Gerardo Palad, S&T Media Service, DOST-STII)

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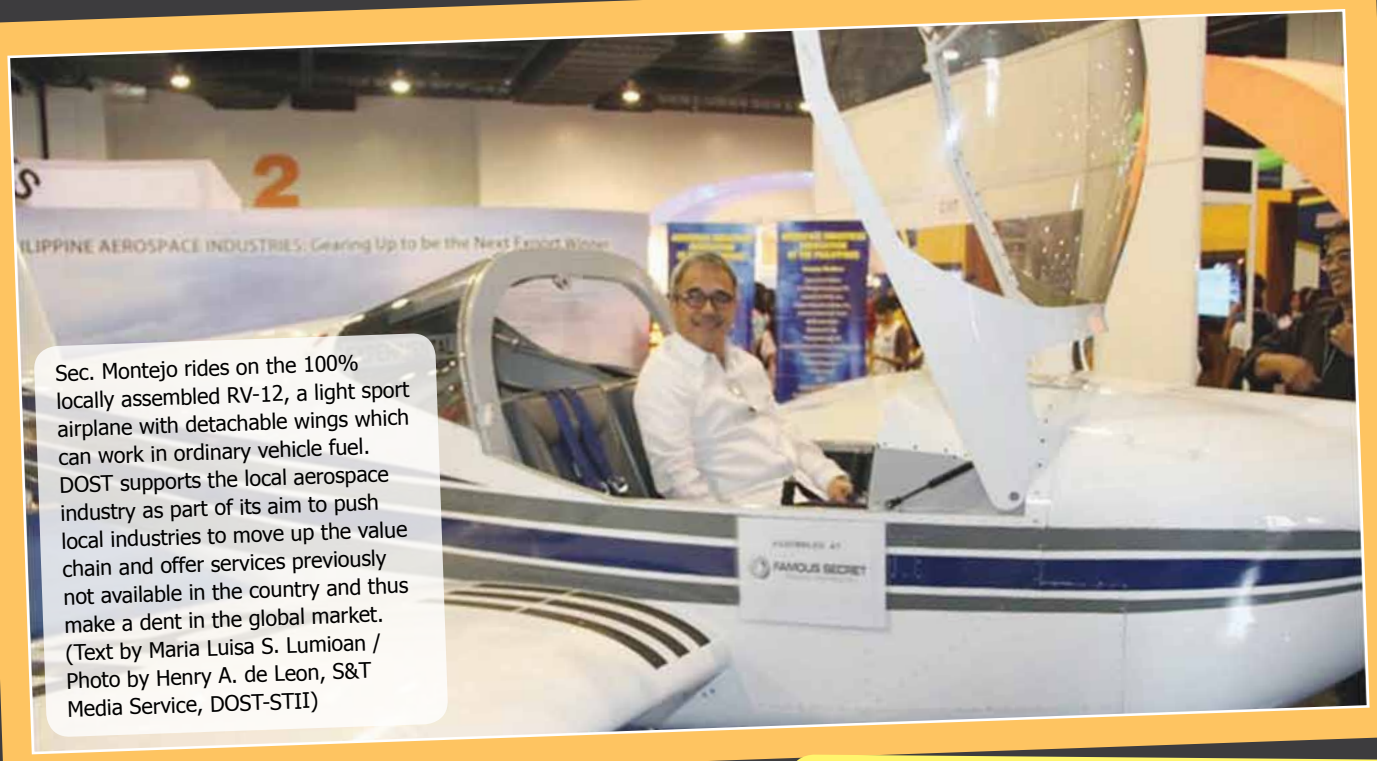

Sec. Montejo rides on the 100% locally assembled RV-12, a light sport airplane with detachable wings which can work in ordinary vehicle fuel. DOST supports the local aerospace industry as part of its aim to push local industries to move up the value chain and offer services previously not available in the country and thus make a dent in the global market. (Text by Maria Luisa S. Lumioan / Photo by Henry A. de Leon, S&T Media Service, DOST-STII)

Vice-Chairperson of the Senate Committee on Science and Technology Sen. Cynthia N. Villar and Sec. Mario G. Montejo view the exhibits (Photo by Henry de Leon).

Chacha chats at science week. Bubbly child star Chacha Cañete interviews Department of Science and Technology (DOST) Assistant Secretary Raymund E. Liboro during her travel show Biyaheng Bulilit on ABS-CBN Sports + Action Channel 23. Chacha was not the only youngster at the event. Many kids accompanied by their parents and teachers were wowed by the Filipino-made technologies, innovations, and interactive exhibits on display. (Text by Ryan Kester Mansion/Photo by Ceajay N. Valerio, S&T Media Service, DOST-STII)

AN OUT OF THE RxBOX EXPERIENCE. A female student has her blood pressure checked through the RxBox which has built-in medical sensors for monitoring blood pressure and blood oxygen levels, assessing the strength of contraction of the mother's uterus, as well as electrocardiogram and fetal heart monitor. The device is capable of storing and transmitting patient data to allow health workers in remote communities to consult with medical experts in urban areas. Developed by University of the Philippines Manila-National Telehealth Center and DOST, the RxBox aims to provide better access to life-saving healthcare service in isolated and disadvantaged communities nationwide. (Text by Maria Luisa S. Lumioan/Photo by Henry A. de Leon, S&T Media Service, DOST-STII)

DOST-ASSISTED PRODUCTS. Beneficiaries of DOST's Small Enterprise Technology Upgrading Program (SETUP) namely Mom's Haus of Mushrooms, Herbanext Inc., Eastern Food Trading, and others, were able to put their products on display to attract buyers and find clients. SETUP aims to assist small and medium enterprises in improving their product quality, productivity and competitiveness by providing equipment upgrade, funding, and training. (Text by Ryan Kester Mansion/Photo by Gerardo Palad, S&T Media Service, DOST-STII)

WINNERS ALL. (Clockwise) Dr. Grecebio Jonathan Alejandro from the University of Sto. Tomas for the Outstanding Research and Development Award for Basic Research (Eduardo A. Quisumbing Medal); Dr. Rhodora V. Azanza from the Marine Science Institute, University of the Philippines Diliman for the Outstanding R&D Award for Applied Research (Julian A. Banzon Medal); Dr. Reynaldo V. Ebora of the National Institute of Molecular Biology and Biotechnology at UP Los Banos as Outstanding Science Administrator (Dioscoro L. Umali Medal); and Tessie C. Nunez of the National Coconut Research Center-Visayas for the Outstanding Technology Commercialization Award (Gregorio Y. Zara Medal) for her commercialization of the soft-endospermed coconut known as makapuno. The awardees each received plaques, medals and cash prize of P150,000.00. With them are DOST Secretary Mario G. Montejo and the chairman of the Board of Judges, namely, National Scientist Lourdes Cruz (for the Quisumbing and Banzon awards), Dr.Quintin Kintanar (for the Umali Award) and Dr. Edgar Garcia (for the Zara Award). (Text by Maria Judith L. Sablan / Photo by Gerardo Palad, S&T Media Service, DOST-STII)

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SMARTY'S 1ST B-DAY. Smarty, official mascot of the NSTW turned one year old during this year's celebration held last July at SMX Convention Center. Styled after the logo of the Department of Science and Technology (DOST) and taking the form of a bird, Smarty represents the "Smarter Philippines" thrust of DOST, organizer of the yearly NSTW. The mascot made its debut during the 2013 NSTW. Its success was replicated in this year's edition where kids and students grabbed the chance to have their photos taken with the lovable mascot. (Text by Espie Angelica A. de Leon / Photos by Ceajay N. Valerio, S&T Media Service, DOST-STII)

LACK MILK? YOUR BABY'S GOT IT VIA THE BABA DEVICE. Jacob Richard Anthony Lim, a student from the Philippine Science High School, developed the "Baba device," a rice cooker attachment for pasteurizing human breastmilk. The device is inexpensive, costing around P1,000, compared with its commercial counterparts that cost as much as P73,000. The "Baba device" is now being tested at the East Avenue Medical Center in Quezon City. (Text by Maria Judith Sablan/Photo by Henry A. de Leon, S&T Media Service, DOST-STII)

WALTER FILTER The ceramic water filter, made of red clay, has nano anti-microbial coating that eliminates waterborne microorganisms. It purifies tap water, deep well water and raw water from ponds and springs. It is a more affordable alternative to regular water filters and does not need electricity. (Text by Lotuslei P. Dimagiba / Photo by Ceajay N. Valerio, S&T Media Service, DOST-STII)

URBAN VERTICAL GARDEN. An urban garden needs just a small space measuring 1 meter x 2. 5 meters with plenty of sunlight. This is enough for you to raise your fish and grow your veggies too. This system for farming fish and plants together is called aquaponics. The fish waste provides the nutrients for the plants, while the plants filter the water for the fish. A pump is used to circulate the water from the fish tank (blue container) into the series of tubes where the plants are contained and back into the fish tank. The setup shown is best suited for raising tilapia, and other freshwater fish, and growing leafy vegetables such as pechay, lettuce, and kangkong. (Text by Maria Luisa S. Lumioan / Photo by Gerardo Palad, S&T Media Service, DOST-STII)

PINOY ROBOTICS. Undersecretary for S&T Services Fortunato T. de la Peña gets a quick robotics tutorial from a Philippine Science High School student during the Robotics Challenge.

Dr. Rowena Cristina L. Guevara, executive director of Philippine Council for Industry, Energy and Emerging Technology Research and Development, an agency under the Department of Science and Technology (DOST), watches intently as a Philippine Science High School student demonstrates a robot he developed. (Text by Ryan Kester Mansion/Photo by Henry A. de Leon, S&T Media Service, DOST-STII)

A student from Philippine Science High School smiles proudly beside his robotics project during the National Science and Technology Week. (Text by Ryan Kester Mansion, Photo by Henry A. de Leon, S&T Media Service, DOST-STII)

A little girl tinkers with robotic parts.

GADGET CRAZY. Two female students enjoy the Smart Classroom display at the Samsung booth.

Two boys examine a gadget on display. (Photo by Henry A. de Leon, S&T Media Service, DOST-STII)

HAIR RAISING EXPERIENCE. A student gets a hair-raising experience as she tries the Van de Graaff Generator, a useful tool in physics research, which is just one of the various technologies on display during the NSTW to demonstrate science concepts via interesting and interactive exhibits. (Photo by Gerardo Palad, S&T Media Service, DOST-STII).

MOBILE PLANETARIUM The Mobile Planetarium - PAGASA's (Philippine Atmospheric, Geophysical, and Astronomical Services Administration) portable, inflatable planetarium – was one of the biggest hits during the recent NSTW. Inside the Mobile Planetarium, viewers were able to appreciate the grandeur of planets and stars in a very compact stage – truly a unique and stellar experience for everyone and a rewarding treat to would-be astronomers and ordinary stargazers. The attraction drew the attention of students and small kids in particular. (Text by Rodolfo P. de Guzman / Photo by Gerardo Palad, S&T Media Service)

SOUTH LUZON S&T FAIR

It's time for Juan Time

By ALLAN MAURO V. MARFAL
S&T Media Service, *DOST-STII*

LEGAZPI CITY- With a place dotted by many government centers, business establishments, educational institutions, and tourism hubs, proper time management could play a vital role in delivering inclusive growth to Bicolanos.

Thus on August 18, 2014 at Quezon Avenue in Barangay Oro Site in Legazpi City, the Department of Science and Technology's (DOST) Region IV office and Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), together with the city government of Legazpi unveiled a large digital clock to serve as reference in synchronizing time pieces with the Philippine Standard Time (PhST).

The use of PhST is based on Republic Act No. 10535 or the Philippine Standard Time Act of 2013 which seeks to implement one common time, also dubbed "Juan Time," in the archipelago effective June 1, 2013. "Juan Time" is a word play on "One Time" and "Juan," the common name for Filipinos.

DOST-PAGASA, the country's official timekeeper, uses a rubidium atomic clock for accuracy, global positioning system (GPS) receiver, time interval counter, distribution amplifier and computer to help calculate the time difference with every satellite within its antenna's field of view.

According to Mr. Agustin B. Serrano Jr., DOST V Project NOAH Focal Person, "To realize the value of one year, ask a student who failed an exam, to realize the value of one week, ask the editor of a weekly magazine, to realize the value of one day, ask a daily wage laborer, to realize the value of one hour, ask the lovers who are excited to meet for the first time, to realize the value of one minute, ask an executive who missed the train for an important business appointment, to realize the value of one second, ask a person who survived an accident, and to realize the value of one millisecond, ask a person who missed the gold medal in an Olympic competition."

DOST Region 5 Director Tomas Briñas announced that several other units of GPS clocks have been installed in various parts of the region such as in Legazpi City, Tabaco City, Pio Duran, Virac, San Andres, Pasacao, Matnog, Bulan, and Masbate City.

Dir. Brinas said that this Juan Time clock is DOST's gift to the city on its 23rd celebration of the Ibalong Festival.

Said Legazpi City Mayor Noel E. Rosal, "Being a Juan Time City makes us now reminded about the significance of following a common time reference—the PhST that the newly installed clock provides, it is not all about observing the PhST but it is more on time management so that the Legazpeños, the visitors and even passersby are aware of the passage of time for them not to miss appointments, trips and other important things," said.

The installation of PhST clock was part of the celebration of 2014 Southern Luzon Cluster Science and Technology Fair held last August 19-21 at the Ibalong Centrum for Recreation in Barangay Bitano. With the theme "(With reports from DOST region 5 office and PNA)

Cagayan City hosts North Luzon S&T fair

By FRAMELIA V. ANONAS
S&T Media Service, *DOST-STII*

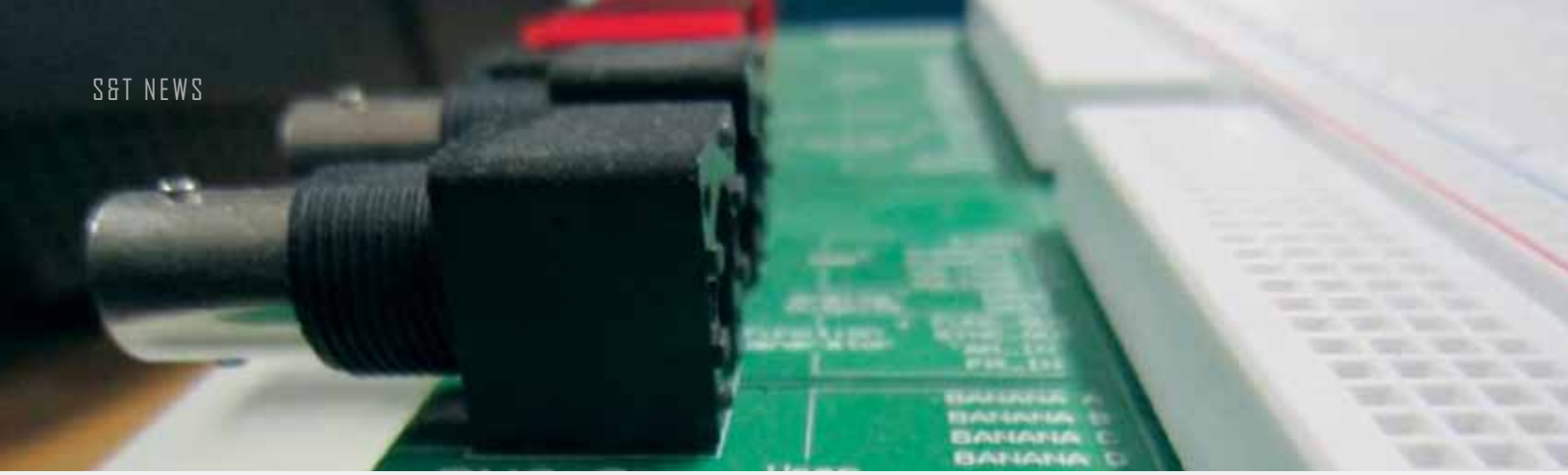
THERE IS science treat for everyone in the North Luzon Science and Technology (S&T) Fair held Sept. 2-4 at the Cagayan State University-Carig Campus in Tuguegarao City, Cagayan.

Curious kids bundled up at the Science Education Institute Science Explorer , the country's first mobile science learning facility. The S&T Quiz for both elementary and secondary levels revealed the best among the rest when it comes to knowledge in S&T. Meanwhile, science aficionados, families, entrepreneurs, and individuals seeking more science excitement checked out the exhibits, technology fora, trainings, and seminar that were open to the public.

With the theme "Philippines: A Science Nation Meeting Global Challenges," the three-day event gave the public a personal S&T experience and increased S&T awareness and appreciation among Cagayan Valley folks. This is one of the steps DOST is making on the country's drive towards being a science nation as it raises science-oriented citizens.

The North Luzon S&T fair also featured the Blessing and launch of the Food Innovation Center, the second of such facility in the country. The Center will serve as hub for innovations and provide technical support for the food industry in the region. Just like the first Center launched in Davao City last May this year, the Cagayan-based Center aims to transform concepts into products.

Other activities in the fair included IEC on technologies, sports fest, and seminar-workshop on weather information for broadcasters. (Framelia V. Anonas)



DOST, Ateneo & partners launch media testbed

By BENJ GERARD M. SEVILLA
Ateneo de Manila University

A NEW research facility that will address IP network delivery of content and services, and provide content creators with a testbed for optimizing the user experience of interactive media was formally commissioned by the Ateneo de Manila University and its partners including the Department of Science and Technology's Information and Communication Technology Office (DOST-ICT Office) last July 22, 2014.

Located at Ateneo's Electronics, Computer and Communications Engineering Department's Network Testing Lab, the new Convergent Platforms and Network Media Testbed (CP-NM) focuses on development of Interactive Media and Services across numerous platforms, New Content Creation, and sharing over the Internet. New content from local creators, in particular, can be optimized for presentation on several platforms - smart phones, tablets, digital signage and theater screens, and in different revenue bearing schemes. The testbed can deliver broadband interactive content by Digital Broadcast, Broadband Wireless, Fiber Optics and 4G.

Aside from DOST's ICT Office, Ateneo Innovation Center's other partners for the building of the CP-NM are PLDT, NTT-Japan, Oki Electric Ltd., Asia Pacific Telecommunity, Telecommunications Technology Committee, and Ionics, Inc., Philippines.

In collaboration with Engr. Cesar Pineda, Prof. Gregory Tangonan and Laboratory Director Dr. Nathaniel Libatique, Dr. Hideki Yamamoto and an Oki Electric Ltd. team developed and configured a state-of-the-art and easily deployable headend system capable of HDTV and wireless rich content streaming with live encoding using portable and international standards-compliant components. With this as a base, the Ateneo is designing a complementary capability that solves the lack of reliable and high bandwidth access at the edge of the network via its Near Cloud Architecture.

This approach fits very well with the TV white space initiative of DOST's ICT Office, according to ICT Office Director Phillip Varilla.

TV white spaces are unused TV frequencies in the VHF and UHF bands. The ICT Office supports the use of TV white spaces for wireless data communication as the signals can travel over bodies of water and through lush vegetation, thus bringing connectivity to rural areas within the Philippine archipelago. Moreover, TV white spaces can also be used for government initiatives requiring data connectivity like Project NOAH.

Updates on its TV White Space project were provided by ICT Office during the partnership launching.

Ateneo's new laboratory is a gadgeteer's dream - with video encoders for IPv6, digital broadcast TV transmitters with handset and tablet receivers, Apple TV and Google Chromecast working together and Ateneo-Ionics' newly conceptualised Near Cloud Servers operating seamlessly. It brings state-of-the art network delivery platforms and the latest home network and personal computing gear into a single interactivity media testbed. New IPTV channels demonstrate how people can react to content on any platform using their ever present 'second screen' - their smartphones. This shows how the convergence of multiple platforms of information delivery lead to a rich diversity of reactions to content.

The CP-NM Laboratory is already demonstrating how local government units (LGUs) can use the ISDB-T system for e-government services. In remote areas or in times of disaster, broadband content may come from two-way VSAT communications and satellite broadcast and the LGUs can rebroadcast content locally over ISDB-T or over Near Cloud distribution.

Graduate student Jose Paolo Talusan measured how the Near Cloud server with a terabyte of preloaded content - maps, school curriculum and medical information - placed in remote schools, LGUs and hospitals, can serve as a powerful local ICT hub with "super Internet" experience. With a relatively 'slow' Internet connection, users can best use this instantaneous bandwidth for interactivity - voice or video consulting - rather than transmission of movies, high-resolution images, and curriculum. The researchers will implement these new ICT approaches in decision support systems in disaster areas.

Meanwhile, graduate student Benjz Gerard Sevilla, using the IPTV system connection to Sendai, Japan, enabled 50 disabled persons to interact live, and present their paper in an international conference for the disability-inclusive response to disasters. "As a research institution connected to the Philippine Research, Education and Government Information Network (PREGINET) of DOST-ASTI (Advanced Science and Technology Institute), Ateneo de Manila University is ready for these remote international correspondences, best exemplified by the research activities of the CP-NM Facility," he said.

SEVILLA

Irradiated foods safe to eat – PNRI

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

LUVIMINA G. Lanuza, head of the Department of Science and Technology-Philippine Nuclear Research Institute's (DOST-PNRI) Irradiation Services Section, assured the audience at a techno forum that irradiated foods are not radioactive, and are therefore safe to eat.

Lanuza was a speaker at a PNRI-organized forum titled "Radiation: May Benepisyo Ito!" held as one of the activities during the recent 2014 National Science and Technology Week (NSTW) of DOST which ran from July 24-28, 2014 at SMX Convention Center.

Tackling the subject of gamma irradiation technology, one of the applications of radiation technology, Lanuza said that food items do not become radioactive at energies used in irradiation. She added that there are no known toxicological, microbiological, or nutritional problems encountered in irradiated foods.

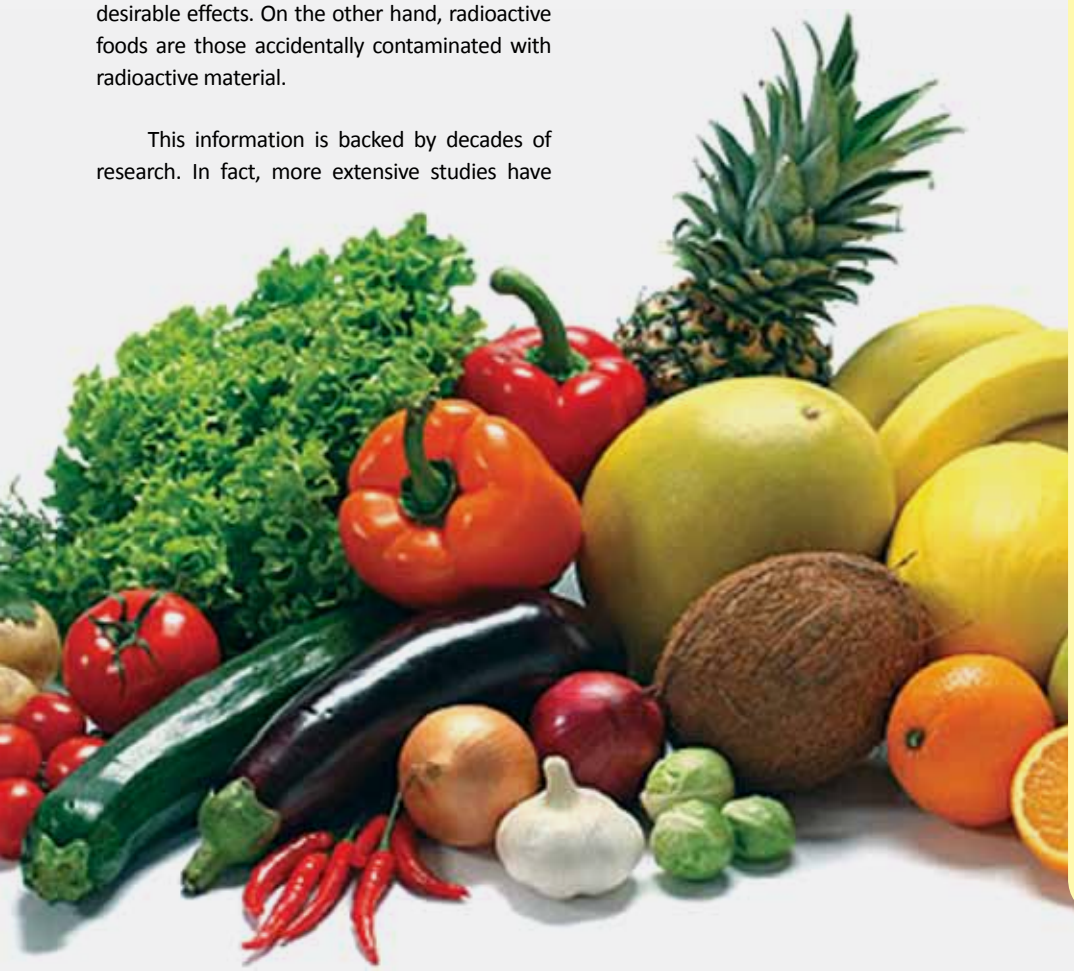
Irradiated foods are those intentionally processed with ionizing radiation to bring about desirable effects. On the other hand, radioactive foods are those accidentally contaminated with radioactive material.

This information is backed by decades of research. In fact, more extensive studies have been undertaken on food irradiation than any other type of food safety technology, Lanuza said.

"The irradiation of food is justified when it fulfils technological requirements and if it is beneficial for the protection of consumer health. It cannot be used to correct quality deficiencies and is not a substitute for GMP," Lanuza emphasized.

Gamma processing, one of the technologies involved in radiation, uses gamma-rays from a Cobalt-60 source. It ensures precision and high penetrability of products even in their final packaged form, causes minimal rise in temperature, does not alter the product's texture and freshness, leaves no chemical residue, and retains the product's taste, color, and flavor.

Currently, there are 180 large-scale gamma irradiation facilities in 42 countries including the Philippines' PNRI Multipurpose Irradiation Facility.



What are the advantages of radiation? What are the advantages of radiation processing of food?

As irradiation is a cold process, it can be used to pasteurize and sterilize foods without causing changes in freshness and texture of food unlike heat. Unlike chemical fumigants, irradiation does not leave any harmful toxic residues in food and is more effective. It is efficient and can be used to treat prepacked commodities.

Can irradiation be used to make spoiled food good or to clean up "dirty foods"?

No. Neither irradiation nor any other food treatment can reverse the spoilage process and make bad food good. If food already looks, tastes or smells bad (signs of spoilage), it cannot be "saved " by any treatment including irradiation. While irradiation can reduce or eliminate spoilage bacteria or pathogenic microorganisms which may be present in spoiled food, it cannot improve its sensory properties.

Are irradiated foods still nutritious?

Yes. Irradiated foods are wholesome and nutritious. All known methods of food processing -- even storing food --can lower the content of some nutrients, such as vitamins. At low doses of radiation, nutrient losses are not significant. Even at higher doses, irradiation does not adversely affect the nutritional quality of food.

What is the status of food irradiation utilization in the Philippines ?

As a result of studies on food irradiation conducted by PNRI in cooperation with food industries, the Bureau of Food and Drugs (BFAD) has issued conditional clearance for the irradiation of onions, garlic (for sprout inhibition) and spices (for microbial decontamination).PNRI operates a pilot-scale multipurpose gamma irradiation facility which can be used for the irradiation of food. It is presently loaded with about 54,000 curies (Ci)*of cobalt - 60. The production capacity of this facility is dependent on the product and its dose requirement. For example, one-half ton of onions can be irradiated per batch for 10 minutes to get a minimum dose of 0.05 kilogray (kGy)**. One-half ton of spices can be irradiated for 15 hours to get a dose of 6 kGy

* Curie (Ci) = A measure of radioactivity. The curie is equal to 37 billion disintegrations per second.

** 1 kilogray (kGy) = 1000 Gy (gray); 1 Gy = 1 joule per kilogram.

Lifted from "Preserving Food and Agricultural Products by Radiation" brochure published by the DOST- Philippine Nuclear Research Institute

Expert recommends aquaponics for urban dwellers

By MARIA LUISA S. LUMIOAN
S&T Media Service, *DOST-STII*

WANT TO grow your own vegetables but don't have much space? Aquaponics lets you do that and lets you raise fish too!

An integration of aquaculture (raising fish in artificial environment) and hydroponics (growing vegetables without using soil), aquaponics is a system wherein naturally occurring bacteria converts fish wastes into fertilizer for the plants while the plants filter water for the fish.

An aquaponic system is basically composed of growing bed, fish tank, a biofiltration tank where bacteria can grow and convert fish wastes into plant food, and a pump to circulate the water throughout the system.

Why aquaponics?

Aquaponics is a sustainable way to produce food, explained Dr. Chito F. Sace, aquaponics expert and professor at Central Luzon State University, in a forum held during the National Science and Technology Week. It uses 90 percent less water compared with conventional farming since the water is just being recycled in the tank.

A complete small aquaponic system designed by Dr. Sace can be bought for as low as Php 9,000—a small investment, considering that one can have steady supply of fish and vegetables once the system is up and running.

Also, minimal space is required for an aquaponic system. Vegetables can be planted closer together since nutrient-rich water is delivered directly to the plants' roots. Further, the system can also be designed to maximize vertical space. Thus,compared with conventional gardening, aquaponics will give more vegetables--and fish to boot-- for the same space used.

Small aquaponic systems can be placed in backyards, terraces, rooftops, or practically anywhere there is sunlight and available electricity (for the pump), making this technology applicable even in urban settings.

Off-grid or solar powered aquaponic systems can also be built when there is no nearby electricity source.

Moreover, aquaponics empowers households to have direct access to fresh, clean, and pesticide-free foods.

Dr. Sace recommends tilapia for aquaponics since it is easier to cultivate compared to other freshwater fishes. Green, leafy vegetables such as pechay, lettuce, kangkong among others, thrive well in the system. *(S&T Media Service, DOST-STII)*

Online careers, not just for mommies and seniors – ICT Office

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

ONLINE CAREERS are for everyone – regardless of age and status.

This was the message of the forum titled "Rural Impact Sourcing and e-Commerce" conducted by the Information Communication Technology Office (ICT Office) of the Department of Science and Technology (DOST) held last July 25, 2014 during the National Science and Technology Week (NSTW) at SMX Convention Center, Mall of Asia Complex.

Speaking before an audience largely composed of students and young professionals, Online Jobs University Founder and Chief Executive Officer Edgardo T. Reonico Jr. stated that online freelancing is neither a "seniors or a mommy career" nor a career for IT specialists alone. Instead, it requires a broad range of skillsets. "There are many things you can do [online] and there are markets for that," Reonico reminded the audience.

Online jobs are Internet-based and work-from-home jobs. These include typing and creative jobs, transcription, web development, virtual assistant, writing and editing, game development, tutoring, telemarketing, technical support, and customer service, among a host of other work opportunities.

These jobs offer flexibility of time and portability of work since online freelancers can bring their laptops and tablets everywhere they go, even while on vacation at a beach resort, and do some work anywhere they are.

Reonico went on to enumerate people who made successful careers out of jobs available online including an acquaintance who has an online job using his knowledge in Excel. He also mentioned the trend involving veteran editors who are now offering writing services online and former call center workers who are now also into online freelancing mainly because it offers greater flexibility of time.

"Whether young or old, for as long as your hands can still handle it [the keyboard], then you can do online freelancing," said Reonico. "And because you also offer services, you are also a business owner," he added.

Reonico also stated that once an online freelancer gets a lot of projects, he can do outsourcing as well. Later in his talk, the young CEO of OnlineJobsUniversity which provides live seminars about online jobs, advised the participants to go look for skilled mentors who will guide them as they start embarking on an online career.

Registration for ASEAN professionals urged in DOST forum

BY MARIA LUISA S. LUMIOAN
S&T Media Service, *DOST-STII*

"LOCAL ENGINEERS, architects, surveyors, accountants and medical practitioners need to register themselves as 'ASEAN professionals,'" according to Teresita Manzala, chairperson of the Professional Regulations Commission (PRC) in a forum organized by the National Academy of Science and Technology, an advisory body of the Department of Science and Technology, last August 13 at the Traders Hotel.

The ASEAN professionals registration is part of the Mutual Recognition Arrangements (MRA) to keep professionals competitive within and outside the region as theASEAN integration pushes through in 2015. According to Manzala, the MRA will facilitate freer movement of professionals in ASEAN as their education, license, and experience of professionals from their country of origin shall be recognized in other ASEAN member states.

Professions recognized under MRA are surveyors, accountants, architects, doctors, dentists, nurses, and engineers specifically aeronautical, agricultural, civil, chemical, electrical, electronics, geodetic, mechanical, metallurgical, mining, naval architecture and marine, and sanitary engineers.

MRA is in line with the ASEAN Economic Community that seeks to create a single market and production base by 2015 through the free flow of goods, services, investment, capital, and skilled labor. "Goods, services, investments, and capital don't move by themselves. They are moved by people like you and me," Manzala said at the forum as she emphasized the importance of human resources such as professionals, in achieving the overall objectives of the ASEAN integration.

However, she clarified that the MRA will not reduce, or eliminate the rights, power and authority of each ASEAN member state since it only seeks to recognize education, training, licenses, and experiences of professionals. Thus, there is no need to change our domestic regulations. "This means that if a professional who registered in his own country wants to work in the Philippines, he or she still needs to get a temporary permit from the PRC to practice," she said.

To register as an ASEAN professional, one must fulfill certain requirements. Requirements for ASEAN Chartered Professional Engineers, for instance, include an engineering degree and license to practice the profession. Moreover, the applicant must have acquired practical and diversified experience for a minimum of seven years, two years of which have been for significant engineering work;complied with continuing professional development;no professional and ethical standards violation; and no pending investigation or legal proceeding against him or her. Interested professionals may apply through the PRC.

"These are the new rules of the game.*Kung magaling ka, patunayan mo*. (If you are good, prove it.) We have to change our mindset. We have to do the right thing, and do it right," said Manzala.

Tarlac barangays get flood detector systems

By ANA VERONICA GABRIEL

THREE BARANGAYS in Tarlac recently received ultrasonic flood detector systems to serve as early warning mechanisms that will alert residents during floods. Said barangays include Salomague in Paniqui, Pance in Ramos, and Cadanglaan in Pura.

The ultrasonic flood detector system is one of the outputs of the project "Impact and Risk Analyses of Climate Variability on Food and Environmental Security in Tarlac Province." Headed by Engr. Glenn Banaguas, Oscar M. Lopez (OML) Center Project Leader, this project was developed by De La Salle Araneta University (DLSAU) – University Research Center (URC) Junior Research Scientists with the help of experts.

This project is funded by the OML Center research grants initiative that aims to "help the most vulnerable deal with the impacts of climate change and natural disasters."

The awarding ceremony was attended by the beneficiaries of the flood detector system from Paniqui, Ramos, and Pura. Among those who gave messages were Br. Narciso Erguiza, Jr. FSC, president of DLSAU; Perlyn Pulhin, project manager of OML Center; and Hon. Victor Yap, governor of Tarlac.

Engr. Banaguas also presented his study on the said project during the ceremony. With two Junior Research Scientists, OML Center representatives and experts, Engr. Banaguas simulated and explained the system to local officials in said barangays.

This project aims to use technical modelling to help the poorest and most vulnerable communities in the country. More ultrasonic flood detector systems are expected to be distributed and installed within the country with the goal of increasing the resiliency of Filipinos to flooding.

GABRIEL

2014 MSME Packaging Innovation Award launched

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

DOST-VI Regional Director Rowen R. Gelonga, DOST Undersecretary for Regional Operation Services Carol M. Yorobe, and Industrial Technology Development Institute Director Nuna Almanzor enjoy the special presentation introducing the 2014 MSME Packaging Innovation Award during its launching held at Forum Hall 2 of the SMX Convention Center, Mall of Asia Complex. The launching was one of the activities during the 2014 National Science and Technology Week. *(Text by Espie Angelica A. de Leon / Photo by Ceajay N. Valerio, S&T Media Service, DOST-STII)*

THE DEPARTMENT of Science and Technology (DOST) launched the 2014 MSME Packaging Innovation Award last July 26, 2014 during the National Science and Technology Week (NSTW) at the SMX Convention Center in Pasay City.

A nationwide competition among MSMEs or micro, small and medium enterprises with packaging innovations from DOST, the awards aim to highlight the critical role of packaging in business operations.

"Packaging is as important as the product itself," said DOST Secretary Mario G. Montejo in his message read by DOST Undersecretary for Regional Operation Services Carol M. Yorobe during the launching.

In particular, DOST-VI Regional Director Rowen R. Gelonga said that packaging boosts the competitiveness of Philippine products globally and within the ASEAN market.

Awardees will be selected based on three criteria:

- Technological advancement - improved quality and shelf life, production efficiency, an increase in distribution, and use of environmentally sound processes among others.
- Design excellence - compliance with mandatory labelling requirements, among other factors.
- Market and socio-economic impact - increase in production volume and sales, greater product accessibility, and increase in employment generated, among others

The first MSME Packaging Innovation Award will be held in 2015. Qualified for nomination are all MSMEs which availed packaging assistance from the Small Enterprise Technology Upgrading Program (SETUP) of DOST. SETUP provides assistance to MSMEs by way of equipment upgrade, funding, training, and packaging innovations in order to strengthen their foothold in both the local and overseas markets, including the ASEAN region.

For more information about the 2015 for MSME Packaging Innovation Award, contact your nearest DOST regional office or Provincial S&T Center.

Choose rice variety and field, farmers advised

By LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

A REPRESENTATIVE from Philippine Rice Institute (PhilRice) advised farmers to have a good start by selecting the right variety of rice and the right field for their seeds to produce more quality rice in a recent agriculture technology forum.

Said forum was held last July 25, 2014 during the National Science and Technology Week (NSTW) at SMX Convention Center.

In the Philippines, farmers' lack of access to quality rice seeds, seed centers and accredited seed growers in their localities results to their poor production of quality rice and low rice yield.

In his talk about "Seed Purification and Seed Production of Quality Rice Seeds at Farmer's Own Field," PhilRice's Ruben Miranda shared his ideas on what approaches should be considered by farmers before having seed purification and production in their own field.

These three approaches are rice variety selection, field selection, and field management.

Miranda explained that choosing the appropriate variety of rice can improve yield potential by analyzing the surroundings and determining whether a particular rice variety is resistant to drought, pests and diseases, has proper maturity and grain quality, and is appropriate to the ecosystem.

Next, the farmer should select the right field by determining whether the land has proper level, is free from floods and shades, has medium to high land with clay-loam soil, and is near ponds or canals to provide irrigation and drainage.

Field management is also important, said Miranda. "Proper levelling of the field solves more than 50% of the problems in rice production because you are ensuring good crop growth, elimination of weeds and golden apple snail, easier management of water, and uniform growth."

NAST tackles jobs creation, economic dev't via manufacturing

By LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

MANUFACTURING SPURS growth and could create jobs, including white collar jobs, for the middle and lower classes.

Lilia Ramos Shahani, assistant secretary and communications head of the Human Development and Poverty Reduction Cluster Communication made this announcement during the 9th Annual Meeting and Scientific Convention of the National Academy of Science and Technology (NAST), an advisory body of the Department of Science and Technology (DOST), held at the PICC last July 8, 2014.

According to Shahani, the country's lack of attention to the manufacturing sector is one of the factors which keep pulling the Philippines away from a progressive economy.

Meanwhile, other countries pour investments on manufacturing, like Thailand and India, thus expanding employment and other economic opportunities for their citizenry and steering themselves closer into higher levels of development.

Shahani further noted that 86 percent of the Philippine economy is dominated by private corporations whose development programs focus on elite consumption and luxury estates, rather than on manufacturing.

The challenge therefore, declared Shahani, is for government today to make economic growth inclusive, seeking ways in which to redistribute wealth and have progress felt by all.

Manufacturing's potential to provide jobs and contribute heavily to economic advancement, tackled in previous NAST meetings and round table discussions, forms the core of DOST's thrust on local industries.

The Department aims to provide science and technology (S&T) solutions – such as state-of-the-art facilities – that will allow local industries to be more globally competitive. In particular, it envisions industry players to move up from mere assembly of parts and components to higher-value services like design and manufacturing, in order to catch up with their foreign counterparts. *(S&T Media Service)*

DOST awards two HS for innovative teaching on large classes

By JOY M. LAZCANO
S&T Media Service, *DOST-STII*

Receiving the top prize for the 2nd Search for Innovative Practices in Managing Large Classes for Effective Teaching and Learning of Science and Mathematics is Mr. Ronald C. Reyes (5th from right) of the Tabaco National High School for his project "Effectiveness of Chem-Connect Project in Managing Large Classes in Chemistry (3rd Year)."TNHS shared this year's top prize with the Surigao City National High School for the project "Beating the Numbers Through Strategic Intervention Materials (SIM)."Both winning schools received P100,000. Also in photo are DOST Undersecretary Fortunato T. Dela Peña (6th from right) and SEI Director Josette Biyo (7th from right). (Photo by DOST-SEI)

NO CLASSES are too large to keep exemplary educators from teaching excellently. In fact, the Department of Science and Technology (DOST) recently recognized two national high schools in Surigao and Albay for teaching math and science innovatively in large classes. The awards were conveyed at the 2nd Search for Innovative Practices in Managing Large Classes (SIPMLC) recently held at the National Institute for Science and Mathematics Education Development (UP-NISMED), University of the Philippines-Diliman.

SIPMLC is a nationwide search for innovative practices in effectively teaching and learning science and math in large and extra large classes. The search is open to public and private high schools with large classes with 51 to 70 students, and extra large classes with 71 and more students.

Topping the nine finalists that went through a rigorous selection process were the Surigao City National High School and the Tabaco City National High School.

The Surigao City National High School was awarded for the project "Beating the Numbers Through Strategic Intervention Materials (ASIM): Innovative Science teaching in Large Classes." which developed Strategic Intervention Materials, or teaching aids, designed to stimulate the learning activities of the students.

Meanwhile, the Tabaco City National High School was recognized for the project "Effectiveness in Chem-Connect Project in Managing Large Classes in Chemistry"that aims to instill into students a deeper understanding of Chemistry through various video clips on chemistry and practical work approaches.

According to DOST-Science Education Institute, the award hopes to inspire and

One of the two winners during the 2nd Search for Innovative Practices in Managing Large Classes for Effective Teaching and Learning of Science and Mathematics is Ms. Venus Metilla Alboruto (4th from right) of the Surigao City National High School for her project "Beating the Numbers Through Strategic Intervention Materials (SIM)."SCNHS received P100,000 cash prize along with the other winner, the Tabaco National High School for the project "Effectiveness of Chem-Connect Project in Managing Large Classes in Chemistry (3rd Year)."Also in photo are DOST Undersecretary Fortunato T. Dela Peña (5thfrom right) and SEI Director Josette Biyo (leftmost). (Photo courtesy of DOST-SEI)

reward teachers from the public and private high schools to innovate and create impact in teaching science and math in spite of large number of students all crammed up in one classroom. The search also intends that other schools will adopt the strategies implemented by awardees.

Entries for the SIPMLC are submitted in a form of a project proposal that identifies the problems encountered in handling large classes. The project proponent must develop the methodology to be critiqued by experts from DOST-SEI and UP-NISMED. Entries are judged according to the following criteria: innovativeness (35%), doability and replicability (30%), sustainability and impact (20%), resource utilization and cost effectiveness (15%).

The panel of judges will then select among the 50 project proposals and trim it to only nine entries to qualify as finalists. These finalists are automatically given P100,000 as a grant to implement the project in their classes.

The next phase involve the evaluation and monitoring of experts and consultants. Out of the nine entries, only two will become the winners of the SIPMLC.

Managing large classes have been a major concern not only for teachers but also for the government as students' proficiency in math, science, and English have greatly deteriorated in the past due to the congestions in classrooms which is not a textbook practice in basic education.

This problem has resulted in a drop in the students' academic performance and the absorptive capacity of complex concepts especially in science and math. In the 2003, Trends in International Math and Science Study (TIMSS) which is the most comprehensive study on the math and science proficiency in the world revealed the country's plunging performance in basic education.

In the fourth grade alone, the Philippines got 378 of the international math average of 467, ranking at fifth from the bottom among the 25 countries surveyed. In the science, the country ranked at 332, a third from the bottom with an international average of 489.

Although the sharp rise of student enrollees in the public schools are tightly attributed to the economic downturn of the country, DOST on its part, is looking at solutions to finally up the students aptitude in science and math which is an important ingredient of the country's economic development and competitiveness.

Through teachers'innovative ideas and creative juices, students can have a renewed interest in science and math which could raise a new level of awareness and discovery in the future.

According to DOST-SEI Director and world-renowned science teacher Dr. Jossette Biyo, "DOST is fully committed to unlocking science education through innovative programs designed to meet the ever changing learning needs of the youth." Her years of teaching at the Philippine Science High School in Iloilo strengthened her belief that education should be transcended from a mere classroom. She said that the best laboratory is just outside the classrooms, and teachers should be more of a stimulant to the students' imagination and creativity.

SIPMLC is on its second year and has already produced four winners. DOST-SEI plans to publish these studies and look into their impact in terms of adoption and effectiveness.*(S&T Media Service)*

Zero casualty as top priority, discussed in NAST meeting

By LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

WHEN IT comes to floods, the priority should be to post zero casualties.

Engr. Maria Catalina Cabral, assistant secretary for planning at the Department of Public Works and Highways, made this statement during the 36th Annual Scientific Meeting of the National Academy of Science and Technology – an advisory body of the Department of Science and Technology – at the Philippine International Convention Center held from July 9-10, 2014.

According to Asec. Cabral, the difficult part are the non-structural measures involved in flood risk management and mitigation, rather than the engineering component.

"The engineering part is the easiest part; we have all the brilliant engineers around and the scientists to bring us all the technology," she elaborated.

Non-structural measures refer to action plans that aim to reduce property damage and empower the communities' resilience toward floods and disasters. Asec. Cabral said this is the key to decreasing the impact and risks from floods.

"We need to work with not only the national government but the local government as well, including the communities, to make sure we avoid loss of lives," she said.

"Structural flood measures can never contain all floods," agreed Alex Ramon Cabanilla, deputy chairman of the Metro Manila Development Authority. "What I've seen is that when I go around the LGUs, they don't have a proactive plan for floods. We can help in that. Jointly we can formulate one so that our efforts can be sustainable," he suggested.

Cabanilla likewise proposed the formulation of Comprehensive Action Plans on Flood Management for LGUs, Flood Detention Basins, Flood Landmarks, Flood Evacuation Centers, and Expanded Services of Flood Control Information Center.

He said that several factors help compound the problem of floods in the Philippines. Among these are climate change, garbage along waterways, informal settlers, data generation problems, and institutional bottlenecks which refer to plans and policies not being acted upon and thus remain in the drawing board.

Plan for disasters as a family – DOST, SciDev.Net forum

By LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

ADELINA SEVILLA Alvarez, lead convenor of the Disaster Risk Reduction Network Philippines (DRRNetPhils) advised that post-Yolanda efforts should include simple preparations for a disaster as a family and as an individual.

"Let's start with simple planning for the family, talk about disaster prevention before it can possibly happen, and then maybe widen it, what do we do as part of the community or as part of the *barangay*," she said.

Alvarez made this remark during the forum titled "Building Back Better: Disaster Adaptation and Rehabilitation" held last July 28, 2014 during the 2014 National Science and Technology Week (NSTW) at the SMX Convention Center.

DRRNetPhils is a national coalition of Philippine civil society organizations (CSOs), disaster risk reduction management (DRRM) practitioners and advocates bound together by their common goal for disaster risk reduction and management at national, local and community levels.

"Are we prepared for a disaster?," Alvarez asked forum participants. She emphasized however, that in DRRNetPhils, the question is "Have we learned anything from past disasters? Have we identified any lessons? Did we ever learn from the lessons identified in the past disasters?"

She added that DRRNetPhils is focused on ensuring that Philippine laws on DRRM should be pro-active, focused on risk reduction, and participatory, and that we should have a role managed by the community."

Discussing the role of CSOs in disaster risk reduction, Alvarez said, "We will be the one to bring the voice, the need of our community."

The forum was organized by SciDev.Net, an international non-profit organization based in London with six regional desks around the world including the Philippines.

Broadcasters train up for responsible weather reporting

(Left) Participants with DOST-STII and DOST-II staff visited the water level monitoring station with automatic rain gauge installed at the Ninoy Aquino Bridge in Tuao, Cagayan. *(Bottom)* Luzon-based radio and TV broadcasters trained for better understanding of weather-related information. The event, the first leg of a three-part series, aims to enhance the role of media as government partner in providing better weather reporting for disaster preparedness. Organized by the Department of Science and Technology-Science and Technology Information Institute and PAGASA in cooperation with the Kapisanan ng mga Brodkaster ng Pilipinas, the workshop will have its next legs in Cebu, Davao, and Zamboanga.

By JOY M. LAZCANO & ALLAN MAURO V. MARFAL
S&T Media Service, *DOST-STII*

TUGUEGARAO CITY- Broadcasters went on a crash course to better understand weather terminologies and codes, and properly disseminate weather news via easy to understand, non-technical, and detailed mode of reporting. Dubbed "Responsible Weather Reporting" said event held in this city was the Luzon leg of the three-part nationwide seminar-workshop spearheaded by the Department of Science and Technology's information arm, the Science and Technology Information Institute (STII), in partnership with DOST- Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) and in cooperation with the Kapisanan ng mga Broadkaster ng Pilipinas (KBP).

During the seminar-workshop, DOST-PAGASA gave a timely lecture on prevailing weather disturbances as the country is already in the so-called "wet season" which is experienced from the month of May to October. This season brings in heavy rainfall with an average of 5,000 millimeters (196.9 inches).

"There is no such thing as 'summer' in the Philippines," stated Sharon Arruejo, Sr. Weather Specialist of DOST-PAGASA, which surprised most workshop participants.

"We have only two seasons, the dry and wet seasons which happen in January to March, and April to December, respectively," she explained.

Arruejo briefed broadcasters on various weather conditions and terminologies used in weather reporting such as inter-tropical convergence zone, monsoon rains, hale storm, microburst, tropical cyclone, and thunderstorm, among others. Such knowledge gained by participants is expected to help them effectively prepare and deliver weather news that is easily understood by the public.

DOST-STII Chief Science Research Specialist Aristotle P. Carandang explained the need for broadcasters to understand very well the complex weather conditions so as not to become alarmist during inclement weather. He added that the media are the partners of the government and disaster response units in raising public awareness on the different types of hazards and their potential impact on communities. Thus they should know the facts and deliver the right information since lives depend on what they say on air, he said.

"The media has the responsibility to ensure that the dialogue it builds with the public can lead to a better understanding of the dangers and impact of the hazards so the public can be equipped with the proper information and can prepare accordingly," he added.

He noted that the issue was more than translating news from English to Filipino, in order to enable the public to make important decisions.

"Laymanizing does not mean translating from English to the vernacular. For example, the term 'storm surge ' may be explained as is without translating it to 'daluyong'" What people expect is information that will empower them in making decisions in times of disasters," Carandang explained.

The next leg of the seminar-workshop is in Cebu during the Visayas Cluster Fair in October and in Davao City in November.(S&T Media Service, DOSt-STII)

WHATCHAMACALLIT?

DOST-PAGASA unravels its typhoon-naming system

By JOY M. LAZCANO
S&T Media Service, *DOST-STII*

WHEN "KANOR" was suddenly dropped from the rolls and "Karding" made it to the list, the procedure of the Philippine Atmospheric, Geophysical, and Astronomical Services Administration of the Department of Science and Technology (DOST-PAGASA) in naming typhoons naturally took the limelight.

According to Venus Valdemoro, DOST-PAGASA's information officer, the names used this year for typhoons were actually names that had been used four years ago. She said that the country's weather bureau has been recycling typhoon names for the past few years. "Prior to this ("Kanor" event), we already have lists of typhoon names which we will use again after four years," explains Valdemoro.

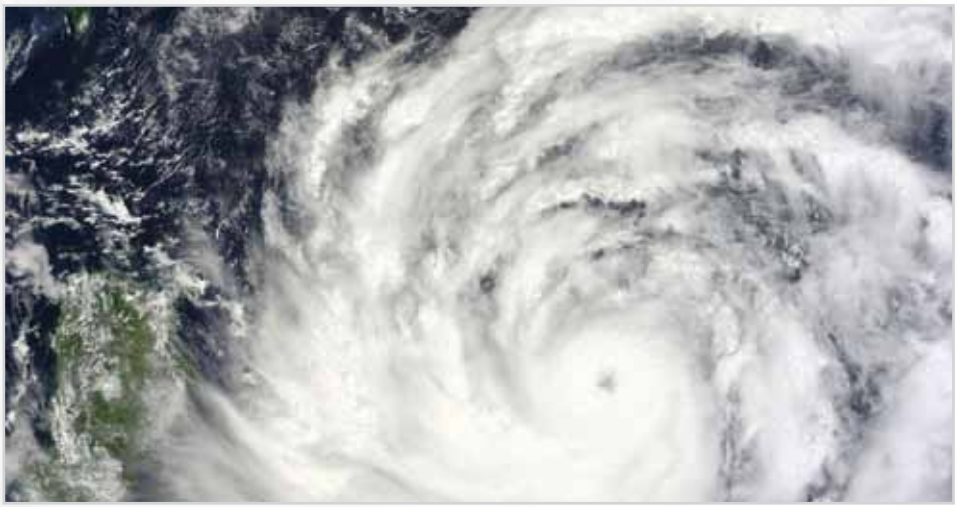
"Kanor" was the controversial typhoon name in September that had to be replaced with the more somber "Karding" to avoid "negative thoughts."

Normally, DOST-PAGASA yearly prepares a list of 20 names corresponding to the average number of typhoons that enter the country per year. When all the names have been used up, and typhoons are still coming, Valdemoro says that the Bureau has contingencies. "We have auxiliary names up to 10, starting from letter A to letter J."

PAGASA currently has four sets of names that are used in rotation every four years. However, PAGASA is open to changes and or drop certain typhoon names with the recommendation of the public or any organization subject for deliberation.

Valdemoro says that the lists were generated in 1999 when DOST-PAGASA held a "Name a Bagyo Contest" on typhoon names, eliciting active response from the public who sent in a huge number of suggestions including that from Overseas Foreign Workers (OFWs).

However, names of typhoons that were destructive, resulting in at least P1 billion in damages or have caused at least 300 deaths, are decommissioned.



Moreover, Valdemoro says that the Weather Forecasting Section of DOST-PAGASA's Weather Division is responsible in assigning names for tropical storms that were decommissioned.

Examples are Pepeng or Parma in 2009 with maximum sustained winds of 195 km/h that caused P27.3 billion in damages and 465 deaths; Frank or Fengshen in 2008 with 160km/h of winds, resulting in P13.5 billion in damages and 557 deaths; and Ondoy or Ketsana in 2009 which was classified by DOST-PAGASA as Severe Tropical Storm with 105 km/h of sustained winds, causing P11 billion in damages and 464 deaths. These are just some of the typhoon names that have been deleted from the list.

Also, typhoon names that have semblance to prominent politicians and celebrities are not allowed to be in the lists as these may cause public ridicule. Same is true with other Filipino terminologies and phrases that are offensive to public decency.

Presently, with the adoption of a gender sensitive workplace in government offices, DOST-PAGASA has sparingly used names of women as typhoon identifier. Instead, it uses a combination of Filipino names and inanimate terms such as "Labuyo" which pertains to a breed of local rooster.

In regard to international names, the Typhoon Committee under the auspices of UN Economic and Social Commission for Asia and the Pacific (ESCAP)/World Meteorological Organization (WMO) assign names from four sets of names submitted by the 14-member countries affected by typhoons. Names like Haiyan (Typhoon Yolanda), Nari (Santi), and Bopha (Typhoon Pablo) are some of the international names that have been used.

Unlike the American and Filipino traditions, the names are not exclusively derived from people but includes names of flowers, animals, food, among others, and they are not in alphabetical order by name but rather in alphabetical order by the country that nominated the name.

The tradition of naming tropical storms goes back in the middle of the 20th Century where American forecasters named tropical storms after people, originally using only female names, using the names of U.S. navy and airforce pilots and forecasters wives and or girlfriends.

It was in 1963 when Philippine forecasters from the DOST-PAGASA started assigning Filipino names to storms following the American practice. Originally, only female nicknames ending in "ing" following the original 19 Filipino alphabet were assigned corresponding to the average of 19 or 20 tropical cyclones that enter the Philippine Area of Responsibility.

PHILIPPINE TROPICAL CYCLONE NAMES

1	2	3	4
2009 2013 2017 2021	2010 2014 2018 2022	2011 2015 2019 2023	2012 2016 2020 2024
AURING BISING CRISING DANTE EMONG FERIA GORIO HUANING ISANG JOLINA KIKO LANNIE MARING NANDO ODETTE PAOLO QUEDAN RAMIL SALOME TINO URDUJA VINTA WILMA YASMIN ZORAIDA	AGATON BASYANG CALOY DOMENG ESTER FLORITA GLENDA HENRY INDAY JOSE KARDING LUIS MARIO NENENG OMPONG PAENG QUEENIE RUBY SENIANG TOMAS USMAN VENUS WALDO YAYANG ZENY	AMANG BETTY CHEDENG DODONG EGAY FALCON GORING HANNA INENG JENNY KABAYAN LANDO MARILYN NONOY ONYOK PERLA QUIEL RAMON SARAH TISOY URSULA VIRING WENG YOYOY ZIGZAG	AMBO BUTCHOY CARINA DINDO ENTENG FERDIE GENER HELEN IGME JULIAN KAREN LAWIN MARCE NINA OFEL PEPITO QUINTA ROLLY SIONY TONYO ULYSSES VICKY WARREN YOYONG ZOSIMO
AUXILLIARY NAMES			
ALAMID BRUNO CONCHING DOLOR ERNIE FLORANTE GERARDO HERNAN ISKO JEROME	AGILA BAGWIS CHITO DIEGO ELENA FELINO GUNDING HARRIET INDANG JESSA	ABE BERTO CHARO DADO ESTOY FELION GENING HERMAN IRMA JAIME	ALAKDAN BALDO CLARA DENCIO ESTONG FELIPE GARDO HELING ISMAEL JULIO

REVISED LIST OF NAMES FOR TROPICAL CYCLONES WITHIN THE PHILIPPINE AREA OF RESPONSIBILITY (Effective September 2014)
The first tropical cyclone of the year starts with the name beginning in letter A as in AURING under column 1 for 2009 and so on down the list as one disturbance succeeds another. The 5th year (2013) will bring us back to column 1 of AURING. In the event that the number of tropical cyclones within the year exceeds 25, an auxiliary list is used, the first ten of which are listed under each column.

In this article, Dr. Aristotle P. Carandang, S&T Post Executive Editor, shares the latest developments in the country's transportation industry as science and technology (S&T) proactively assert their rightful place in making the sector truly competitive.

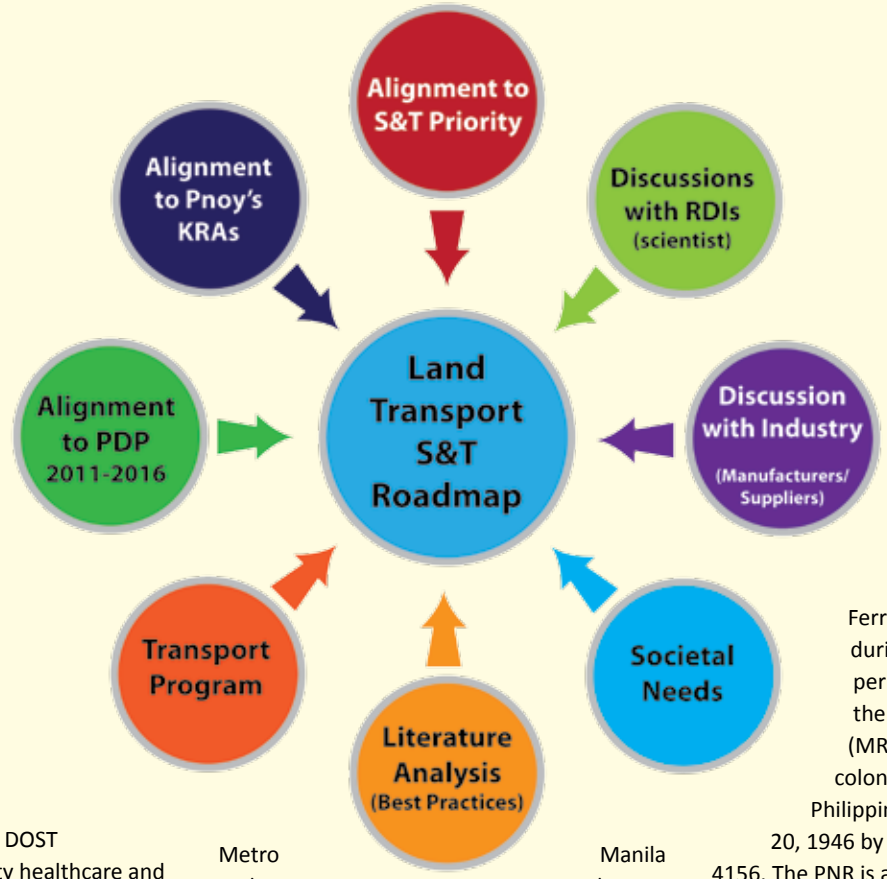
By DR. ARISTOTLE P. CARANDANG
S&T Media Service, *DOST-STII*

Taking over the reign of the *kalesa* (horse-drawn carriage) which was "king"during the Spanish period, the *jeepney* has become the most popular mode of transportation in the country since then. It was originally made from the leftover American military jeep after the devastating World War II. And because of the need for a new means of transport, Filipino ingenuity came up with the jeepney that has become a ubiquitous symbol of the Filipino culture; known for gaudy adornment (others call it baroque) and congested seating.

Aside from the celebrated jeepney, the country's archipelagic configuration also tells of the state of the transport industry nowadays. Such could be the result of underinvestment in the past and difficult geography. In recent years, however, it can be seen that government has been keen on improving the transportation system.

In fact, the Department of Science and Technology through the Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD) has recently crafted its Land Transport S&T Roadmap for road, rail, Intelligent Transport System (ITS), and an Automotive Testing Facility. It also has an "Approach in the Development of the Sea/Water Transport S&T Roadmap."

For the transport sector to be competitive, DOST-PCIEERD posits that there should be modern and cost-effective mass transport system. This can be achieved through enhanced design, manufacturing, supply infrastructure, and support capabilities.



The presence of all these would lead to improved mobility of people and goods through efficient and intelligent transport systems, according to a report.

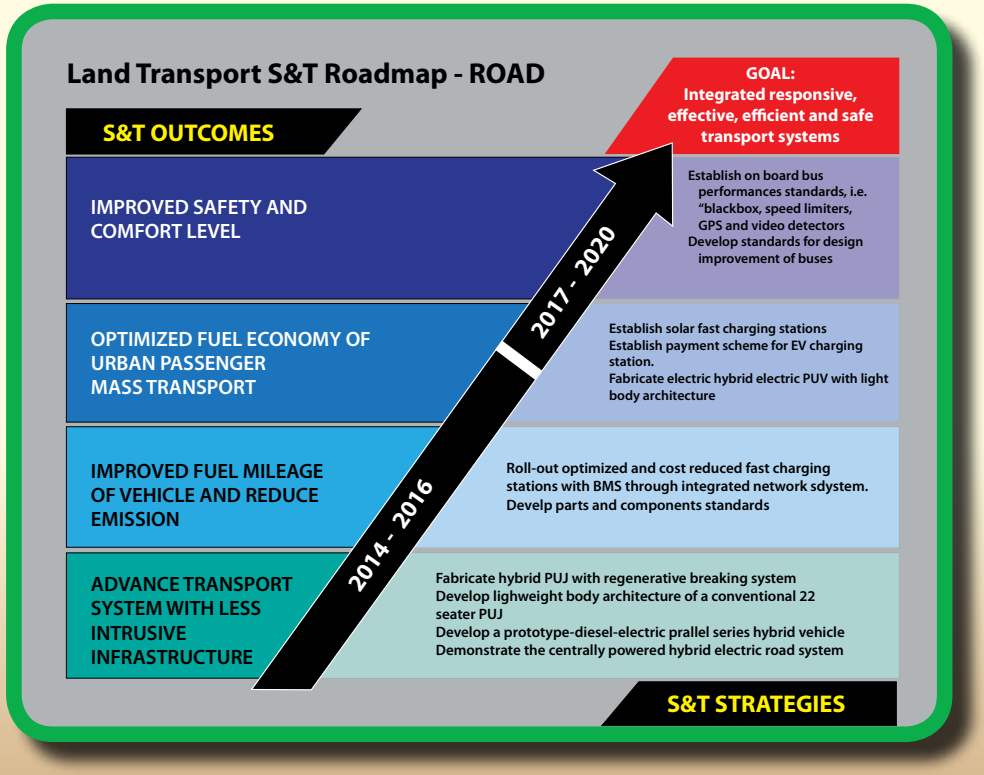
The Roadmap

For its role in the transport sector, DOST-PCIEERD believes that S&T play an important part in its development. Anchoring on DOST Outcome 6 (Improved quality healthcare and **quality of life through science, technology and innovation**), the Council's Land Transport S&T Roadmap aims to achieve integrated, responsive, effective, efficient and safe transport system by 2020 that contain the following: 1) **Sustainable Mass Transport System - Road Transport** with elements such as E-vehicle parts and components, PUJ design improvement, bus design enhancement (centrally powered hybrid electric road train), and road infrastructures; 2) **Sustainable Mass Transport System - Rail Transport** that includes the Automated Guideway Transit (AGT) and the Railway Systems; 3) **Intelligent Transport System (ITS)** having Advanced Traffic Management System and Advanced Traveller Information System; and **R&D for transportation parts & components** that focus on localization of parts and components, establishment of international compliant testing facilities, automotive R&D parts & components and testing facility, and gear making and assembly facility.

The iconic *tren*

Iconic and beloved, the "tren" as endearingly called by Filipinos is the age-old train system operated by the Philippine National Railways (*Pambansang Daambakal ng Pilipinas*) or PNR traversing the contours of Metro Manila and the provinces of Laguna, Quezon, Camarines Sur, and Albay. Records show that in the past, it also served the provinces of Bulacan, Pampanga, Tarlac, Nueva Ecija, Pangasinan, and La Union with its North Main Line; while serving Batangas Province on its South Main Line.

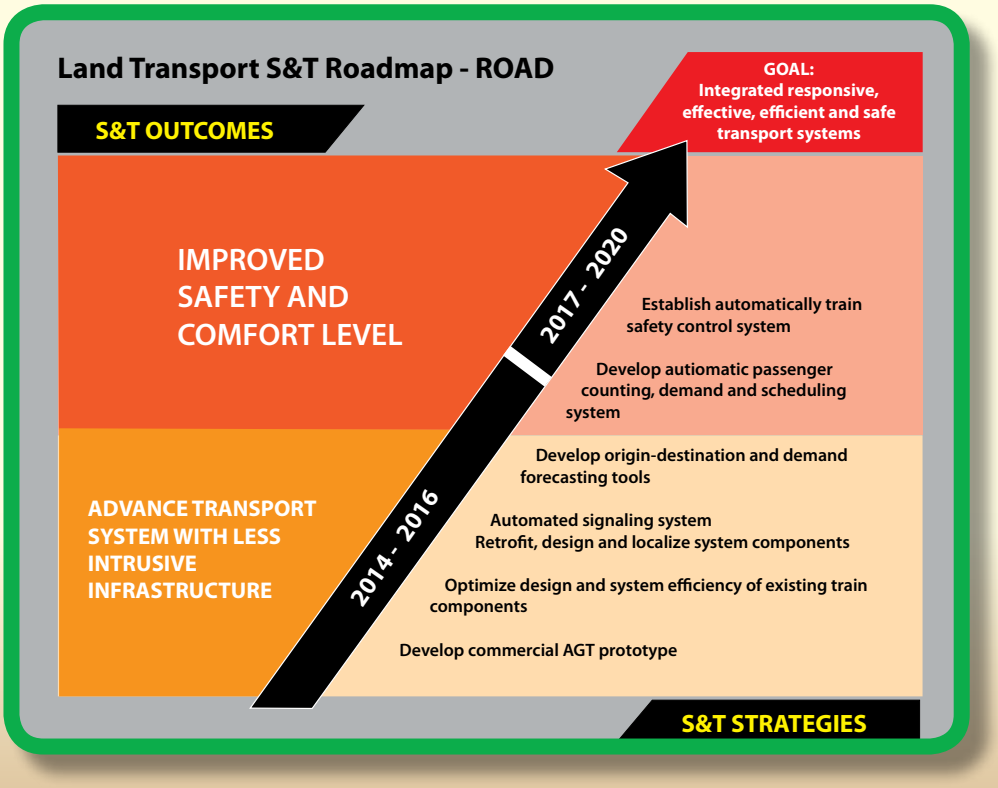
It began operations on November 24, 1892 as the Ferrocarril de Manila-Dagupan, during the Spanish colonial period, and later becoming the Manila Railroad Company (MRR) during the American colonial period. It became the Philippine National Railways on June 20, 1946 by virtue of Republic Act No. 4156. The PNR is an agency of the Department of Transportation and Communications. And 'daang bakal', as it is called by most, has been so pervasive in the Filipino psyche that it has permeated day-to-day activities thus becoming part of the landscape as "Barangay Daang Bakal."



At present, there is an ongoing project between the DOST's Metals Industry Research and Development Center (MIRDC) and the PNR with the former developing a train set design for the latter. It was learned that PNR also contributed to the design of the five-coach train set-- the first and only train made by Filipino engineers.

With the signed Memorandum of Agreement between DOST and PNR, the partnership was formalized and terms of engagement were laid down. PNR will assist in the operation and maintenance of prototype trains and permitting the other party to use its railway tracks for testing, and provision of technical assistance. The DOST, meanwhile, has estimated the amount of design and development to about Php 33 million which is solely funded by the Department.

With the function of a hybrid transport system capable of running either by diesel or electricity, the train also has added features for easier maintenance. In case of brownouts, it can run on diesel through the generator installed in the unit. It can carry 120 passengers per coach or 600 people per train set which has full length of 60 meters. With mostly locally sourced materials, each coach costs much lower at Php 20 million. Project engineers said that the train can run up to 80 kilometers per hour (kph) with its 125-horsepower engine.

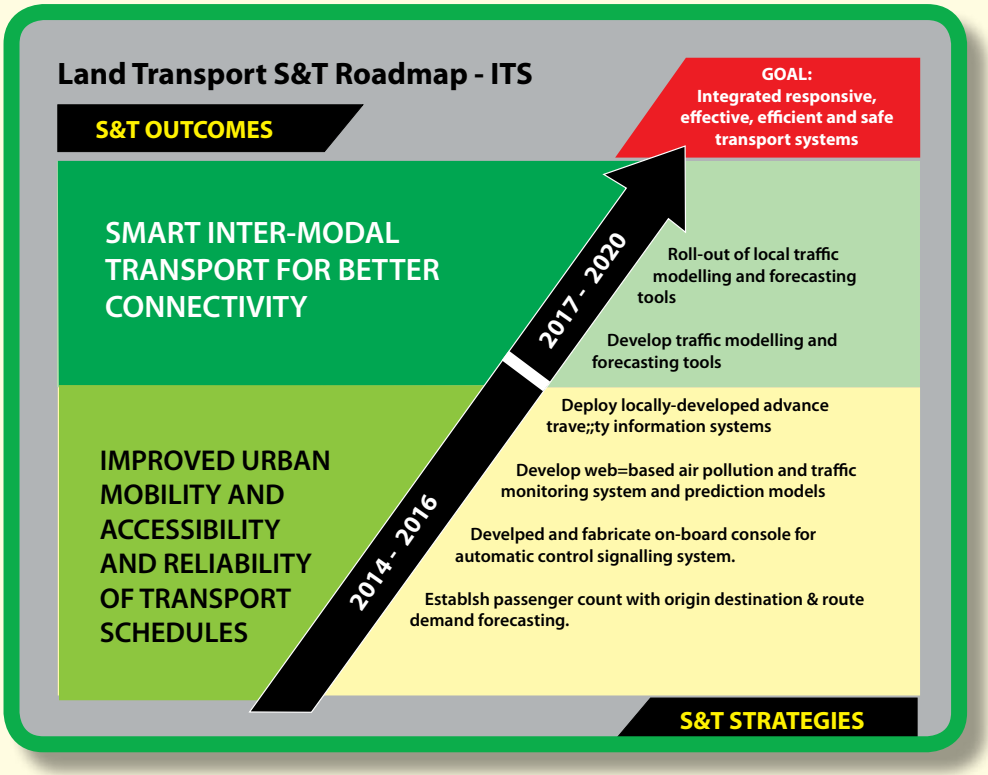


All geared up

Both the Automated Guideway Transit (AGT) and the Road Train are currently being tested as part of the dream for the country' improved mobility.

As shared in the public in recent months, the AGT has been envisioned to be a reasonable alternative to imported mass transit systems. This is supported by credible international studies that the AGT system is a cost-effective and less intrusive mass transport for countries like the Philippines. It is made of locally available components and uses rubber tires to lessen noise. It runs on maximum speed of 60 kph and can accommodate 30 passengers per coach.

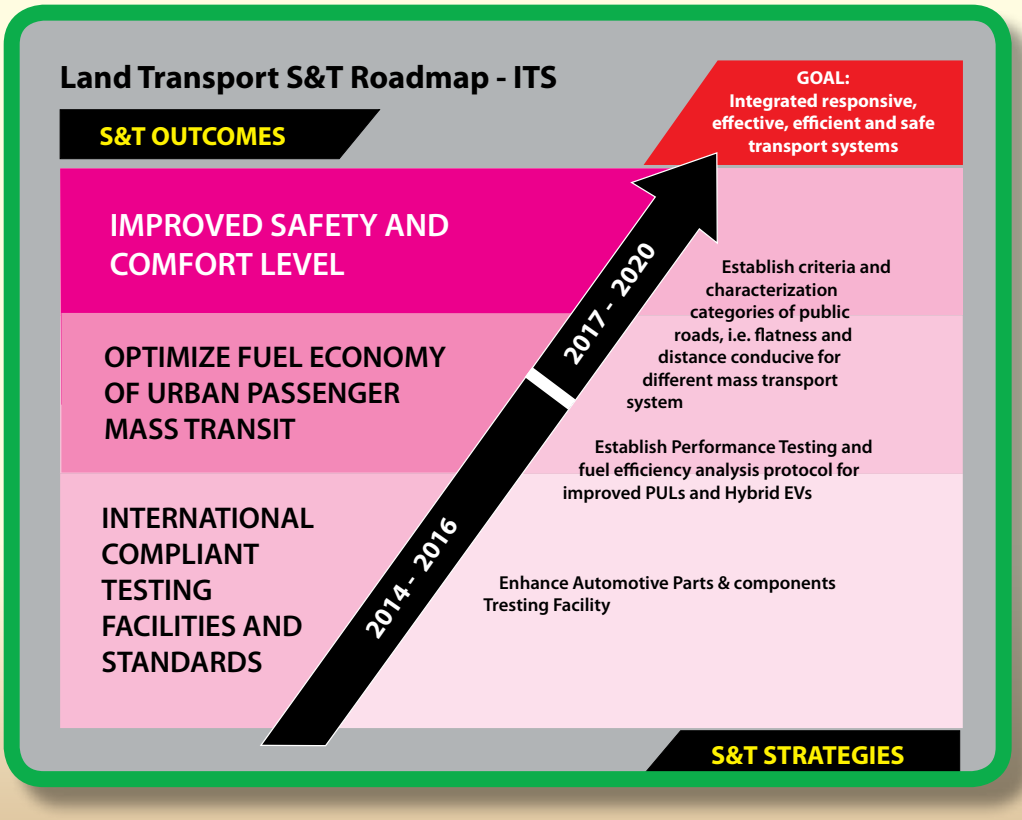
The Road Train, on the other hand, is a spin-off technology from the AGT as it does not have the elevated guideway. DOST



Secretary Mario G. Montejo explained that the road train is not "high-tech" but innovative in the sense that the strategic use of existing technologies introduced a new mass transit system that may be able to somehow help solve part of the traffic problem. It is expected that the road train can service 650,000 commuters everyday to complement the current systems.

With these efforts of the Department, we can see how S&T intervention can greatly improve the country's transport system. From the carriage to the "tren", we are now enhancing mass transportation to be able to bring more people to their destinations. We are also enhancing vehicle designs and establishing facilities that will make testing and assembly more precise. Thus we can see clearly how S&T is getting us there.

CARANDANG



The country's transport system is currently under a big test, and the science community is addressing the challenges. Framelia V. Anonas gives an overview on the Philippine transport system and its importance to the country.

Moving people driving commerce pushing growth

By FRAMELIA V. ANONAS
S&T Media Service, *DOST-STII*

What's the big deal with the transport industry? A lot. Ever since humans learned to ride on animals and then invented the wheel, we learned to go to places and dramatically broadened our world.

In the country, this industry has lately been in a challenge for several snags not only in public utility vehicles but also on the roads and tracks that vehicles run on. With several S&T interventions, the public can expect to see improvements in vehicles, traffic situations, and roads in the near future.

Why is transportation so important to the country? Here are several reasons:

Transportation and economics

Economics involves production, distribution and consumption of goods and services. If a product reaches a certain place in a good condition, then it becomes less expensive. Thus a good transportation system results in cheaper price and higher quality products. And because of faster transportation at less cost, people can easily go to work and journey to other places, bringing in income for the family and community.

Transportation and society

Transportation has a big role in forming urban societies. Notice how cities located near junctions of river banks, ports, and intersections are quickly formed and developed. Meanwhile, as more vehicles are developed, more paved road networks are constructed, and personal incomes are increased, communities turn into urban centers with intense travel activity.

Good transport system is also important in changing people's habits. If we have good roads and readily available mass transport system, people can report to their offices and go to their appointments on time or even ahead of time. Currently, traffic congestion and inadequate mass transport system are the main reasons why people spend too much time on the road and get late for work or miss their appointments. These aspects too have economic impact and cost the country precious millions of pesos when idle time is converted to cash.

Transportation and politics

For political administration to function well, it needs to a good and efficient transportation system that could facilitate the sending and getting information about people and to people. Such information include laws, security matters, and other matters that need to be relayed to people to generate awareness and action. Transportation is also important in the movement of the military, travel of people, and conveyance of freight.

Transportation in the Philippines

Transportation is a key sector in the Philippine economy, according to the Asian Development Bank, as it links population and economic centers throughout the archipelago.

In the Philippines, the transport system consists of road, water, air, and rail transport. Road transport is the most dominant, accounting for 98 percent of passenger traffic and 58 percent of cargo traffic. Water transport

is likewise important as it links the archipelago's many islands. With the opening of the nautical highway, shipping of goods became more efficient, cost of transport went down, new routes emerged, regional markets expanded, tourism improved, local areas developed, and the domestic shipping industry turned more competitive.

The Philippines still has much to do to keep abreast with its regional neighbors and competitors, according to a report from the ADB. Though the country is comparable with or better than many neighboring developing countries, it needs to improve the quality of its road system.

According to the ADB, improving transport infrastructure in the country is critical in order to strengthen the investment climate and enhance economic growth. Yet, efforts to upgrade or expand the network have been limited. The country needs to be connected by a transport network to keep the costs of moving goods and services down. Linking the islands together promotes economic activity and reduces transaction costs, improves productivity, and meets the demands of an increasingly urbanized economy.

Thus the S&T community, tasked by the government with the responsibility of alleviating poverty through S&T interventions, has come up with several initiatives and innovative projects for the transport industry. It may take some time to make these initiatives roll efficiently. But when they finally do roll, then we are assured that we and our products will get to destinations safer, faster, and cheaper.

ANONAS

PH transport system

FACTS AND FIGURES

(Source: ADB)

Land transport
- **Composed of 215,000 km roads**
- **15% (31,400 km) national roads (under DPWH)**
  - **79% national roads paved (asphalt or concrete)**
  - **Still below the original target of 95% by 2010**
  - **45% (14,200) km in good or fair condition (Nov. 2011)**
- **85% local roads (under LGUs)**
- **0.6% of gross domestic product (GDP) annual investment**

Water transport
- **1,300 public and private ports**
  - **1,000 government-owned**
  - **140 of the government-owned under Phil Ports Authority/Cebu Ports Authority**
- **The rest owned by other gov't agencies or LGUs**
- **300 are privately owned and managed**

Air transport
- **215 public and private airports**
- **84 government-owned and controlled**
  - **10 international airports**
  - **15 Principal Class 1 airports**
  - **19 Principal Class 2 airports**
  - **40 community airports**
- **NAIA: busiest airport:**
  - **435,486 aircraft movements**
  - **29.6 million passengers (2011)**
- **Mactan International Airport in Cebu: second-busiest airport**
  - **82,554 aircraft movements**
  - **6.3 million passengers (2011)**
- **10% annual growth of domestic passengers at NAIA since 2000**
- **131 airports privately owned and operated**

Urban transport
- **433 bus companies operating 805 routes**
- **1.9 million vehicles in Metro Manila (2010)**
  - **667,424 are taxis (35%)**
- **785 jeepney routes**
- **6.6 million vehicles in the country**
  - **50% are motorcycles**
- **3 light rail transits with 979,000 passengers per day**
- **10 radial, 5 circumferential roads: 2 still incomplete and a sixth is in the planning stage**
- **High traffic volume, economic loss at 4.6% of GDP**

SOURCES:

http://www.cdeep.iitb.ac.in/nptel/Civil%20Engineering/Transportation%20Engg%201/03-Ltexhtml/nptel_ceTEI_L03.pdf
Asian Development Bank

Road train goes to test

With a total capacity of 240 commuters per ride, the road train can potentially help ease up commuter woes. DOST hoists the green flag as the road test goes through a series of tests for roadworthiness. In this article, Ryan Kester Mansion take us to a ride on DOST's road train

STRESS-FREE RIDE.The DOST Hybrid Electric Road Train is composed of four interconnected fully air-conditioned coaches. Each coach can accommodate 60 passengers, serving 240 commuters per trip.

PINOY-MADE, ENVIRONMENT-FRIENDLY. Using local materials, the Department of Science and Technology develops a solution to Metro Manila commuters' daily ordeal – the Hybrid Electric Road Train. Designed by Filipino engineers, the road train is powered by hybrid diesel fuel and electric-powered battery.

By RYAN KESTER MANSION
S&T Media Service, *DOST-STII*

Designed by Filipino engineers and made with locally available parts, the 40-meter long DOST road train is a promising alternative means of transportation. It is in fact one of DOST's answer to the mass transportation dilemma in metro roads.

The road train is composed of four interconnected fully airconditioned passenger coaches and one power coach. Each passenger coach can accomodate 60 persons for a total of 240 commuters per ride.

Secretary Mario G. Montejo estimates that the road train can serve 650,000 commuters when fully implemented. "This will happen after its testing phase which will take two to three years," he said.

Launched last August 22, 2014 the road train can run with a maximum speed of 50kph. It is mainly powered by hybrid diesel fuel and electric-powered battery. Moreover, the train is designed to be energy-efficient, which means it does not need electricity and suspended cables to operate. This newest Filipino innovation also produces less smoke emission compared with existing mass transport vehicles, making it an eco-friendly mode of transport.

THE NEW BANDWAGON.Meet theDepartment of Science and Technology's Hybrid Electric Road Train – a 40-meter-long train-like bus composed of four interconnected coaches that can accommodate up to 60 passengers and run up to 50 kph. It is set to hit the roads of Clark Airbase in Angeles City, Pampanga for initial testing this September.

The Automated Guideway Transit has been around for a while and has gone through a few phases to perfect its technology. Joy M. Lazcano gives us several AGT updates in this article.

11 Fabulous facts about a train called AGT

Sec. Montejo shows the features of the AGT to Rep. Cynthia Villar (in pink)

Asec. Raymund Liboro rides the AGT with guests from the House of Representatives

AGT Station

By JOY M. LAZCANO
S&T Media Service, *DOST-STII*

Traffic in the metro has gone from bad to worse over the years, and the government has been seeking appropriate and efficient solutions to solve the jam that we all do not want in our sandwich. Fortunately, the DOST has several aces up on its sleeve to help address this problem. The train called AGT, or the Automated Guideway Transit, is one of these solutions.

Since its maiden voyage in December 2012 at the University of the Philippines Diliman (UPD) and the much anticipated test voyage by President Benigno S. Aquino on the following year, the, a Department of Science and Technology (DOST) flagship technology, has been silently rolling off to work on needed improvements before going all-out in 2017.

For those who are wondering whatever happened during the times the train did not sound its familiar hoot, here are some updates to keep you on track:

1. DOST has started the AGT 120 in Bicutan. It's the same AGT program but uses a much bigger passenger capacity of 120 compared with UPDiliman's 30-passenger coaches.
2. The AGT 120 runs on 60 kilometers per hour maximum speed against UPD's 45KPH.
3. Its motor per coach has 2 x 125 horsepower inverter duty which is more powerful than the previous 2 x 60 HP inverter duty.
4. Its coach dimension is much bigger at 12mL x2.5mW x2.5mH from previously 8.5mL x2.1mW x3.5mH.
5. The development cost for the AGT 120 is at P11 Million per rolling stock against P7 Million per rolling stock for the Quezon City based prototype.
6. The length of the project in Bicutan is shorter at 372 meters while the one in UPD is at 465 meters.
7. Column dimension is 1 x 1 meter for the Bicutan project, a heftier one compared with the 0.8 meter x 0.8 meter in UPD.
8. All in all, the development cost of the AGT 120 is double of the UPD's P50 Million.
9. After all the integrated systems have been configured to a more commercially ready technology, the AGT 120 is expected to be extended from Gen. Santos Ave. in Bicutan up to the C-6 road which leads to the Taguig-Rizal boundary.
10. Test sites in Payatas, Quezon City and Baguio City will begin soon as feasibility studies show encouraging results for the AGT to be mounted in the said areas.
11. Once the AGT line 1 in UP development test is complete, it will serve as a feeder train for the MRT Quezon Ave. station. This means that commuters from the UP going to Quezon Avenue need not ride jeepneys or taxis to reach Quezon Ave. MRT station.

LAZCANO

Amidst the strong long-term growth prospects of the global aerospace industry, the Philippines is positioning itself to become a high flyer in the aerospace manufacturing, and maintenance, repair, and overhaul, with the Department of Science and Technology (DOST) at the helm. Maria Luisa S. Lumioan tell us more about DOST's initiatives to make the local aerospace industry soar high in the skies.

Philippine aerospace industry ready to soar high

By MARIA LUISA S. LUMIOAN
S&T Media Service, *DOST-STII*

Airbus Global Market Forecast estimates that 1,400 new aircrafts per year must be built to meet the needs of the growing air travel industry. It is expected that the current fleet of passenger and freighter aircraft will form only five percent of the fleet in service by 2020.

This trend has driven the manufacturers in the upper supply chain to outsource and shift production in order to reduce cost, focus on their core business, and increase efficiency—which can be viewed as both challenge and opportunity for the local aerospace industry.

DOST bridges industry gaps

So that the country can take advantage of more opportunities in the market, the DOST through the Metals Industry Research and Development Center (MIRDC) is taking steps to address the gaps in the local aerospace industry.

There are three Tier 1 or direct suppliers of Boeing and Airbus already established in the country aside from local aerospace companies which supply to Tier1 companies.

However, National Science Board data show a big disparity between the country's value of imports and exports of aerospace goods. In 2008, for every dollar of exports, the Philippines imported $12.39 worth of aerospace goods.

Part of the reason for the disproportion of imports and exports and the low value added are the gaps in the industry's supply chain. Local companies are capable of machining the parts of the Tier 1 suppliers operating in the Philippines. However, the next stages of the value chain are done abroad since the country lacks capability in these areas. The local companies then have to import the parts back for assembly, packaging, and delivery.

To address this challenge, the DOST-MIRDC is investing in various facilities that will cater to the needs of the local aerospace industry.

Among the facilities recently established are the Surface Engineering Facility, Die and Mold Solution Center, and Finite Element Analysis (FEA) Design Center. A Gear Making and Assembling Facility is also in the works. Such facilities will not only benefit the local aerospace industry but also the metals industry in general.

To answer the need for a critical mass of skilled workers for the local aerospace industry, MIRDC is now conducting various training activities such as CNC (computerized numerical control) Programming and Operations training, Die and Mold Designing and Making, among others. Some of the graduates of CNC training have already been absorbed by local companies.

As many of our local aerospace suppliers have yet to secure their AS9100 certification—a company's proof that their products meet customer and applicable statutory and regulatory requirements, MIRDC is planning to provide training and consultancy on this in the future. MIRDC is also preparing to get ISO Certification for its own new facilities and services.

Acknowledging the role local aerospace industry plays for the realization of industry targets, MIRDC has helped manufacturers, contractors, suppliers, traders, dealers, and importers organize themselves into Aerospace Industries Association of the Philippines (AIAP), where MIRDC is a Board of Trustee. The association is committed to establishing a globally competitive and viable aerospace and aviation industry in the country.

As well, MIRDC recently signed a Memorandum of Understanding (MOU) with the AIAP under the Makinarya at Teknolohiya para sa Bayan Program or Makibayan to formalize its collaboration in capacity building, improved access to technology, manpower development and research and development.

MIRDC anticipates that through its various interventions and initiatives, the Philippine aerospace industry will soar high in the not-so-distant future.

LUMIOAN

TO THE RESCUE

Safer, more efficient boats at less cost

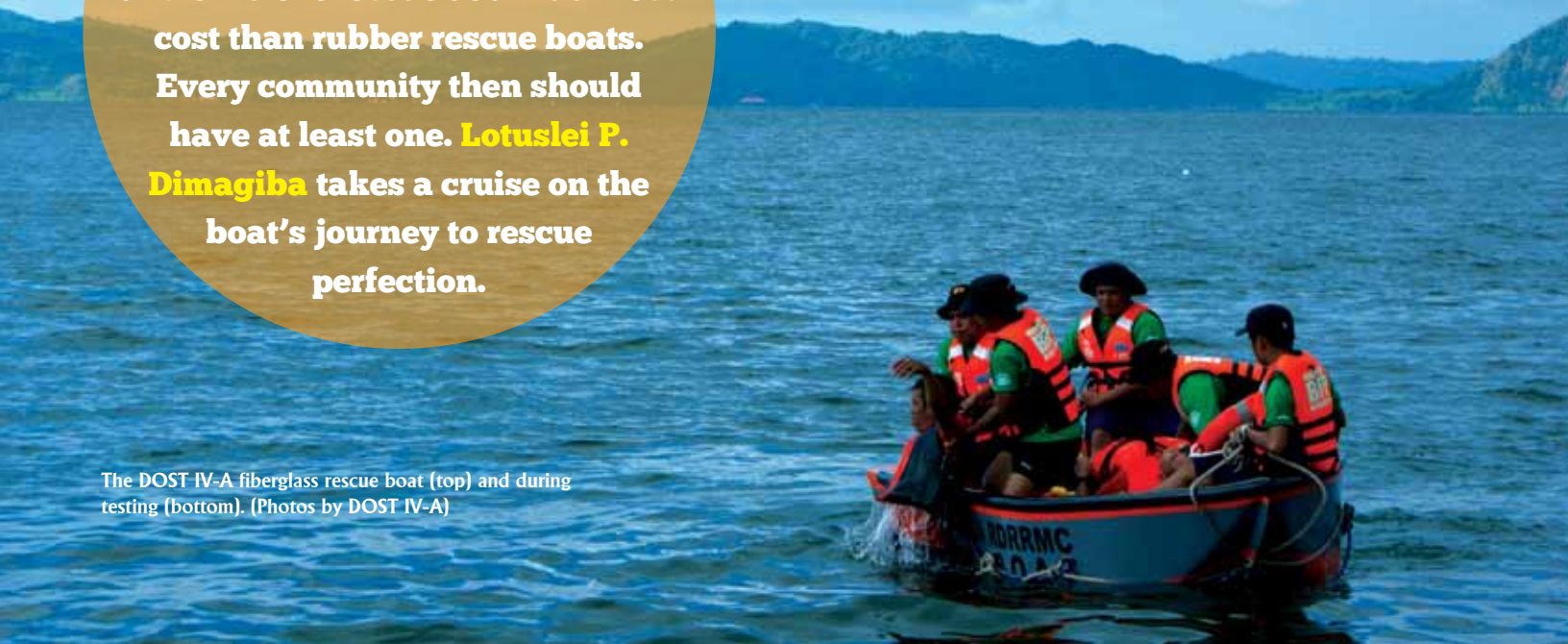
By LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

Come floods or high water, DOST's fiberglass boat can haul people to safety. It is engineered for more effective and efficient rescue at a much less cost than rubber rescue boats. Every community then should have at least one. Lotuslei P. Dimagiba takes a cruise on the boat's journey to rescue perfection.

During floods and heavy rains, rescue boats come in handy in hauling people and animals to safety. But sometimes debris gets in the way and –pfffft—just a puncture and the boat collapses. But not when it's made of fiberglass.

In 2011, the Department of Science and Technology (DOST) -IVA launched a fiberglass rescue boat for evacuations and rescue operations. Now, DOST came up with the modified version, making the boat safer and more efficient.

Engr. Eric Bautista of DOST IV-A Technical Services Unit said that the initial model has gone through changes based on the feedbacks and observations of actual users. "The current design now houses



The DOST IV-A fiberglass rescue boat (top) and during testing (bottom). (Photos by DOST IV-A)

the outboard motor's gas tank in a strategically placed compartment," he said. " The paddle arrester has also undergone changes to suit the needs of the operators."

This means that the rescue boat now has a storage compartment for the gas tank which can only be accessed by the operators.

"The paddle strap was re-engineered to provide a sturdy clamping point while maintaining ease of usage," says Bautista.

The Fiberglass Rescue Boat (FRB) is specifically made to order. Engr. Bautista advises every barangay to have a boat ready, especially in Metro Manila area for rescue operations.

Engr. Bautista suggested flood prone areas to have three units and coastal areas with less flooding should have at least one.

Currently, DOST fiberglass boats are in place in several areas, namely Benguet, Infanta (Quezon), Gen Nakar (Quezon), Gapan (Nueva Ecija), San Mateo (Rizal) and Brgy. Tumana (Marikina).

Engr. Bautista said that "the FRB absolutely does its job in transporting people to safety in times of flooding and provides easier transport for relief goods due to its design."

"The units are made to order and fabricated by recognized co-operators by the DOST Regional Office IV-A to ensure strict adherence to design and specifications stipulated by the technical working group, including MARINA," he added.

He said that a unit costs Php 128,700.00, with an additional Php 60,000.00 if a trailer or hauler is needed. "The 25hp outboard motor is priced at Php 126,000.00,"says Bautista.

For orders, a letter of intent (purchase of rescue boat) can be sent addressing, Dr. Alexander R. Madrigal, Regional Director of the DOST 4A, Jamboree Rd. Timugan, Los Baños, Laguna (049) 536 5005.
(S&T Media Service)

DIMAGIBA

At a time when instant gratification reigns, we know how it is when time is of the essence. One instance is when you are on the road and need to fuel quickly for that very important appointment. Espie Angelica A. de Leon gives us a peep into a very interesting project that will beautifully complement the rise of the e-vehicles on our streets.

CharM in a jiffy

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

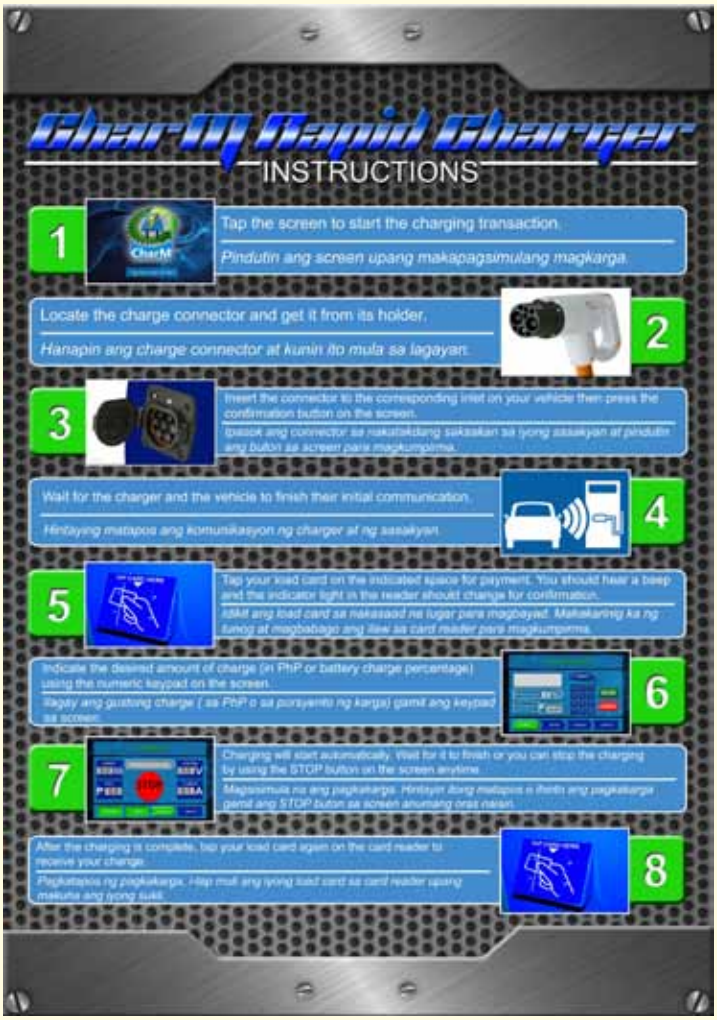
Now there are e-vehicles plying our streets. Very soon, a rapid charging station for these electric vehicles will rise in Mandaluyong.

Why not? Recharging the batteries of an e-vehicle via this soon-to-rise facility will only take less than 30 minutes compared with typical charging which takes all of six hours.

Further, this top-of-the-line system will serve as a showcase of how science, technology, and innovation can fuse intelligently to solve existing national problems such as the perennial concern on transportation. Through this showcase, investments are expected to pour in for the e-vehicle, thus bolstering support and implementation initiatives which will translate to a more efficient and effective transportation system in the country.

This is the attraction of CharM, or Charging in Minutes, short for "Rapid Charging E-Vehicle Station."

CharM is being implemented by the University of the Philippines-Electrical and Electronics Engineering Institute (UP-EEEI) with P15,010,176.00 funding from the Department of Science and Technology-Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD).



Charger Usage Instructions

Emergency Stop Button

NFC Payment

The project aims to develop a rapid charging system similar to a regular refueling station where the user utilizes a Chademo-compliant connector to re-charge the e-tryke. CharM, however, can save the driver a hefty amount of time by having the capacity to charge a Lithium-ion battery in less than 30 minutes, thus significantly cutting down on waiting time.

As of press time, one unit of CharM equipment has been completed, with the charging infrastructure now being put up in Mandaluyong.

According to Patrick Montero, senior science research specialist at PCIEERD, using CharM for e-trykes is a new technology in the country. "If the technology demonstration in Mandaluyong is found successful, the government especially the Department of Energy, may consider the adaptation of CharM to sustain the E-tryke program. Since CharM is locally developed, private sectors engaged in e-vehicle technology may tie up with UP-EEEI and DOST for possible collaboration," he adds.

CharM will also feature a Battery Management System (BMS) - an on-board system that balances the charge of the batteries while running. "Normally, e-vehicle runs in different environment conditions, route, load, and it affects the discharging of the batteries," Montero explains.

Another feature is the Top-up Payment Scheme or Near Field Card Payment system. Developed by UP-EEEI, a top-up card allows the user to charge the e-tryke without the use of actual money. "The pricing for the charging is not yet established and we are eager to see the results of demonstration," claims Montero.

CharM is expected to be operational in December 2014.

DE LEON

Almost everyday, we are confronted with news on road accidents that involve tricycles, jeepneys, mini buses, and other customized vehicles. Studies point to the design of these vehicles as the main cause of mishaps on the road. DOST's answer to this urgent concern is a vehicle design center called Finite Element Analysis or FEA. Allan Mauro V. Marfal tells us more about it.

Designed to be safe

By ALLAN MAURO V. MARFAL
S& Media Service, *DOST-STII*

The Department of Science and Technology (DOST) Assistant Secretary and Officer-In-Charge ofthe Metal Industry Research Development Center (MIRDC) Roberto O.Dizon together with representatives from the Customized Local Road Vehicles (CLRVs) group agree to form a partnership in establishing Finite Element Analysis (FEA) Design Center. The said design center aims to ensure the roadworthiness of CLRVs by developing and implementing standards for their units.Some of its services are to formulate appropriate recommendations on structural body design standard for CLRVs to improve its overall feature. (S&T Media Service/Photo by DOST-MIRDC)

Majority of Filipinos are relying heavily on various public transportation such as tricycles, public utility jeepneys and buses, and trains to bring them to their respective destinations. However, several major accidents on the road involving said public utility vehicles (PUV) have ruined not only some people's dreams but also put an end to a number of lives.

Outdated designs of these PUVs were found as one of the major causes of these unfortunate incidences.

An engineer from Department of Science and Technology- Metal Industry Research Development Center (DOST-MIRDC) gathers necessary information of an Asian utility vehicles before it goes through Finite Element Analysis. FEA is a computerized method for predicting how a product reacts to real-world forces. such as vibration, heat, fluid flow, and other physical effects.(S&T Media Service/Photo by DOST-MIRDC)

It's in the design

Now we expect better and more reliable designs, thanks to the Finite Element Analysis (FEA) design center of DOST's Metal Industry Research Development (DOST-MIRDC). This Center will answer the call of various sectors to develop, implement standards, and to ensure environment-friendly Customized Local Road Vehicles (CLRV).

CLRVs are manufactured locally, assembled or rebuilt using new or remanufactured parts or a combination of both. Some of the prime examples of these are tricycles, jeepneys and mini-buses, all of which are primarily used here in the Philippines as public transport for people and or goods

Seeing through

In FEA, a computer will enable one to see the structural body design of an existing CLRV and predict how the vehicle will react to real-world forces such as vibration, heat, fluid flow, and other physical effects. In short, it will determine the roadworthiness of CLRV. Thus, the FEA center is considered as one inexpensive way to simulate crash tests on such vehicles.

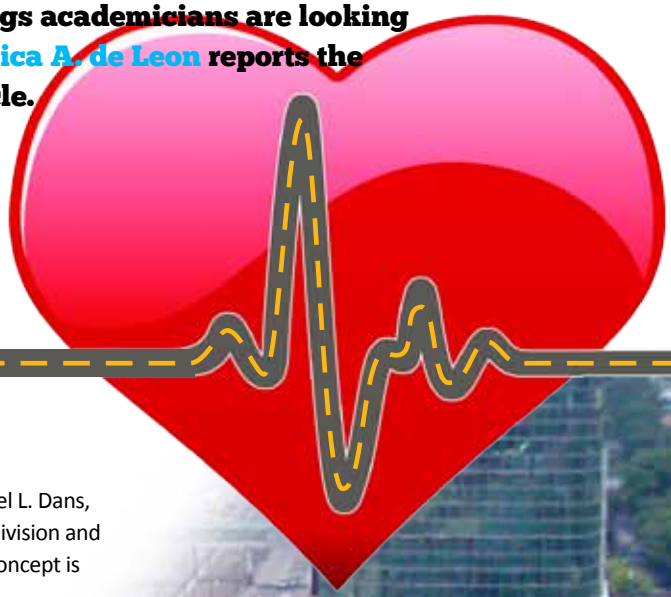
Knowing the importance of this procedure, CLRV big players such as Sarao Motors for jeepneys, DMENG Rich Enterprises for Asian Utility Vehicle makers, Cris Sidecar and Welding Shop for tricycle sidecar manufacturers, and Stow Away Liners for mini-buses have agreed to undergo FEA.

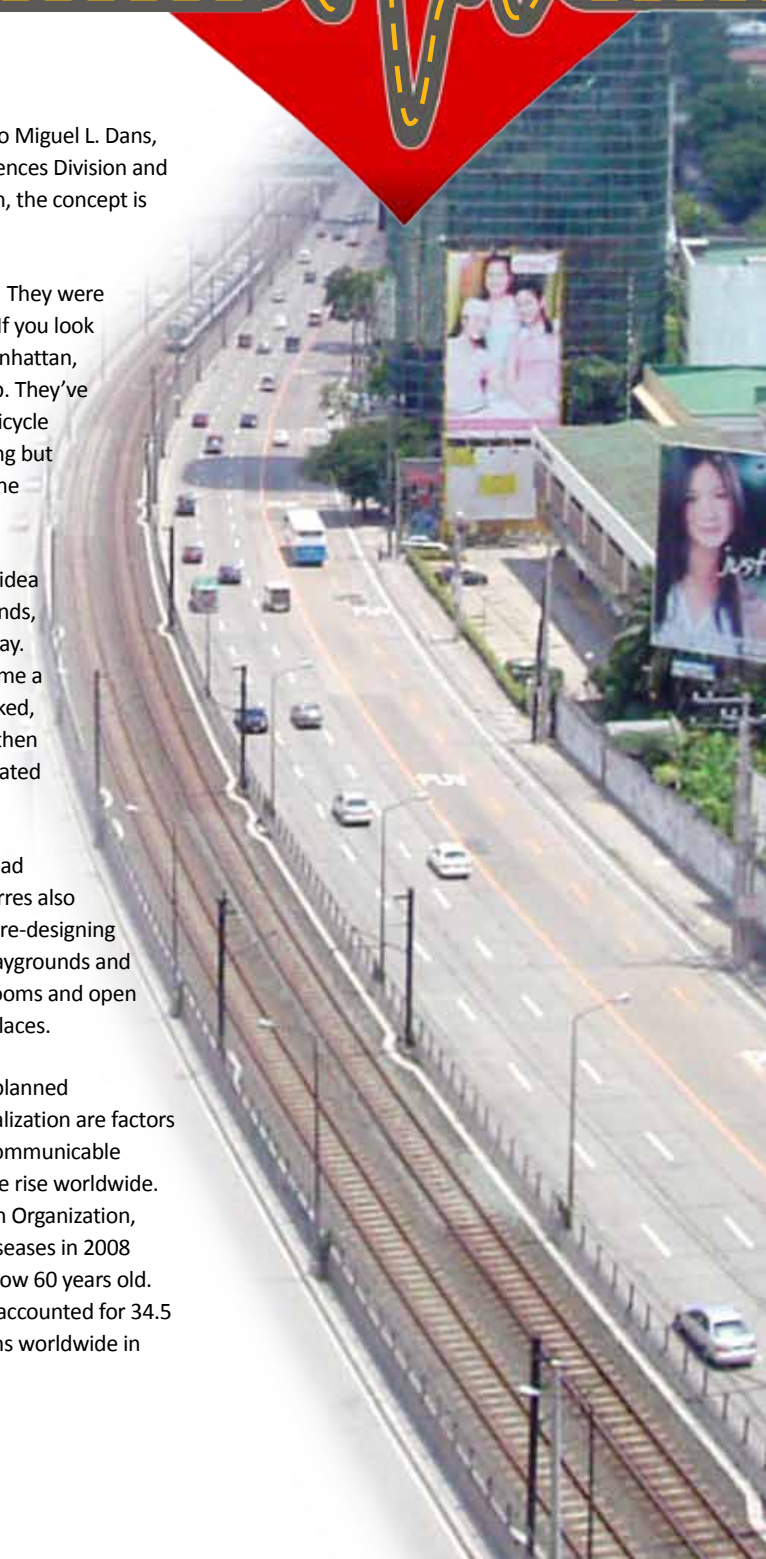
After the procedure, the DOST-MIRDC will be able provide appropriate recommendations on structural body design standard for CLRVs. It is expected that following MIRDC suggestions, CLRVs will improve in features and roadworthiness. Moreover, CLRV weight will also be reduced to lessen the consumption of resources such as fuel and materials for the body. This will also reduce pollution due to low power requirement.

MARFAL

Road systems designed to promote exercise, and big cities with community parks conducive to exercise, are some of the things academicians are looking at to promote healthier lifestyles. Espie Angelica A. de Leon reports the discussion in this article.

Better road system for better health





By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

Who wouldn't want to walk on roads that lead to better health?

These roads, according to Academician William T. Torres of the National Academy of Science and Technology (NAST), are those that are re-engineered "to accommodate non-motorized traffic." Dr. Torres says that such roads will help prevent the onset of non-communicable diseases such as cancer, heart disease, chronic obstructive pulmonary disease, and diabetes.

Torres, a member of NAST's Engineering Sciences and Technology Division, expressed this belief during a recent roundtable discussion organized by the DOST advisory body at the Hyatt Hotel Manila.

Road systems include sidewalks, pedestrian crossings, underground and above ground cross walks, and bike lanes, Torres said. Communities, Torres added, should be designed to promote exercise and big cities should have community parks conducive to exercise.

Torres also suggested that physical activity centers should be set up in rural areas first to pull urbanites there. Funding of such projects to turn engineers' health-friendly designs into reality is a concern, Torres admitted.

Meanwhile, doctors can influence the design of new megacities that will have health-friendly road systems. This is according to Academician Jaime C. Montoya, chair of NAST's Health Sciences Division and executive director of DOST's Philippine Council for Health Research and Development, who said that they are looking at new megacities to be designed with health-friendly infrastructure.

For Academician Antonio Miguel L. Dans, member of NAST's Health Sciences Division and focal person for the discussion, the concept is workable.

"New York is a megacity. They were able to re-design their roads. If you look at the bicycle lane map of Manhattan, you will be shocked. It's a web. They've successfully engineered the bicycle lanes. It took some engineering but also some creative thinking," he remarked.

Dans also proposed the idea of starting small. "In Netherlands, they used to have a car-free day. When people loved it, it became a car-free week. When that clicked, they had car-free zones. And then they had bicycle lanes," he related during the discussion.

Aside from improving road systems and communities, Torres also believes in the importance of re-designing school premises to include playgrounds and incorporating office activity rooms and open spaces in the design of workplaces.

Unhealthy lifestyles, unplanned urbanization, aging, and globalization are factors leading to the onset of non-communicable disease cases which are on the rise worldwide. According to the World Health Organization, deaths due to said kinds of diseases in 2008 occurred mainly in people below 60 years old. Non-communicable diseases accounted for 34.5 million out of 52 million deaths worldwide in 2010.

ATOMS FOR PEACE
PH nuke technology goes to Vienna

By HANS JOSHUA V. DANTES
S&T Media Service, *DOST-PNRI*

Undersecretary Dr. Amelia Guevara delivers the Philippines' statement during the IAEA General Conference plenary session.

Giving the world a glimpse of "Atoms for Peace" the Filipino way, the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI-DOST) showcased the country's various accomplishments in nuclear science and technology, nuclear safety, safeguards and security during the 58th General Conference of the International Atomic Energy Agency (IAEA) held in Vienna, Austria from September 22 to 26, 2014.

With the theme ***"The Philippines: Moving Forward With Nuclear Science and Technology"***, the Philippine exhibits highlighted the nation's fruitful partnership with IAEA for more than half a century through PNRI. IAEA Director General Yukiya Amano himself graced the Philippine exhibits and was welcomed by DOST Undersecretary Dr. Amelia Guevara, PNRI Director Dr. Alumanda Dela Rosa and Philippine Ambassador and Permanent Representative to the IAEA Lourdes Yparraguirre.

PNRI highlighted the country's achievements in the peaceful and productive applications of nuclear technologies.

Among the technologies showcased are precision farming methods and plant growth promoters that improve agricultural productivity, radiation processing and quarantine treatment of mangoes for boosting industrial competitiveness, newer and better nuclear medicine facilities, updated detection methods for red tide and nuclear analytical techniques in groundwater resource assessment and pollution studies.

"In its cooperation with the IAEA, the Philippines aims to create and maintain a reservoir of scientific and technological know-how, providing world-class solutions that empower Filipinos to attain higher productivity and better quality of life," said DOST Undersecretary Dr. Amelia Guevara as she addressed the plenary on September 23.

Undersecretary Guevara welcomes the visitors during the reception for the Philippine exhibit

IAEA Director General Yukiya Amano visits the Philippine exhibit at the Vienna International Center with Undersecretary Guevara and PNRI Director Dr. Alumanda Dela Rosa

Undersecretary Guevara, who led the delegation, also emphasized the country's steadfast commitment to ensure nuclear safety and security through the development of nuclear regulations, radioactive waste management, emergency preparedness and response mechanisms, and the ongoing establishment of a National Nuclear Security Support Center.

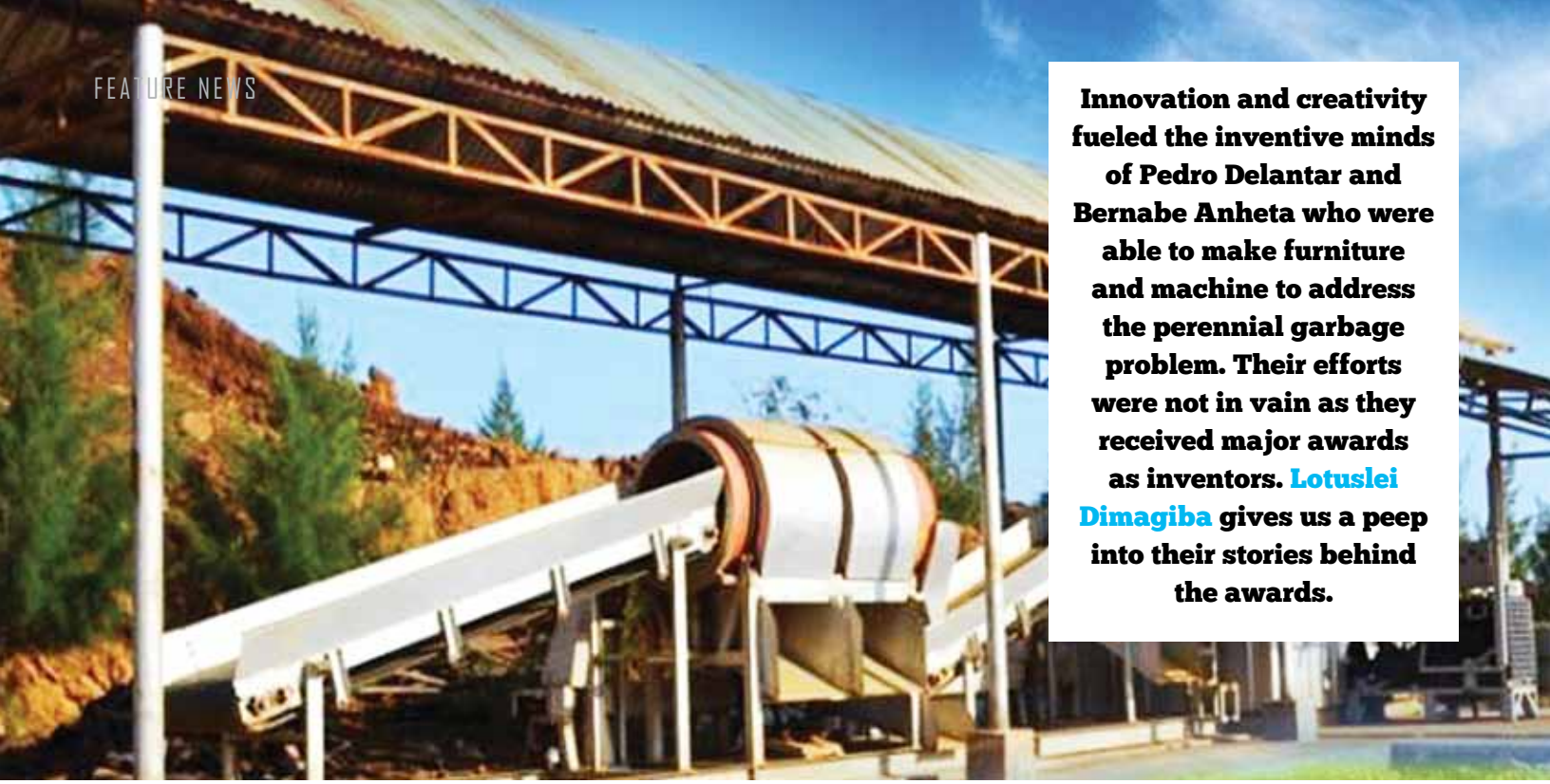
She also expressed the country's gratitude for the collaboration and support of IAEA, as well as other associated agencies and governments, without which the said accomplishments would not have been possible as the IAEA "will continue to play a vital role in enabling developing countries to use science and technology for development and for maintaining international peace and security."

International experts from the scientific community, the nuclear power industry and officials and representatives from various states visited the exhibits and were also treated to the taste of Filipino food such as Philippine dried mangoes, spring rolls and *sapin-sapin*.

The Philippine delegation also had the opportunity to do a technical visit to the various IAEA laboratories at Seibersdorf, Austria, which hosts many of the Agency's latest applications in the field of nuclear science and technology.

Attended by thousands of delegates from more than 160 IAEA Member States and various United Nations agencies and other international organizations, the annual IAEA General Conference provides a forum for its member states to further its general programs and projects as well as to deliberate on key issues in nuclear power, nuclear science and technology and nuclear safety, safeguards and security.

DANTES



Innovation and creativity fueled the inventive minds of Pedro Delantar and Bernabe Anheta who were able to make furniture and machine to address the perennial garbage problem. Their efforts were not in vain as they received major awards as inventors. Lotuslei Dimagiba gives us a peep into their stories behind the awards.

TURNING WASTE TO CASH

Inventors' pursuit to success

By MA. LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

Recycling and waste management have proven to be cash earners for Mr. Pedro H. Delantar and Engr. Bernabe M. Archeta, first prize winners of the 2014 National Invention Contest and Exhibits (NICE) of the Department of Science and Technology (DOST).

Mr. Pedro H. Delantar, the first prize winner of the Outstanding Invention (Tuklas Award) together with his wife Ms. Catherine Villarta – Delantar, a national science school scholar, were the brains behind turning mounded nature waste into high value products.

"My wife provided the faith and balance in achieving our goals," Delantar remarked.

In discovering the versatility of the materials they used, the couple processed, applied and developed the natural waste further. "It took us two years to perfect our processed product before we launched it in the market," Delantar revealed."We had to do many trial and errors to arrive to the right formula."

The first prize for Outstanding Utility Model and first prize for Outstanding Utility Model of the World Intellectual Property Organization awards was given to Engr. Bernabe M. Archeta with his invention "A Granulator" during the 2014 National Invention Contest and Exhibits (NICE) awarding ceremony. Also in photo are (from left) Director of Technology Application and Promotion Institute Engr. Edgar I. Garcia, DOST Undersecretary Dr. Fortunato T. de la Peña, DOST-NCR Director Dr. Teresita C. Fortuna, and Deputy Director General of Intellectual Property Office of the Philippines Atty. Nelson P. Laluces.

His invention entitled "Molded Coarse Particle Product with Cast Paper Based Reinforcement" also won the first prize for the Outstanding Invention of the World Intellectual Property Award (WIPO) Awards. His invention is used as a houseware, furniture, insulation and architectural components made from agri-forest waste particles selected from flakes, chips, fragments, pellets, bits, shreddings, mulch and strands and mixtures.

"We targeted the sustainable market. We have commercially produced our invention initially in the homestyle industry, but we are now moving vertical in the value chain," says Delantar.

Reducing garbage in landfills

On the other hand, Engr. Bernabe M. Archeta, the first prize winner of the Outstanding Utility Model and the first prize winner for the Outstanding Utility Model of the WIPO Awards developed the "A granulator" together with his wife Engr. Ludy Archeta and his daughter and son named Mariell and Michael from whom his company Markell Machineries Mfg. was named for.

Engr. Archeta's first business was on the fabrication of pharmaceutical equipment and machineries. "Right after the Ondoy tragedy, helping in the waste management program opened a new challenge," he said.

"I do believe that local waste problem can be solved by means of local technology and that technology can be provided by local engineers like me with of course the help of the family," he added.

His invention "A granulator" is already commercialized and in operation. It is a diesel-powered granulating machine with conveyor-powered loading system designed to operate at a very low operation and maintenance cost. The machine aims to reduce the volume of garbage being dumped into the landfill; hence it helps to prolong the life span of controlled dumpsites and, at the same time, offers a lucrative sustainable livelihood by using the granulated products as material to produce usable by-products.Depending on the capacity, the Markell Granulator price ranges from Php 4M to 9.5M.

Engr. Archeta shared that he had put all his little resources into his invention and he is often asked by people on who will buy his stuff. But he said, "I have faith in God, that He will reward us according to our works. It took me three years before I was able to sell one unit in Taal, Batangas."

Along the way, he faced many challenges,mostly financial matters.He shared that the second unit was ordered by the municipality of Cuenca in Batangas, and with the financial grant of 1.2M loan by the IBED-DOST Program, he managed to build the machine but, due to political reason, he was not able to collect the Php7M cost of the machine.

He said, "I am thankful to ITDI and TAPI DOST and their staff for all the support that they extended and still extending to me. I am trying to find another buyer so it will greatly help me to recover from (my current) financial hardship."

Engr. Archeta's experiences show that there is high and low spirit of accomplishment as an inventor, and they all need the support they can get not just financially but also legally., even so Engr. Archeta shows that it can be managed with fate and perseverance.

The first prize winners of the 2014 National Invention Contest and Exhibits advised aspiring inventors and innovators to "make sure to commercialize because no matter how good an invention is if nobody knows, it's a missed opportunity."

Finally, "Let our works and accomplishment speak how good we are, if other people did not recognized our effort. Do not be dismayed, Our Almighty God will reward us," said Engr. Archeta.

Julieta B. Dorado of the DOST Quick Response to Disaster Project narrates the visit of Sec. Montejo and the project team to areas in Leyte and Samar that were most hit by super typhoon Yolanda. This account is just one of those stories illustrating the significant role of S&T in providing nutritious food to people during emergencies.

Nutrition in the midst of devastation

By JULIETA B. DORADO
S&T Media Service, *DOST-FNRI*

As the plane touched down at the Daniel Romualdez Airport, the view of on-going construction and bright roof colors on the ground brought a feeling of revived hope. Getting down from the plane and walking on the tarmac, however, showed another story. The devastation caused by the super typhoon was still evident. Good thing that the usual vibrant voices and welcome greetings of the DOST 8 staff headed by Regional Director Edgardo M. Esperancilla drained away the discomfort that hounded the project team.

This was in February this year, when Secretary Mario G. Montejo with a project team led by Director Mario V. Capanzana of the DOST-Food and Nutrition Research Institute (FNRI) reached out to devastated Leyteños and Samareños the helping hand of S&T. Along with the team are the DOST regional and provincial office staff and the National Nutritional Council (NNC).

DOST-Leyte Provincial Director Engr. John Glenn Ocana led in the team's itinerary while FNRI's Julieta B. Dorado and Joyce R. Tobias briefed everyone on the DOST Quick Response to Disaster Project.

The DOST 8 Regional Director Edgardo Esperancilla(sixth from left in green shirt) and staff welcome the DOST Secretary Mario G. Montejo (on the right of Dir. Esperancilla), FNRI Director Mario V. Capanzana(on the left of DirEsperancilla) and project team on February 18, 2014 upon arrival at the Tacloban City airport.

Quick response to disaster project

The DOST Quick Response to Disaster Project aims to provide disaster victims with ready-to-eat foods that are nutritionally appropriate for emergency situations. The DOST intervention complements the rehabilitation of Leyte and Samar where programs on providing nutrition play important role in improving the nutritional status and in preventing the deterioration of health conditions of infants, young children, pregnant and lactating women and other vulnerable population groups.

The nutrient-rich food products developed by the FNRI-DOST's are suitable for vulnerable groups during emergencies or disasters. These complementary and snack foods are age-specific. The BIGMO complementary food blends are for babies six months to two years old while Nutri-Bites compressed food is ideal for kids one to five years old. The BIGMO curls are for kids of all ages and the brown rice Power Bar is for adults.

Pilot areas for the DOST Quick Response to Disaster Project are Jaro in Leyte and Basey in Samar.Agency partners include the National Nutrition Center in Region 8 and the Samar local government represented respectively by Segundina Devota A. Dilao, officer-in-charge, Alva Ma. A. Gadin, provincial nutrition action officer.

Trekking to Jaro, Leyte

Jaro is about an hour travel via land from Tacloban City. Damages during the recent calamity were seen on the structures, particularly in school buildings and houses along the way. Coconut trees are still standing but without leaves while other trees that survived are "moving on" (as the locals fondly expressed), with green leaves starting to grow. The Mayor of Jaro, Honorable Rolando T. Celebre, warmly welcomed Secretary Montejo and the project team with a short program participated in by the Sangguniang Bayan and barangay captains. During the program, DOST turned over one of its technology interventions, the water filter for the households and the community.

Sec. Montejo, Dir. Esperancilla, DOST staff, and Mayor Celebre discussed other possible intervention programs other than this Project. One distinct program identified is vegetable production in Jaro, a major program being pushed by the Mayor himself.

Crossing the bridge to Basey, Samar

The project team next went to Basey, Samar, an hour drive from Tacloban City across the San Juanico Bridge. The damage caused by the calamity is still visible at the municipal hall where Mayor Igmedio "Junji" E. Ponferrada holds office. The municipal hall has a temporary divider on the ground floor which also doubles

Short program and turn-over ceremony of the DOST water filter in Jaro, Leyte with DOST Secretary Mario G. Montejo, DOST 8 Regional Director Edgardo M. Esperancilla and FNRI Director Mario V. Capanzana on February 18, 2014.

as the municipal legislative office. Directly facing San Pedro Bay, the town proper of Basey was heavily affected by the typhoon. The DOST project team presented and turned over to Mayor Ponferrada the household water filter. Along with this, the FNRI team was tasked to evaluate the effectiveness and efficacy of the water filter technology being rolled out in the regions.

The group also visited an adoptor of a method for improving furniture production in Basey, Samar. Sec. Montejo listened to the entrepreneur's experiences on wood works even as he noted some areas for improvement on the technology.

The last agenda of the day was an informal meeting with Leyte Governor Dominic Petilla. The Secretary discussed the DOST's programs in Leyte and Samar, including the Quick Response to Disaster Project. Convergence, partnership, and the next steps for the DOST programs in Leyte. Governor Petilla, being aware of the DOST PINOY program's pilot study in Mahaplag and Pastrana towns, was enthusiastic about the project for infants and young children. He also looks forward to the implementation of the Quick Response to Disaster Project in Jaro, Leyte.

Key informants' experiences and vision for a new beginning

Aside from the Secretary's meetings with the mayors of Jaro and Basey, FNRI's Science Research Specialists Rowena V. Viajar and Emily O. Rongavilla gathered initial assessment data in preparation for the conduct of the DOST Quick Response to Disaster Project in the two localities. The FNRI staff interviewed municipal-level informants on basic information for the targeting of the project participants and for prioritizing barangays to be covered. The key informants were the municipal nutrition action officer and municipal social welfare officer from Jaro and Basey.

At the time of the visit, majority of the evacuees in Jaro and Basey have returned to their barangays but were living in makeshift houses. The residents started to move on and live normal lives 100 days after Yolanda. According to the informants, their immediate needs for the moment are shelter and livelihood. Some informants shared their experiences a few days after the calamity, while others were not able to share any personal experiences at the time, saying that it was still too painful for them to recount whatever happened then.

The informants were very thankful for the provision of food and non-food assistance in Jaro and Basey. According to them, first government agency that extended assistance was the Department of Social Welfare and Development. The ABS-CBN and GMA television networks, meanwhile, covered the calamity and later provided food packages for the victims. The Norwegian Government and international organizations such as the Red Cross and the United Nations Development Program also came in for food and non-food assistance.

The informants also observed that the damage caused by the calamity in Basey were more extensive than in Jaro.

"Next steps" for Jaro and Basey

Initially, the project team identified the following gaps and important opportunities for intervention by various government, non-government and private organizations during the rehabilitation phase of disaster in Jaro and Basey:

- The affected barangays and families' immediate need for shelter. The families have returned to their barangays but still lived in makeshift or temporary shelter. Construction materials to build houses are badly needed.
- Food for infants and young children were not part of the food packages distributed by responding agencies and organizations. The food packages are intended for the whole family but there were no specific foods for children like complementary foods for infants and young children.
- The families' need for sources of livelihood. Job opportunities for the heads of the families will help them to return to normal life. The informants saw dependency of the affected families on assistance provided.
- In Jaro, the UNICEF through Save the Children Philippines extended assistance by assessing the nutritional status of infants and young children through mid-upper arm circumference measurements. The identified severely malnourished were referred to hospitals in Tacloban City for treatment and rehabilitation.
- In Basey, severely underweight children were fed starting January 2014with plumpy nut, a ready-to-use therapeutic food. The feeding, however, only covered two barangays and one sitio.

These initial sets of information are useful to pre-implementation activities of the DOST Quick Response to Disaster Project in Jaro and Basey. The production of complementary foods has started at the same time with other preparations in the municipalities covered. The intervention will commence on April 2014.

DORADO

Momsie, FNRI's newest ready-to-use complementary food for kids 6 months to 3 years old. (Photo by Ceajay N. Valerio, S&T Media Service, DOST-STII)

FNRI presents new complementary food for children

By LOTUS LEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

The Food and Nutrition Research Institute (FNRI) under the Department of Science and Technology (DOST) presented its latest product, Momsie, last July 26, 2014 during the 2014 National Science and Technology Week (NSTW) at the SMX Convention Center, Mall of Asia Complex.

Developed through a partnership between FNRI and the World Food Programs, Momsie is a ready-to-use complementary food for children from 6 months to 3 years old. It is high in energy and protein and has a rich nutty chocolate flavour. Its ingredients are locally available raw materials like mongo, soybeans, peanuts, among others, which were roasted, dried, and ground.

It has a 12-month shelf life and is estimated to cost P10 per sachet of 25g and P100 per PET bottle of 300g.

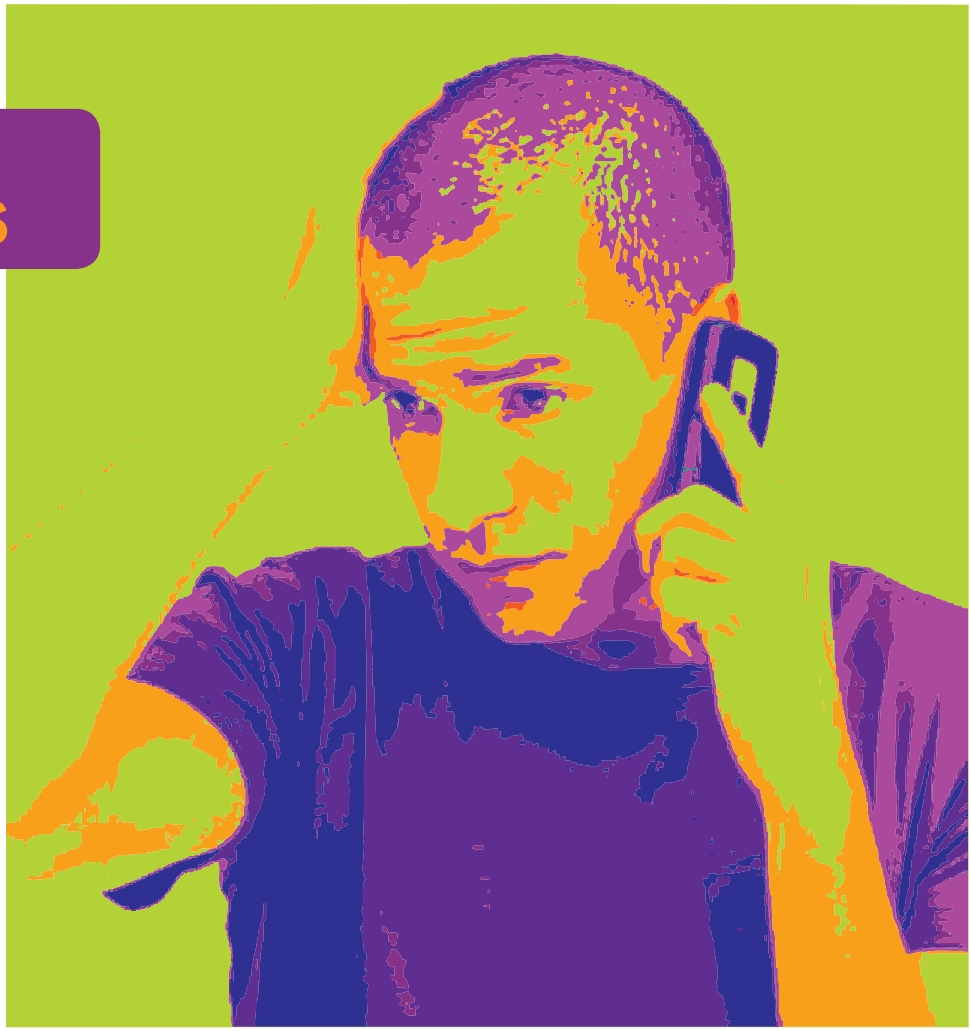
"Now that the development of Momsie is finished, we are now promoting it to gain producers of complementary foods. We are positive that this will translate to an improvement among our targeted consumers," said FNRI Director Dr. Mario V. Capanzana.

"One of our projects is to develop foods for pregnant women. Proper food intake should start from pregnant women, and this is our next step in support of the 1,000 days of life. Our approach is not 3 years and above but it's the first 1,000 days of the child while in the womb plus the child's first two years," Dr. Capanzana added.

For inquiries about Momsie, call FNRI at 837-2934 or 839-1839.

NO EVIDENCE OF HEALTH RISKS

Due EMR exposure from cellphones – NAST



By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

There is no conclusive evidence at present indicating that exposure to electromagnetic radiation (EMR) from cellular phones poses a definite risk to human health.

This finding is based on scientific studies which have already been published.

This was pointed out by Dr. Jaime C. Montoya, executive director of the Department of Science and Technology's Philippine Council for Health Research and Development (DOST-PCHRD) during the National Academy of Science and Technology's (NAST) 36th Annual Scientific Meeting held last July 10, 2014 at the Philippine International Convention Center.

Montoya, academician and chair of the Health Sciences Division of NAST, an advisory body of DOST, made this statement during a technical session on E-health which tackled topics such as telemedicine.

Everyone is exposed to EMR whether voluntary or involuntary, stressed Montoya. The average person's exposure to cellphones and their electromagnetic field falls under voluntary exposure. "You know there is that risk but you still take that risk because you have to use the cellphone," he explained.

In involuntary exposure, on the other hand, people do not know they are exposed to EMR, like those living near high-voltage areas like transmitters of cell sites, and the like. Montoya pointed out that based on current literature, such kind of exposure is still within the threshold.

But whether such will translate to negative health effects in the long run, the medical community is still not sure. Montoya said that we have to wait for 50 years to determine whether an adverse event directly related to the use of cellphones will crop up in any individual.

Montoya also mentioned the idea of never holding the cellphone close to the ear. "The direct biologic effect of using cellphones close to the ear is that it gives warmth, it generates heat. This is because the rapid movement of molecules actually transforms to heat energy and that is the biological effect," he stressed. "But biological effect is not synonymous to the disease effect."

However, Montoya emphasized that these are high-intensity, short-period exposures to EMR. What is not available at present, he disclosed, is information relating to long-term, low-intensity exposures.

Project NOAH sails on

5,060 barangay flood hazard maps in two years

By RODOLFO P. DE GUZMAN & SUZETTE J. DALUMPINES
S&T Media Service, *DOST-STII*

DOST Secretary Mario G. Montejo reports the gains of Project NOAH during its 2nd anniversary celebration last July 22, 2014 at the PAGASA Main Lobby in Quezon City.

Two years after the launch of the Nationwide Operational Assessment of Hazards or Project NOAH in July 6, 2012 in Marikina City, DOST's Project NOAH has considerably made significant milestones in the area of disaster preparedness and mitigation.

After the directive of President Benigno Simeon C. Aquino for the government to implement a comprehensive disaster preparedness and mitigation program that would allow warning agencies to deliver information on weather through early warning for early action, the Department of Science and Technology (DOST) created the Project NOAH.

The project actually is a convergence of already existing projects in DOST and University of the Philippines even before Pres. Aquino's instruction. These projects were identified, tied together and allowed to complement each other, resulting in what is now known as Project NOAH.

"It is the aim of Project NOAH to provide accurate and timely weather information that will allow us a six-hour lead time and rainfall forecast to give the people enough time to evacuate and do the necessary actions to prevent damage to properties and loss of lives," Secretary Mario G. Montejo said.

During the 2nd anniversary celebration of Project NOAH at the PAGASA Main Lobby Sec. Montejo also disclosed that Project NOAH was created made using local technology and developed by Filipino scientists for the Filipino people.

"We are able to harness Filipino talent in Project NOAH particularly in the hydromet sensors we have installed all over the country. The Advanced Science and Technology Institute of the DOST is the one responsible for the local fabrication of almost 1,000 automated rain gauges, water level sensors and weather stations installed in the 18 major river basins," Montejo said.

Keeping people safe

With the Disaster Risk and Exposure Assessment for Mitigation or DREAM project under the Project NOAH, all the 18 major river systems have been surveyed and data collected to create flood hazard maps. To this date, 5,060 barangays have already flood hazard maps out of the 18,000 barangays covered by the LiDAR data gathering.The flood hazard maps will help barangays pinpoint the specific areas in their locality that are safe and unsafe for evacuation and relocation sites.

Another project under NOAH, called Weather Information-Integration for Systems Enhancement or WISE, now provides 7-day weather forecast enhanced from data gathered from PAGASA. NOAH WISE committed to soon come up with seasonal forecast six months in advance.

"With the 7-day forecast we are able to provide valuable information to the public that will be very useful in the everyday life of Mang Juan and Aling Maria. Later when we can do seasonal forecasts, our farmers will be informed of what crops to plant and when is the best time to plant, thereby increasing agricultural productivity," Montejo stated.

Marikina's reliable partner

"Project NOAH is our reliable partner to make Marikina a disaster-resilient city."This was the closing statement of Dr. Val Barcinal, head of Marikina City's disaster and risk reduction management office (DRRMO), in his testimonial during Project NOAH's second anniversary press conference in Quezon City last July 22, 2014.

Being vulnerable to floods and having been inundated by Tropical Storm Ondoy in 2009, Marikina City was targeted as pilot area for Project NOAH.

"You are all aware Marikina City serves as a catch basin of rainwater coming from San Mateo and Montalban, Rizal and the cities of Antipolo and Quezon. During typhoons and heavy monsoon rains, Marikina river overflows, affecting 10,000 residents," Barcinal narrated. He explained that as much as 90 percent of the city could be inundated in case of extreme flooding.

The MOSES tablet- an 8-inch Internet-based, two-way communication tool between warning agencies and disaster responders developed by the Department of Science and Technology's Project NOAH. Aside from its selection as pilot area for Project NOAH, Marikina also became the first recipient of this new tool with 20 tablets handed over to the local government unit. (S&T Media Service)

However, Project NOAH has become a saving grace for the city of Marikina. From 35 casualties when Ondoy hit the country, Marikina City recorded zero deaths when Habagat inundated the most part of Metro Manila in August 2012, a month after Project NOAH was launched.

The city government attributes its improved disaster preparedness efforts to Project NOAH and PAGASA.

"With the use of internet, critical, reliable, authoritative, understandable and timely information is conveyed to us in the DRRMO," Barcinal said. "Project NOAH is our most vital operational tool to monitor and track the typhoon."

Last June 9, 2014, Marikina City also became the pilot recipient of the MOSES (Mobile Operational System for Emergency Services) tablet, an 8-inch Internet-based, two-way communication tool between warning agencies and disaster responders. It can receive real-time weather and flood information from pre-installed mobile applications such as PAGASA, Project NOAH, and ARKO, the last one an app that provides detailed flood maps.

"Preparedness is the key [to minimize the harm of] any disaster. Project NOAH increases our preparedness capacity to render timely, reliable decisions," Barcinal said.

The two-year-old Project NOAH is set to launch a new version of its website with more data on hazards and disasters with a more user-friendly interface.

Pushing the envelope: NOAH for agriculture

In 2014, two years following its launch, Project NOAH's use has broadened to include being a tool for agriculture.

Going beyond disaster mitigation, the Project is now churning out data and information that can help farmers increase productivity by knowing when to plant and where to plant.

This s done through the Weather Information Integration for System Enhancement or WISE is a component of Project NOAH. It enhances the existing 5-day forecast given by the Philippine Atmospheric, Geophysical and Astronomical Services Administration or PAGASA to a seven-day forecast.

By extending the weather forecast time coverage, farmers can now plan ahead and adjust planting schedules to avoid possible hazards like typhoons, floods and drought. In short, WISE provides critical information in determining the best time for planting and harvesting specific crops like rice and corn.

In the presentation of Dr. Gay Jane Perez titled "Drought and Crop Assessment and Forecasting or DCAF" and delivered by Dr. Erika Mari Macapagal of NOAH-WISE, drought vulnerability maps for the country's two major crops, rice and corn, were shown. The color-coded map identified areas highly vulnerable to drought represented by color red, moderately vulnerable by color yellow, and least vulnerable by color green.

For rice, the highly vulnerable areas include Central Mindanao, Central Luzon, Bicol, Iloilo and Negros. On the other hand, the least vulnerable is Northeastern Mindanao.

For corn, the highly vulnerable areas include Zamboanga, half of Eastern Mindanao, Cebu and Batangas. On the other hand, almost the entire area of Luzon including Mindoro, Palawan, Panay Island and Eastern Mindanao were identified as least vulnerable.

Also presented were crop classification maps for coconut, sugarcane, abaca and tobacco.

By making this information available, Project NOAH-WISE is able to give farmers the flexibility in choosing the right crop for a particular season, thereby minimizing their losses when drought comes.

Dr. Macapagal also briefly discussed the parameters they were using to assess drought events. These include data on rainfall, soil moisture, temperature and vegetation cover.

Likewise, the NOAH-WISE project aims to come up with seasonal forecasts of up to six months in advance.

Once completed, this information will greatly help those in the agricultural sector – from individual farmers to corporate agricultural ventures -- in programming their planting activities, thereby minimizing loss and increasing production.

DE GUZMAN

DALUMPINES

S&T Post now in electronic version

By ESPIE ANGELICA A. DE LEON
S&T Media Service, *DOST-STII*

S&T Post, the Department of Science and Technology-Science and Technology Information Institute's (DOST-STII) quarterly publication, is now an e-Magazine downloadable in iPhones and iPods via Apple News stand.

Dr. Aristotle P. Carandang, S&T Post executive editor during the launching of the magazine's electronic version.

This breakthrough development for the country's premier science department was revealed during the S&T Post e-Magazine launching last July 26, 2014 at the SMX Convention Center in Pasay City. The launch, dubbed "Looking Back and Moving Forward," was part of the activities lined up by DOST for its National Science and Technology Week held from July 24-28, 2014.

Aside from laymanized news and features about DOST's programs, groundbreaking technologies and services whose applications are multi-sectoral, the publication also contains interviews on the country's top science experts, interesting foreign news articles on science and technology (S&T), and relevant book and movie reviews.

An electronic version of the magazine was developed to make it accessible to a wider segment of the population and generate more interest in S&T

especially among the country's youth who will someday sustain national projects and activities in science.

"This e-Magazine is a breakthrough for us," enthused DOST Asst. Secretary Raymund E. Liboro during the launch. "This is the first time we've done something like this – to put our articles in a new format such as an e-Magazine."

According to Neil Everett B. Elpusan, business development manager for mobile apps of Megamobile Inc, media consumption behavior has changed. Megamobile Inc., a mobile content and applications developer, is the creator of the S&T Post e-Magazine.

"In 2000, 2 million people accessed the Internet. To date, there are about 36.7 million online users in the Philippines," Elpusan said.

Revealing more about the current digital landscape in the Philippines, Elpusan added that "30 million are active Facebook users and there are about 100 million Filipinos on mobile device. Eighty-one percent are below 30 years old."

Of those who use mobile devices, he added that 14 percent use them while on commute.

Dr. Aristotle P. Carandang, S&T Post executive editor and chief of the Communication Resources and Production Division of STII, encouraged students attending the launch to check out the S&T Post e-Magazine to update themselves on S&T developments.

In particular, Dr. Carandang mentioned the Book and Movie Review sections as the newest additions to the magazine, and encouraged them to contribute their own reviews and other science articles for succeeding issues of S&T Post whose readership includes the DOST community, the local science community, academe and policymakers.

At present, DOST-STII and Megamobile Inc. are working for the inclusion of video materials in the e-Magazine.

This new electronic format is the latest in a series of transformations underwent by S&T Post since its debut in May 1983 as National Science and Technology Authority (NSTA) Post in newsprint. In 1989, NSTA Post became S&T Post. The magazine became smaller in 1993, started using book paper and putting color on its front page in 2000, changing its masthead several times, and assuming a magazine format in 2003, among others.

Though the quarterly publication now has an electronic version, its print version will still be published. (For those interested to contribute to S&T Post's Book and Movie Review sections, please call 837-2191 local 107.)

The celebrated, multi-awarded, industrial designer Kenneth Cobonpue, known for his signature designs in natural fibers and materials, actually availed of DOST's SETUP to enhance the mechanizing process in his woodworking department. In this contribution by BusinessMirror's Alladin S. Diega, he gives us a picture of how Cobonpue works and thinks, unraveling the secret behind Cobonpue's creative genius.

After the interview, Kenneth (4th from right) willingly poses for the obligatory class picture with instant fans from DOST and the media, including the author (second from left). Photos by Gerry Palad, S&T Media Service, DOST-STII

STATE OF DESIGN

Celebrating Filipino workers' ingenuity through science and technology

By ALLADIN S. DIEGA
BusinessMirror

Tucked in a busy but quiet area of General Maxilom Avenue in Cebu City is nearly quarter of a football field-wide showroom complex of Interior Crafts of the Islands, Inc. (ICII), a furniture company owned and managed by Kenneth Cobonpue.

The complex also houses the production area of the company that currently employs some 300 workers, including several master artisans, some of whom are descendants of old furniture-making families of Cebu.

Among Cobonpue's most famous clients include Hollywood couple Bradd Pitt and Angelina Jolie who asked Cobonpue to design a Voyage bed for them nine years ago, including a wicker cradle for their biological child. The pieces of furniture were assembled by his experienced artisans.

Although the showroom features considerable number of pieces, all of the samples were few copies of designs already sold. Newer design ideas remain in the minds of Cobonpue and his group, to be freed once needed."We do not mass produce here so as not to compromise the excellence in our creativity," Cobonpue said."We only do what is in the purchase order, and a few samples for international trade shows."

Saying that design should look good, so as to differentiate it from ordinary engineering, Cobonpue said that "in design, you need to re-create yourself continuously."

The little people

Synonymous with nifty furniture designs, his name, according to Cobonpue, is partly because of his equally talented artisans and

The geometry-inspired chair that can only be executed by two artisns out of 300 workers of ICCI.

A wicker bed that may harbor a lot of beautiful dreams.

Let your baby sleep like a baby in this wicker cradle.

The "little people" design reminiscent of the fictional tiny Lilliputians from the 1726 novel Gulliver's Travels by Jonathan Swift.

hardworking employees. Included in his new repertoire of home furniture, according to the designer, is a geometrically-inspired chair which can only be executed perfectly by two artisans out of the 300 workers in his employ.

Another design which Cobonpue directly attaches to the role of the workers in his company is the "little people" design reminiscent of the fictional tiny Lilliputians from the 1726 novel Gulliver's Travels by Jonathan Swift.

Used in lamp and divider designs, the salago shrub fiber-coated shapes depicts tiny people in various stages of movements or activities.

"If not for these little people, or workers, there would be no interior crafts [ICII] and even the creative industry would not exist without the hard work and dedication of Filipino workers," Cobonpue said.

Filipinos genius for design

Filipino creative workers in general can still raise a notch higher their genius for design, by tapping deep into their souls, Cobonpue said.

According to the design expert, although almost every region in the country has its own specialization in the creative industry, "Cebu is a sort of a design center, partly because the province is a trading center ever since, and has always been more open to all sorts of ideas."

As a way of assessing the design industry, "there is a revival in design now," Cobonpue said, adding that "though in manufacturing we've clearly lost to China, with many countries having the similar experience. But in terms of creativity in designs, Filipinos still have it."

Asked what would be the future trend for design, "fabric and woods will always be there," he said, and added that "future designs will be organic and transparent, and this is not unique to the Philippines, but inherent also to other countries."

To further enhance Filipinos' natural touch with creative designs, Cobonpue said that creativity should be encouraged in schools, and should not be relegated only as a subject"but to be considered as an approach, and should be nurtured by our society."

As a company, the ICII is not keen in applying for copyright for every article or design it created, opting instead, in continuously evolving their designs, not only to discourage copyright infringement but to force the company to constantly improve its workmanship.

The company also decided to ask the help of the Department of Science and Technology (DOST) through its SETUP (Small Enterprise Technology Upgrading Program), and was recently awarded P1 million worth of equipment loan with zero interest to augment the need for mechanizing several steps in its woodworking department.

Asked why it decided to request for government financial assistance considering its size, Cobonpue said a huge portion of their annual gross sale goes to advertisement, specifically magazine placement which can easily cost P1 million for one page advertorial in a single issue.

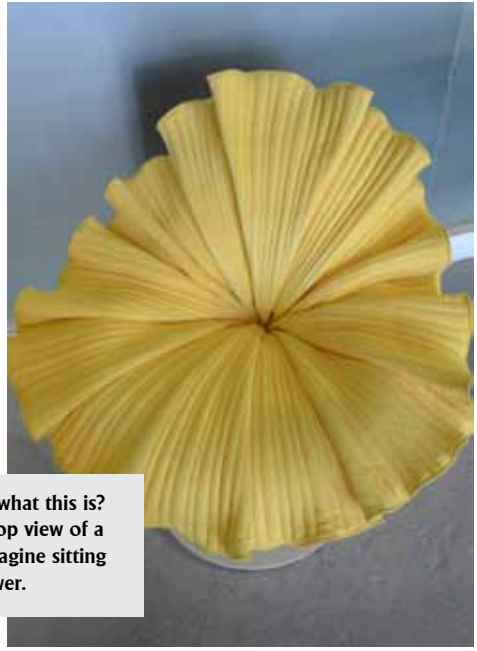
The science behind

According to Cobonpue, new systems and approaches to design are being developed to help in addressing complex challenges at the global level, not to supplant the creativity of the artist or design creator but to enhance it. Concepts such as sustainable design, design computation, integrative design, biomimicry, and crowdsourcing all come to mind.

Science and technology, from the elementary implement such as pencil to the most advanced software and robotic arm, amplify the human imagination and further challenge the human intelligence to imagine more and create things in a much higher dimension, spiced up with precision.

Asked on where he gets his ideas or generate the so-called "spark," Cobonpue said that he sees design in everything, makes connections in the seemingly unconnected things, applies new technologies and learns from things created by nature. Ultimately, he develops his designs by innovating.

The design process and the steps done to actually bring into reality an idea or concept, the design guru said, are transformed by new technologies and new approaches that can alter but at the same time enhance traditional design phases, workflows, time frames, roles, and outcomes.



Wonder what this is? It's the top view of a stool. Imagine sitting on a flower.

Dining set

The ASEAN market

Lately, South-East Asian designers have been coming up with upscale but cool design concepts, and design studios and brands have recently mushroomed in the region, evidenced by global design-led shows like 100% Design Singapore, a spin-off from the 100% Design brand from London, including the Maison&Objet Asia.

The Singapore government-run Design Singapore Council for instance, is putting some S$55 million into the country's design-related industries between 2009 and 2015 to provide support and funding for designers and artisans. In this program, designers and firms can apply for grants to develop prototypes, attend training or design schools, and participate in trade fairs.

In an interview with China's leading furniture company, Xinhua news agency reported recently that the world's second biggest economy is promoting creative design in its furniture industry.

Early this month, Red Star Macalline, one of the largest national furniture mall

Who wouldn't want to laze around here the whole day?

A fabulous wicker set for the living room

chains in China, has attended the international Furniture Conference in Italy, held at Duomo Square, Milan. The Chinese furniture giant has been attending the annual furniture fair at the Italian design capital, "to secure a position in exporting Chinese design to the world," the Chinese paper quoted an official of the company as saying.

With 130 stores in more than 90 cities throughout the country, Red Star Macalline has tapped into the multi-billion dollar creative design market of China.

In the Philippines, designers receive help from CITEM (The Center for International Trade Expositions and Missions), the export marketing arm of the Department of Trade and Industry, including the assistance of the government to put Philippine brands on the world stage through events like the Maison&Objet Paris and Salone Del Mobile in Milan.

But aside from the potential problems of economically advanced countries like Singapore and Malaysia suffering from the effects of drawing too much references from the West in terms of design, "another common plight faced by the ASEAN countries is the high cost of producing goods and the flooding of local markets with low-priced, mass-produced goods from our neighbors," Cobonpue also said.

The prolific designer said that there should be perceived value in the design and manufacture of South-East Asian goods that differentiate them from their cheaper counterparts, adding that right combination of man-made materials and natural fibers, and of machine-made and handmade processes, will secure a vibrant market for creative-driven products in the region.

On the personal side

"I used to play the guitar in a band in the 1990s, usually after class, but I did not really have plans to make music as a profession," according to Cobonpue.

A father of two sons, the top designer said that he get his inspiration for many of his designs from "many things, from travel, experiences and everything, actually, no formula," saying "you have to look for it."

Cobonpue began his journey as a designer in 1987, taking up Industrial Design at Pratt Institute in New York, and after completing his degree, apprenticed for a leather and wood workshop near Florence, Italy.

In 1994, he studied Furniture Marketing and Production at the Export AkademieBaden-Württemberg in Reutlingen, Germany under a private and state scholarship program, and later worked in Bielefeld and Munich.

He returned home in 1996, to manage ICII, a furniture design and manufacturing company founded in 1972 by his mother Betty Cobonpue, a designer famous for creating new techniques in working with rattan.

DIEGA

MOA SIGNING TO REV UP LOCAL DAIRY GOAT INDUSTRY. Executive Director Patricio Faylon (left) of the Department of Science and Technology-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development leads the Memorandum of Agreement signing with heads of partner academic institutions for the National Dairy Goat Science and Technology (S&T) Program on August 4 at the Luxent Hotel in Quezon City. The program seeks to boost the local dairy goat industry now faced with various issues such as limited access of smallholders to good dairy goat breeds and absence of feeding guides for milking goats, among others. In photo with Faylon are (from left): Dr. Aleth M. Mamauag, president of Isabela State University; Dr. Ruben C. Sevilleja, president of Central Luzon State University (CLSU); Dr. Sylvia B. Concepcion, Chancellor of University of the Philippines Mindanao; Dr. Emilio M. Cruz of CLSU, program leader; and Dr. Elpidio M. Magante, president of Bohol Island State University. *(Text by Maria Luisa S. Lumioan/Photo by Henry A. de Leon, S&T Media Service, DOST-STII)*

Goat Milk!

SPURRING THE FLOW OF GOAT INDUSTRY IN PH

By MARIA LUISA S. LUMIOAN
S&T Media Service, *DOST-STII*

The Department of Science and Technology (DOST) through the Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development is set to spur the local dairy goat industry via its National Dairy Goat Science and Technology (S&T) Program.

Compared to cow's milk, goat milk is said to have higher nutritional value, is highly digestible, and causes less allergenic reaction because it lacks alpha-s1-casein protein. Found in cow's milk, alpha-s1-casein protein is linked to allergic response in some individuals. Goat milk is also popular as an ingredient in beauty products because of its naturally occurring alpha-hydroxyacids—a good skin exfoliant.

To maximize these benefits, the National Dairy Goat S&T Program will address the issues that hinder the full growth of the dairy goat industry in the Philippines, namely, limited access of smallholders to good dairy goat breeds, absence of feeding guides for milking goats, increased prevalence of mastitis or intra-mammary infections in dairy goats, and the lack of standards on the production of goat milk-based products.

By selecting the best performing dairy breeds suited to the country and by providing appropriate nutrition for them, the program aims to increase milk production to 150% by 2017. Smallholders shall be given access to these breeds via artificial insemination to local goats and buck loan program.

In addition, an effective control protocol against mastitis will be developed. Considered as one of the greatest problems faced by the industry, mastitis can reduce milk volume and alter its composition, lower its hygienic value, and impair the processing of quality milk.

In three years, the program is expected to result to an initial increase of 60 % in does that can be milked, a reduction of 37% in subclinical mastitis incidence, and herd build-up of at least 58% from the deliberate infusion of good breeds in the countryside.

Program Leader Dr. Emilio Cruz of Central Luzon State University revealed that for an initial capital of P40,000, a dairy goat farmer can buy 3 breeder goats and earn P223,440 for 7 lactations in 5 years. In contrast, a cattle/carabao entrepreneur with the same amount of money can only buy one animal and earn less than P200, 000 for the same period.

If one goat dies, the farmer can still continue earning for the two remaining stocks, while if the carabao dies, the owner loses all of his investment, he added.

Moreover, goat milk has higher commercial value than cattle or carabao milk. In Region 3, raw milk is sold at P70 per liter to processors who will pasteurize, bottle, label and sell them in commercial stands at P150 per liter.

"All these advantages make goat production and goat dairying nowadays popular, propelling farmers to venture into such business and giving impetus for us at DOST to pour in investments to address the gaps in goat research and development," said Secretary Mario G. Montejo in his message during the Memorandum of Agreement signing between DOST and its partner institutions. These are Isabela State University, Central Luzon State University, Bohol Island State University, Department of Agriculture-Regional Field Office-8, and University of the Philippines Mindanao.

"Ultimately, this will propel an increase in milk production in backyard and commercial farms and the availability of healthier milk in the market," Montejo said.

In 2012, the country imported 1,995,410 metric tons of milk. Meanwhile, local production was merely 18,400 metric tons, of which only 1.4 % was produced by goats. On the other hand, the National Dairy Authority 2013 data show that there are around 3.67 M goats, with dairy goat population at only 6,379 heads.

Pisay research project gets Most Creative and Innovative award in the Int'l Students Science Fair

By ALLAN MAURO V. MARFAL
S & T Media Service, *DOST-STII*

CREATIVE AND INNOVATIVE (From left) Lizbeth Joy G. Tan, John Christian G. Nacpil, and Adrielle Theresa DL Cusi of Department of Science and Technology-Philippine Science High School System (DOST-PSHS) show their certificate for bagging the most creative and innovative award for their research project "Development of a Leap Motion Controller-based Program for Finger Range-of-Motion Measurement." The students received the award during the 10th International Students Science Fair (ISSF) last August 8 to 12, 2014 in Moscow, Russia Their research aims to develop an alternative method for measuring the range of motion (flexion and hyperextension) of the distal and proximal interphalangeal joints of the human finger. ISSF is an annual event, which aims to facilitate networking and information-sharing among students and teachers from various countries in the fields of science, technology, engineering, and mathematics. (Photos and info from the DFA website)

THE RESEARCH project of the students from Department of Science and Technology-Philippine Science High School System (DOST-PSHS) bagged a major award during the 10th International Student's Science Fair (ISSF) held last August 8 to 12, 2014 in Moscow, Russia.

With 23 projects presented in Biotechnology, Health, and Medicine cluster, the research project of Adrielle Theresa DL. Cusi, John Christian G. Nacpil, and Lizbeth Joy G. Tan of PSHS Main Campus on the "Development of a Leap Motion Controller-based Program for Finger Range-of-Motion Measurement" bagged the Most Creative and Innovative award.

The Pisay students' research project shared the award with two other projects. The purpose of their research is to develop an alternative method for measuring the range of motion (flexion and hyperextension) of the distal and proximal interphalangeal joints of the human finger. It can compute for the angle by calculating the distance between the joint positions in 3D space and applying a derived form of the Law of Cosine.

Ms. Donna Salve P. Cornes, teacher-chaperone from PSHS Main Campus, cited ISSF as a very good opportunity for the PSHS to interact with other nations considering that this is a very well attended Science Fair.

"It is a very effective avenue to share expertise in science, technology and research, where students and teachers from different countries can share scientific research, learn how to work in a team effectively and solve scientific and technical problems in cooperation and to make new trends, friends and future colleagues in scientific research," Ms. Cornes said.

ISSF is an annual event, which aims to facilitate networking and information-sharing among students and teachers from various countries in the fields of science, technology, engineering, and mathematics.

Delegates from 25 countries participated in this yearwith a total of 120 projects in both poster exhibitions and roundtable discussions.

The Fair was categorized into five clusters such as Biotechnology, Health and Medicine, Energy, Engineering and Robotics, Information Technology and Telecommunications and Sustainability and Environmental Science. The Moscow Chemical Lyceum #3103 (MCL) hosted the Fair in partnership with the Lift to the Future organization and the People's Friendship University of Russia.

DR. NUNA ALMANZOR
Job well done

By VIOLETA BALAOING CONOZA
S&T Media Service, *DOST-ITDI*

SHE IS known for being a workaholic. On top of that, she is also known for not mincing words to get things done, either by free will or by force.

Through the years, she has emerged strong but still cheerful in her dealings with her staff and colleagues. And not one to stop at that, she still has what it takes to keep going and unleash more, never wanting to fade away even in retirement. What a lady!

Dr. Nuna E. Almanzor fondly called Ma'am Nu or Boss Nu, outgoing director of the DOST's Industrial Technology Development Institute, joined the Department, then called the National Science and Development Board (NSDB), in 1972. She was then a young graduate of BS in Chemical Engineering from the University of Santo Tomas and among the Top 10 in the board licensure exam.

From the ranks

At the NSDB, she started from the ranks and slowly inched her way up the ladder.

"I started my career as a science aide with a P9/day salary," recalled Ma'am Nu.

Eventually, she was assigned to lead in evaluating projects and meeting with various researchers and personalities. While on the job, she pursued higher education and earned her MBA from the Philippine Christian University and PhD in Business Management from the Philippine Women's University. She then pursued a postgraduate course in Chemical Engineering at the Tokyo Institute of Technology in Tokyo, Japan as a UNESCO scholar.

She is known for being a workaholic with a strong personality, and these are the very traits that spurred Dr. Nuna Almanzor to push ITDI and the people behind it to work harder to get ITDI to where it is now. After 42 years of government service, ITDI's first ever lady director does not want to rest on her laurels but aims to keep going.

From the then NSDB, she moved to ITDI where her leadership and managerial mettles were further honed. At ITDI, this true blue Batangueña ably handled the toughest job, even those that men find difficult. Her trainings both here and abroad molded her to become the first ever lady director of ITDI. Said trainings include the Industry and Environmental Protection for the Philippines (AOTS Program), Small and Medium Entreprise Development (Japan International Cooperation Agency), Technology Transfer at Straclyde University, Scotland (EEC), Technology Transfer and Socio-Economic Development (Euro-Asia INSEAD Program), and Technology Management (ASEAN-USAID-AIT Program).

Leveling up ITDI

With her ardent desire to bring local industries to global competitiveness and provide livelihood opportunities in the communities, this tireless lady led the Institute to being named as NRCP's first-ever Outstanding Institution National Awardee in 2011. During her leadership, she spearheaded the conceptualization and implementation of various winning programs among which include technology business incubators, the National Brick Program, the Low-cost Laundry Soap Program, and the Philippine Metrology Society that facilitated the passing of the Philippine Metrology Law, as well as the ISO accreditation of ITDI and its laboratories.

Being at the helm of ITDI as director for nine years, Ma'am Nu led the Institute to achieve several milestones that entrenched the ITDI as an indispensable agency of DOST in its quest to make life better for Filipinos. ITDI's continuous innovation and implementation of R&D programs aligned to DOST priority areas resulted in smarter technologies or innovations that provided solutions to pressing national problems, created growth in the countryside, and improved the competitiveness of local industries.

Her advocacy for sustained growth and productivity, with the support of DOST officials, facilitated the establishment of the ADMATEL (Advanced Device and Materials Testing Laboratory), STDs (Standard and Testing),newly-inaugurated MiC (Metrology in Chemistry) facilities plus the integration of rubber testing, and MSD's (Material Science Division) nano lab, and enhancement of National Metrology Laboratory making the ITDI one of the prime standards and testing center of the country. Likewise, her incessant drive in pursuing knowledge translation or commercialization of research results saw the growth and improvement of existing business firms and creation of new ones.

(CONTINUED ON NEXT PAGE)

Job well . . . FROM PAGE 66

Soft spot

Don't be mistaken though. While she's at the center of all these hard pursuits, Boss Nu is one who is not at all shy to drop the formalities. And if ever one would want to get a glimpse of her "soft spot'", hop on a trip with her and you're in for the unexpected. A real trooper, she can be your barkada--she can eat with the group anything that is served. She'll even buy you nilagangmais (boiled corn) or turon' (fried banana roll) along the way. Her concern for the employees can be seen with her efforts for them to have their own house and lot through the Molino Housing Project. And while the achievements can go on, this tireless lady humbly acknowledges the support of everyone.

Her achievements are by no means ordinary, and several awards are testaments to her hard work, including the Excellence Award by the Philippine Technological Council (a conglomeration of 40 professional associations); UST Outstanding Alumni for Government Service in 2008 during its Centennial Year of the Faculty of Engineering; Outstanding PhilJAPA Fellow for Public Administration; Outstanding Personality and Socio-Civic Leader by the Asia-Pacific Youth Outreach Development Inc.; and fellow at the British Council.

Despite being busy at work, she still finds time to actively participate in various organizations like the Philippine National Consultative Committee for Standards and

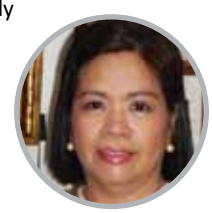
Quality, BPS; Philippine Panel of Experts from APEC- International Quality Assurance System; and is now the Philippine Focal Person to the ASEAN Sub-Committee on Food Science and Technology.

She has been the Past President of the Philippine Institute of Chemical Engineers (PIChE) and founding President of the DOST-PIChE Chapter, and member of Philippine Association for the Advancement of Science and Women in Science and Technology Foundation to name a few. Na'am Nu also finds time to share her knowledge and experiences through her papers and as resource person in various S&T foraand conferences, among others.

After 42 years of dedicated service, Dr. Almanzor will surely be remembered for her selflessness, passion, and commitment in rallying behind ITDI in creating and generating technologies and innovations that never fail to improve the lives of Filipinos.

And as Basil Carpenter said, "Thank God every day when you get up that you have something to do that day which must be done whether you like it or not. Being forced to work and forced to do your best will breed in you temperance and self-control, diligence and strength of will, cheerfulness and content, and a hundred virtues which the idle will never know".

This appears to be the daily mantra of DOST-ITDI's first-ever-lady Director who is now vowing out of service after more than four decades of fruitful government career. Indeed, hers is a job well done.



CANOZA

Beyond animal health care

By: GERALDINE BULAON-DUCUSIN
S&T Media Service, *DOST-STII*

DR. MILDRED A. Padilla's dedication to her chosen career may very well serve as an example for the younger generation. She's a proof that a Filipino public servant can be both competent and moral.

"VetMed is not limited to taking care of small animals, though that's where the money is," Dr. Padilla said when asked regarding veterinary medicine as a career option for young people. She added, "Three-fourths of human infections are animal derived. *Ang laking role ng veterinarians doon,* along with the medical and other professionals, who would work towards human health."

Dr. Padilla has been teaching at the Department of Veterinary Paraclinical Sciences of the College of Veterinary Medicine, University of the Philippines for over three decades. She specializes in animal welfare, disease prevention, and food safety. Her years in the field have taught her that veterinary is not a profession confined to cute animals and caring for them. It could be a field that may require certain boldness, courage, and tact. It's one profession where one can actually make a difference.

There are some risks involved, though these can be manageable, such as exposure to on-site hazards. One could also be in danger of accidentally stumbling on some findings, in the course of doing one's research, that can raise some questions or cast some doubts to ongoing or past projects, programs or practices. One's ethics and courage may have to be summoned at such instances. But despite these caveats, Dr. Padilla believes that she finally found the merit of why the God has put her where she is now.

"I was asking myself why I had to be a doctor of animals, when my concerns have always been humans. It eventually dawned on me that my place is exactly this, in veterinary medicine, so I could bridge the gap between animals and humans. For instance, I am doing risk assessment on animals so they will be safe for human consumption," she explained.

While she specializes in animal diseases and welfare, Dr. Padilla's principle is that one cannot limit oneself to animals. "We have to go beyond the animals. We have to look at how these animals are affecting human beings. After all, we are here because of humans." She added, "I believe that yung mga hayop, para sa humans yan. So, kung healthy ang hayop, healthy din ang humans kasi doon sila kumukuha ng kinakain. (I believe that animals are for humans. So, if animals are healthy, humans are also healthy because it is from the animals that humans get food)"

While she respects opposing views on the matter, her personal crusade is more on prevention than cure of diseases. As such, the National Research Council of the Philippines (NRCP) has tapped her to talk about anti-rabies campaign and dog-bite prevention to the children. She has also been very active in reviewing researches. These are just some of the activities that allow her to learn and impart learning.

There are two things in her profession that give her a sense of fulfilment: One is community engagement, where she gets the opportunity to talk with farmers; and the other is mentoring, where she gets to impart some of her values to her students.

"Lagi kong sinasabi sa kanila, paggagawa kayo ng mga research, gawin nyo yung mga may impact sa farmers. Kasi hindi tayo andito para ma-promote, para yumaman. Tumulong naman tayo sa ating mga farmers at kung maaari, magsilbi naman kayo ditosa Pilipinas," Dr. Padilla said when asked of her common advise to her students. (I always tell them that they have to do research that has impact to farmers because we are not here to get promoted or to get rich. We have to help our farmers and, if possible, let's provide our services here in the Philippines)

Among the relevant researches that she's come across, she cited those whose results helped identify certain viruses that may either assist or hinder animal reproduction. She also participated in assessments of animals, such as tests for foot and mouth disease (FMD) and food safety of certain batches of imported meat. Researches and assessments are crucial for farmers, animal

(CONTINUED ON PAGE 71)

DUCUSIN

Coral reef protector named National Scientist

By RYAN KESTER MANSION
S&T Media Service, *DOST-STII*

President Aquino conveys the rank of National Scientist to Academician Edgardo D. Gomez with (L-R) Acd. William G. Padolina and DOST Sec. Mario G. Montejo as witnesses.

PRESIDENT BENIGNO Aquino III bestowed the rank and title of National Scientist to Academician Edgardo D. Gomez last August 12, 2014 at the Malacañang Palace.

Gomez, who specializes in the field of marine biology, pushed campaigns for the conservation and restoration of damaged marine ecosystems in the country. He also kicked off giant clam breeding and distribution of juveniles to restock reefs, helping communities living in coastal areas. Further, he put the Philippines in the global map of coral reef research.

His sterling contributions to the field of marine biology in the country were recognized even as he was hailed as National Scientist. The title is the highest recognition granted by the President of the Philippines to men and women of science and technology who have made valuable impact to the country.

Gomez is one of the four Academicians who received the National Scientist rank and title. The three others include Gavino C. Trono Jr. (marine botany), Angel C. Alcala (biological sciences), and Roman C. Barba (horticulture). Department of Science and Technology Secretary Mario G. Montejo and National Academy of Science and Technology, Philippines President William Padolina assisted the president in the awarding rites.

Gomez produced comprehensive studies on invertebrate aquaculture, and invertebrate zoology. He conducted influential work on the effects on juvenile hormone mimics on crippled larvae, the findings of which helped in explaining sex determination in local hermaphroditic species.

He also steered the first national-scale assessment of damage to coral reefs which paved the way for worldwide conservation initiatives such as the Global Reefs and Risk Analysis, Global Coral Reef Monitoring Network, and the International Coral Reef Action.

As the founding director of the University of the Philippines - Marine Science Institute, breeding ground of thriving Filipino scientists, Gomez steered its advancement from a humble research unit into a world-renowned marine science research and teaching institution which greatly influenced the development of marine science in Southeast Asia.

Gomez's expertise also came in handy in the Philippines-China dispute over Spratly Islands. For the case, he gave valuable inputs in the baseline mapping of the Philippines which helped in the handling of the dispute and in setting up the groundwork for the UP System's Archipelagic Studies Program.

Gomez graduated summa cum laude from De La Salle University in 1962 where he obtained his B.A. in English and B.S. Education. He acquired his M.S. Biology from St. Mary's University Minnesota in 1967, and his Ph.D. Marine Biology from the University of California San Diego in 1973.

NAST salutes new Academicians

By LOTUSLEI P. DIMAGIBA
S&T Media Service, *DOST-STII*

THE DEPARTMENT of Science and Technology together with its advisory body, the National Academy of Science and Technology (NAST), the country's premier recognition and advisory body on S&T, honored two science experts as NAST's newest academicians during their 36th Annual Scientific Meeting at the Philippine International Convention Center.

They are marine ecologist Porfirio Alexander Aliño, Ph.D. and gastroenterologist Remigio Olveda, M.D., both professors at the University of the Philippines.

ALIÑO

OLVEDA

Academician Aliño investigates the nature of patterns and processes in coral reefs and associated ecosystems and undertakes conservation works for marine protected areas.

Under his belt are more than two dozen years of experience in technical assistance projects including capacity building initiatives for fishers, resource managers, and policy makers. His expertise and efforts for capacity development earned him local and international accolades such as his recognition by the International Society for Reef Studies during the 12th International Coral Reef Symposium lastJuly 2012 in Cairns, Australia.

Earlier, from 1996-2000, Dr. Aliño initiated the scientific investigation into the disputed Kalayaan Islands and served as coordinator of the project "Establishment of the Marine Science Research Program in the Kalayaan Islands."

He also extended his research endeavors on climate change adaptation and vulnerability assessments around the Philippines and the region specifically the Coral Triangle.

His scientific contributions are comprehensive, resulting in the production of more than 180 scientific and technical publications, co-authoring of nine books and 31 book chapters.

On the other hand, Academician Olveda is cited for his extensive research in cost-effective strategies for the control of the *Schistosoma japonicum* infection in the country. Schistosoma japonicum affects 200 million people in 74 countries.

A researcher, clinician, mentor, and scientist, Dr. Olveda has served the local science community for over three decades, 25 years of which were spent at the Research Institute for Tropical Medicine where he established the Good Manufacturing Practices Certified Vaccine Production Plant.

He also authored and co-authored more than 102 scientific papers published in local and international medical journals, and authored three book chapters as well.

In addition, Dr. Olveda was a resource person, presenter, and adviser to several international scientific fora and symposia.

Through NAST's two new academician members and all of its constituents, such recognition aims to promote and encourage more science scholars in the country who will create more innovations and continue the efforts undertaken by the current crop of Filipino scientists.

BEYOND ANIMAL . . .from page 69

breeders and the food industry, especially sectors that involve animal meat, dairy, and eggs.

Dr. Padilla can be very passionate in what she does. She can be quite outspoken, a trait that sometimes get her into trouble. But her having a soft heart also shows. She expressed consternation on some foreigners' perceptions that confined Filipinos to either prostitutes or domestic helpers. Not that there is something wrong with being a helper, but her frustration lies in the fact these westerners, and even fellow Asians, tend to have a rather low opinion on Filipinos.

Indeed, Dr. Padilla is a woman of science whose love for dogs and plants equals her love for this nation – she loves to see all these grow in equal measure, with proper nurturing.

On a lighter side, Dr. Padilla's knock-out sense of humor showed when she declared herself a member of the La Liga Soltera Filipina (League of Spinster Filipinas), eliciting guffaws from people who hear it.

But there's another facetof this tough lady. Surprisingly, she is hesitant being labelled a "scientist." Upon learning that she's going to be interviewed for the Filipino scientists series of the Philippine Men and Women of Science website, she mulled, "I am not scientist enough," basing on the strict definition of the word "scientist." She explained that, for her, there are people who by far are more worthy of the title.

But Dr. Padilla is a Filipino scientist by heart and by profession and she's definitely deserving of the title.For the litany of her many contributions to the field and to the nation, please visit the PMWS site inhttp://www.science.ph/.

New PSHS system exec takes oath with new campus directors

By FRAMELIA V. ANONAS
S&T Media Service, *DOST-STII*

Secretary Mario G. Montejo (leftmost) administers the oath taking ceremony of new officials of the Philippine Science High School System during the 50th Anniversary celebration of the institution last September 5, 2014 at the Multi-Purpose Gymnasium of PSHS Main Campus in Quezon City. From left in line: new PSHS System Executive Director Dr. Larry L. Cabatic, Deputy Executive Director Rod Allan De Lara, Engr. Lorvi B. Pagorogon (Central Mindanao campus), and campus directos Dr. Salvador B. Romo (Cagayan Valley campus), Dr. Warren D. Cordeta (Central Visayas campus), Dr. Chuchi P. Garganera (PSHS-SOCCSKSARGEN campus), Ruwina S. Gonzaga (Caraga campus), and Delia C. Legaspino (Southern Mindanao campus). (Photo from PSHS)

DR. LARRY Cabatic, who served as director of Ilocos region campus for almost ten years, was appointed as the new executive director of Philippine Science High School System (PSHS), replacing Dr. Josette P. Biyo, current director of Science Education Institute (SEI). The PSHS system and SEI, both providing scholarships in the field of science and technology, are under the Department of Science and Technology (DOST).

Dr. Cabatic, a civil engineer by profession, together with other new PSHS officials, took their oath of office during the 50th Anniversary celebration of the institution last September 5, 2014 at the Multi-Purpose Gymnasium of PSHS Main Campus in Quezon City. DOST Secretary Mario G. Montejo administered said ceremony.

Dr. Cabatic finished Bachelor of Science Degree in Civil Engineering at the University of Northern Philippines (UNP).In 1999; he obtained a Masters degree in Development Administration and a Doctorate degree in Philosophy major in Technological Education Management (2002), both in Don Mariano Marcos Memorial State University (DMMMSU).

He worked as a Labor Standards Enforcement Officer in the Department of Labor and Employment (DOLE) Region 1 from 1988 to 1993. From thereon, he became the Provincial Labor Officer of DOLE La Union Provincial Office from 1993 to 1997, before he assumed the position as Chief Labor and Employment Officer of DOLE Region 1 from 2002 to 2004.

Then from 2004 until he was assigned as executive director of PSHS last September 01, 2014, Dr. Cabatic spent his time as the director of the PSHS Ilocos region campus. Some of his notable achievements were establishing linkages with institutions, such as UNP, DMMMSU, Ilocos Sur Polytechnic State College, Bureau of Fisheries and Aquatic Resources, Department of Environment and Natural Resources, Protected Areas, Wildlife and Coastal Systems Management, and Department of Agriculture for research and laboratory support services. He also supported several outreach projects and activities for the local community to address waste problems as well as Gender and Development for people empowerment through welding and masonry skills development.

Meanwhile, Dr. Rod Allan De Lara, who served as officer-in-charge of PSHS for six months, also took his oath as Deputy Executive Director of PSHS along with other new campus directors, namely Engr. Lorvi B. Pagorogon of the Central Mindanao Campus, Ruwina S. Gonzaga of the newly-established PSHS-Caraga in Butuan City, Delia C. Legaspino of Southern Mindanao campus, Dr. Salvador B. Romo of Cagayan Valley Campus, Dr. Chuchi P. Garganera of the newly-established PSHS-SOCCSKSARGEN Region Campus in Barangay Paraiso, Koronadal City, and Dr. Warren D. Cordeta of the PSHS Central Visayas Campus in Argao, Cebu.

PSHS is a service institute under DOST that offers free scholarship for secondary course with special emphasis on subjects pertaining to the Sciences with the end view of preparing its students for a career in Science. It has 13 campuses all over the country and DOST is targeting to install three additional campuses by 2016. (S&T Media Service, DOST-STII)

By MARIA LUISA S. LUMIOAN
S&T Media Service, *DOST-STII*

Foresight meets science to turn threat into opportunity

Continuous band sealer acquired through DOST-SETUP

When sugar plantation owner Atty. Froilan O. Alcantara learned about the ASEAN Economic Integration back in 2007, he was apprehensive.

This is because the upcoming economic integration will remove tariffs on sugar and other commodities so that the flow of goods will be faster among the ASEAN member-states by December 2015.

Atty. Alcantara thought about Thailand's highly subsidized sugar industry and very efficient sugar mills. "I think Thailand is the biggest threat to the Philippines when it comes to sugar production,"he opened.

It was also during that time that Atty. Alcantara learned about the dangers of white sugar as he was introduced to a nutritionally superior alternative to refined sugar—muscovado. Muscovado contains all natural mineral content inherent in sugarcane and can be produced without the use of additional chemicals.

His fears about the sugar industry turned into foresight. He decided to put up his own sugar mill that specializes in processing muscovado to take advantage of the growing organic and healthy foods niche. Thus Raw Brown Sugar Mill Company Incorporated was born.

To help him realize his plans, Atty. Alcantara partnered with the Department of Science and Technology (DOST) through its various programs for medium and small enterprises.

Through SETUP, Atty. Alcantara was able to acquire equipment for the improvement of their production namely: a cube sugar making machine, a band sealer for the hygienic and efficient packaging of assorted muscovado products in plastic pouches, and a form fill sealing machine for the hygienic and efficient packaging of powdered muscovado in conveniently sized sachets.

These interventions have helped Raw Brown Sugar Milling Company Inc. to penetrate the foreign market where 90 percent of their products are sold. Their product line includesmuscovado powder, muscovado rocks, muscovado cubes, muscovado syrup and sukangkidlat (vinegar) —all organic certified by certifiers from Italy and South Korea.

Notwithstanding initial success, Atty. Alcantara recognizes that challenges remain for his business. He maintains his keen foresight and innovative spirit to keep up with a more competitive market come 2015 with DOST again as his partner.

By the end of the year, the company is set to put up a 100 kwhpower plant which will use sugarcane bagasse (the fiber remaining after extraction of juice) as feedstock. The project is expected to lower production cost and at the same time minimize wastes from the mill. Another project in the pipeline is the acquisition of a fully automated packing machine to increase the mill's efficiency.

"From the technology, the choice of lot, the layout of the plant, the training of our personnel and staff and marketing of our products, we owe everything to DOST," he said.

The initial assistance was provided by the DOST-Industrial Technology Development Institute (ITDI) in 2009. The Institute conducted assessment on processing technology and provided training for clean production technology which helped the company produce quality muscovado following Good Manufacturing Practices.

Later, the company became a beneficiary of the SETUP or Small Enterprises Technology Upgrading Program. This DOST program helps boost the productivity and competitiveness of small and medium enterprises (SMEs) by assisting them in adopting technological innovations to improve their operations, and boost product quality and company productivity.

The company currently employs 55 workers in its sugar mill, and around 50 more in the plantation.

Atty. Alcantara and his successful company prove that foresight coupled with science, technology and innovation can turn any difficulty into an opportunity.

Calapan's native deli is MIMAROPA's best

By JOY M. LAZCANO
S&T Media Service, *DOST-STII*

Calapan's business couple Merlita and Ferdinand Bolus (second and third from left) of Merl's Native Delicacies receive the trophy and cash prize for the 2014 DOST Regional Office IV-B Best Technopreneur Award as this year's outstanding micro, small, and medium enterprise.

For the second straight year, Merl's Suman sa Lihiya got the nod for product excellence at the 2nd MIMAROPA Best Technopreneur Award held at Calapan City, Mindoro Occidental.

Merl's Suman sa Lihiya also bagged the 2014 Best SETUP Adopter award - regional level during the 2014 National Science and Technology Week at the SMX Convention Center, SM Mall of Asia, Pasay City.

SETUP, or the Small Enterprise Technology Upgrading Program of the Department of Science and Technology , is a nationwide strategy that encourages and assists small and medium enterprises to adopt technology innovations to improve their operations and expand the reach of their businesses.

DOST gave Merl's proprietor Merlita Bolu the best technopreneur award for the years 2013 and 2014 for successfully employing technology upgrading

to enhance the firm's productivity through the intervention. Bolus attributes her business's sweet success in the local market to DOST's technology interventions, aside from her hard work and innovativeness.

DOST-SETUP provided packaging and labeling design for Merl's suman sa lihiya product. Moreover, the Department, through SETUP, also provided consultancy on Good Manufacturing Practices and Hazard Analysis and Critical Control Points, enhancement of rice cake steaming process, improvement of coco jam dispensing operation, nutritional analysis, cleaner production technology consultations, and plant production layout.

The SETUP intervention led to the firm's 325 percent increase in productivity-- from 800 pieces of rice cakes to 3,400 pieces per day. Coco jams also jumped to a significant 30 jars to 48 jars per day. Thus its market has expanded from the National Capital Region down to Southern Luzon.

Merl's monthly gross income rose to P1.81 million from P462,000. Subsequently, it has employed more than 80 direct and indirect employees. At present, Merl's is one of Calapan's most popular products. In fact, most of the "pasalubong centers" in the city sell the squared-shaped suman sa lihiya.

Merl added that she could not have achieved all this on her own if not for the support of DOST-SETUP that helped enhance its products. Thus Bolus shares her success with DOST

Future plans

After 14 years in the business, Merl's has definitely established its identity as Calapan's best.

Next month, Merl's will inaugurate its 900-square meter plant in Nauhan, Calapan City. Bolus revealed too that Merl's is launching six new variants of the suman sa lihiya. Merl announced her "Suman sa Dahon ng Sili" which she says is another delicious recipe from her mother.

The Best Technopreneur Awards is given by the DOST Regional Office IV-B to outstanding technology adopters through the SETUP. It gives recognition to micro, small, and medium scale enterprises (MSMEs) that adopted science and technology in enhancing productivity and made dents in the local and national markets.

Nominees were selected based on the firm's innovativeness, impact and performance in the local market, and track record on loans repayments.

Regional Director Josefina Abilay said that the annual search for the best technology adopter in the region "hopes to promote excellence among MIMAROPA's SMEs," Dir. Abilay says.

HERE COMES THE SUN

Unlimited energy source for communities

By BERNARDO T. CARINGAL, MARIA ETHELWILDA G. CORONACION & CYD FRANCIS D. RECIDORO
S&T Media Service

AS ADVOCATES for the use of renewable energy, the Provincial Science and Technology Center in Marinduque (PSTC-Marinduque) conducted the "Technology Forum on Solar Energy cum Demonstration of Solar Home System" at the PSTC office in Boac, Marinduque in March this year with Bernardo T. Caringal, Provincial S&T Director and Renato Jogno from the Marinduque State College School of Industrial Technology as resource speakers.

Solar energy is harnessed light and heat from the sun using a wide variety of technologies to generate electric power and other practical uses. The International Energy Agency stated that "the development of affordable, inexhaustible and clean solar energy technologies will have huge longer-term benefits. It will increase countries' energy security through reliance on an indigenous, inexhaustible and mostly import-independent resource, enhance sustainability, reduce pollution, lower the costs of mitigating climate change, and keep fossil fuel prices lower than otherwise."

As such, the DOST-PSTC through Dir. Caringal acquainted the participants about the home solar system, and the advantages of using such a system.

According to Caringal, the solar home system is a simple fixed indoor lighting system that provides a steady supply of solar energy. When converted to electricity, solar energy can be used for domestic lighting purposes and for other electrical appliances such as electric fans, televisions, and others, with the aid of a power inverter (for electrical loads of above 12 volts, such as 220 volts).

Solar energy does not require the burning of fossil fuels and does not produce harmful air emissions, hence, solar home systems are environment-friendly.This kind of energy is also a renewable type of energy because it does not deplete natural resources. Moreover, it never runs out.

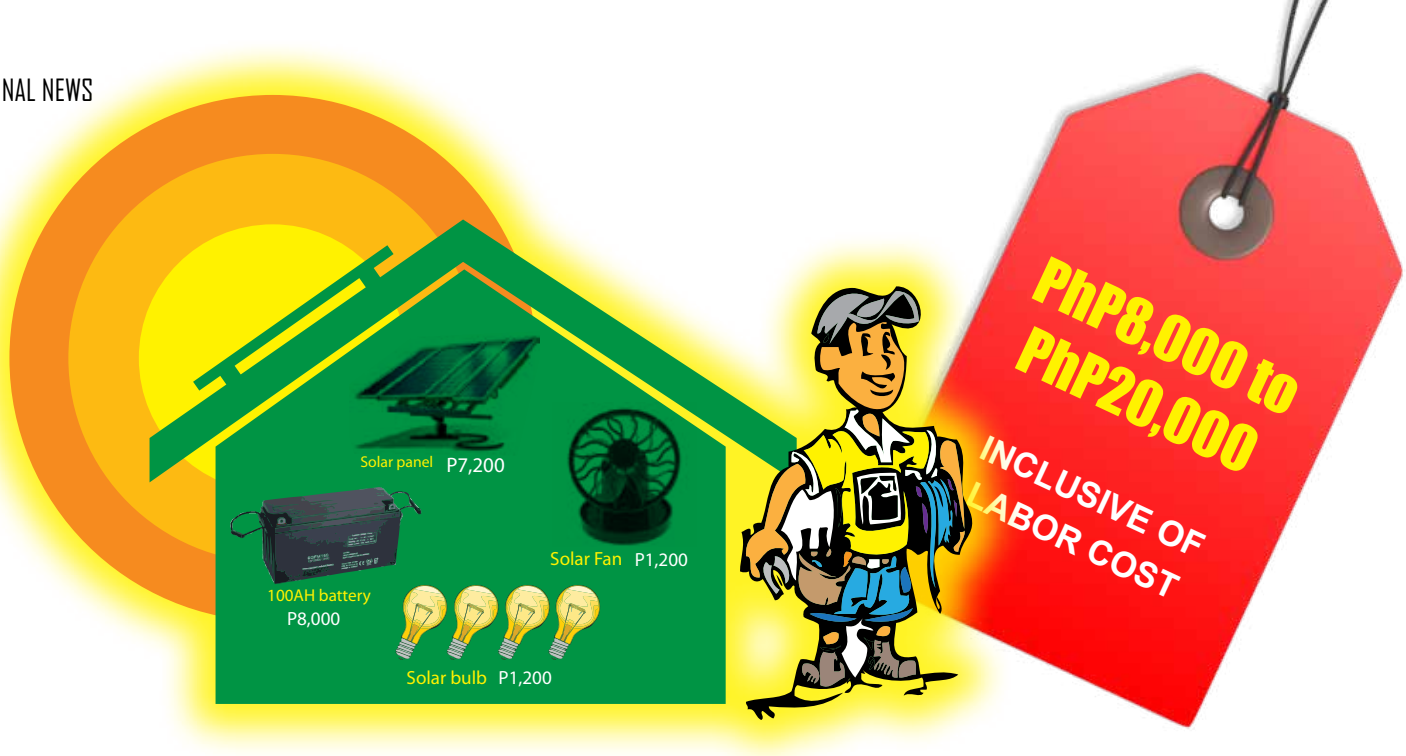
Mr. Jerryme Villas of the MDRRMO in Lubang Island, Occidental Mindoro delivers the Welcome Remarks

Presenting fully the benefits of using solar energy at home, Dir. Caringal encouraged the 20 municipal and barangay officials to push for budget allocation for the use of solar energy in their respective offices.

On receptivity of the 20 municipal and barangay officials on the idea of budget allocation for solar energy:

Municipal and barangay officials who attended the forum were very receptive to the use of solar energy in their communities, according to Dir. Caringal. And it helped that they witnessed the actual installation of the solar panels. Some of those in attendance

PSTC-Marinduque PSTD Bernardo T. Caringal explainsthe benefits of using solar power



Participants view the installation of the solar panel and LED lights

The solar controller

PSTC-Marinduque Director Mr. Bernardo T. Caringal showing the solar battery and connections

The installed solar panel.

were even asking about having solar-powered streetlamps. Dir. Caringal, however, encouraged them to start using solar energy in barangay halls first, and then gradually move on to bigger projects using solar energy.

Jogno, for his part, discussed the basics of harnessing solar energy then presented an actual prepared set of home solar system. This consisted of a solar panel, battery, wires, switch, socket, CFL bulb, LED bulb, and solar electric fan.

In cars or vehicles, the origin of power is the engine. The engine drives the alternator, which in turn supplies charge to the battery.

With regard to a solar home system, the solar panel performs the role of the car alternator: Solar panels gather energy from the sun, which then charges the solar battery, and from this battery come the power for homes.

Later, PSTO Occidental Mindoro Director Maria Ethelwilda G. Coronacio endorsed PSTC-Marinduque to the local government unit of Lubang Island in Occidental Mindoro to conduct another technology demonstration and forum on solar energy.

The event was held at the barangay hall of Brgy. Araw at Bituin, and was attended by the 15 barangay captains in Lubang Island, as well as representatives from the Municipal Planning and Development Council. Solar panels were installed in the barangay hall and a solar fan was also installed in a kindergarten school.

CARINGAL

CORONACION

RECIDORO

MS Swaminathan and Saina Nehwal named ICRISAT Ambassadors of Goodwill

By ICRISAT

HYDERABAD, INDIA (14 July 2014) – The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has named Professor MS Swaminathan, renowned agricultural scientist and Father of India's Green Revolution, and Ms Saina Nehwal, Olympic medalist, ace badminton player and youth icon of India, as ICRISAT Ambassadors of Goodwill. The recognition was conferred to them by ICRISAT Director General Dr William D Dar in a momentous ceremony held today at the ICRISAT global headquarters in Hyderabad, Telangana, India.

As ICRISAT Ambassadors, Prof. Swaminathan and Ms Nehwal have agreed to champion the Institute's mission to make a difference by promoting science-based agricultural solutions in the fight against poverty, hunger, malnutrition and environmental degradation in the dryland tropics of the world.

"Inclusive agriculture is the key to a prosperous, food secure and resilient dryland tropics," said Prof Swaminathan. "By giving smallholder farmers access to technologies and connecting them to markets, they will have options for a more profitable and resilient agriculture towards achieving sustainable food, nutrition, economic and environmental security," he continued.

"ICRISAT plays an important role in this through its inclusive market-oriented development strategy, particularly focusing on the need to empower resource-poor farmers in marginalized environments. I am therefore pleased and proud to be an Ambassador of Goodwill for the works and initiatives of ICRISAT."

Prof. Swaminathan also recognized ICRISAT's more than four decades of commitment and dedicated service to the most underprivileged sector of the world – the poor in the drylands. He highlighted challenges and opportunities facing the Institute, such as the need for crop biofortification to combat 'hidden hunger' caused by micronutrient deficiencies prevailing in the developing world; and science communication to inform, educate

CONTINUED ON NEXT PAGE

Professor MS Swaminathan, renowned agricultural scientist and Father of India's Green Revolution receiving the ICRISAT Ambassador of Goodwill plaque from Dr William Dar, ICRISAT Director General. *Photo: ICRISAT*

Ms. Saina Nehwal, Olympic medalist, ace badminton player and youth icon of India receiving the ICRISAT Ambassador of Goodwill plaque from Dr William Dar, ICRISAT Director General. ***Photo: ICRISAT***

MS Swaminathan . . . FROM PAGE 79

and mobilize the public on the importance of scientific innovations in the fight against poverty and hunger, and for decision makers to come up with supportive policies. Prof. Swaminathan is currently Emeritus Chair of the MS Swaminathan Research Foundation (MSSRF), and was one of the architects of ICRISAT's creation in 1972.

"Being asked to serve is truly humbling, and the chance to make a real difference is not an opportunity that everyone is given. I proudly accept the role of ICRISAT Ambassador, and hope to inspire and encourage particularly the youth in seeing the uniqueness and importance of the works and initiatives of ICRISAT," said Ms Nehwal.

"As an athlete, I hope I can help make people understand and appreciate the nutritional importance of ICRISAT crops such as millets and sorghum, and grain legumes such as chickpea, pigeonpea and groundnut. I strongly believe these crops are important for both poor farmers and consumers because of their high nutritional value and for a diverse diet and farming, and are critical in fighting malnutrition and food insecurity," she continued.

"Millets and sorghum, and grain legumes are good sources of endurance or energy and protein for athletes like me. Basing on scientific evidences, I will lend my voice in promoting the value of dryland cereals and grain legumes for the health and well-being of the rural poor, especially women and children," Ms Nehwal stressed.

"We cannot be any prouder of all our Ambassadors of Goodwill, now joined by Prof Swaminathan and Ms Nehwal," said Dr William D Dar, ICRISAT Director General.

Dr Dar continued that "ICRISAT's success in its more than four decades of existence has been through our partners and supporters – people and institutions we work closely with globally in making the poor, smallholder farmers' food and nutrition security and improved livelihoods firmly at the center of our activities."

"The world will have to feed 10 billion people by 2050. Today, a billion people are hungry and about 3 billion are not eating well. To overcome poverty, hunger, malnutrition and environmental degradation, science is an essential component that must be behind all our efforts. We are pleased and proud to have Prof. Swaminathan and Ms Nehwal as our Ambassadors to work closely with us and serve as our voices, in order to make a difference for the poor in the drylands," Dr Dar added.

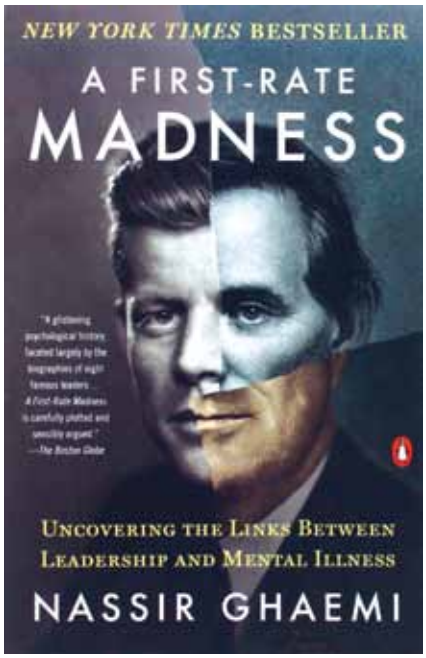
The ICRISAT Ambassadors of Goodwill program was launched in May 2013 with the acceptance of Mr Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation, to become the first Ambassador during his visit to the ICRISAT global headquarters.

Mr Bill Gates has since been joined by Dr APJ Abdul Kalam, renowned scientist and 11th President of India; Rt. Hon. James Bolger, former Prime Minister of New Zealand; Dr Akinwumi Adesina, Minister of Agriculture and Rural Development, Nigeria; and Dr Nigel Poole, former Chair, ICRISAT Governing Board, as ICRISAT Ambassadors.

BOOK REVIEW:

First Rate Madness

By MARIA LUISA S. LUMIOAN
S&T Media Service, *DOST-STII*



WHAT DO Mahatma Gandhi, Winston Churchill, and Ted Turner have in common?

Aside from being popular figures andleaders, they were all a little mentally ill, according to Nassir Ghaemi, director of the Mood Disorders Program at Tufts Medical Center in Boston, Massachusetts.

In his book, First Rate Madness: Uncovering the Links between Leadership and Mental Illness, he discusses the lives and mental health of Gandhi, Churchill, Turner, and five other prominent figures to support his argument that mentally ill people make good leaders in crisis situations. He calls this concept "the inverse law of sanity."

While he believes that sane people also make good leaders, he says that more often than not it is true only during non-crisis periods. However, "when our world is in tumult, mentally ill leaders function best," he posits.

He clarifies early on in his book that he uses the term "mentally ill" to refer to mood disorders such as depression and mania, the hallmarks of bipolar disorder.

Depression is more than ordinary sadness that most people experience when confronted with problems. It also comes with inactivity, difficulty in thinking and concentration, feelings of hopelessness, lack of interest, and suicidal tendencies for some.

Mania on the other hand is characterized by high energy levels, brimming self-esteem, extreme enthusiasm, impulsiveness, and elated mood—things that are generally positive, but could possibly lead a person to make bad decisions, get into risky situations, and overestimate his ability which may lead to frustration in the long run.

To establish that his subjects are indeed mentally ill, Ghaemi scoured historical documents and testimonies, autobiographies, speeches and other accounts. He then looked for symptoms, possible genetic factors, course of illness, and treatments if any. He also analyzed the specific traits of these leaders and found that they exhibit at least one of the following: creativity, realism, empathy and resilience—all of which are crucial in their leadership. He claims that depression and mania may have a role in enhancing such traits.

Media mogul Ted Turner cuts Ghaemi's description of a creative leader—one who finds novel problems and solves them. Turner founded the first ever 24-hour global news channel, the Cable News Network, with only enough money for it to run on a year; but was able to establish a media empire.

In his autobiography, Turner says that his mind and body were always active and that he couldn't stand sitting around. From Ghaemi's point of view, these and the other evidences he traced are indicative of mania. (Turner and his doctor believe otherwise). Ghaemi says mania is a "fine advantage" in the creative process.

On the other hand, British Prime Minister Winston Churchill highlights the link between depression and realism, Ghaemi says. Churchill is said to have suffered from recurrent depression.These depressive episodes,may have helped Churchill realistically assess the threat of Nazis, while his contemporaries have failed to do so.

The relationship between depression and empathy is explained by Ghaemi through empathic leaders like Mahatma Mohandas K. Gandhi and Martin Luther King, Jr. –key figures of political movements centered on non-violent resistance. Both attempted suicide as teenagers, suffered from at least one depressive episode in midlife and another severe depressive episode in their final years before they were killed.

Franklin D. Roosevelt is used as an example by the author to expound on how mental illness can promote resilience. Ghaemi says that Roosevelt has mild manic symptoms and this personality helped the latter to be resilient in the face of polio which he acquired as an adult. He says further that this psychological evolution may have helped President Roosevelt to deal with the Great Depression and world war.

Putting together history and psychology in one book is interesting in itself. The combination adds dimension to how we view the historical/political/military/business leaders presented in the book and how they acted in their particular historical era. Add to this the provocative view of Ghaemi on how mental illness may have shaped great leaders makes the book even more fascinating.

All throughout the book, Ghaemi explains concepts in psychology, his methodology, documents he consulted, related studies, and the historical context to provide the readers a better grasp of the views he presents in the book.

"A First Rate Madness" challenges our pre-conceived notions of mentally ill persons—that they too can be great leaders, a fact that our society often overlooks.

S&T Post welcomes contributions for our Book Review section. Please email your contributions to apcarandang@yahoo.com. Reviews should tackle the book's science and technology component, subject to the approval of the Executive Editor. For inquiries, call 837-2191 local 107 and look for Gigi de Leon.

MOVIE REVIEW:

Eyeing into the storm

By RYAN KESTER MANSION
S&T Media Sevice, DOST-STII

DISASTER MOVIES have been making waves in big screens. Steven Quale's Into the Storm (2014) is a feast for thrill-seekers' eyes.

The supposedly vivacious graduation ceremonies of a local high school in Silverton, Oklahoma turned into a life-and-death situation when not just one but numerous hurricanes barreled through the town.

With his son Trey (Nathan Kress), Gary Fuller (Richard Armitage), school vice principal, gathered courage to drive amidst the catastrophe and save his elder son Donnie (Max Deacon) who was trapped in an abandoned mill with his friend Kaitlyn Johnson (Alycia Debnam-Carey).

Meanwhile, the agitated head of a storm chasing team, Pete Moore (Matt Walsh), was eager to get that once-in-a-lifetime shot of the most powerful tornado to date after a year of storm-chasing drought, using his heavily armored tank-like vehicle, Titus. His team included meteorologist and weather expert Allison Stone (Sarah Wayne Callies), Darryl Karley (Arlen Escarpeta) and Jacob Hodges (Jeremy Sumpte) as the camera operators. Daredevil-wannabes Donk (Kyle Davis) and Reevis (Jon Reep) served as the comic relief.

Into the Storm also featured found footage technique. Most scenes were seen through the lens of handheld cameras of Donnie and Trey, who were asked by their father to interview seniors about their messages to their future selves to be kept in a time capsule for 25 years.

The movie put on view that some people run for their lives, some run to save other people's lives, and some run to record the havoc with a camera for money and fame.

If a moviegoer will watch the movie expecting over-the-edge computer generated imagery (CGI) then he will not throw his overly priced popcorn and sausage and shout for a refund. But if he's also after the storyline and character development, allow me to recommend you to just buy canned goods and other stuff to prepare for other possible calamities.

Nowadays, it's almost a moral sin to have poorly executed special effects in movies. Surely, Into the Storm brought to the table the CGI needed to depict what it's like to be caught in to numerous gigantic hurricanes, flying roofs, cars, and even pilotless airplanes.

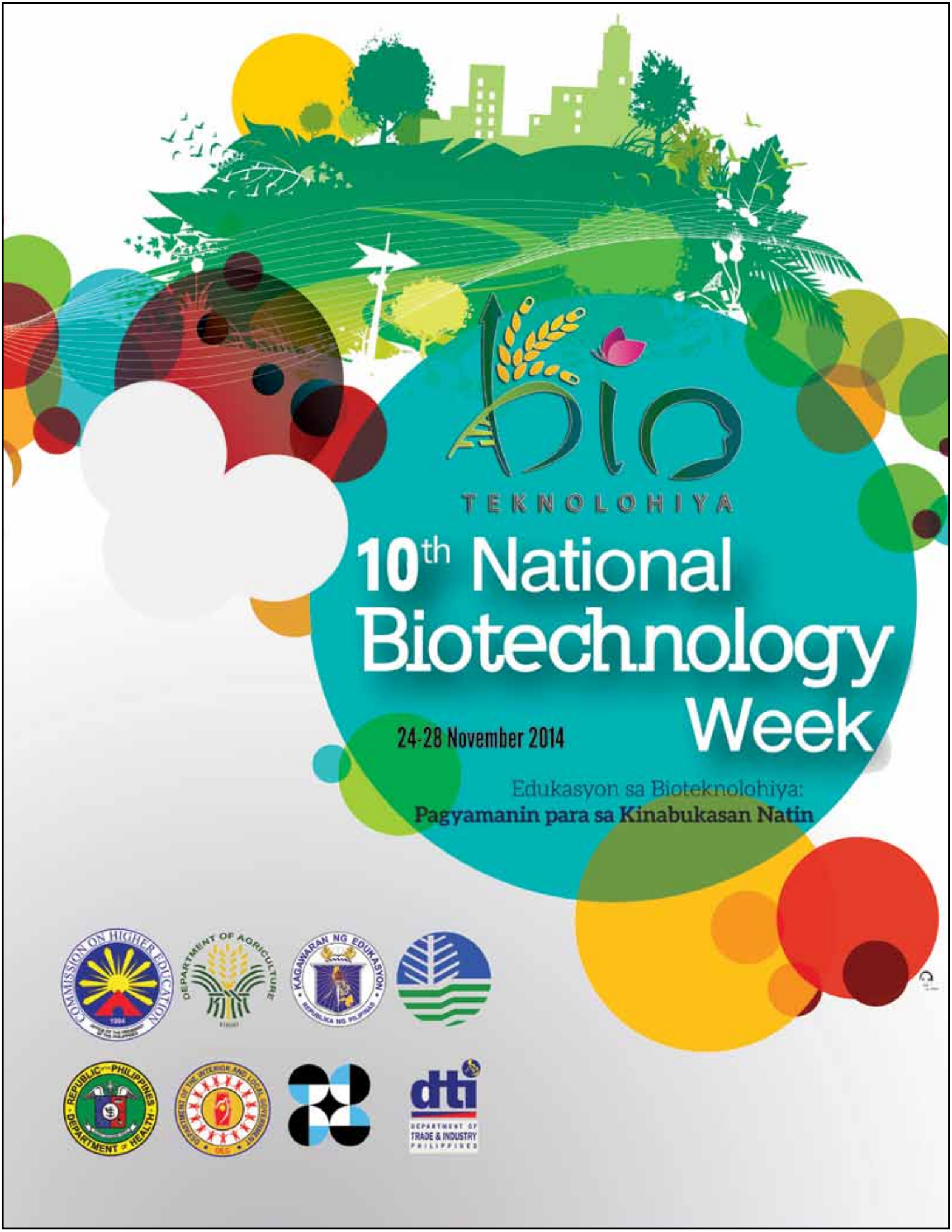
Notwithstanding, disaster movies like Into the Storm is a reminder of how powerful and detrimental the revenge of Mother Nature can be due to climate change. Such movies shall move us into awareness of and action against climate change before the CGI turns into real colossal catastrophes that will ravage our existence.

S&T Post welcomes contributions for our Movie Review section. Please email your contributions to apcarandang@yahoo.com. Reviews should tackle the movie's science and technology component, subject to the approval of the Executive Editor. For inquiries, call 837-2191 local 107 and look for Gigi de Leon.

The Department of Science and Technology (DOST) partners with Association of Patent Agents Qualifying Examinations Professionals Inc. (APP) to fast track the filing of patent and utility model of DOST technologies. The Memorandum of Agreement Signing was led by Director Engr. Edgar I. Garcia (middle left) of Technology Application and Promotion Institute (TAPI) and Asec. Raymund E. Liboro (2nd from right) for DOST and APP President Atty. Bayani B. Loste (middle right). Also in the photo are (from left to right) Atty. Marion Ivy Decena of TAPI, APP Treasurer Atty. Editha R. Hechanova, and Caezar Angelito E. Arceo of TAPI. **(Photo by Ceajay N. Valerio, STII Media Service)**

THE BOUNTY OF THE FOREST Home fixtures such as these table and chairs (bottom photo) artistically made from the ends of bamboo poles (top photo) were on display at the "Syensaya 2014 Los Baños Science Community: Supporting the Nation in Meeting Global Challenges" held last September 10, 2014 at the University of the Philippines Los Baños (UPLB). The bamboo products were among a wide range of products on exhibit created by the Department of Science and Technology's Forest Products Research and Development institute and Philippine Council for Agriculture Aquatic and Natural Resources Research and Development. **(Text by Espie Angelica A. de Leon/Photos by Henry A. de Leon. S&T Media Service, DOST-STII)**

DOST ASSISTS COTABATO CHOCOLATE MAKER. Kablon Farm Foods Corporation's chocolate products such as the All-Natural Spicy Dark Chocolate and Dark Chocolate bars have improved in taste and texture since the company sought assistance from the Department of Science and Technology's (DOST) SETUP or Small Enterprise Technology Upgrading Program. Through SETUP, Kablon Farms based in Tupi, South Cotabato and owned by the Pantua family, was able to purchase better quality roaster and refiner as well as a melangeur which grinds the chocolate to make it smoother and more delicious. SETUP assists micro, small, and medium enterprises in the adoption of technology innovations to improve their operations and expand their business reach. Kablon Farms plans to apply for additional funding from SETUP to mechanize the tempering process which makes the chocolate shiny, snap when bitten rather than crumble, and avoids white patches on the surface of the chocolate. Kablon Farms also makes all-natural fruit jams, jellies, and virgin coconut oil, among others. **(Text by Espie Angelica A. de Leon/Photos by Gerardo Palad, S&T Media Service, DOST-STII)**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