

# S&T POST

THIRD QUARTER 2012

*Local  
technology  
works!*





## Celebrating science, technology, and innovation

Last July, the Department of Science and Technology (DOST) organized the biggest event of, by, and for the Philippine science community – the 2012 National Science and Technology Week or NSTW. This year's celebration, aptly themed "Science, Technology and Innovation: Working Together for Growth and Development" has been the biggest and most colorful in years. And the celebrations continue in the regions.

The celebration on July 10 to 14 at SMX Convention Center, Mall of Asia has been continuing in the regions through the four cluster fairs until November, all carrying the same theme. The first cluster fair was in Batac, Ilocos Norte from July 30 to August 3 for the Northern Luzon cluster composed of Regions I, II and Cordillera Autonomous Region. The second was held in Tacloban City, Leyte where all the regions in the Visayas such as Regions 6, 7 and 8 were in full attendance from September 24 to 28. The final two cluster fairs will be in General Santos City for the Mindanao Cluster composed of Regions IX, X, XI, XII, Caraga, and ARMM from October 10 to 14. The final leg will be in Pampanga for the Southern Luzon Cluster composed of Regions III, IV-A, IV-B, and V on November 22 to 24. All these fairs aim to reach much wider and more varied segments of the Filipino population by letting them appreciate and understand the latest breakthroughs in S&T.

One of the more important achievements in this year's S&T celebration is the convergence of various sectors which is an innovation in itself. Partnerships between and among the government, private, academic, and civil society were highlighted in July and have been continuing in the regions. This is hoped to bring inspiration and give hope to the local science community.

Appropriately, the third quarter issue of **The Post** features the latest S&T breakthroughs from all over the country. This issue's cover, featuring young inventor Timor Miguel El Estwani, reflects technology at its core—new, raw, non-discriminating, and offers endless possibilities. Thus the stories in this issue revolve around the latest developments on locally-developed technologies that show much promise in impacting the life of Filipinos. The multi-sectoral initiative on coral reef reforestation, of significance to the economy and environment, comes as a full feature article. Filipino inventions that received recognitions, innovations in bamboo technology, disaster preparedness-related stories, people who matter in S&T, and a peek on other advances in research undertakings are just among the many interesting reads in this issue. Regional news are also given equal exposure as The Post believes in the solid contributions of the regions as proven by their tangible outputs.

The stories **The Post** always shares are those that help achieve the much sought after national development. These S&T interventions are concrete results of the efforts of the science community that are anchored on the present administration's social contract with the Filipino people and in the pursuit of the Department's five key result areas: Solutions to Pressing National Problems; Developing Appropriate Technologies that Create Growth in the Countryside; Improving Industry Competitiveness; Use S&T to Enhance Government and Social Services; and Building Capacity in Emerging Technologies.

  
Aristotle P. Carandang

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## OUR COVER

Technology is a word that is somewhat general and generally cold, as it often pertains to machines, systems, and computer software. Thus, the S&T Post would like to project in its cover the human side of technology through Timor Miguel El-Estwani who, at 14, is the youngest finalist inventor at the 2012 National Invention Contest. Despite his youth, Miguel bagged second place in the Outstanding invention Award for his invention called motorcycle stand alarm system that he could not even legally use, as he is not yet allowed to have a driver's license. But that is technology-sometimes raw and new, often a product of creative and innovative mind, never location-confined, and always a step ahead. Most of all, The Post would like to reinforce that, indeed, local technology works! (Photo by: Henry A. de Leon, S&T Media Service, STII)

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# Restoring the rainforests of the sea

By ARJAY C. ESCONDO  
S&T Media Service, *STII*

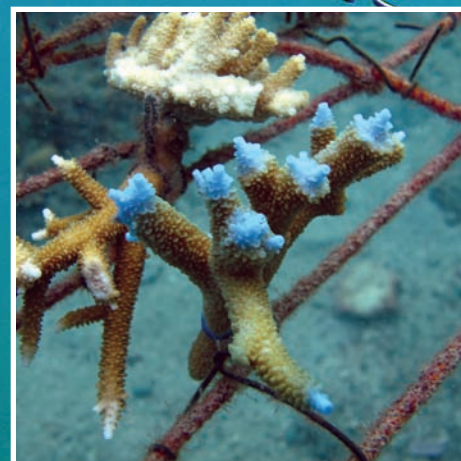
*The Filipinno* on Coral Reef Restoration program aims to re-establish a healthy marine ecosystem with the use of local innovation.



Photos courtesy of Marine Science Division-PCAARRD

Coral reefs, often called “rainforests of the sea”, make up the most complex marine ecosystem on earth, essential to literally millions of plant and animal species. The reefs are home to about 500 to 800 coral species, covering around 26,000 square kilometres. However, only four percent remain in pristine condition. Reports have it that coral reefs in the country are in a steady decline, with about 10 percent decline in healthy reefs in the last decade.

One of the largest threats to corals reefs is the acidification of seawater due to high carbon dioxide concentration. Ocean acidification slows down the production of calcium carbonate, a compound needed to build the “skeletal system” of corals and other calcifying marine organism. Ocean acidification threatens the health of reef ecosystems as a whole.





Diseases, storms, and change in seawater temperatures also play a major role in the destruction of our coral reefs. On the other hand, human activities such as destructive fishing, overfishing, and improper waste disposal among others, also contribute to its degradation. Degradation from human activities will continue to escalate as long as there are more and more people living near or are dependent on the sea.

### **Filipinnoation to restore the corals**

Fortunately, marine experts from the government, academe, and research institutes have banded together to rehabilitate the coral reefs in the country. Spearheaded and funded by the Department of Science and Technology (DOST), in partnership with the University of San Carlos (USC) plus dive shop and resort owners, the "Filipinnoation on Coral Reef Restoration" program aims to re-establish a healthy marine ecosystem with the use of local innovation.

**Monitoring of CNU's at Laiya, San Juan, Batangas**





Sangguniang Bayan ng Mabini, Batangas.

Cong. Narciso Bravo Jr.,  
Masbate

Mayor Marvi Bravo, Ticao Island, Masbate

The program, led by Dr. Filipina Sotto, marine biologist and department head at USC, conducted pilot testing of coral restoration through transplantation of coral nubbins or polyps from the laboratory to protected sites.

According to Dr. Sotto, at least eight hectares of damaged reefs are all over the country will be restored through the program. "These reefs will provide an increase in necessary habitat for many marine lives to thrive such as oysters, shrimp, clams, snails, crabs, as well as many species of fish," she added.

The implementing agencies together with their partners have already constructed and deployed the Coral Nursery Units (CNU) in Bohol and Aklan while 36 out of 40 target CNU have been deployed in Batangas, 20 in Aurora, 10 in Southern Leyte, and 23 in Masbate. However, deployment of CNU in Bataan, Boracay and Zambales are put on hold due to strong waves in the area. Each CNU, aided by a specially designed underwater

frame, contains 500 coral fragments to be transplanted after a certain period.

Aside from coral transplantation, the program aims to establish a gene bank in the country and a hatchery that will produce sexually propagated juveniles for coral restocking and as transplanting materials.

The establishment of the Marine Research Laboratory in Maribago, Mactan Island, Cebu will help corals be propagated sexually that will give higher genetic diversity and higher number of coral juveniles. Also, sexual propagation causes less damage to the donor colonies than asexual propagation methods.

Also, the program will hold trainings for reef restoration and preservation in various universities. It will also generate a popularized version of protocols for coral enhancement and restoration.

### Full support from the government

The FilipinnoVation on Coral Restoration is a concerted effort of the DOST, Office

of the Executive Secretary, Congressional Representatives, and the LGUs.

Meanwhile, the Senate Committee on Climate Change, chaired by Sen. Loren Legarda, has expressed full support in the project. Legarda lauded the DOST for its initiative in restoring the country's damaged marine ecosystems. The efforts, she said, result in enhanced livelihood opportunities and a sustained tourism promotion.

"Through this effort, we harness science not only to restore our damaged reefs but also to provide jobs, and livelihood opportunities, and promote sustainable tourism," she said.

Legarda emphasized that the participation of the local communities, with the help from the academe and the government, is vital in the rehabilitation of our marine resources.

"As more people realize the benefits of restoring and conserving our coral reefs, we will have more allies in protecting them from the many threats that cause them irreparable damage. We must do our part to save our coral reefs," she added.

### Corals are important

Healthy reefs act as buffer zones to protect the communities since coral reefs break the waves, decreasing the chance of eroding the coastline.

Also, economic benefits can come from a healthy marine ecosystem. Aside from being home to an abundant fish population, a healthy marine ecosystem can create jobs and other economic opportunities, such as diving and snorkelling sites to increase tourist attraction.

Aside from the local communities, tourism, and especially the diving community, the academic and government sectors are seen to benefit from program through technology generation and integration.

It is said that a damaged coral reef cannot be restored to its original condition. Recovery of coral reefs may possibly take decades to centuries, thus reef preservation should be the priority management strategy.

For a healthy and sustainable marine ecosystem, prevention is indeed better than its cure.



Photo by Yannie Valmero



## Lady farmer scientist flames up dragon fruit industry in the North

By DEMOCRITO Z. MAGPANTAY  
S&T Media Service, PCAARRD

**M**agsasaka Siyentista (MS) Edita A. Dacuycuy, hailed as the “dragon fruit lady of the north”, continues to breathe fire in setting off the dragon fruit industry in Ilocos Norte. In a recent technology field day held in her farm in Barangay Paayas, Burgos, Ilocos Norte, MS Dacuycuy shared her formula for success and inspired all dragon wanna-bes to make money via organic production of the famed reddish-pink colored fruit.

With the technical and financial assistance of the Department of Science and Technology’s Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) and other government agencies, her dragon fruit farm blossomed into a multimillion-peso enterprise.

During the field day, a culminating activity of PCAARRD’s Science and Technology-based Farm Project, Dacuycuy shared the various science and technology interventions she applied in the organic production of dragon fruit. Said interventions include the use of stem cuttings as starting planting materials, plastic mulch, concrete support instead of wooden posts, and of course, the

application of organic fertilizer, which she prepares in her farm.

Beyond producing and selling dragon fruits, this lady also processes dragon fruit into jams, cookies, ice cream, and other delicacies. Prof. Maura Lusia Gabriel, a technical expert from the Mariano Marcos State University, explained to participants the science behind Dacuycuy’s farm practice which maximized her production.

### The advocate and her converts

Dacuycuy started dragon fruit production when she learned that the fruit could help ease her daughter’s chronic constipation problem. After proving that the fruit not only helps solve constipation but also brings in income, she began making the rounds of Ilocos Norte to promote the organic production of dragon fruit. She envisions Ilocos Norte as the dragon fruit capital of the country.

The production of dragon fruit or “saniata” in Iloko is now a flourishing industry in the province, providing livelihood and income for commercial growers and many Ilocanos from all walks of life.

While promoting the dragon fruit, Dacuycuy never fails to thank her partners,

namely the DOST, PCAARRD, Ilocos Agricultural Resources Research and Development Consortium, Department of Agriculture- Agricultural Training Institute, and MMSU. Dacuycuy’s field day included cross-farm visit and testimonies of other successful dragon fruit growers from the towns of San Nicolas, Sarrat, and Bacarra.

Crispina Santos, principal of the Catuguing Elementary School in San Nicolas, shared that she had a sales of P50,000 and P80,000 from her first and second year of dragon fruit harvest, respectively.

In Ilocos Norte, there is a clamor for growing dragon fruit in households and communities. In Brgy. Catuguing of San Nicolas town, for example, dragon fruit plants line the roadsides. According to San Nicolas Municipal Agricultural Officer and Farmers Information and Technology Service Manager Norma Calamayan, this is the community’s way of promoting dragon fruit production.

Mr. Emerson Tabios, president of the Palayamanan 4-H Club also of said barangay added that the club’s dragon fruit venture enabled members to fund their organization and provide livelihood to their members.

Lastly, Engr. Rogelio Castillo, owner of the REER Dragon Fruit Farm in Sarrat town, described his dragon fruit production as a good source of income and a tourist attraction in his resort. Currently, he has 3,200 plants.

Dacuycuy’s field day was attended by 137 participants composed of agricultural technicians from various municipalities of Ilocos Norte, technology and livelihood coordinators of elementary and secondary schools, rural women, out-of-school youth, staff members of FITS centers, other ILARRDEC MS, various government offices personnel, and members of the Kailokuan Saniata Dragon Fruit Growers Association.

# Best Pinoy inventions for 2012

By FRAMELIA V. ANONAS and MHEDA G. GARCIA  
S&T Media Service, ST//

*This year's best include a fun board game, a low-cost bamboo splitter, a transforming ladder, enzyme for cheese, a guide for the blind, a remote power line disconnection system, among others.*

Filipinos are a creative lot as confirmed in this year's winning inventions of the 2012 National Invention Contest and Exhibit or NICE. Getting the judges' nods, as well as partners with special awards, are remarkable creations that cater to varying interests. Some are designed to make life safer, to ease up and hasten tasks, and even to stimulate the mind with fun. Whatever their purpose, the inspiration and brilliance of the inventors and researchers behind these creations highly encourage other creative minds to explore the possibilities of locally-available materials.

This year's best include a fun board game, a low-cost bamboo splitter, a transforming ladder, enzyme for cheese, a guide for the blind, a remote power line disconnection system, among others. They were designed for a variety of purposes but are all one in their aim of making life better for Filipinos.

## Tuklas Award

### Challenge 21 (First Place, Outstanding Invention)

A unique board game that is truly Filipino, Challenge 21 promotes mental alertness, abstract thinking, observation skills, and strategizing or thinking out-of-the-box. Inventor Leonardo Mejia Yu of Malate, Manila candidly shared that he designed this board game to create bonding time among family and friends. The game is a combination of other board games like Tic-Tac-Toe, Scrabble, and Bingo, and played by forming a combination of 21 shapes or patterns and blocking opponents from forming these patterns.

Challenge 21 also received a special award from the World Intellectual Property Office.

### Motorcycle stand alarming system (Second Place, Outstanding Invention)

Young inventor Timor Miguel El-estwani of Agusan del Norte at 14 is still too young to be issued a driver's license but he was



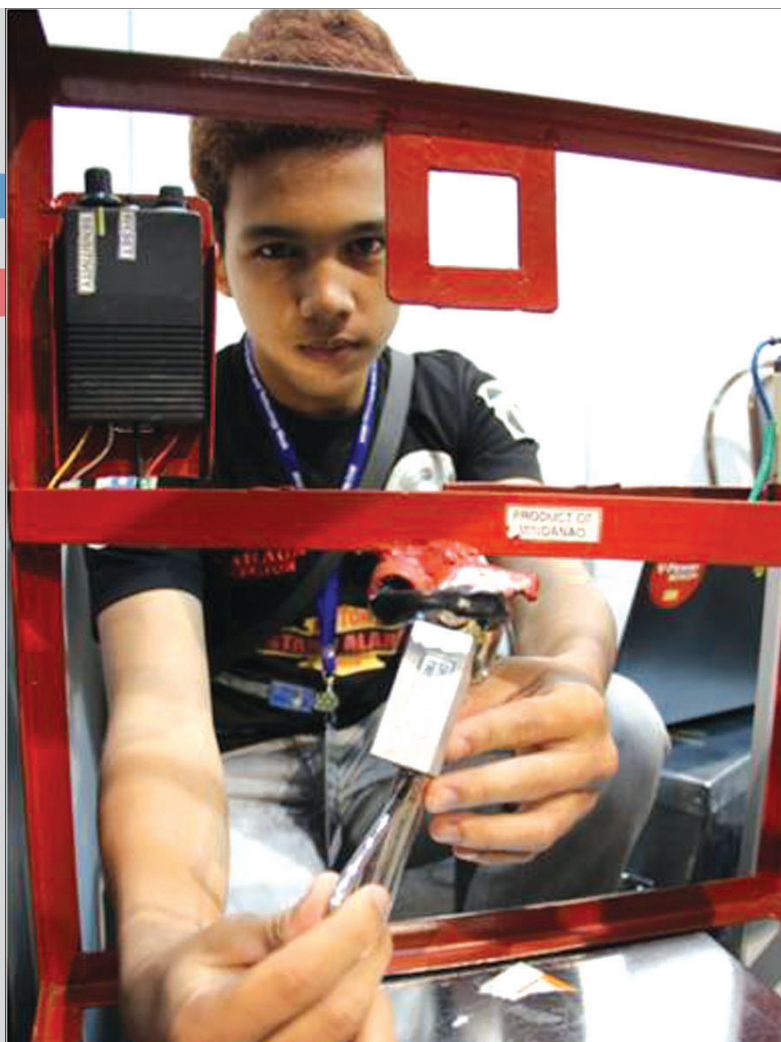
Challenge 21 (First Place, Outstanding Invention) with inventor Leonardo Mejia Yu.

able to develop this important device for bike drivers. Called the motorcycle stand alarming system, it creates a sound to alert the driver starting the bike that the stand is still vertical. The alarm also goes



off when the stand accidentally slides down to vertical position during the ride. Vertical bike stands have caused a number of accidents, thus this alarm will help prevent further mishaps of this kind.





Motorcycle stand alarming system (Second Place, Outstanding Invention) with inventor 14-year-old Timor Miguel El-estwani.

### **Bamboo Splitting Machine (First Place, Outstanding Utility Model)**

Created by Stanley C. Malab and Jose A. Zafaralla of Mariano Marcos State University, Ilocos Norte, this machine will help improve the prospects of locally manufactured bamboo products in both local and export markets. It can split round bamboo poles much faster than a bolo, and produce straight and same-width splits better than other mechanized bamboo pole splitters. The result: precisely-cut bamboo splits ideal for furniture-making, house construction, and high-end handicrafts.

The bamboo splitting machine also received a special award from the World Intellectual Property Office.

### **Compressed air thermal fuel oil dryer (Second Place, Outstanding Utility Model)**

Used cooking oil is a health and the environment hazard but Davao City-based inventor Emiliano F. Quitol was able to invent this gadget that can reuse cooking oil for a highly productive purpose. The compressed air thermal fuel oil dryer recycles used cooking oil into quality biofuel that can run internal combustion engines and other machines used in various industries.

### **A novel slimming agent (Third Place, Outstanding Utility Model)**

Researchers Rosalinda C. Monroyo, Evelyn B. Manongsong, Merle A. Villanueva, Elvira L. Arrogante, Eduardo A. Lanto, Fe M. Sison, Perla M. Cuasay and Ursela B. Bigol of the DOST-Industrial Technology Development Institute

formulated a fat-burning cream composed of some active ingredients including caffeine and grapefruit oil. As clinical trial has shown that the cream significantly reduced weight, waist and hip, this product shows high potential in the health and wellness market.

*continued next page*

Products of the Bamboo Splitting Machine (First Place, Outstanding Utility Model).







Utility ladder (First Place, Outstanding Industrial Design) with inventor Romulfo Sanchez.

plastic handrail to form the circular fish cage. With these stanchions, circular fish cages can allow intensive high production growout of high value fish species. Target users of this product are local government units along coastal areas, the Bureau of Fisheries and Aquatic Resources, and private companies that engage in mariculture business.

## Likha Award

### BIOTECH rennet for cheese making (First Place, Outstanding Creative Research)

Dr. Susana M. Mercado of the National Institute of Applied Microbiology and Biotechnology at UP Los Baños developed the BIOTECH rennet, an enzyme



BIOTECH rennet for cheese making (First Place, Outstanding Creative Research) with Dr. Susana M. Mercado.



Biodegradable starch-clay nanocomposites for green packaging.

### Utility ladder (First Place, Outstanding Industrial Design)

Now a ladder, then a chair, then again into an iron stand. It can also turn into a display, shoe, or book rack. This multi-purpose creation of Romulfo C. Sanchez of Bayombong, Nueva Vizcaya is not only space-saving but also cost-saving. It is very ideal for small condominium units and for people who want to save space or money, or both.

### Plastic double cavity stanchion (Second Place, Outstanding Industrial Design)

This creation by inventor Ralph A. Cabrera of Cubao, Quezon City is a major component in the design and fabrication of circular fish cages for mariculture. The double cavity allows two 225 mm circular high-density polyethylene pipes to be connected firmly together and a 90 mm

preparation, to substitute animal rennet as milk coagulant in cheese making. The BIOTECH rennet can give 37 to 54 percent higher benefit per 100 liter of milk processed into cheese compared with animal rennet. When commercialized, this technology will benefit dairy-based businesses and decrease the country's importation of rennet.



### Biodegradable starch-clay nanocomposites for green packaging (Second Place, Outstanding Creative Research)

DOST-ITDI-based researchers Blessie Basilla, Marissa Pagcaliwagan, Ma. Teresa V. Navarro came up with a starch-based polymer/clay nanocomposite material that can be used as packaging instead of oil-based plastics. Sturdy as a wrapping material but easy on the environment, this nanocomposite has a bright prospect in the environment-friendly biodegradable plastics industry.

### Biosafe and indigenous products out of recycled wastes from processed sea cucumbers (Third Place, Outstanding Creative Research)

Emil Keith N. Antonio, Luzheil Melody D. Collao, Cynthia M. Filipinas, Jeric Justin Ludyawan, and Kenneth Michael Angelo Antonio of Mindanao State University Marawi were able to create ten novel,

practical, bio-safe, and environment-friendly products out of sea cucumber which is normally thrown as a waste matter after being used in the medical field. From wasted sea cucumbers, said researchers were able to develop ten novel products including medical products, alternative computer ink, biodiesel, fertilizer, and fungicide.

### Sibol Award

### Power line disconnection system (First Place, Outstanding Creative Research – College Level)

The research of Kris Logie Mallorca, John Mark Coloma, and Rae Reyes of the University of Mindanao in Davao City led to the development of a system that enables remote stoppage (and relinking) of electrical connections. The system can

*continued next page*

Biomimetics: Ultrasound guide for the blind (First Place, Outstanding Creative Research – High School Level) with researcher Chiqui Kate S. Orduna (front).



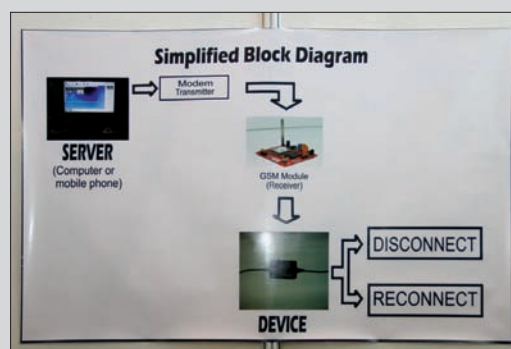
Micro-controller based breath analyzer (Third Place, Outstanding Creative Research – College Level) with researcher Sonia Saley.



Plastic double cavity stanchion (Second Place, Outstanding Industrial Design).



Manually-operated extruder machine prototype.



Power line disconnection system.

be used in computers or mobile phones, allowing electric companies to remotely disconnect and reconnect consumers' electric lines. This technology also enables consumers to control their electric consumption and to disconnect their electric power while they are away from homes in event of fire.

### Smart e-loading machine (Second Place, Outstanding Creative Research - College Level)

Developed by Remnan Piczon and Jason Arroyo of the Samar State University as a Do-It-Yourself service machine, this e-loader enables the customer to simply drop the coin and key-in the mobile number that needs to be loaded. Less mistake, less hassle. This machine makes for quick and accurate loading service.

The smart e-loading machine also received a special award from the Philippine Development Alternatives Foundation.

### Micro-controller based breath analyzer (Third Place, Outstanding Creative Research - College Level)

Sonia Saley and her team from the St. Louis University in Baguio City researched on the development of micro-controller based breath analyzer that will disable the ignition of the vehicle when the driver's breath has at least 0.08 blood alcohol content or near the illegal level

of intoxication. This device prevents drunk persons from driving vehicles, thus averting accidents on the road.

The micro-controller based breath analyzer also received a special award from PDAF.

### Biomimetics: Ultrasound guide for the blind (First Place, Outstanding Creative Research - High School Level)

The research of Chiqui Kate S. Orduna, a student of the University of Baguio Science High School in Baguio City, led to the development of biomimetics, an ultrasound guide for the blind can detect blockages about three feet away. The biomimetics warns the user of nearby obstacles by producing a sound through an earphone.

### Manually-operated extruder machine ptotype (Second Place, Outstanding Creative Research - High School Level)

Yalsan Franz Dangan of the Negros Occidental National Science High School gathered scrap materials and fashioned them into a machine that can create briquettes from dried leaves. Briquettes are blocks of flammable matters, usually charcoal or biomass, used as fuel to start and maintain fire. Through briquetting, the machine was able to turn bio wastes into household fuel.

### Polyhydroxyalkanoates (PHA) using fish scales as nitrogen sources (Third Place, Outstanding Creative Research - High School Level)

The research of Mary CherubinAdelaida M. Cruz of the Philippine Science High School - Ilocos Region Campus in San Ildefonso, Ilocos Sur led to the development of polyhydroxyalkanoates (PHA) using fish scales as nitrogen sources. PHAs are biodegradable plastics naturally produced through bacterial fermentation of sugar or lipids.

### New technologies from abaca waste (PDAF Special Award)

Also awarded by the PDAF is the research by Evelyn R. Espinas and Alfred John M. Malinis of the Polangui General Comprehensive High School in Polangui, Albay that explored the possibility of producing abaca juice from abaca waste and turning it into foliar fertilizer and alcohol extraction. Further, the research included the use of compacted waste as green fuel and handicraft material. (Photos by Henry A. de Leon, STII Media Service, STII)

Smart e-loading machine (Second Place, Outstanding Creative Research - College Level)





**Unboxing Challenge 21.** The entire board game consists of four sets of colored chips and a main board to form special nature-inspired patterns using the chips. All players take turns in placing their individual chips on the board and will score based on the complexity of patterns formed. The goal is to reach 21 points first, in which a deal is called out, but must also satisfy required basic figures in the mechanics. Challenge 21 has the elements of board game classics namely Scrabble, Connect Four and Tic-Tac-Toe. It won this year's Most Outstanding Invention in the National Inventions Contest and Exhibits, held at the SMX Convention Center, Pasay City. (Photo by George Robert E. Valencia III, S&T Media Service)



# Are you ready ? for Challenge 21

By GEORGE ROBERT E. VALENCIA III  
S&T Media Service, STII

A nature-inspired board game has won the gold in this year's National Inventions Contests and Exhibits (NICE) of the Department of Science and Technology (DOST). The simple-yet-fabulous board game is now making waves locally and is gradually becoming an object of enjoyment to several Filipino households, offices, and schools.

Combining the elements of all-time board game favorites Scrabble, Tic-Tac-Toe, and Connect Four with farm-and-nature-inspired board pieces and patterns, Challenge 21 is a strategy board game that could very well give Sudoku inventor a run for his money.

People of various ages across the country, including but not limited to consultants, businessmen, executives, nurses, government employees, and college students—even members of the Philippine armed forces—gave Challenge 21 a go and found themselves delighted and hooked by its appeal and ingenuity.

Aside from emerging as the Most Outstanding Invention in NICE, Challenge 21 also received a gold medal from the World Intellectual Property Organization (WIPO), and took the top prize in the DOST National Capital Region invention contest.

All the board game requires from players are a little concentration, a few arithmetic (to add and subtract scores), and lots of canny to ace the game. Hence, if one can count and doesn't mind pulling a few brain muscles to win (and have fun), then Challenge 21 is a fine steal and a must-try board game.

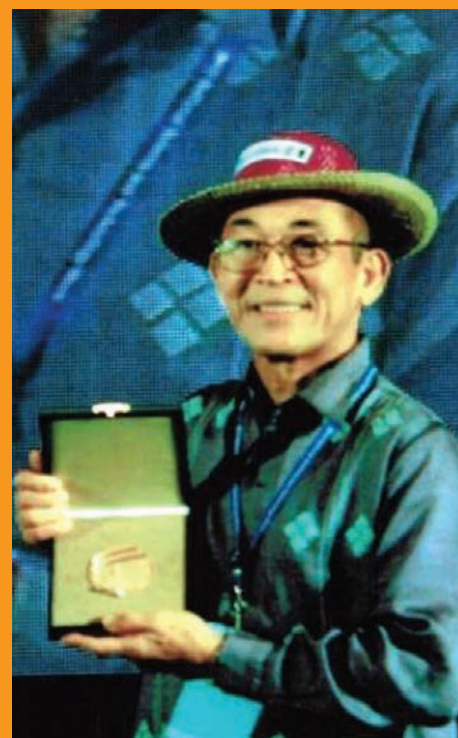
## Six years in the making

Sixty-seven-year old Leonardo Mejia Yu, a retired economics professor and former Philippine Ports Authority officer, is the man behind Challenge 21. He is known to people around him as a warm, beaming, and very affable senior fond of wearing hats.

The thought of creating board games came shortly before he retired, when he felt the need to create a lasting legacy for his wife and family. Vivid memories about his simple life by the foot of Mt. Matutum and places overlooking Saranggani Bay in then less-urbanized General Santos City are what inspired him to design his first board game incorporating nature and rural elements.

"In those places I recall birds, kites, butterflies, clay pots, antique boxes, zigzag roads, flags, and even shark fins jutting out at sea—hence, the conceiving of Challenge 21."

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Challenge 21 inventor Leonardo Mejia Yu receives the Tuklas Award, the most coveted title in the yearly National Inventions Contests and Exhibits. Although not exactly rocket science, the invention showcases an individual's creativity, excellence, and ingenuity to invent something novel and practical. Not only is the board game fun to play, it also sharpens the mind as it requires focus and strategy while further exercising observation skills. Mejia Yu has also acquired patents for his two other unreleased board games, for which he hopes his company GlobalPulse Challenges Inc. will get the same, if not better, successes as with Challenge 21. (Photo by Gerardo Palad, S&T Media Service, STII)





Mr. Leonardo Mejia Yu (center), acclaimed 67-year old inventor of Challenge 21, gladly tutors first-time players about the game's mechanics. The former economics professor drew inspiration for his board game from the things he missed about his early childhood days in the province General Santos City. Consequently, Challenge 21 is peppered with farm-and-nature symbols such as clay pots, kites, rice field, birds, etc. The board game had undergone at least 10 revisions and scores of test-plays in a period of six years before the final version was okayed. (Photo by Arjay Escondo, S&T Media Service, STII)

His initial drafts of game concept and mechanics, however, would undergo at least 10 revisions over a period of six years before the final version was approved.

"It had to be test-played by my children, their friends, my wife, and my close relatives and friends many, many times to further improve it. They gave me most valuable feedbacks and suggestions."

### Up to the challenge?

The heart of Challenge 21 lies in its use of special patterns resembling shapes of the abovementioned animals and objects, namely: kites, papillons (French term for butterfly), pots, boxes, shark teeth, flags, zigzags, and birds. Each pattern formed has its corresponding points, depending on its hierarchy or complexity, through the use of colored triangle chips.

Players would take turns in placing individual chips on the board provisioned

(which looks quite like a rice field, by the way) until patterns are formed — each player computing his or her (and opponent's) total scores with the patterns formed as the game progresses.

Their goal is to reach 21 points first, wherein a deal must be called out and would signal the end of the game. The twist: players ultimately have the option to block or prevent their opponents from forming patterns, and thus, reaching 21 points.

### 100% healthy fun

Challenge 21 enriches the mind as it elicits focus, observation, and strategy from players.

It is also ideal for bonding time among families, friends, and colleagues. In fact, several testimonials from parents report that the board game diverted their kids' fixation on computer and on-line games!

In addition, the game passed safety standards set by the Department of Health (DOH) as it uses set pieces that are non-toxic, non-synthetic, and recyclable.

Finally, this award-winning board game is moderately priced at a little less than 400 pesos, with most of its peers selling for at least 500.

Meanwhile, inventor Mejia Yu also earned patents from the Intellectual Property Office of the Philippines (IPOPHL) for two other board games he developed about the same time as Challenge 21. The man is clearly pumped-up.

"The mind is the springboard of one's dreams...of what one can do and achieve. Exercise it, enhance it, and develop it," he affirmed.

One can only wonder what he has got in store next.





# Much ado about bamboo

*Bamboos grow rapidly and reach maturity in three to five years, a viable alternative to hardwood and traditional timber. This makes bamboo an important commodity to the furniture industry.*

By **ARIJAY C. ESCONDO**  
S&T Media Service, *STII*

**F**ilipinos are all too familiar with bamboo. Aside from being abundant in almost every place, it is also used in a myriad way from culinary to textile materials. With its strong yet flexible feature, bamboo is most famous for furniture and handicraft material.

Considered as the world's tallest grass and scientifically known as *Bambusa spp.*, bamboo is a type of perennial grass thriving in the countryside. According to a recent inventory, about 52,000 hectares of land are planted with bamboo or an equivalent of 52 million poles maximum yield. Majority or 40 percent of the country's bamboo production is used by the furniture and handicraft sector, 25 percent as housing and construction materials, 10 percent in the food industry and the rest for other uses.

## **Bamboo as high-value commodity**

The government, realizing the huge potential of bamboo as a money-making industry, continues to work out initiatives on making bamboo

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Photos show the steps in bamboo veneering process



a sustainable high value commodity. In fact, researchers from the Forest Products Research and Development Institute (FPRDI)-Department of Science and Technology (DOST), using local technologies and innovations, have designed and fabricated two equipment for the bamboo furniture industry.

The bamboo veneer lathe, designed by a group of researchers headed by Engr. Belen B. Bisana, can now produce bamboo veneers of varying thickness from 0.5 to 2 millimeters. This equipment is an improved version of the previous FPRDI-designed bamboo veneering machine that can only produce 50-centimeter veneer.

According to Engr. Bisana, "The final prototype cuts the cooking time of bamboo culms in half compared with the previous machine." In the new design, culms are "cooked" by steaming through the steam injected vessel.

The equipment was developed using locally available materials except for gear motors and frequent inverter. "The machine is cheaper, simpler, space-saver, and sturdier in structure than the old veneering lathe," she added.

Meanwhile, another team of FPRDI researchers designed a bamboo flattening equipment using steel rollers. With an output capacity of 100 square meters of flattened bamboo in an eight-hour period, the bamboo flattening machine was a project devised to modify the traditional method of flattening bamboo in making wood furniture.

According to Engr. Dante Pulmano, project leader of the flattening machine, "flattening of bamboo columns into planks will be a lot easier and less time consuming," he added.

With these technologies, bamboo can be converted into high-value products which can be developed into exportable products such as tabletops, floor tiles, and other laminates.

### Cheaper, eco friendly products

Bamboos grow rapidly and reach maturity in three to five years, a viable alternative to hardwood and traditional timber. This

makes bamboo an important commodity to the furniture industry.

"Engineered bamboo products," according to FPRDI's Dr. Rico J. Cabangon, "are produced by binding together veneers, strands, particles, fibers, strips or slats of bamboo with a suitable adhesive to form a composite material designed to meet specific uses."

"The products are also called 'man-made bamboo' or 'manufactured bamboo' since these are engineered to precise design specifications to meet client requirements, as well as relevant national and international standards," he added.

FPRDI recently produced a prototype school desk using engineered bamboo. Production cost of these engineered bamboo school chair is pegged only at Php 808.00. Other products include folding tables, and finger-jointed and laminated planks among others.

According to Cabangon, more often than not, engineered bamboo products are used in applications similar to engineered or solid wood products due to certain advantages.

More than its contribution to the economy, bamboo plays an important role in addressing climate change. According to studies, a hectare of bamboo can sequester up to 12 tons of carbon dioxide every year. The Environmental Bamboo Foundation reported that bamboo produces 35 percent more oxygen compared to other trees "so it can play an important role in combating the greenhouse effect."

In the Philippines, with perennial landslides caused deforestation and prolonged rain in the countryside, bamboo can also help in decreasing soil erosion due to its rapid growth and extensive root system.

These technologies were presented at a research colloquium conducted by the Philippine Council for Industry, Energy and Emerging Technologies of the Department of Science and Technology as part of the Visayas Cluster Science and Technology Fair and Exhibits held in Tacloban City. (With reports from Allan Ace Aclan, S&T Media Service, STII)



# Rainbow of colors for PALAWAN IPs

By JOY CAMILLE A. BALDO  
S&T Media Service, PTRI

*"We are heartened to reach out to the indigenous peoples of Palawan. Through technology training programs we seek to provide them the livelihood support they need to empower themselves and gain control over their life,"*

*- Carlos C. Tomboc  
PTRI Director*



**The joy of learning.** Members of DWWA show their eagerness to learn the basic dyeing of indigenous fibers as they cheerfully flock together mixing pandan leaves on their improvised dyeing vessels.



**A rainbow of colors.** The PTRI training added a rainbow of colors to the once drab and lackluster woven items.

Palawan, blessed with towering ancient limestone cliffs and crystal clear seas with abundant lush coral reefs, is home to many exotic flora and fauna. Considered a paradise like no other, Palawan is also abode to indigenous and ethno linguistic groups from one of the oldest tribes in the country, the Tagbanuas, as well as ethnic groups that populate the islands and islets of the province such as the Cuyunon, Cagayanen, Palaw'an, Batak, Molbog, Agutaynon, and Tao't Bato, among others.

As tourism in Palawan is burgeoning, local government units of the province are working to assure that the indigenous peoples (IPs) of Palawan will not be left out in the province's development.

In partnership with the social arm of Malampaya Joint Venture Partners (MJVP) of Shell Philippines Exploration, the Malampaya

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Foundation Inc. (MFI), Palawan LGUs organized technology-based livelihood training programs among IPs such as the Decabobo Women's Weavers Association (DWWA), an organized group of IP women who share a common skill in hand weaving.

Many IP women have long been weaving plain mats made from numerous indigenous materials abundant in their area including pandan, bamboo, bangkuang, rattan, buri, amumuting, vetiver, anahaw, and others. To gain advantage in capturing market opportunities, DWWA members realized the need to upgrade their knowledge and skills in creating handicraft products.

DWWA President Indira dela Torre facilitated a three-day seminar-workshop on synthetic dyeing of indigenous fibers from DOST's Philippine Textile Research Institute (DOST-PTRI) for the 30 members of DWWA consisting of 13 Tagbanuas, 11 Cagayanens, four Cuyunons, and two native Tagalogs.

"We are heartened to reach out to the indigenous peoples of Palawan. Through technology training programs we seek to provide them the livelihood support they need to empower themselves and gain control over their life," says PTRI Director Carlos C. Tomboc. Anticipating Palawan as the next top tourist destination in the country, "the timing is perfect to build up and strengthen the capacities of our IPs to create and manage their own source of sustainable livelihoods," he added.

Dela Torre organized the DWWA to help augment the income of the families of the indigenous peoples of Palawan. "Nakita ko po ang kanilang talento at kakayahan sa paghahabi... With proper training, supervision, and patience, naniniwala po akong malayo ang maramating ng samahan na ito," (I have seen their innate talent in hand weaving... With proper training, supervision, and



**Imparting the science of exact measurement.** PTRI trainer, Engr. Adela Montalvo (third from left), explains the importance of accurately measuring all the chemicals and dyes to the DWWA members.

patience, I believe that this organization shall prosper).

The training, conducted by Engr. Adela Montalvo and Noel Saguisag, focused on dyeing pandan and bamboo strips locally called "buho" in rich vivid colors. Expert dyer, Ms. Adela Montalvo remarked on the eagerness of the participants to learn, "there's a future in that organization," she said, adding that through the good leadership of dela Torre and active support from the government their group will thrive.

"The training was a really big help for us. They [the members] were really amazed [with the color mixing] and it helped them to be more artistic now in creating new colors and designs," says dela Torre. She also extends her gratitude to PTRI trainers Engr. Montalvo and Mr. Saguisag for generously sharing their knowledge and skills in dyeing and pursuing the training despite the strong rains. During the hands-on training the participants were able to dye the buho and pandan in almost 30 different shades of vivid blue, purple, and green to lighter hues of pink, turquoise, and orange.





A Tagbanua woman patiently hangs the dyed pandan leaves to dry.

The training helped them discover a myriad of new colors and techniques in dyeing, just in time for the Kasadyaan Festival in Coron, Palawan held last August. DWWA members exhibited their colorful creations in the said festival.

"It is so heartwarming to see that even the foreigners are willing to pay good money for our products," dela Torre shared. Owners of souvenir shops also wish to order their product in bulk.

The group is now looking forward to a second installment of the PTRI training on advanced dyeing of indigenous fibers. Dela Torre believes that this will further enhance their crafts and help them expand their product line.

*"Buo ang aking paniniwala at determinasyon na ipagpatuloy ito at matiyagang alalayan ang mga miyembro para sa mas ikakaunlad ng kanilang pamumuhay at ng aming grupo,"* (I have full faith and determination to continue this and steadfastly assist the members and the group achieve sustainability), she said.

Providing DWWA the needed knowledge on other textile-related technologies is DOST's PTRI. The new knowledge, when merged with their inherent traditional skill in weaving, will create competitive and uniquely Filipino products.

DWWA members diligently prepare their own materials and expertly weave colorful handicrafts.





# At 111, DOST-ITDI still at the helm of R&D for industry

By VIOLETA B. CONOZA  
S&T Media Service, ITDI

**ITDI is a major player in the DOST's HITS or high impact technology solutions wherein ITDI's expertise in design and engineering is tapped to produce affordable process equipment but at par in quality and performance vis-à-vis imports, and suitable for use of local industries, particularly small-scale food processors.**

**T**he oldest DOST agency, the Industrial Technology Development Institute, reached its 111th founding anniversary in July this year and it continues to do innovative and creative researchers for the industry.

As forerunner of the current DOST, the ITDI has been instrumental in laying the ground works for science and technology in the country. The work started by the then BGL or Bureau of Government Laboratories in 1901, which is now ITDI, drew attention to the value of science research to the nation, and led in defining investments in science. These efforts gained for the science community the priority and foothold in the national agenda.

Through the years, the Institute became an indispensable agent for nation-building and a partner of government in driving the engine for growth and development for the country, and make life better for Filipinos, through science and technology. Its unique blend of scientific disciplines enabled ITDI to carry on its role as one of the active leaders in

the country's industrialization program. It has proven excellence in new technology and product innovation, and technical services through the years, emerging as a credible and reliable partner of industry.

## Responding to immediate needs

More recently, ITDI technologies and services tried to address the immediate needs of the MSMEs (micro, small, and medium enterprises) which comprise the core of its stakeholders and their surrounding communities. Working in synergy with the DOST system, ITDI was able to provide solutions to lingering problems such as dengue outbreak, limited potable water supply, waste disposal, and the need to improve the efficiency/productivity of MSMEs and make them competitive.

As the Department vigorously pursues its priority programs, ITDI continue to be an active partner in delivering the goods and services to the people. Among others, the ITDI is a major player in the DOST's HITS or high impact technology solutions wherein ITDI's expertise in design and engineering is tapped to produce affordable process equipment but at par in quality and performance vis-à-vis imports, and suitable for use of local industries, particularly small-scale food processors. The Institute also leads the ongoing establishment of ADMATEL or the Advanced Device and Materials Testing Laboratory for the Semiconductor and Electronics Manufacturing Industries, an infrastructure support aimed at upgrading research capability in the field.

## Relevant researches

Researches at ITDI are also geared along the national priority areas, which means



that projects are relevant and could be readily applied by various clients. Projects that are of this notch include the improvement of transport packaging technology for non-food products that can improve the export performance of the furniture and house décor industry, resulting in increased income to the manufacturers and creating additional employment opportunities; nanoclay from local bentonite ore for various industrial applications; microbial removal of residual chromium from tannery wastes; thermal processing of industrial wastes by pyrolysis where the recovered oil can be used as substitute to bunker fuel; natural health supplements from guyabano; anti-diabetic dietary supplement; and ready-to-eat meals that are ideal at relief operations during calamities and disasters.







### Patents applied

In 2011, the Institute added nine more items to its list of patents at the Intellectual Property Office. ITDI's new utility models include caffeine as a novel slimming composition, natural-based analgesic balm, method of producing pectin from calamansi wastes, pectin from calamansi wastes, composition of ovicide/larvicide for *Aedes mosquito* and process of production thereof that can be used to control the population of dengue-causing mosquitoes, water retort machine for processing food packed in flexible retort pouches, development of sugar alternative: pineapple sugars, waste plastic bags in asphalt mix for road pavement, and production of high-dietary-fiber from calamansi wastes.

### Standard and quality

To maintain standardized processes and quality research results and services, the ITDI is guided by the ISO 9001:2008 system. Its testing and calibration laboratories function in accordance with the prescribed accreditations, such as ISO/IEC Guide 17025:2005 for laboratories doing tests and analyses of various products/commodities, and DIN EN ISO/IEC 17025 for metrology (mass, temperature, and pressure, and electrical measurements) granted by the German accreditation body called DAkkS.

The mutual recognition of DAkkS in the European Cooperation for Accreditation, the International Accreditation Forum and the International Laboratory Accreditation Cooperation ensures acceptance of the calibration certificates in all member-countries worldwide.

ITDI also makes sure to update its various tests and procedures to meet the growing demands of various clients. Tests and procedures make products and technologies competitive, resulting in better income and services to industry. Such tests include the testing of antibacterial finishes on textile materials, load testing of construction heavy equipment, impact testing of PVC, setting time of cement, and stability/bursting test of PVC, all applicable in the construction industry.

Other tests include the metals and elements in environmental, biological and food samples. These include: 1) heavy metals test for (Cu, Ni, Pb, Cd, Cr, etc.), an important step in determining compliance with local and international government regulatory requirements to ensure safety, health and protection of life of the consumers; 2) Mercury (Hg) analysis to meet worldwide standards and legislation; 3) Organic elemental analysis in which multiple elements (carbon, hydrogen, nitrogen and sulfur) analysis is applied in food and feeds, petrochemicals, coal, fuel, oils, polymers, pharmaceuticals and other agricultural product to provide information on the composition of the organic matter that helps identify its origin in sediments, and accurately determine the material balance of any production process; 4) FT-IR Analysis (Fourier Transform Infrared Spectrophotometer) is used mainly to identify functional groups or comparisons with reference standards or pure materials, and to verify if the specifications for the materials are met.

Meanwhile, DOST-ITDI Insectary is used for testing the efficacy of insecticides/larvicides and other products

to control the emergence and growth of disease-causing insects.

### Technology transfer

Aside from doing R&D and providing services to industry, the ITDI aggressively pursues knowledge translation or the transfer of technologies to different stakeholders or clients. This is to ensure that the people get the most from government investments in research and development. Most recently, there were about 24 memoranda of agreements with various parties to facilitate technology use while 46 readily adopted ITDI



technologies in their activities/operations. All these efforts aim to create businesses and generate employment for many.

At 111, ITDI continues to broaden its participation in the country's industrialization efforts. Its men and women remain committed to this task and try to build more capacities to meet the challenges, to be more relevant to current industry trends and needs, and to be of better service to the people.



# Locally developed stress-tolerant rice varieties now available for free to farmers

By MARIA JUDITH L. SABLAN

S&T Media Service, STII

FILIPINO FARMERS may now avail of high-yielding, stress-tolerant rice varieties for free, according to Dr. Glenn Gregorio, a 2004 Outstanding Young Scientist awardee of the Department of Science and Technology and a plant breeder from the International Rice Research Institute (IRRI) in Los Baños.

Dr. Gregorio revealed during the recent DOST-organized scientific convention of the Outstanding Young Scientists, Inc. that plant breeders at IRRI had successfully developed rice varieties that can withstand drought, flood, and

high salt content of soil. The best news is that these varieties can be availed of by farmers for free.

The developed drought-tolerant rice variety is more water-secure, needing only a minimum amount of water during the various stages of the rice life cycle. From the average 5,000 liters of water needed to produce one kilo of rice, the new rice variety only requires 2,000 liters to have the same yield.

The salt-tolerant rice variety, meanwhile, can withstand high salt content of soil as a result of environmental stresses like drought or submergence. However, said variety is not widely used by local farmers unlike their Bangladeshi counterparts that highly adopted said variety.

Gregorio further disclosed that rice scientists were able to combine traits into one genotype such as a variety that is both drought-tolerant and salt-tolerant or both flood-tolerant and salt-tolerant.

However, despite these developments, not many farmers know that they can get the stress-tolerant seeds for free.

"Lack of knowledge and promotion among Filipino farmers regarding the availability of the different stress-tolerant rice varieties contribute to (the new varieties') low adoption," Gregorio explained. "Filipino farmers seem to be satisfied with using common rice variety and are somewhat hesitant to test new varieties they are not familiar with," he added.

Gregorio said that farmers interested in getting free seeds of said stress-tolerant varieties may contact his office at IRRI's Plant Breeding, Genetics, and Biotechnology Division at (02) 580-5600 or 845 0563.





# Powering up semicon, electronics and related industries via ADMATEL

By ALLAN ACE W. ACLAN and MARIA LUISA LUMIOAN  
S&T Media Service, STII



*"The electronics industry for 30 years has been requesting to partner with the DOST. Finally, the partnership is realized with the establishment of the ADMATEL."*

- Dr. Cristina L. Guevarra  
Exec. Director, DOST-PCIEERD

THE ADMATEL or Advanced Device Materials and Testing Laboratory, envisioned to be a world-class testing facility is DOST's latest foray to gear up the industries, particularly the semicon, electronics, and other related sectors.

"This is really changing the mindset," said DOST Secretary Mario G. Montejo during the ADMATEL's groundbreaking ceremony at the DOST's Industrial Technology Development Institute (ITDI) on September 3, 2012. "Technological infrastructures such as the ADMATEL create an enabling environment for scientists and inventors to create more products, and investors to come to our country."

"ADMATEL... will supplement the needs of local scientists and engineers in

improving their local products to become global," Sec. Montejo added.

The ADMATEL will be an important component in the design and development of devices such as microprocessor and development of systems for telecommunication.

Once completed, the lab will provide local industries access to affordable quality testing services. Currently, local companies send their samples and materials overseas for testing and analysis.

According to Dir. Bernie Justimbaste of the DOST Planning and Evaluation office, products that used to be sent abroad for testing come back with value addition of 12 cents apiece. With ADMATEL, value

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# Need patent info? Go to these DOST offices

RESEARCHERS AND inventors who need patent information can now go to any of the three Department of Science and Technology agencies that have patent libraries. Formally called the Innovation and Technology Support Offices (ITSO), these patent libraries can be found in DOST-Technology Application and Promotion Institute and DOST-National Capital Region in Bicutan Taguig City, and the DOST-Technology Resource Center in EDSA, Guadalupe, Makati City.

Patent libraries help universities and research-related institutions to access patent information and make use of the patent system.

Patent information is very important to researchers and inventors in many ways. Through the patent libraries, people seeking patent information would know if a patent has been filed for a certain technology and its distinctions from a certain technology. They are also sources of information on what is new (the invention) but also on what is already known (the state-of-the-art). Patent documents also generally contain information which can not be disclosed in any other form of literature.

Patent document can also serve as basis for other inventors or researchers



to innovate or apply new technical developments.

The establishment of ITSOs in various R&D institutions is an initiative of the Intellectual Property of the Philippines. The ITSO network, including the said three DOST offices, will be under the supervision of IPOPHIL. The network will build the institutional capacity of universities, R&D entities, government field offices, industry service providers, consultants and associations to teach and conduct, on their own, patent searches and patent drafting, and provide assistance in patent prosecution.

Thus, through the ITSOs, individuals needing patent information can have access to a patent search facility and library for patent information, undergo skills training in patent searching, request patent search services; and be included in the organization of community of patent information users.

ITSOs will also assist clients in rendering intellectual property audit and evaluation services, and in providing licensing support and advice of patent-related documents, papers and statistics. (Framelia V. Anonas, S&T Media Service, STII)

## Powering up . . . from page 23

addition of products is expected to rise to 40 cents "because of the high quality but accessible and affordable testing."

The lab will also provide researchers and design engineers access to state-of-the-art test facilities and laboratories without going abroad.

With a 300 million-peso funding from DOST-PCIEERD, the project's budget will mostly be used for renovating the building and for acquiring failure analysis equipment, such as auger electron spectroscopy, field emission scanning electron microscope, and time of flight secondary ion mass spectrometer.

The features of the laboratory were recommended by DOST Undersecretary for R&D Amelia Guevarra and DOST-ITDI

Director Nuna Almazor, with the assistance of Dr. Antonio B. Villaflores, industry consultant and current quality director of STMicroelectronics, Inc.

Dr. Nuna Almazor said that the establishment of ADMATEL will encourage scientists, investors and companies based abroad to send their sample products for tests, making ADMATEL a global laboratory.

"We hope that through the establishment of ADMATEL, our country will be a hub for failure analysis in the Asia Pacific Region in the future," Dr. Almazor added.

The ADMATEL will serve as a 24/7 semiconductor research testing facility not only for government experts and research

institutions also for the private sector. The lab will also have conference rooms, lecture rooms, and dormitories as additional facilities. Because of its foreseen vital role in the industry, the laboratory is designed as flood resistant to secure important materials.

Semiconductor devices are electronic components that exploit the electronic properties of semiconductor materials, mainly composed of silicon, germanium, and gallium arsenide, as well as organic semiconductors.

Currently, DOST is conducting trainings on failure analysis and materials characterization for ADMATEL technical personnel in preparation for the lab's target inauguration and operation date of December 12, 2012.



# Transport packaging now on board at DOST-ITDI

By VIOLETA M. CONOZA  
S&T Media Service, ITDI

LOCAL MANUFACTURERS may now avail of affordable transport packaging for non-food products like house decors and furniture that meets international standards at the Industrial Technology Development Institute (ITDI), Department of Science and Technology (DOST).

This is made possible after three ITDI engineers at the Packaging Technology Division trained in transport packaging technology passed the examination for the Certification for Packaging Laboratory Professional given by the USA-based International Safe Transit Association (ISTA), making ITDI's transport packaging testing laboratory ISTA-certified.

"Improving our transport packaging technology gives our products a better position in the global market," said DOST Secretary Mario Montejo. "As the products arrive in their highest value-added state for delivery to and use by customers, they can command a better price and significantly reduce or eliminate reputational costs."

The packaging laboratory also offers new services such as evaluation of packaging for transport, compression testing, and packaging design for transport packaging with cushion design.

Currently, the ITDI is technically capable in setting standards and testing protocol for transport packaging according to international standards. It has also enhanced its capability in handling packaging innovation and has come up with new ideas on packaging design.

These developments are geared towards improving the transport packaging technology, both in structure and cushion, for non-food products like furniture and house decors, and making said packaging compliant with existing international standard at the least cost possible. Improving transport packaging would strengthen the export performance of the furniture and house décor industry, resulting in improved income and creation of additional employment.

Improved transport packaging technology reduces or even eliminates damage to products during transport and distribution, as well as claims from buyers and client complaints.

In addition, said technology significantly brings down packaging and transportation cost by 20 to 35 percent. Products also become more competitive in terms of price and quality. The level of confidence from buyers is likewise boosted. From the positive experiences of clients, it is possible to achieve a multiplier effect when the designs learned by other firms are passed on and adopted by other member firms.

In developing its packaging systems, ITDI uses protective yet cost-effective medium or materials like corrugated boards. Combination of different packaging materials, such as bubble wrap, corrugated boards, polystyrene foam, and expanded polyethylene sheets, is also used for fragile products. Developed transport packaging systems then undergo performance evaluation at its ISTA-certified testing facility to validate their effectiveness.

To date, ITDI has assisted manufacturers of furniture and house-decors who are members of various associations such as the Pottery Exporters and Manufacturers Association of Pampanga, Inc, Cebu Furniture Industries Foundation, Inc., Association of Negros Producers, and Rizal Exporters and Manufacturers' Association, Inc.

For further details, inquiries on transport packaging fees and other PTD services, please call: Ms. Daisy Tañafranca, Chief, Packaging Technology Division (PTD), at (02)837-2071 to 82 local 2271; Fax (02)837-7530; or visit the ITDI website <http://www.itdi.dost.gov.ph>. (With reports from Angel Basbasan Jr., ITDI-PTD)





## Tasty bangus food products for healthy fare

By ALLAN ACE W. ACLAN  
S&T Media Service, STII

**BANGUS LONGANISA.** Bangus nuggets. Bangus burger patty. Bangus relleno.

These healthy-sounding bangus or milkfish products, which Dr. Leonarda S. Mendoza of University of the Philippines Visayas' Institute of Fish Processing Technology developed, have been tested and found acceptable to all age groups and to non-pork eating consumers.

While bangus longanisa is good for everyday meals, bangus nuggets are great for parties, fast food centers and restaurants as they are made from high quality milkfish flesh.

Rich in protein and low in cholesterol, bangus patty, on the other hand, is a great ingredient for making healthier burgers. It is a new high-end product from minced milkfish flesh with authentic Filipino taste.

For higher end gastronomy, Dr. Mendoza created a top notch bangus relleno (stuffed milkfish) which is now a delicious fare during Christmas and fiesta seasons for Filipinos here and abroad. This viand is prepared with care, patience and artistry hence the fish meat's flavor and natural fiber are retained.

In her bangus processing endeavors, Dr. Mendoza was assisted by the Department of Science and Technology's Technology Innovation for Commercialization and the Philippine Council for Industry, Energy and Emerging Technology Research and Development.

## Don't retire those tires!

By MA. LUISA S. LUMIOAN  
S&T Media Service, STII

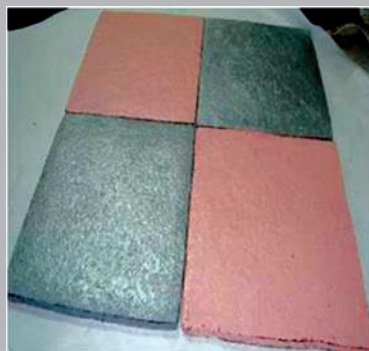
INSTEAD OF laying around unused and becoming breeding places for mosquitoes, old tires can be recycled into construction materials through processes developed by the Industrial Technology and Development Institute (ITDI) of the Department of Science and Technology (DOST).

There are two ways of recycling old tires. Both methods use rubber powder produced by mechanically shredding and grinding used rubber tires. Waste rubber buffing and dust from tire regrooving, those that fell off as new treads are cut into a bald tire to extend its life, can also be ground into rubber powder.

One tire recycling method involves mixing rubber powder with natural rubber latex that acts as a binder. The mixture is then pressed and molded into tiles, blocks, or pavers.

The other method involves activating the rubber particles by repeatedly passing the waste rubber particles through a two-roll mill at specific temperature and other conditions before mixing them with natural rubber latex and molding them.

Dr. Marissa Paglicawan, ITDI senior science research specialist, said that turning old rubber tires into tiles, blocks or pavers is an "excellent way to dispose of unwanted rubber and minimize solid wastes." Dr. Paglicawan heads the research project that developed the recycling process. DOST's Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) funded the research.



Products from both activated and non-activated rubber formulations developed by ITDI pass the standard specifications for tiles and paving blocks in terms of tensile strength, abrasive resistance, tear resistance and compression set. Compression set refers to the amount of deformation that a material retains after being compressed beyond its yield point.

The suggested selling price of the products created by ITDI is comparable to similar products in the market. A recycled rubber tile measuring 149mm x 225mm x 24.4mm can be sold at Php 120 a piece, while a commercially available product with a slightly larger dimension (180mm x 250mm x 30mm) costs Php 180 per piece.

The created tiles and paving blocks are suitable for use in playgrounds, kitchens and swimming pool surfaces, among others.

Dr. Paglicawan said that the project widens the options for rubber recycling in the country.

Moreover, recycling rubber has a number of environmental benefits. Recycled rubber costs half than that of natural or synthetic rubber, while producing rubber from recycled materials requires less energy than virgin material. Additionally, petroleum products used to produce synthetic rubbers are conserved.







DOST Nationwide Operational Assessment of Hazards

TOOLS

LEGEND

ABOUT

HELP

REPORT A FLOOD

SEARCH

Marikina City, Metro Manila,

OVERVIEW

Select layer

WEATHER OUTLOOK

PAGASA Typhoon For...

DOPPLER

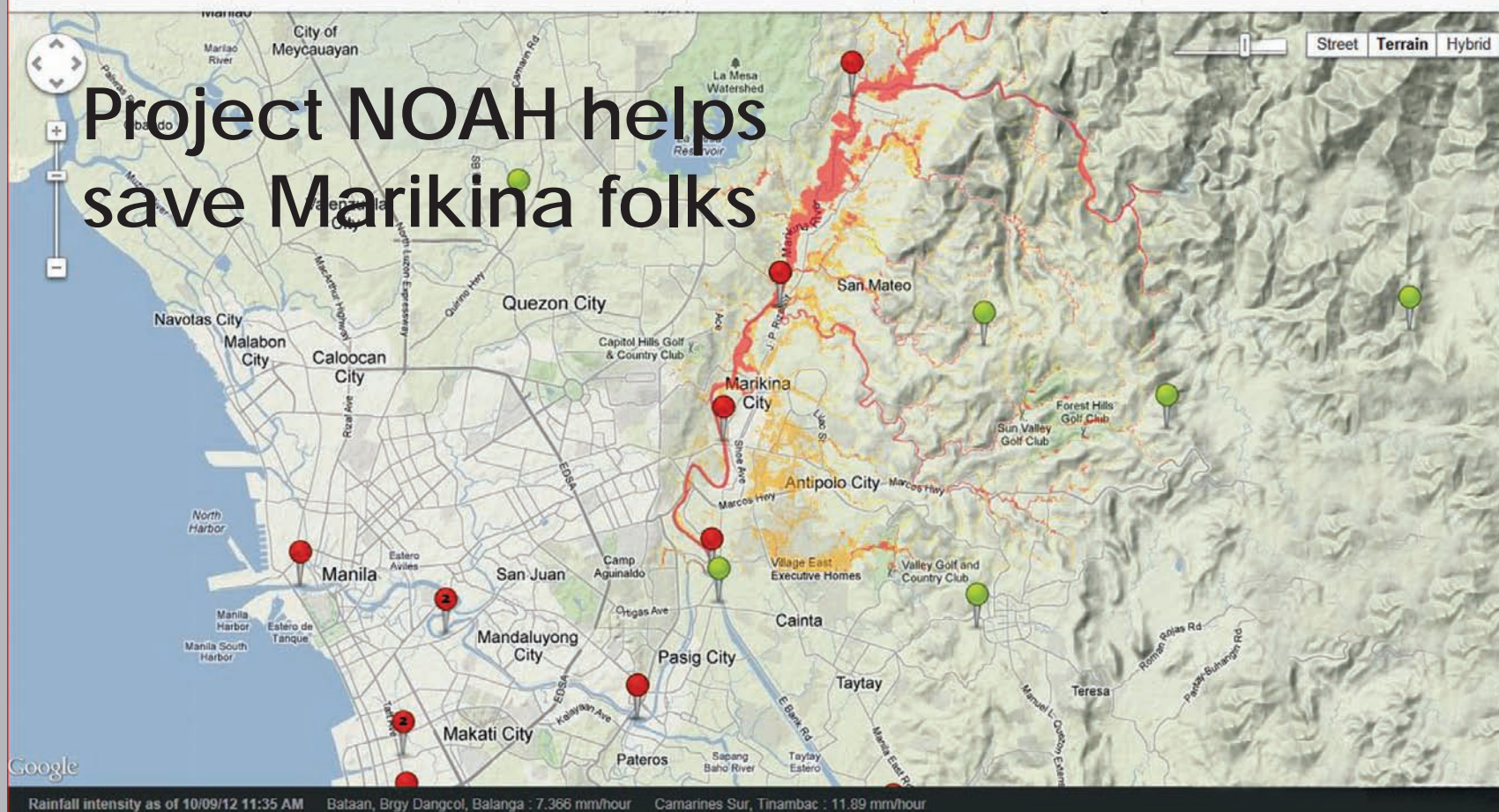
Select layer

WEATHER STATIONS

Stream Gauges, Rain...

FLOOD MAP

Marikina



THE IMPORTANCE of science-based early warning system sounded off when Dr. Mahar Lagmay, leader of the Department of Science and Technology's Project NOAH, issued a warning early Thursday for residents of the banks of Marikina River to "move now." The warning compelled the residents to leave their houses immediately, saving them from harm.

Lagmay cautioned the local government and residents to immediately vacate the area as the Marikina River's water level "will rise higher than the previous days." The forecast was based on the fact that the water cascading from the mountains will swell the river and overflow its banks, and may flood the communities living along the banks.

The forced evacuation came right on time as residents have left when the river again rose to the dangerous level of 20.1 meters.

It will be recalled that Project NOAH was launched in Marikina last July 6 by no

less than Pres. Benigno S. Aquino III who said that "forecast of rain intensity will no longer depend on speculations but on sound data that will come from the rain gauges installed all over the country."

"Water level sensors will give us the exact level of rainwater, while Doppler radars will give us real time information," he added.

NOAH's early warning system is vital in making people aware of weather conditions, particularly the possibility of rain, the amount of rainfall, how long it will rain, and even flooded areas. These crucial information can be accessed at Project NOAH's website ([www.noah.dost.gov.ph](http://www.noah.dost.gov.ph)) and its mirror site (<http://noah.pscigrd.gov.ph/>), Facebook account (Nababaha), and Twitter (@nababaha).

These information serve as basis for decisionmakers, such as local government executives, in coming up with important announcements such as suspension of classes and works, and evacuation

of residents. In the case of Marikina, Project NOAH's warning gave the local government and residents vital information and enough time to prepare for evacuation and avoid any danger of floodwaters rising.

DOST's Project NOAH is designed to reduce disaster risk through technology and management services by DOST's PAGASA, PHIVOLCS, and the Advanced Science and Technology Institute, in partnership with the UP National Institute of Geological Sciences and the UP College of Engineering.

It is DOST's response to the call of President Benigno S. Aquino III for a more accurate, integrated, and responsive disaster prevention and mitigation system, especially in high-risk areas throughout the Philippines.

Project NOAH is one initiative to show the government's commitment in making Filipinos safer during disasters by making vital information accessible through various channels and media. (Framelia V. Anonas, S&T Media Service)



# DOST deploys indigenous weather equipment to country's disaster-prone areas

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



THE DEPARTMENT of Science and Technology (DOST) is installing locally-developed equipments in selected Metro Manila areas and flood-prone areas across the country. Said equipment are capable of tracking real-time weather disturbances.

Already, through its line agencies, the Advanced Science and Technology Institute (ASTI) and Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA), DOST has installed 92 automated rain gauges and 78 automated weather stations nationwide since February 2011.

Of these rain gauges, six are installed in the cities of Manila, Valenzuela, Quezon, Taguig, and Muntinlupa in Metro Manila, and the rest are placed in different provinces including Lanao, Basilan. Two more are set to be installed in

Divilacan Bay, Isabela and Spratly Island.

Meanwhile, weather stations are positioned in Luzon towns hard-hit by Habagat or southwest monsoon, and 2012's super typhoons Helen and Igme. The towns include Dagupan, Pangasinan; Pagudpod, Ilocos Norte; Magalang, Pampanga; Mariveles, Bataan and Dinalungan, Aurora.

An automated rain gauge gathers and records the amount of rainfall over a set period of time, and transmits the data to a central base station. Said station then sends the data via short message service (SMS) to a server that is readily available to public. Data are also processed by PAGASA for possible warnings then transmitted to the public through broadcast media, internet, and SMS.

Rain gauge stations are deployed even in harshest remote areas, and they operate continuously through sun-powered batteries. Weather stations, likewise, automatically transmit real-time data on rainfall, temperature, pressure, humidity, wind speed, direction and velocity.

These instruments enable DOST to provide a comprehensive warning system like the Nationwide Operational Assessment of Hazards or NOAH Project at [noah.dost.gov.ph](http://noah.dost.gov.ph) which everyone could log on to track typhoons and to know the probability of rain and flood in their areas for the next several hours.

These modern weather instruments were developed through the development of hybrid weather monitoring system and production of weather automated stations project of DOST's ASTI and PAGASA.





## DOST-MMDA collaboration to improve flood monitoring and early warning system, says MMDA chief

By JOY M. LAZCANO

S&T Media Service, ST//

THE DEPARTMENT of Science and Technology (DOST) and the Metro Manila Development Authority should collaborate anew to improve the flood monitoring and early warning system to provide the public with an accurate and on time advisory on areas with high risk of flooding during inclement weather, according to MMDA Chairman Francis Tolentino.

"Believe me, if we can fix the problem in San Juan River, then Manila will not be flooded," says Chairman Tolentino as he speaks during the disaster risk reduction and mitigation forum organized by the DOST- National Capital Region at the DOST Central Office in Bicutan, Taguig City recently.

The suggestion was based on previous studies conducted by MMDA that flooding in nearby cities of Quezon, Manila, San Juan, and Mandaluyong is caused by San Juan River's overflow during heavy rains. The overflow is due to heavy siltation and urban solid wastes that clog the water from San Juan up to Araneta Ave. in Quezon City.

He added that due to siltation, the river only has an elevation of roughly three meters against its ideal five meter elevation. This causes heavy flooding in Araneta Ave., E. Rodriguez, V. Mapa in Manila, Mandaluyong, and San Juan. Also, it poses problems to motorists as flood waters stall vehicles and causes heavy traffic in the process.

Last year, MMDA and DOST formally agreed to install 38 water level monitoring sensors to enhance the flood monitoring system and train MMDA personnel in flood forecasting.

Tolentino also pointed out that government agencies and LGUs should have a well coordinated rescue operation system that is vital during calamity. He said that this would avoid duplication and optimize the efficiency of LGU in carrying out rescue missions.

Also, Tolentino suggested that government agencies should work beyond jurisdictions and should work in synergy with other government agencies. "There should be no borders, there should be no territory. Pag sinabi pong Pasig, ay hindi lang po dapat Pasig lang, kung kailangang lumaktaw hanggang Cainta, kung kailangang tulungan ang taga Antipolo, gagawin dapat natin yan," says Tolentino.

On the other hand, DOST Secretary Mario G. Montejo says that through the DOST program called the Nationwide Operational Assessment of Hazards (NOAH), weather disturbances can now be forecast more accurately through different weather modeling using data from various sensors, Doppler radars, seismic sensors, and other weather forecasting equipment.

Sec. Montejo mentioned also that NOAH could provide a six hour lead



Water sensors being installed in Marikina river

time to enable the LGUs to implement its evacuation plans for affected residents.

The forum highlighted recent programs and developments on disaster mitigation as weather disturbances continue to hound Metro Manila and the rest of the country.

Just recently, typhoon Lawin (international name "Jelawat") brought heavy rains to Eastern Visayas with maximum sustained winds of 140 kph near the center and gustiness of up to 170 kph as of September 24.

Prior to that, a cyclone stunned residents of Quezon City as it wrecked havoc to communities in Brgy. Bagong Silangan, Saturday evening. Also, a magnitude 7.6 struck Eastern Samar last month which resulted in 10 people getting hurt and one dead.





# Cordillera coffee brewing up

By BUTCH S. PAGCALIWAGAN  
S&T Media Service, PCAARRD

LA TRINIDAD, Benguet – “Cordillera is one of the regions that will really contribute to the saving of the (country’s) coffee industry,” Philippine Coffee Board Co-Chair Pacita U. Juan said in her keynote speech at the opening ceremony of the first-ever Cordillera Coffee FIESTA held recently at the Benguet State University (BSU) Gymnasium.

At the Cordillera Coffee FIESTA, participants and guests were treated with not just free cups of Arabica and Robusta but with samplings of the Igorot culture as well.

Opening ritual and beating of the gongs, songs and dances by the School of Living Tradition, and traditional coffee roasting by the Benguet Organic Arabica Enterprises and Sagada Arabica Coffee Council greeted the attendees both at the ribbon cutting and opening ceremonies of the festival’s trade fair and launch, respectively.

Juan, a supporter of the Cordillera coffee industry, related that in a visit to Kalinga, she learned that one town had 4,000 hectares of coffee plantation.

“The whole province of Cavite has 7,000 hectares,” she quipped. She pointed out that more coffee plantations in the lowlands are being converted to residential areas, resorts, and golf courses.

Aside from land, the Cordillera Region has other comparative advantages when it comes to coffee production according to Juan.

Juan also took note of the region’s good climate and altitude, which are also favorable for coffee production.

“Since most farms are in rainforest areas, coffee is shade grown. Farmers grow natural coffee. It (coffee production) is organic by default,” she said.

With these advantages, Juan is confident that Cordillera’s coffee production could meet the demands of and opportunities in the country’s coffee industry.

“Our consumption of coffee continues to climb at the same rate of population,” she explained.

Meanwhile, Philippine Council for Agriculture, Aquatic and Natural Resources

Research and Development (PCAARRD)-Applied Communication Division Director Lily Ann D. Lando, representing Executive Director Patricio S. Faylon, highlighted the Council’s support for the coffee industry.

“PCAARRD commits to supporting initiatives to ensure the production of quality coffee beans and defining and specifying goals for the commodity and/or the industry in the medium term,” Lando said.

She added that the Council shall be



Miss Pacita “Chit” Juan keynotes coffee FIESTA.

pushing for the development and mastery of specific knowledge and technology and their use.

“More importantly, we shall support programs with strong science and technology (S&T) content. By 2016, the Cordillera coffee industry would be sustainably viable. Beyond 2016, the industry would come into its own as one of the flagship industries of the Cordillera Region.”

Lando also updated the crowd, composed of hundreds of BSU students, media practitioners, and stakeholders of the Cordillera coffee industry, that PCAARRD is developing an industry strategic plan (ISP) that shall embody the directions of the Council’s support from 2012 to 2016.

In the tech transfer aspect, the Council will support the establishment of a Science and Technology-based Farm for improved coffee

productivity in specific sites like Benguet and Sagada. It shall also push for the improvement of cup quality of Philippine coffee.

On the policy side, the increase of R&D support to the industry and advocate for the strict implementation of the RA 10068 or the development and promotion of organic agriculture in the Philippines shall be pursued by PCAARRD.

The first Cordillera Coffee FIESTA is part of the month-long 50th founding anniversary



Dr. Lily Ann D. Lando of PCAARRD, delivering the good news for the coffee industry.

celebration of the Cordillera Administrative Region in July. The Highland Agriculture and Resources Research and Development Consortium spearheaded the festival on July 5-6.

Other activities conducted during the FIESTA were on-the-spot essay writing and photojournal contests, techno-business forum, regional coffee consultation meeting, and a barista show.

Benguet Governor Nestor B. Fongwan also hosted a dinner-cum-socials where guests were regaled with performances of the School of Living Tradition and other talents from Benguet.

FIESTA stands for Farmer-Industry Encounters through the Science and Technology, a technology promotion and transfer modality of PCAARRD.



# PSHS-CARC soon to rise in Irisan, Baguio City

By ARMI FLOR R. SANTOS  
S&T Media Service, PSHS

THE PHILIPPINE Science High School Cordillera Administrative Region Campus (PSHS-CARC) held its groundbreaking ceremony August 9, 2012 at its permanent site of 1.5 hectares of land in Barangay Irisan, Baguio City.

An Igorot ritual of animal sacrifice was performed by Baguio City Mayor Mauricio G. Domogan for prosperity and abundance of the structures to be built and the people who will use it. This ritual, when performed, is also believed to bring a safe and sound operation of the construction.

The time capsule was laid at the cornerstone of the building by Baguio City Congressman Bernardo M. Vergara, Mayor Domogan, PSHS System Executive Director Dr. Josette T. Biyo, and PSHS-CAR Campus Director Dr. Conrado C. Rotor. Capsule-laying is an important part of the groundbreaking ceremony because communications to the succeeding generations are buried in the capsule under the ground and will be opened in the future.

Since the start of its operation in school year 2009-2010, PSHS-CARC has been using a portion of Baguio City National High School Annex in San Vicente, Baguio City.



The campus has a similar situation with PSHS-Central Luzon Campus in which ancestral domain rights of the indigenous people inhabiting the first proposed site were upheld. The search for PSHS-CARC's permanent site took almost three years. Finally, by the end of 2011, the PSHS-CARC succeeded in forging a Usufruct Agreement with the Department of Education and the Department of Science and Technology for the use of a portion of the five-hectare lot in Irisan.

The architectural design and physical plan of the PSHS-CAR campus

are voluntary works of PSHS Alumni Batch 1989, namely Architect Vladimir M. Longid, Architect Patrick Andrew E. Gozon, Architect Leonard M. Ilano and Landscape Architect Rodrigo M. Marquez, who willingly did their part as a payback to their Alma Mater. Joining their team are Architect Alan I. Urbanozo and Engineer Daniel C. Peckley.

Phase 1 of the construction started August 10, 2012, a day after the Groundbreaking Ceremony, and is expected to be completed before the start of School Year 2013-2014.

## Sicat is new DOST-CAR chief

By SHIELA MARIE SINGA-CLAVER  
S&T Media Service, DOST-CAR

DR. JULIUS Caesar Villacorta Sicat was appointed the Regional Director of DOST-CAR effective July 20, 2012 besting the other four candidates for the position that was vacated by Dr. Ben D. Ladilad due to his transfer to the Benguet State University as President in December 2011.

Dr. Sicat, an accomplished executive has been with the DOST system since 1993. Aside from his 19 years of working with the Department, he is also a proud product of the DOST, having been a DOST scholar both in high-school, through the Philippine Science High School (PSHS) and in college through the DOST-SEI scholarship, (then

*continued on page 36*



**Turn-over ceremonies.** Dr. Nancy A. Bantog, OIC of the Office of the Regional Director (leftmost) turns over the responsibility of leading DOST-CAR to newly-appointed Regional Director, Dr. Julius Caesar V. Sicat (middle), last July 20, 2012 at the DOST-CAR Conference Hall. With them are (L-R) Maricel G. Mactal-Sicat, wife of Dr. Sicat, Dr. Osmundo B. Belmonte, ARD for Technical Services, and Ms. Maria Rowena C. Madarang, ARD for Finance and Admin Services.

Photo by DOST's PSHS-CAR campus.



# Ilocandia's best technologies on parade at North Luzon S&T Week

BY FRAMELIA V. ANONAS

S&T Media Service, STII

THE INGENUITY, resourcefulness, and innovation of the people at Ilocandia jazzed up the 2012 National Science and Technology Week Northern Luzon Cluster at the Mariano Marcos State University in Batac, Ilocos Norte. Called simply as NSTW, the event features the latest technologies, R&D projects, services, and others of the local S&T community.

The cluster is composed of Regions 1-2 and the Cordillera Administrative Region. This is the fourth NSTW held by the cluster, and the third time with MMSU as host.

"Ilocandia has very talented people," DOST Region 1 Director Elsa Chan said, as she mentioned that some major winners in the recent National Invention Contest and Exhibit or NICE came from the region.

## Outstanding inventions and researches from the Ilocandia

Dr. Stanley C. Malab and Jose A. Zafaralla of the Mariano Marcos State University in Batac, Ilocos Norte bagged the NICE Outstanding Utility Model for their engineered kawayan (bamboo) splitting machine that can produce straight and uniform-width bamboo splits for high-end uses such as handicraft, furniture-making, and house construction.

Another first place winner is Romulfo C. Sanchez of the Nueva Vizcaya State University, Bayombong, Nueva Vizcaya who clinched the Outstanding Industrial Design for his utility ladder that can be converted into chair and iron stand.

Even Ilocandia students showed they can be at the top of the heap in research competitions. Chiqui Kate S. Orduna, a student of the University of Baguio Science High School in Baguio City, bagged the Outstanding Student Creative Research or the Sibol Award for the high school level for her research on biomimetics. This is an ultrasound guide for the blind that can detect blockages about three feet away, warning the user of potential obstacles by producing a sound through an earphone. For her research, Orduna also received cash prize from the Federation of Filipino



Chinese Chambers of Commerce and Industry Inc.

In the same category, the third prize also went to another Ilocandia youth, Mary Cherubin Adelaida M. Cruz of the Philippine Science High School - Ilocos Region Campus in San Ildefonso, Ilocos Sur for her research on the production of polyhydroxyalkanoates (PHA) using fish scales as nitrogen sources for the production of plastic-like degradable material. Cruz's research also received cash prize from the FFCCCI.

Meanwhile, Sonia Saley and her group won third place in the Outstanding Student Creative Research or the Sibol Award for college level for the research on micro-controller based breath analyzer that can disable the ignition of the car when the driver's breath has at least 0.08 blood alcohol content or near the illegal level of intoxication. These students of the St. Louis University in Baguio City also received a certificate of recognition from the Philippine Development Alternatives Foundation Inc. and cash prize from the FFCCCI.

## Ilocandia's best through S&T intervention

The weeklong regional event drew in guests and viewers from Batac and other nearby cities, towns, and provinces. The main auditorium featured the exhibits of various agencies and offices of the Department of Science and Technology, as well as its partner institutions.

Viewers lingered at the centerpiece featuring the HITS, or the High Impact Technology Solutions, the key DOST projects that aim to address several pressing problems of the country. These

technologies include the Automated Guideway Transit, a train-type of public transportation that operates on a single rail; complementary foods that are designed to provide more nutrients to babies 6-35 months old; the Mosquito Ovicidal-Larvicidal or OL Trap that kills eggs and larvae of mosquitoes that carry the dengue virus; and other projects.

One special feature of the exhibit was the display of Ilocandia's products supported by DOST's Small Entrepreneurs Technology Upgrading Program that provides a package of intervention to businesses, such as technology upgrading, training, and consultation services. SETUP-supported enterprises in the agriculture, food processing and furniture sectors were some of the most visited booths in the fair for the innovation in their products and services. These SETUP beneficiaries used DOST-recommended technologies and procedures which improved their production, resulting in higher income and more jobs generated in their respective communities.

The annual NSTW is held to instill awareness and appreciation of the people on science and technology. It features innovations on products and services to improve the people's quality of life. It also serves as venue for entrepreneurs, venture capitalists, and researchers to meet together for possible business deals.

According to Dr. Miriam Pascua, MMSU president, the NSTW conveys "a very strong message that science is for all."

"What we (science community) do is of little significance if we are not able to communicate it to the people," she said.



# DOST's CAPE beneficiary produces biggest fresh water prawn



<http://region2.dost.gov.ph/index.php/news-mainmenu-61>

By VICTORIA B. MABBORANG  
Science Research Specialist II, DOST-II

ILAGAN, ISABELA -- A university professor in this capital town, a recipient of the "Ulang project" under the Consultancy for Agricultural and Productivity Enhancement (CAPE) of the Department of Science and Technology, produced the biggest ulang or fresh water prawn (*Macrobrachium rosenbergii*) among all other prawns of same species from Regions 5, 6, 9 and 12.

"Mr. Enrico Santos, fish farmer-professor, with a farm located at Barangay Marana here harvested 12 pieces of prawns per kilo, breaking the existing record harvest of the Bicol region which registered 20 pieces per harvest," DOST-II Regional Director Urdujah Tejada said.

The project is a collaboration of DOST and the World Fish Center which provided technical assistance through DOST's aquaculture scientist Hermogenes Tambalque

"We assisted five other regions in the country and this is the first time we were able to harvest such sizes," Tambalque said.

Prior to the ceremonial harvest attended by both agencies and other fish farmers in the area, Santos already has a ready market for his produce which he intends to sell at P350 a kilo.

From his 600 square meter pond, he was able to produce a net income of P40,000 or a return of investment of 75 percent. As a result of such encouraging income which he earned in just four months, he said "I will develop another pond for ulang culture."

Santos revealed that during the first two months, he spent almost 40 bags of commercial feeds until DOST-II and World Fish Center introduced the green feeding technology.

As the name suggests, vegetable waste are chopped and blanched as alternative feeds to the prawns. Santos admitted that the technology saved his production cost as commercial feeds consumption dramatically dropped from 40 bags to only four bags during the last two months of the operation.

DOST-II provided Santos with 4,000 pieces of ulang post larvae which he seeded in June.

Tejada expressed hope that with more production at lessexpense, other fisherfolks will likewise venture into ulang culture as alternative to rice and corn production.

"Ulang production can be the best alternative source of income at the same time increase fisheries production at a time when the catch in municipal and marine waters is dwindling," Director Tejada said.



## DOST-III releases P9.86M scholarship funds

By DR. VICTOR B. MARIANO and MARITESS C. BATAC  
Director, DOST-III SRS II, DOST-III

A TOTAL of 318 on-going scholars in the undergraduate scholarship program of the Department of Science and Technology (DOST) received their financial assistance for the first half of the year consisting of P4,000.00 monthly allowance, P2,500.00 book allowance and P6,000.00 tuition fee for each scholar.

Began in 1994, Republic Act 7687, also known as the Science and Technology Scholarship Act of 1994, the DOST scholarship provides scholarship to poor but deserving students who wish to pursue science and engineering courses in college. It seeks to strengthen the country's science and technology manpower by creating a pool of scientists, engineers and technicians who shall fill the needs of industrialization.

More importantly, it has contributed significantly towards improving the lives of ordinary Filipinos by providing the opportunity for students especially those who come from low income families to get higher education.

Dr. Victor B. Mariano, DOST-3 regional director, is encouraging fourth year high school students who belong to the upper five percent of their graduating class to apply for the qualifying scholarship examinations to be held on November 18, 2012 at selected testing centers all over the country to choose the next batch of scholars for school year 2013. The deadline for submission of application forms is on October 5, 2012.

Once qualified, a scholar can enroll in a college or university of his choice provided that it is included in the list of identified institutions of the scholarship program.

"DOST scholars have a big part to play towards helping the Philippines achieve economic growth because after they graduate, they are required to render service in the country for a period equivalent to the number of years they enjoyed the scholarship," Dr. Mariano added.

As such they also get priority placement in government or in the private sector for positions appropriate to their education or area of training. Aside from the undergraduate scholarship program, DOST also offers scholarships for masteral and doctoral studies.

## University of Mindanao studies top Sibol Award

FOR THEIR research on a system that can remotely link and relink electrical connections, former students of University of Mindanao garnered first place in "Outstanding Student Creative Research" category in the 2012 National Invention Contests and Exhibits (NICE) held July 14.

Kris Logie Mallorca, John Mark Coloma and Rae Reyes bagged fifty thousand pesos (P50,000) and a plaque of recognition for their entry entitled "development of a power line disconnection system."

Also called Sibol Award, the category is open to high school and college students

doing creative research. This year's NICE uncovered the Filipino's innovative creativity and ability in generating functional products and processes that not only make life convenient, but also help improve the country's economy. (S&T Media Service, DOST XI)



DOST Undersecretary Fortunato T. De La Peña (third from left), Intellectual Property Office Philippines Director Carmen G. Peralta (2nd second from left) and DOST Technology Application and Promotion Institute Director Edgar I. Garcia (leftmost) with University of Mindanao's Rae Reyes, John Mark Coloma and Kris Logie Mallorca, first place in outstanding creative research-college level.



# Zambo City hosts National ICT roadshow

By THELMA E. DIEGO

S&T Media Service, DOST IX

IN A bid to promote Zamboanga City as the next target of Business Process Outsourcing (BPO) companies, some 300 stakeholders composed of businessmen, academe, national government agencies, local government units, ICT professionals and enthusiasts, and private individuals converged in the "2012 ZamPen ICT Conference & Trade Exhibit : An ICTO Roadshow" last September 26, 2012, at the Astoria Plaza, Grand Astoria Hotel, Zamboanga City.

The event's theme "Harnessing ICT for Smarter Countryside" reflects its goal of paving the way towards the development

and understanding of knowledge, linking communication and technological gaps, building more sustainable projects, widening local and international networks, improving society in general, and envisioning Zamboanga City as part of the "Next Wave Cities" in the Philippines, and the rest of the region as an investment hub. Honorable Undersecretary Louis Napoleon C. Casambre, Executive Director of DOST-ICTO was the keynote speaker.

Highlighting the road show was an industry panel discussions of distinguished resource speakers from various ICT industry associations, such as

the Business Processing Association of the Philippines, Contact Center Association of the Philippines, Animation Council of the Philippines, Incorporated, Game Developers Association of the Philippines, Healthcare Information Management Association of the Philippines, and Philippine Software Industry Association.

Some of those who shared their experiences and challenges they faced were a successful blogger and social media entrepreneur, BPO company owner, BPO project leader, call center supervisor, programmer, and parent of an IT/BPO worker.

The whole day event tackled 1) The ICT industry and the "Next Wave Cities" in both government and private perspectives, 2) Zamboanga City as a Next Wave City, 3) Smarter Countryside, and 4) iGov Philippines.

Canada-based Nicholas Luff, sustainable development specialist, presented "Developing Cross-Sector Partnerships at a Global Stage: Case Studies between the Philippines and Canada."

Zamboanga City Mayor Celso L. Lobregat officially welcomed the delegates and hosted the Fellowship Night.

The road show was organized by Regional Information Technology and Electronic Commerce Committee under the Regional Development Council and Zamboanga ICT Council of Zamboanga City Chamber of Commerce & Industry Foundation, with support of the Information and Communication Technology Office - Department of Science and Technology Department of Science and Technology Regional Office No. IX (DOST-IX) and the National ICT Confederation of the Philippines.

The ICTO-DOST is the Philippine government's lead agency on ICT-related matters. Its primary thrusts are 1) ICT industry development; 2) eGovernment; 3) ICT policy development; 4) Internet for All; and 5) Cybersecurity.

## Davao inventor awarded at 2012 NICE



DOST Undersecretary Fortunato T. De La Peña (third from left), Intellectual Property Office Philippines Director Carmen G. Peralta (second from left) and DOST Technology Application and Promotion Institute Director Edgar I. Garcia (leftmost) with Emiliano F. Quitiol of Davao City (rightmost), second place in utility model category.

INVENTOR EMILIANO F. Quitiol of Davao City, for his fuel-oil dryer, bagged second place in the Outstanding Utility Model (UM) category in the 2012 National Invention Contests and Exhibits.

Mr. Quitiol received fifty thousand pesos (P50,000) and a plaque of recognition for his entry "compressed air thermal fuel oil dryer" with UM

Registration No. 2-2010-000389 during the 2012 National Science and Technology Week at the SMX Convention Center, SM Mall of Asia, Pasay City on July 14.

"This device converts or recycles used cooking oil into quality biofuel for internal combustion engines and other industrial applications," Mr. Quitiol explains of his invention. (S&T Media Service, DOST XI)



# IFEX 2013 showcases Asia's ethnic food



THE CENTER for International Trade Expositions and Missions (CITEM), one of the organizers of the 2013 International Food Exhibition (IFEX) is inviting the local SMEs to the Asia's Ethnic Food and Ingredient Show on May 16-19, 2013 at the SMEX Convention Center, Mall of Asia, Manila. The event will showcase some of the unique tropical flavours, product innovations and specialized services offered to food clients.

In a campaign conducted last August 14-16, 2012 in Butuan City, Mr. Marlon Galang and Ms. Migg Planas of

CITEM together with representatives of the regional offices of DOST, DA and DTI visited some local SMEs and encouraged them to be part and experience the 2013 IFEX grand food show where they can generate partnerships with Asian buyers and exhibitors.

The IFEX 2013 is being organized by CITEM in collaboration with DTI, DA, GEM and Mindanao Development Authority.

For more information, interested exhibitors can visit the IFEX 2013 at [www.ifexphilippines.com](http://www.ifexphilippines.com)

*Sicat is new . . . from page 31*

the National Science and Technology Authority Scholarship).

## Rising from the ranks

Dr. Sicat started as a Volunteer Tutor in 1980 and quickly rose in the ranks due to his commendable dedication and commitment to his work. His experience as a Provincial S&T Director of Nueva Ecija followed by his promotion as ARD for Technical Operations of the DOST Region 3 in 2003 has equipped him with commendable leadership and management skills. In fact, during the meeting with the DOST-CAR staff on July 20, 2012, he assured the staff that he does not micro manage and that he is committed to complement the staff in order to achieve the set targets of the regional office. Likewise, he reiterated that DOST-CAR programs, projects and activities will be "citizen centric, collaborative, innovative and visible".

## Exemplary educational background

He graduated cum laude in BS in Agricultural Engineering from Central Luzon State University (CLSU) and bagged

9th place in the 1987 Board of Agricultural Engineering Examination. Not content with his BS degree, Dr. Sicat pursued higher studies from the Graduate School of Agriculture, Miyazaki University, Japan, completing his Master of Agriculture-Agricultural Machinery Science. His doctoral on Agricultural Engineering was again, attained in Japan specifically the United Graduate School of Agricultural Sciences, Kagoshima University. For both his masteral and doctorate degrees, Dr. Sicat was a MONBUSHO scholar, a scholarship under the Ministry of Education, Japan.

His impressive educational qualifications are at par with his accomplishments as a manager and researcher, having published numerous papers in prestigious publications such as the Journal of Japanese Society of Agricultural Machinery.

## Multi-awarded leader

Acknowledgments received started as early as his elementary years up to the present. Recognition for his outstanding achievements includes the "CLSU Alumni

Achiever Award" in 2010, the "PSAE Outstanding Agricultural Engineer (S&T Management Category)" in 2009 and the "Natatanging Anak ng Nueva Ecija (S&T Category)" in 2006, among others.

In summary, it is best to quote Dr. Victor B. Mariano, Regional Director of DOST Region 3 when he stated, "Dr. Sicat had shown exemplary dedication and commitment to the cause of the Department in bringing the fruits of science and technology to the people that we serve. He was never enticed to leave the country for the comfort of greener pastures even when offered such opportunities abroad. He always promotes cooperation, teamwork and respect to each other to maintain cohesiveness of all DOST staff to attain regional objectives and effectively implement our programs."

Dr. Sicat's assignment as the regional director of the DOST-CAR is welcomed by both management and staff, knowing full well that in the DOST, everyone is willing to work hand in hand to bring science and technology closer to the people of the Cordilleras.



# Ilonggo entrepreneur cited as best technology adoptor

By HAROLD A. CASTRO  
S&T Media Service, DOST VI

**A**n Ilonggo entrepreneur from Jaro, Iloilo City received recognition as the 2012 Best SETUP Adaptor for Region VI through the showcase of technology intervention of the Department of Science and Technology's Small Enterprise Technology Upgrading Program - Innovation System Support Fund (SETUP-ISSF) program.

Grace M. Javelosa, owner of RGies Delicacies, takes pride as one of the regional awardees that was recognized among micro, small, and medium enterprises (MSMEs) that have made great transformation as a business.

## From hobby to business

She was recognized for her achievement on turning a simple hobby into a very competitive business. From simply making butterscotch and yema for family and friends in a small rented residence, the venture turned into a great entrepreneurial pursuit. Starting as a subcontract company in 1985, it finally established its name in 2003.

RGie's has been aggressive in its marketing strategies thus, it was able to penetrate the market and the industry. Competition, quality and sales merged into a bottleneck for the company. Because of its fast-paced growth, Javelosa sought DOST's assistance to keep up with her brisk business.

Through DOST's Manufacturing Productivity Extension (MPEx) Program for Export Modernization, Javelosa was able to identify some critical technological needs of the company, including equipment upgrading to increase production volume. The company then availed of the SETUP Innovation System Support Fund (ISSF) to implement the improvements it needs.

## Level up through SETUP

In 2005, RGies acquired 750,000 pieces inner and 160,000 outer packaging materials, horizontal band sealer, mixer, and oven through the assistance.



DOST VI Regional Director Engr. Rowen R. Gelonga said SETUP as an all in one package intended to boost MSMEs' productivity and competitiveness via technology innovations.

"It is a package because it involves a wide range of services such as trainings, consultancy services, laboratory services, packaging assistance, equipment upgrading, among others," Gellonga said. "It is a solutions provider and an agent of transformation."

The intervention of DOST's Packaging Research and Development Center based at the Industry Technology Development Institute gave RGies products' more attractive and durable packaging and labeling. The assistance also included shelf-life testing and nutrition facts.

After the new package and label were out in the market, RGies product awareness and sales shot up. The new look can already compete with imported goods that are flooding the market. Likewise, the upgraded production facilities enabled the company to efficiently and effectively meet the increasing market demand for the products.



Encouraged by this success, the company again sought assistance due to constraints in the former facility. In 2009, a project for the improvement of pasalubong delicacies gave another breakthrough to RGies products. It availed of 115,385 pieces of packaging material and an additional unit of cooking mixer.

"Interventions improved product quality and reduced costs, resulting in bigger income and wider markets. A very important outcome is customer satisfaction, resulting in business continuity, growth and expansion," Gelonga added.

The integration of technology brought significant accomplishment to RGies that has cracked into the export market, enabling it to bag the highest award among 15 other SETUP adaptors throughout the region.





# DOST scholars campaign for science careers

By MHEDA G. GARCIA  
S&T Media Service, STII

## What course shall I take?

FOR MANY senior high school students, choosing the right course in college is not easy. To help them understand career options in the sciences, four Department of Science and Technology (DOST) scholars shared some words of advice in a forum at the 2012 National Science and Technology Week.

Said scholars were Charmaine V. Villamil (geology), Sharine Noelle Bendulo (chemistry), Samuel S. Mamauag (marine science), and John Kenneth A. Cruz (engineering).

Opening the forum, DOST Usec. Fortunato T. Dela Peña advised students to be patient and diligent in order to succeed.

Villamil, a geologist of DOST's Philippine Institute of Volcanology and Seismology, presented Pangaea, sea level fluctuation graph, gold, coal, and Tyrannosaurus rex. "If they interest you, you may want to pursue geology," she said.

According to Villamil, among other majors in geology, volcanology is "best to study as we have at least 300 volcanoes of which 23 are active." She also shared some information on salaries, personal growth, and job opportunities for geologists in

the country. However, geology courses attract only a few students, thus the DOST provides higher allowance to scholars taking this course to encourage more enrollees.

Villamil finished Bachelor of Science (BS) in Geology at University of the Philippines Diliman (UPD) and currently taking up Master of Science (MS) in Environmental Science.

Meanwhile, Bendulo graduated Magna Cum Laude in BS in Chemistry at UPD and is currently pursuing her MS in Chemistry. She explained how chemistry is applied to products such as perfume, Kevlar or bullet-proof vest, hair rebonding, and fireworks.

"Hope you consider taking chemistry because it is fun," she said. Job opportunities for chemists are found in forensics, pharmaceutical companies, and cosmetics and perfume industries.

On the other hand, Mamauag, a marine scientist from the Marine Science Institute in UPD, encouraged students to pursue marine-related career. He finished his MS degree at James Cook University in Australia and Doctor of Philosophy in Marine Science at UPD.

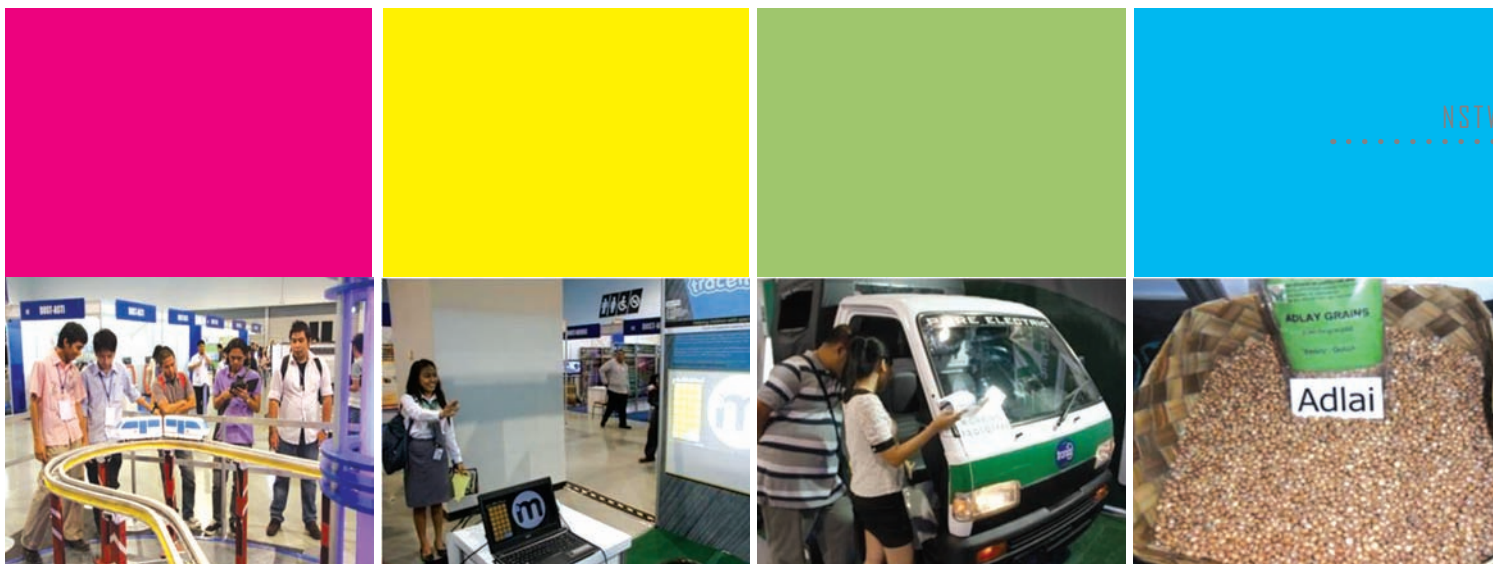
Mamauag discussed the essential elements of coastal ecosystems such as coral reefs, mangroves, fisheries, and seagrasses. He said that the country's reefs are highly threatened by man-made activities and climate change.

Moreover, Cruz who tackled three fields of engineering - mining, metallurgical, and material - convinced the students to take up engineering courses. He said that the country has large reserves of gold and copper hence, we need mining engineers. Jobs also wait for those who pursue metallurgical engineering in semiconductor and automobile industries.

Cruz has BS degree in Material Engineering and currently pursuing MS in Material Science while teaching at UPD.

One of the featured events for the annual celebration of the NSTW is the forum on career options for the S&T field. The NSTW for the Visayas Cluster comprising Regions 6, 7 and 8, recently held at the Tacloban City Convention Center, attracted students and the academe for scholarship opportunities and career options advice. Next NSTW celebration will be held at the KCC Mall, General Santos City on October 10-14, 2012.





Left to right: mass transit prototype (DOST); computer software for children with special needs (Academe); electric-powered truck prototype (Private); and Adlai grains (Government). *Photos by Henry de Leon*

## S&T Fairs bring together various sectors

By FRAMELIA V. ANONAS and MHEDA G. GARCIA  
S&T Media Service, STII  
Photos by: AV Unit, STII-CRPD

APTLY THEMED "Science, Technology and Innovation: Working Together for Growth and Development," the 2012 National Science and Technology Week (NSTW) successfully got different sectors together in one platform in all venues this year.

At the 2012 Visayas Cluster Science and Technology Fair & Exhibits at the Tacloban City Convention Center September 24-28, various sectors such as government agencies, the academe, research institutions, civic organizations such as the Rotary Club, private groups, and other concerned individuals were well-

represented in almost all of the activities of the fair.

According to DOST VIII Regional Director Edgar Esperancilla, the NSTW is a unique venue in which the various regions from the Visayas Clusters can showcase their innovations in products and services that are technology-based.

The celebration kicked off September 24 with an opening program and various forums on Phivolcs and Risk Management, Project NOAH, and Sharing of Best Practices. Technical sessions titled "Science, Technology and Innovation for

Increasing Food Shelf-Life and Quality" and "Green Technologies" were held at the Tacloban City Convention Center, including a research colloquium at the Hotel Alejandro, all well-attended by faculty and students highly-interested with research.

What made the Visayas cluster unique from other fairs was its holding of an S&T career orientation forum and S&T-based job fair that attracted young hopefuls aiming to venture into a career related with science and technology.

*continued next page*



DOST Visayas Cluster Directors Rowen Gellonga of DOST-VI (second from left) and Edgar Esperancilla of DOST-VIII (third from left) present to the media the packaging material developed for lechon. The packaging, developed by DOST's Industrial Technology Development Institute, keeps lechon fresh and crispy on transit. Others in photo (L-R): Philippine Information Agency Region 8 Director, DOST Undersecretary Fortunato de la Peña, DOST-Technology Application and Promotion Institute Director Edgar Garcia, and DOST-Science and Technology Information Institute Director Raymund Liboro.





Among the exhibitors were the Northern Samar Small and Medium Enterprises supported by DOST-SETUP. Right: Guests led by DOST Undersecretary for Regional Operations Carol M. Yorobe (second from left) went around the exhibits and checked out the goods.

*S&T Fairs . . . from page 39*

The Visayas Cluster S&T Fair is the regional version of the National Science and Technology week held in July in Metro Manila. During the NSTW, some 175 groups from the Department of Science and Technology (DOST), and from the academic, private and public sectors nationwide exhibited their innovative products, technologies and services to the public on July 10-14 at the SMX Convention Center, SM Mall of Asia, Pasay City.

During the opening day, DOST Sec. Mario G. Montejo and Sen. Loren Legarda led the ribbon cutting ceremony, declaring NSTW exhibits open for public viewing. The DOST, the organizer of NSTW, paraded the High Impact Technology Solutions featuring innovations on disaster mitigation, nutrition and health, food processing, and transportation and machinery.

Finalists of DOST's National Invention Contests and Exhibits also displayed their inventions and creative researches while 11 campuses of the Philippine Science High

School Systems exhibited functional robots and gizmos. Various DOST agencies also promoted their technologies and services.

Eighteen of the country's major private and state universities brought outputs like nanocapsules, solar-powered charging station and streetlight, fish freshness sensor, electronic voting system, biodiesel, among others.

The private sector, comprised of 73 enterprises assisted by the DOST and private businesses, promoted products ranging from simple to complex and catering to different needs of people. Such products included ecologically-friendly technologies, home security gadgets, agricultural machineries, and so on.

"It was a good experience for me. People from all walks of life were there. Our aim as exhibitor is to promote our products but it's also nice to explore other [exhibitors'] technologies. DOST was able to converge many different sectors," says Annette Vicente, one of the exhibitors from private sector.

The government sector consisting of departments of agriculture, environment and natural resources, tourism, and the like also came to promote their products and services. The Intellectual Property Office (IPO) of the Philippines, the lead agency that facilitates the process of taking innovative technology to the market place, also participated.

"NSTW is a showcase of technologies - old but practical. Some are yet to prove their worth in the market. I have a work to be copyrighted and it's nice to see IPO people there. I had a long chat with Gilda Reamon, wife of vermicompost inventor. Overall, I find it a success," says Ramon B. Bonifacio, one of the visitors.

A total of 11,061 visitors came during the five-day celebration of the NSTW. Such visitors were from academic institutions (67%), government (15%), business enterprises (8%), private institutions (6%), and international and non-government organizations.



# Kids experience science through talk and play in DOST-SEI's Science Explorer bus

By GEORGE ROBERT E. VALENCIA III

S&T Media Service, STII

Photos by: AV Unit, STII-CRPD



ABOARD THE 'Science Explorer'—the Philippines first and only mobile interactive science learning facility—first-time participating elementary students from Metro Manila and CALABARZON enjoyed a fun-filled day of science. The 'Talk and Play' activity devised by the Science Education Institute of the Department of Science and Technology (DOST-SEI) aimed to entice young ones to someday get into careers in science. The two-day activity was part of the 2012 National Science and Technology Week held at the SMX Convention Center—with the 'Talk' component held indoors, while 'Play' on the following day held outdoors, on board the Science Explorer Bus.

First day's Career Forum (or Talk) gave high school students a chance to mingle with some of the country's scientists and engineers. In the Play, however, all 120 kids were introduced to four renowned pioneer scientists and mathematicians in history—Albert Einstein, Marie Curie, Euclid and Charles Darwin—by current science scholars from the Philippine Normal University.

The kids were first familiarized with the pioneers' contributions to the

fields of physics, chemistry, biology, and mathematics. Later, they were introduced to more fundamental science concepts through puzzles, games, simple experiments, and other fun exercises.

"The Play's goal is to persuade the students that science is indeed enjoyable so they can view themselves as future scientists in the country," said DOST-SEI Director Dr. Filma G. Brawner.

For physics, Red M. Castilla discussed forces, energy, atoms, electricity and electromagnetic waves spectrum, and touched on Sir Isaac Newton and Niels Bohr aside from Einstein. For mathematics, JollyAnn Odessa P. Lanuza tackled basic postulates about lines, measurements, angles and polygons. Meanwhile, for biology and chemistry, Eric M. Inocencio discussed cells as basic units of life, biodiversity, ecology, and evolution; and Charlie C. Villate focused mainly on applications of density in identification of compounds.

Aside from basic science concepts, the children were also made to comprehend known virtues of science forerunners, such as open-mindedness, patience, curiosity and imagination. They also learned how to

apply science concept to the real world and relate them to all other fields of knowledge.

"Allowing students to experience early on the rudiments of science in activities like this is essential. It is also one way to help the Philippines beef up its pool of scientists and engineers to bankroll its much needed research and development," said Dr. Brawner.

Students await their turn to enter the Science Explorer bus—the country's first mobile learning facility—to 'play' science and mathematics. The two-day 'Talk and Play' activity of the Science Education Institute of the Department of Science and Technology (DOST-SEI) set its second half to acquaint grade school students with basic science and mathematics ideas through renowned scientists or pioneers like Albert Einstein, Marie Curie, Euclid and Charles Darwin. DOST-SEI's 'Talk and Play' was part of the National Science and Technology Week (NSTW) 2012 Celebration held annually. Its objective is to entice young minds to pursue careers in science. A total of 120 elementary students from Metro Manila and the CALABARZON area got on the Explorer bus and embraced science and mathematics closer to their hearts.





## OL Trap technology in comics

**TAMANG PAGGAMIT NG OL TRAP**

**1** LAGYAN NG TUBIG ANG ITIM NA BASO HANGGANG SA UMBOT SA NAKAMARKANG GUHIT SA TAAS NG LOGO NG DOST. ANG DAMI NG TUBIG AY KATUMBAS NG 250 MILLILITERS (ML). MAGLAGAY NG ISANG PAKETE NG OL PELLET SA ITIM NA BASO.

**2** ILAGAY ANG PATPAT NG LAWANIT SA LOOB NG BASO NA MAY LAMANG SOLUSYON. TIYAKING NASA IBABAW ANG MAGASPANG NA PARTE NG STIK, HALILING MABUTI HANGGANG MATUNAW LAHAT NG PELLETS.

**3** ILAGAY ANG ITIM NA BASO SA LUGAR NA HINDI MA-AARAWAN O MABABASA NG ULAN SA LABAS NG BAHAY, HUWAG ITONG HAYAANG MATAPON O MAPAGLARUAN NG MGA BATA AT MGA HAYOP.

**4** IWANAN ANG ITIM NA BASO SA LOOB NG ANIM NA (6) ARAW. PANATILIHING MALINIS ANG KAPALIGIRAN UPANG SA BASO LAMANG MANGITLOG ANG LAMOK. KAPAG DI SINASADYANG NABUHOS ANG LAMAN NG BASO, BUHUSAN NG KUMUKULONG TUBIG ANG LUGAR AT PUNASAN. LAGYAN NG BAGONG TUBIG AT OL PELLET. IPAGPATULUY ANG PAGBILANG NG ARAW.

**5** PAGKARAAN NG ANIM NA ARAW, GAMIT ANG LUMANG SEPILYO, MARAHANG KUSKUSIN PAPONA SA SOLUSYON ANG MGA ITLOG NG LAMOK NA DUMIKIT SA PIRASO NG LAWANIT. SIGURADUHING LAMANG NA ANG MGA ITLOG AY MAHUHULOG SA SOLUSYON.

**6** BUHUSAN NG KUMUKULONG TUBIG ANG LALAGYAN. ITAPON ANG LAMAN NG ITIM NA BASO SA TUYONG LUPA. ULITIN ANG MGA HAKBANG 1-6 LINGGU-LINGGO. IPAGPATULUY ANG PAGGAMIT NG OL TRAP HANGGANG MAYROON PANG ITLOG NG LAMOK AT KITI-KITI NA NAKALAGAY SA LAWANIT AT SA BASO.

**Anim na ARAW**

Ang OL Trap ay nagpapababa ng populasyon ng lamok dahil pinapatay nito ang susunod na henerasyon ng lamok. Ito ay gawa ng mga eksperto ng Department of Science and Technology. Ang OL Trap ay isa lamang sa mga paraang isinusulong ng pamahalaan upang mapukso ang dengue.

Ang poster na ito ay limbag ng Department of Science and Technology. Kung may katanungan tungkol sa OL Trap, tumawag kay Dr. Antonio Ligay sa (02) 837-7535 o Dr. Nuna Almanzor sa (02) 837-3167 o kay Mr. Raymond E. Liboro sa (02) 837-2071 loc. 2130.

For more details, please visit:  
[www.science.ph](http://www.science.ph) [oltrap.dost.gov.ph](http://oltrap.dost.gov.ph)

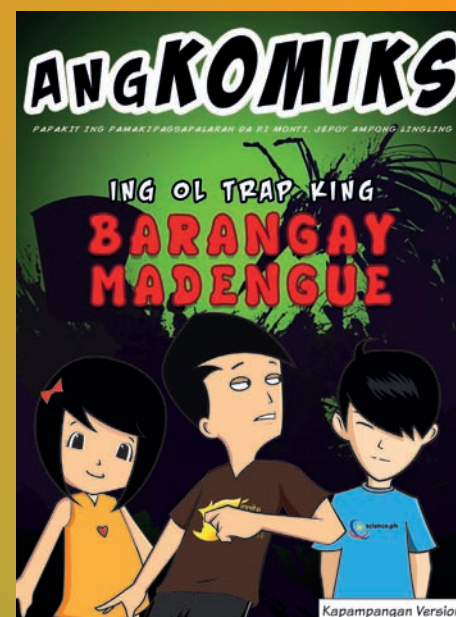
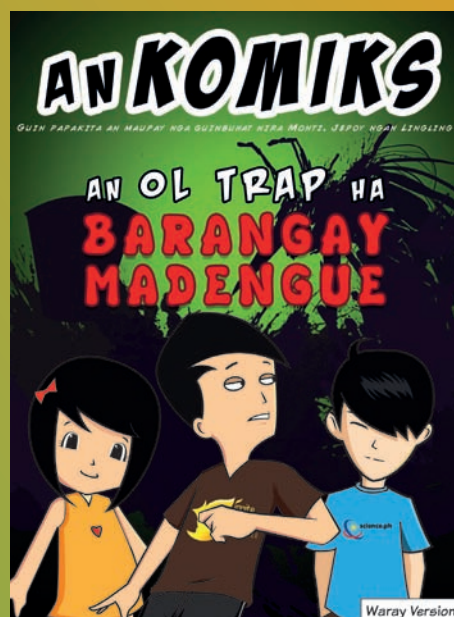
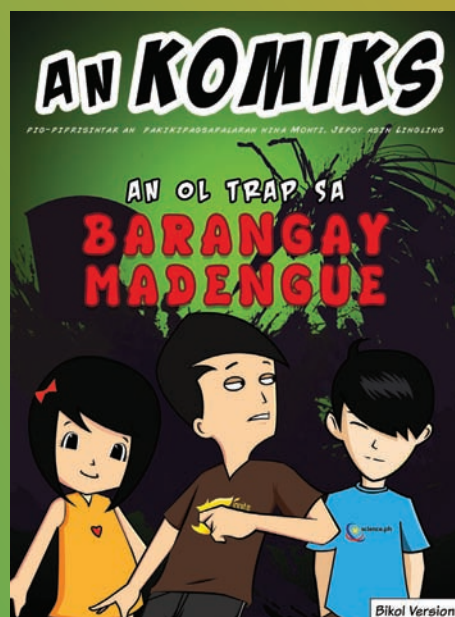
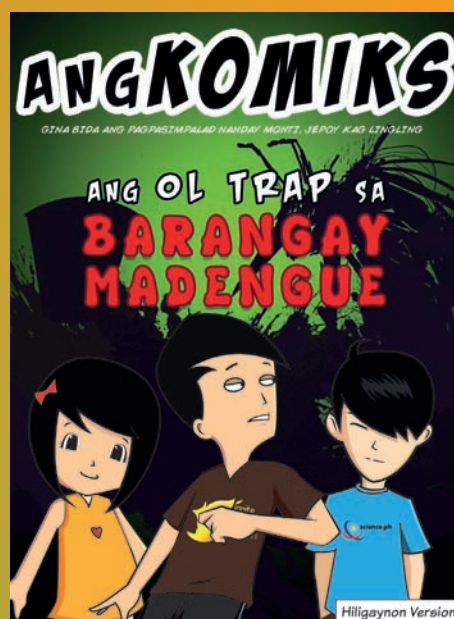
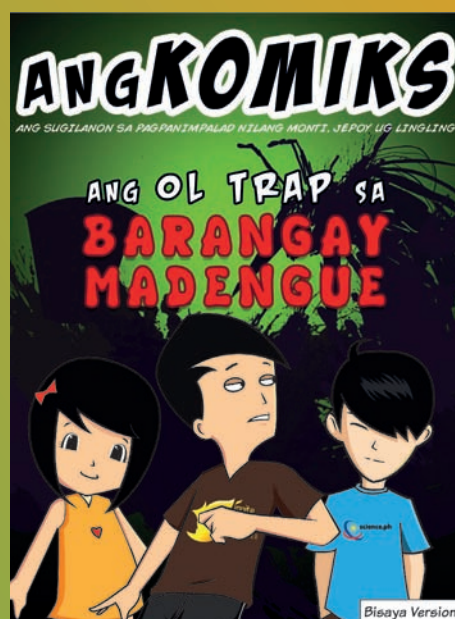
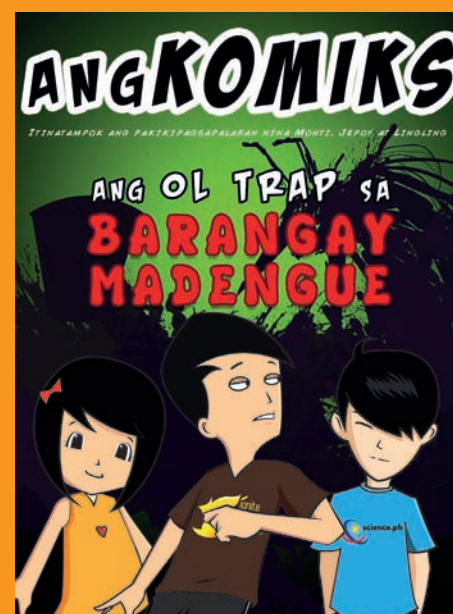
DEPARTMENT OF SCIENCE AND TECHNOLOGY  
 DOST Complex, Bicutan, Taguig City 1631

COMICS, WHETHER in magazine or book form, never goes out of fashion. Though it has evolved in looks, the comics magazine continues to be one of the favorite reading fare of the masses, especially young persons. Its enduring popularity made the comics the perfect vehicle for popularizing a very important technology such as the OL Trap.

Entitled “Ang OL Trap sa Barangay Madengue”, the maiden issue of the “Ang Komiks” (subtitle: Ang Pakikipagsapalaran nina Monti, Lingling, at Jepoy”) highlights important information on dengue, dengue-carrying mosquito, and the proper use of the OL Trap to sustain its effectiveness. Its main characters Monti, Lingling and Jepoy are three neighborhood friends who come across the fatal effect of dengue. Their youth and energy impelled them to search for cure, and through the web, they found one of the most available and effective way of preventing dengue—the DOST-developed Ovicidal-Larvicidal or OL Trap.

The comics, originally written in Filipino, has been translated into six other major Philippine languages. It has been launched in the Visayas Cluster S&T Fair in September 2012. Like hotcakes in a cold morning, the comics were among the top picks of guests and viewers in the regional S&T Fairs in Batac, Ilocos Norte; Tacloban City, Leyte; and General Santos City.







# DOST sets up labs, facilities to provide low-cost but quality services

By MARGARETTE T. MACEDA  
S&T Media Service, PCIEERD

TO KEEP in stride with the rapid developments in high-tech industries in many parts of the globe, the Department of Science and Technology (DOST) is setting up various facilities and laboratories that are poised to help local industries develop products that meet the requirements of these industries.

DOST is presently geared up in establishing and upgrading testing laboratories and research facilities for the semiconductor and electronics industry as well as for the biotechnology, nanotechnology and genomics industries. Once completed, these facilities will provide local industries access to affordable quality testing services. Currently, local companies send their samples and materials overseas for testing and analysis. Researchers and design engineers also have to go abroad to access state-of-the-art test facilities and laboratories.

"Through these facilities, we at DOST signify our seriousness to raise the quality of our high value-added products and services by possessing the qualitative basis for achieving constantly-rising manufacturing standards," DOST Secretary Mario Montejo said. "If foreign countries can do it, we can do too."

The Advanced Device and Materials Testing Laboratory or ADMATEL is being established at the DOST Compound in Bicutan, Taguig City, while the Solar Cell Characterization Facility and the Philippine Genome Center at the University of the Philippines (UP) Diliman are both being equipped with state-of-the-art equipment and facilities. Meanwhile, the pilot plant of the National Institute of Molecular Biology and Biotechnology at UP Los Baños (BIOTECH-UPLB) in Laguna is being upgraded to strengthen research and technology development.

Dr. Rowena Cristina L. Guevara, Executive Director of DOST's Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD), said that another benefit of these laboratories and facilities is that local scientists and engineers will have access to the necessary facilities to conduct world-class research.

"Our researchers have always been at par with their foreign colleagues in terms of expertise and know-how," said Dr. Guevara. "With the new and upgraded laboratories and



Department of Science and Technology Secretary Mario Montejo (second from right) led the groundbreaking ceremony of the Advanced Device Material and Testing Laboratory (ADMATEL) at the DOST Complex, Lower Bicutan, Taguig City on September 3, 2012. The ADMATEL will provide technical services on failure analysis and other procedures vital to the semiconductor industry. Also in the photo are Dr. Antonio B. Villafior, industry consultant for S&T on microelectronics; Dr. Amelia Guevara, DOST Usec., Dr. Rowena Guevara, Executive Director, DOST-PCIEERD and Dr. Nuna Almanzor, Director, DOST-ITDI. (Text by Allan Ace Aclan, Photos by Gerardo Palad, S&T Media Service, STII)

testing centers, our experts and engineers do not need to leave the country to advance their knowledge and training."

ADMATEL will house various advanced equipment such as field emission scanning electron microscope, auger electron spectroscope and time of flight secondary ion mass spectrometer. Dr. Guevara explained that these equipment will enable the facility to assist companies in the semiconductor and electronics manufacturing industries to enhance their productivity, improve their product quality and service, and increase the number of offered products and technologies. ADMATEL recently had its groundbreaking and is slated to be launched in December 2012.

Meanwhile, the Solar Cell Characterization Facility will be equipped with a special lamp that simulates the light output of the sun. "The facility will quantify and compare the performance of locally-fabricated solar cells with those sold commercially and those developed by research institutes overseas," Dr. Guevara said.

Core facilities on deoxyribonucleic acid (DNA) sequencing and bioinformatics are being established at the Philippine Genome Center. To be launched in October 2012, the core

facilities are expected to service the immediate needs of research programs on discovery and analysis of genes for applications in health and nutrition, food, agriculture and biodiversity. The facilities will also help increase local research in genomics and biotechnology.

Meanwhile, the upgrading of BIOTECH-UPLB's pilot plant will help startup enterprises in the commercialization of products such as biofertilizers, microbial rennet, food and feed enzymes and probiotics. The pilot plant will also facilitate technology development for commercial application.

DOST-PCIEERD is also in consultation with the Electronics Industry Association of the Philippines Inc. on the proposed establishment of an Electronics Product Development Center. The Center will assist the local electronics industry in offering value-added products and services such as design and development of components, hardware and software. It is also expected to provide services for testing compliance with electromagnetic compatibility and other product safety standards of countries.

DOST-PCIEERD is the lead agency for planning, management and utilization of research in the industry, energy and emerging technology sectors.



# Asian countries go for green economy

By JOSELITO A. CARTECIANO  
S&T Media Service, *NRCP*

S&T EXPERTS and research practitioners from 16 Asia Pacific countries, including the Philippines, established the Coalition for Green Economy, citing the significant role of science in finding better solutions in Asia's pursuit of development.

The coalition was forged in the 12th Science Council of Asia (SCA) Conference held last July 12, 2012 at Bogor, Indonesia. With the theme "Mobilizing Science Towards Green Economy," the delegates looked into the concept of green economy as economic development model based on the framework of sustainable development.

Green economy, according to the UNEP, is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

The quest for green economy was fired up when Dr. Lukman Hakim, chair of the Indonesia Institute of Sciences and current SCA President, said that excessive use and exploitation of natural resources have impacted negatively on environmental quality and sustainability.

"These impacts threaten not only the sustainability of the environment but also the survival of mankind," Hakim said. "It is now imperative for all scientists and other global citizens to address these potentially calamitic patterns and to act responsibly in all aspects of human activities in order to preserve the future of mankind," he added.

He also explained that the concepts of "pro growth, pro job, and pro poor" can no longer be sustained on the basis of economic considerations alone but also on the contributions of the environment.

"The scientific community," he said, "must address these issues and answer the call by mobilizing its resources to promote and implement more environmentally-friendly economy and any endeavors toward economic growth and development must be in harmony with environmental preservation. This practice will help preserve the environment and ensure the livelihood of humankind on this only earth."



The entire SCA delegation, particularly those from the developing countries, recognized the enormity of the issue. Many Asian countries, including the Philippines, are now facing complex challenges in preserving and protecting the environment as well as in maintaining reasonable economic growth.

The green economy framework, according to the delegates, could best reduce environmental risks and ecological shortages while at the same time improve societal equity and the welfare of Asian people. This is because the framework constitutes economic concepts and practices that embrace the interests of both the people and the environment, they said.

They agreed that as researchers, scientists, and technologists their scientific endeavours could effectively work for the betterment of the people's lives and well-being if only the promotion and implementation of green economy and sustainable development is put in place.

Participants with expertise in research said that the results of their researches on various fields, including health and emerging diseases, mitigation of environmental degradation, natural disasters, and others, could effectively and efficiently help governments, policymakers, businesses, and other communities in gaining enough knowledge about green economy. This will help in setting up principles and resolutions for global, regional, and national actions supporting this economic development framework.

This 12th SCA conference opened with an impressive line-up of paper presenters including the first NASA Japanese astronaut Dr. Mamoru Mohri, chief executive director

of the Japanese National Museum of Emerging Science Innovation, who presented "New Perspective from Space." Sonam Bumdhen, Buddhist monk and current director of the Library and Research Division, Central Monastic Body in Bhutan presented "Finding Happiness in a Sea of Chaos: Perspective from Buddhist Monk." Lastly, Prof. Emil Salim, chair of the Indonesian Presidential Advisory Council for Economy and Environment, delivered the paper with a very strong message "Developing Green Economy in a Culture of Greed."

The 16 SCA member countries include the Philippines, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Singapore, Thailand, and the three new country members, Cambodia, Myanmar, Sri Lanka.

The National Research Council of the Philippines (NRCP), the research and advisory body of the Department of Science and Technology, is the country's official science organization representative to SCA. Dr. Portia Gamboa-Lapitan, chair of NRCP's Division of Agriculture and Forestry, was the official representative in lieu of NRCP President Lourdes J. Cruz.

The Philippines hosted the 10th Science Council of Asia Conference in June 13 - 16, 2010 at the SOFITEL Philippine Plaza through NRCP then headed by Dr. Jaime C. Montoya as president and Dr. Napoleon P. Hernandez as executive director. The Philippine conference was able to produce a manifesto on addressing the health challenges in the Asia Pacific region through an integrated and multi-disciplinary approach in science and technology. The document was signed and issued at the end of the three-day conference.





## DOST XI launches food safety, energy audit teams

WITH PEOPLE nowadays becoming more conscious of the food they take and how to save energy, the Department of Science and Technology Regional Office No. XI (DOST XI) created two service teams for this purpose. Called the Davao Food Safety Team (DFST) and the Davao Region Energy Audit and Management Team (DREAM), these teams were organized to help local industries in the region comply with food safety standards and help them become more energy efficient.

The DFST is composed of twenty seven (27) members from various academic institutions, government agencies, and private companies. The team aims to spearhead a food safety culture, especially among MSMEs, through various activities such as technical trainings, awareness seminar on Good Manufacturing Practices, HACCP, and other Food Safety Management Systems, plant layout

consultancy, and other services. The team's ultimate goal is to assist micro, small and medium entrepreneurs in complying with food safety requirements and help improve the quality of products and services of the local food sector.

On the other hand, the DREAM Team can help industries reduce industrial production cost through efficient use of energy. The team is composed of engineers and professionals from various academic institutions, government offices, and private groups. The team aims to champion cost effective utilization of energy among consumers. They will provide consultancy services, seminars, and technical trainings, and energy audit services to increase awareness in proper energy management, and efficient industrial operations.

The team is now based at the DOST Regional Office XI and can be reached at 227-1313. (S&T Promotion Section, DOST XI)



**Mindanao S&T Park immortalized in winning posters.** Poster entry from Los Amigos National High School (center) won first place in the Poster Making Contest during the Mindanao Science and Technology Park Expo 2012 (MSTP Expo 2012) held at the Philippine Coconut Authority XI, Tugbok District, Davao City in August. The Los Amigos NHS entry was awarded with P1,500.00 cash and a plaque of recognition. Entries from Tugbok National High School bagged second place (left) and Sto. Nino National High School got the third place, earning them plaques of recognition and cash award of P1,000 and P500 respectively. The poster making entries depicted the 1st MSTP Expo 2012's theme "Mindanao Science and Technology Park: A Convergence of Inclusive Growth" in which the winning entries illustrated a way of convergence of the government in a collaborative effort to promote science and technology innovations in Mindanao (S&T Promotion Section, DOST XI).



# Science journalists elect national officers

By FRAMELIA V. ANONAS

S&T Media Service, STII

THE PHILIPPINE Science Journalists Association Inc. or PSciJourn, a nationwide organization of Filipino science journalists, recently elected its set of officers. The new officers, mandated to serve for two years, are headed by Melly Tenorio of DZRB, president. The rest of the officers are Aristotle Carandang of DOST-STII, vice president; Ruby Cristobal of DOST-SEI/DZMM, secretary; Izel Gonzales of DZMM/ABS-CBN Foundation, treasurer; Ester Gallardo of Manila Newswatch/Midday Monitor, auditor; and Linda Bohol of Remate, P.R.O.; and Joan Salise of SEI-DOST, Executive Director. Lyn Resurreccion of Business Mirror, former president, is Board Member at Large.

The Induction and Oath-taking Ceremonies was recently held on October 27, 2012 at the Quezon Memorial Circle, Quezon City and officiated by Hon. Angelo B. Palmones, AGHAM Party List Representative.

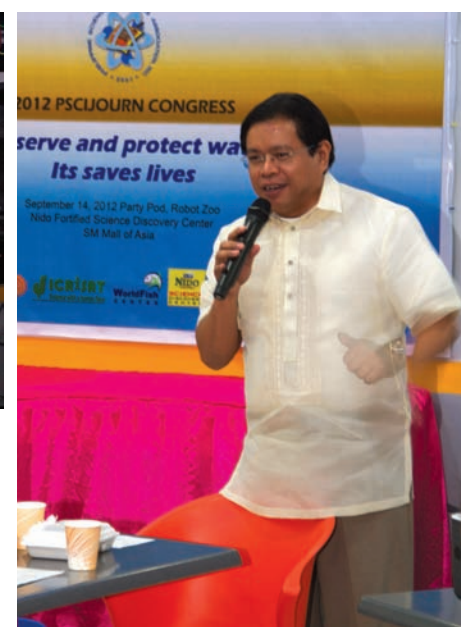
The election was held in September 2012 at the Nido Fortified Science Discovery Center, SM Mall of Asia in Pasay City after the forum entitled "Conserve and Protect Water: It Saves Lives."

During the forum, Arturo Carballo Jr., Sr. Operations Manager at the center, shared how people can help conserve water in order to enhance the beneficial use of water. "When we conserve water, we help in making it sustainable, and in conserving energy and natural habitats," he said.



Carballo reiterated the center's commitment of being a partner in making science more attractive to the public, especially to the younger generation who learn better through the interactive way.

*continued on page 60*



**Students join the 2012 AMC.** 2012 Australian Mathematics Competition. One hundred fifteen (115) students from different schools in Davao Region participated in the 2012 Australian Mathematics Competition (AMC) held August 2, 2012 at Davao Central High School in Davao City. Seven schools participated including Philippine Science High School-Southern Mindanao Campus, Ateneo De Davao University, Davao Central High School, Precious International School of Davao, Holy Child School of Davao, Assumption College of Davao, and Colegio de San Ignacio. This event is an annual activity which aims to highlight the importance of mathematics as a curriculum subject. Furthermore, it gives every student an opportunity to discover talents in mathematics. AMC results will be announced in October 2012. (S&T Promotion Section, DOST XI)





**RHRDC XI entries recognized.** John Carlo L. Madrid (second from left) of San Pedro College won third place with the study entitled "The Antihyperglycemic and Antihypercholesterolemic Activities of the Capsule Formulation from the Whole Plant Extract of *Cynodon dactylon* Linn. Pers.(Bermuda grass)." Selected as finalists for the poster exhibit competition in the student category are "Optimization of Pectin Extraction from the Peels of *Citrus microcarpa* (Kalamansi) and Proximate Analysis of the Residue for Selected Parameters" by Michael A. Casas (fourth from right) of Ateneo de Davao University; and "The Water Formulation of *Cucumis sativus* (Cucumber) Peel Extract as an *Antihyperglycemic Agent*" by Oliver Y. Uy (leftmost) of San Pedro College; and in the professional category are "Inhibition of Angiotensin I-Converting Enzyme (ACE) by Indigenous Fermented Foods" by Dr. Dulce M. Flores, Mitchell Rey M. Toleco (sixth from right), and Kristine Mae Y. Abao of the University of the Philippines-Mindanao; and "Microbiological Quality Assessment of Selected Street Foods and Survey on the Hygienic Practices and Food Safety Attitudes of Vendors in Selected Areas of Davao City, Philippines" by Dr. Anthony C. Sales of DOST XI, Cecille A. Monton (fifth from right) of the Davao Food Safety Team, Dietmar Speckmaier of the Center for International Migration, and Jane Roldan and Ann Yngete

of the University of the Philippines-Mindanao. Meanwhile, for the oral health research competition in the student category, selected as finalist is the study "Phytochemical and Antimicrobial Screenings of Five Medicinal Plants used as Folkloric Medicine by Mindanaoan Lumads" by Rogelio L. Rivera (rightmost). Also in photo are Dr. Warlito C. Vicente (ninth from right), chair of RHRDC XI; Dr. Jaime C. Montoya (eighth from right), executive director of DOST-Philippine Council for Health Research and Development.

The entries were recognized during the 6th Philippine National Health Research System (PNHRS) Week Celebration at Sofitel Philippine Plaza, CCP Complex, Pasay City held August 8-10, 2012.

The 6th PNHRS Week Celebration is an annual event organized by DOST-PCHRD every second week of August by virtue of Proclamation No. 1309 signed in 2007. The celebration provides a platform for the different stakeholders to interact, learn from each other, share information and experiences, voice concerns of respective regions and contribute research-based solutions to health problems, among other things. This year's theme is "Sustaining Research Partnerships for Better Health." (*S&T Promotion Section, DOST XI*)



# DOST, Novartis bring Pinoy studies to Biocamp

By LUISA S. LUMIOAN  
S&T Media Service, STII

THE DEPARTMENT of Science and Technology and its partner, pharmaceutical company Novartis Philippines, recently gave two promising young scientists the rare opportunity to learn from biotechnology industry leaders and experts and interact with the best students from around the world.

Ruth Marian Guzman, a student of Master in International Health at the University of the Philippines-Open University and Henson Lee Yu, a Master of Science student in Molecular Medicine at St. Luke's College of Medicine were among the participants in International Biotechnology Leadership Camp (BioCamp) at the Novartis Headquarters, Basel, Switzerland held last August 26-29.

The two were selected based on academic excellence and professional focus from a shortlist of six candidates during a local BioCamp.

Guzman and Lee Yu, along with 58 other students from all over the globe, were able to learn about breakthrough medicines to address patients' unmet medical needs, understand trends and challenges in the bio-technology sector, listen to first-hand experience about starting and running a biotech company, and explore career opportunities in healthcare and biotech industries. They also had a chance to visit Novartis research laboratories and biologics facility.

"It was an enlightening experience for me. It broadened my perspective on how my work as scientist pursuing basic research is crucial in the context of translational medicine. I am more motivated now more than ever to pursue further studies with the goal of addressing unmet medical needs," related Guzman.

Guzman, also an instructor at Institute of Biology in University of the Philippines Diliman, added that she is excited to share this experience with the undergraduate and graduate students in the Philippines to encourage them to take up cell and molecular biology as a career.

Started nine years ago, International BioCamp is a venue for science and business students from around the world to learn, exchange ideas and work together in a highly competitive business environment.

## Local BioCamp

Meanwhile, the local BioCamp held last July 30, 2012 at Asian Institute of Management Conference Center featured important trends and business aspect of biotechnology.

Dr. Carmencita Padilla, executive director of Philippine Genome Center and professor and chair of Pediatrics at the University of the Philippines College of Medicine explained how the field of genomics is changing the landscape not only in health but also in other areas such as agriculture, energy, and forensics.

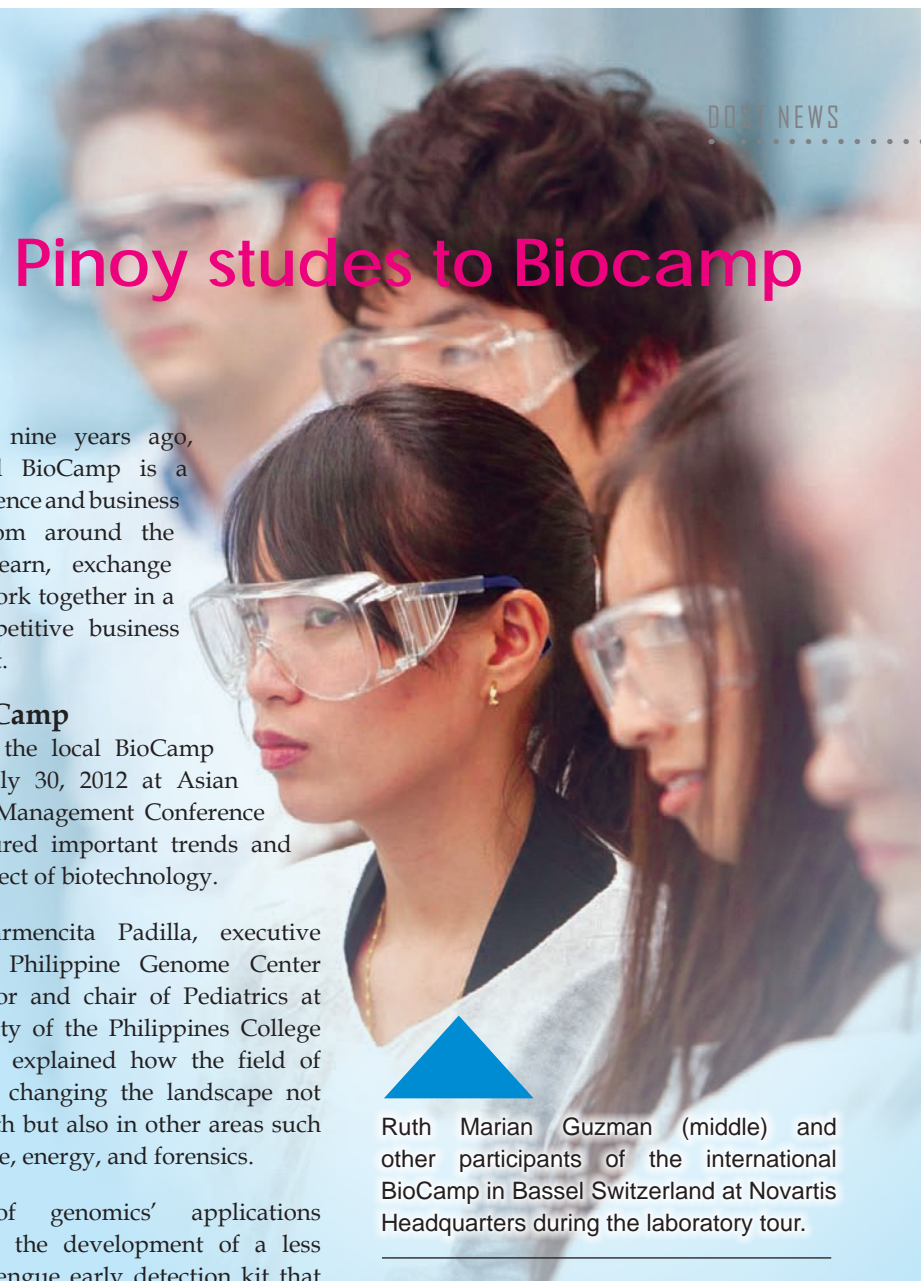
One of genomics' applications in health is the development of a less expensive dengue early detection kit that could impact public healthcare in terms of dengue management, she said.

She also mentioned the development of disease-resistant, high-yielding sugar cane that can help the agriculture sector.

Odelia G. Arroyo, Chief Executive Officer and President of Hybridigm Consulting Inc., the first biotechnology consulting firm in the country, explained the basics of biotechnology commercialization.

She expounded on pitching an idea or project to potential investors saying that "great pitches are like miniskirts which are long enough to cover the facts but short enough to make them (investors) want for more." She also discussed other processes involved in clinching deals with potential investors.

Other topics discussed in the local camp were "Transnational Research for Public Good" by former DOST Secretary Dr. William Padolina, "Innovating Infectious Disease Diagnostics" by Dr. Raul Destura, "The Role of Patent System



Ruth Marian Guzman (middle) and other participants of the international BioCamp in Basel Switzerland at Novartis Headquarters during the laboratory tour.

in Filipinovention" by Intellectual Property Philippines Deputy Director General Atty. Andrew Ong, and Building Regional Capacity for Research by Institute of Pharmaceutical Sciences Director Dr. Imelda Peña of National Institutes of Health UP Manila.

DOST Secretary Mario G. Montejó lauded Novartis for bringing the biotech opportunity to the Philippines once more through his message as delivered by Philippine Council for Health Research and Development Executive Director Dr. Jaime C. Montoya.

"This local BioCamp comes at a time when global scientific achievements and innovations of the past decade have led to effective management of many diseases and prevention of new infections," he said.

"I am proud of the strides of that have been made and optimistic about the future of biotech in the Philippines. Now more than ever it is time to engage in more public private partnership in biotechnology," he added.



## From hot logs to cool school desks

# DOST teams up with DENR, TESDA to use seized lumber in classrooms

By RIZALINA K. ARARAL  
S&T Media Service, *FPRDI*



Confiscated logs by the DENR are being processed into lumber by DOST-FPRDI's crew using the Institute's mobile sawmill (below) before turning them over to TESDA, which constructs the lumber into armchairs for public schools (left).



WHEN GOVERNMENT agencies work together in fighting illegal logging, public school children will benefit from the effort. This is what happened in CARAGA when hot logs were turned into cool pieces of classroom furniture.

Teaming up for this initiative are the Department of Science and Technology's Forest Products Research and Development Institute (DOST-FPRDI), Department of Environment and Natural Resources - Forest Management Bureau (DENR-FMB), and Technical Education and Skills Development Authority (TESDA).

"DOST-FPRDI takes charge of sawmilling the logs and flitches using its

mobile sawmill. The lumber is then turned over to TESDA in Prosperidad, Agusan del Sur which manufactures them into school desks, chairs and tables. DENR-FMB funds and supervises the project," explained FPRDI Director Romulo T. Aggangan.

Said logs and flitches were confiscated from illegal logging operators in CARAGA Region and are currently deposited at the Community Environment and Natural Resources Office (CENRO).

"DOST-FPRDI crew has been stationed in Nasipit, Agusan del Norte, sawmilling hot logs deposited at CENRO for the last seven months," added Director Aggangan. "FPRDI will also soon deploy

four units of mobile sawmills in CARAGA to sustain operations."

DENR realized that by turning millions of board feet of logs, flitches and lumber seized from illegal logging operators in CARAGA into classroom furniture, which is badly needed in many public schools, seized materials would be put to good use, Director Aggangan also said.

The project is in line with the implementation of Executive Order No. 23 declaring "a moratorium on the cutting and harvesting of timber in the natural and residual forests and creating the anti-illegal logging task force" issued last year by President Benigno Aquino III.



# Science in Painting



DR. JAIME Montoya and Dr. Ruben Villareal of the Department of Science and Technology - National Academy of Science and Technology's Philippine Science Heritage Center awarded first place to the entry of Ramon Magsaysay High School-

España to the first PSHC Painting Contest on September 14, 2012 at the Philippine Science Heritage Center, DOST Complex, Bicutan, Taguig City. The winning artwork conveyed the soul of the contest's theme "Tara na, Maglaro sa Bahay Siyensiya."

With the winning team are NAST Director Luningning E. Samarita (second from left ) and Taguig City Councilor Jaime Labampa representing Mayor Laarni Cayetano. (Photo by Gerry Palad/Text by Allan Ace Aclan)



Photos by Catherine Rose P. Josue



# DOST's super wi-fi to boost healthcare in the countryside

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



TELEMEDICINE, a healthcare option for folks in rural areas, will get further boost from the Department of Science and Technology's Super Wi-Fi.

A technology that allows virtual communication between patients and physicians at two different sites via set-up video and Internet connection, telemedicine is currently running through a broadband provided by Advanced Science and Technology Institute.

Introduced to government hospitals by DOST last year, telemedicine is now being utilized by the Philippine General Hospital, Veterans Memorial Medical Center, and Philippine Children's Medical Center for faster sharing of medical knowledge.

To extend telemedicine's benefits to the countryside, DOST's Information and Communications Technology Office is introducing Super Wi-Fi, an inexpensive internet connectivity with wider availability that will support long distance medical consultations for patients in remote areas of the country.

Super-Wi-Fi also called "television white space technology" will utilize channels with very high frequency and ultra high frequency bands like unused TV channels 3, 6 and 8 that serve as guard bands between commercial TV channels such as 2 (ABS-CBN), 7 (GMA) and 5 (TV5).

To date, only 24 percent of the population in the provinces has internet connection. Adopting Super Wi-Fi that is

less expensive than the existing wireless technology and faster (up to 6 Megabits per second data transfer) with wider coverage (up to 10 kilometers). As such, Super Wi-Fi is seen to bring quality healthcare services closer to Filipinos in rural areas.

Aside from telemedicine, Super Wi-Fi intends to offer data connectivity for other applications such as environmental sensor networks, educational content delivery, and government information systems.

Pilot tests of its equipment have already started since June this year in Quezon City Science Community, while tests are set for Visayas and Mindanao within the year. Equipment was from hardware providers Adaptrum of the United States and Neul Ltd. of the United Kingdom.

# DOST-ICTO assures support to the voice BPO industry

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



TO GENERATE US \$14.7 billion revenue, increase the country's global market share from 24 to 29 percent, and become number one in other markets-- these are the common aims that the voice business process outsourcing (BPO) industry and the Department of Science and Technology-Information and Communications Technology Office (DOST-ICTO) hope to attain by 2016.

"We in the government look forward to continuing and expanding our partnership with you to achieve our common goal to promote the Philippines as the country-of-choice for outsourced contact center services worldwide," DOST-ICTO Executive Director Louis Napoleon Casambre said in an international contact center conference September 18.

DOST-ICTO would adhere to the Philippine Digital Strategy 2011-2016 as a guide to continue its support to the contact center industry and IT-BPO industry in a broad spectrum, he added.

Having generated full-time employment for 406,000 Filipinos in 2011, voice BPO industry would get DOST-ICTO's continued support, according to Director Casambre, particularly in areas of industry capability, marketing and advocacy, and research and talent development.

For 2012, DOST-ICTO will support some industry initiatives by conducting workshops on information technology, and workshops for finance and human resource managers.

Currently, DOST-ICTO has ongoing programs such as Talent Development, Executive Development, Six Sigma Certification, and Next Wave Cities as well as on road map development for various segments of the IT-BPO industry to complement the "Industry Road Map 2016", he told conference delegates.

The 2012 International Contact Center Conference and Expo was organized by DOST-ICTO and Contact Center Association of the Philippines. With the theme "2020: The Future of Outsourcing," world's premier industry experts came and presented numerous topics related to voice BPO industry while panels of professionals imparted knowledge to around 5,000 delegates.





DOST Secretary Mario G. Montejo (second from right) witnesses the hand-over of the accreditation certificate from Ambassador Weber-Lortsch to Ms. Aurora Kimura (second from left), chief of the Metrology Division of DOST-Industrial Technology Development Institute.

## DOST's Metrology lab gets Germany's DAkkS accreditation for electrical measurements

By REGINALD DELA CRUZ  
S&T Media Service, ITDI

THE NATIONAL Metrology Laboratory (NML) of the Department of Science and Technology's Industrial Technology Development Institute (DOST-ITDI) recently received Germany's Deutsche Akkreditierungsstelle GmbH (DAkkS) accreditation for its proven competency in electrical measurements.

This is in addition to the laboratory's DIN EN ISO/IEC 17025: 2005 accreditation, also known as "general requirements for the competence of testing and calibration laboratories" it earned in 2010 for technical competence in the fields of mass, temperature and pressure.

NML's calibration certificates as well as the calibrated equipment of customers can now sport DAkkS logo and registration codes - the marks of utmost quality, reliability and international traceability.

Located in DOST compound in Taguig City, the laboratory provides dependable calibration services and convenience to local industries who no longer need to send their equipment abroad for calibration, thus saving transport cost and turnover time.

According to Aurora V. Kimura, chief of the laboratory, the DOST-ITDI metrology lab is the authority that establishes and maintains the country's physical standards

for basic and derived quantities such as mass, temperature, volume and the like. These national standards are also periodically calibrated by national metrology institutes worldwide to guarantee international traceability.

Currently, NML has ten calibration sub-laboratories, namely mass, force, pressure, length, electricity and frequency, temperature, hygrometry, photometry, density, and volume. The metrology lab implements the provisions of the National Metrology Act of 2003 (RA 9236) and offers calibration proficiency testing through inter-laboratory comparisons, trainings and consultancies.



# Dr. Montoya is 2012 Lingkod Bayan awardee

By LUISA S. LUMIOAN  
S&T Media Service, STII



His Excellency Benigno Simeon C. Aquino III confers the 2012 Lingkod Bayan Award to Dr. Jaime C. Montoya, executive director of the Department of Science and Technology's Philippine Council for Health Research and Development (DOST-PCHRD). Dr. Montoya received a gold-gilded medallion and a plaque containing the citation and signature of the President of the Philippines, P200,000.00 cash reward, and other forms of rewards and incentives. The Presidential or Lingkod Bayan Award is conferred on an individual or group of individuals for exceptional contributions resulting from an idea or performance that has nationwide impact on public interest, security, and patrimony. Dr. Montoya was cited for his pioneering efforts in developing the country's health research system by setting up health research consortia; supporting the development of diagnostic kits for life-threatening diseases such as leptospirosis and dengue through genomic and molecular technology; and working for the creation of the Association of South East Asian Nations' Network for Drugs, Diagnostics and Vaccines Innovation (ASEAN-NDI). Also in the photo is Dr. Francisco T Duque III, chairman of the Civil Service Commission which administers the award. *(Photo courtesy of Honor Awards Program Secretariat/Text by Luisa S. Lumioan, S&T Media Service, STII)*

OPPORTUNITY AND privilege. This is how Dr. Jaime C. Montoya, executive director of Philippine Council for Health Research and Development (PCHRD) of the Department of Science and Technology (DOST) sees his work in the government sector.

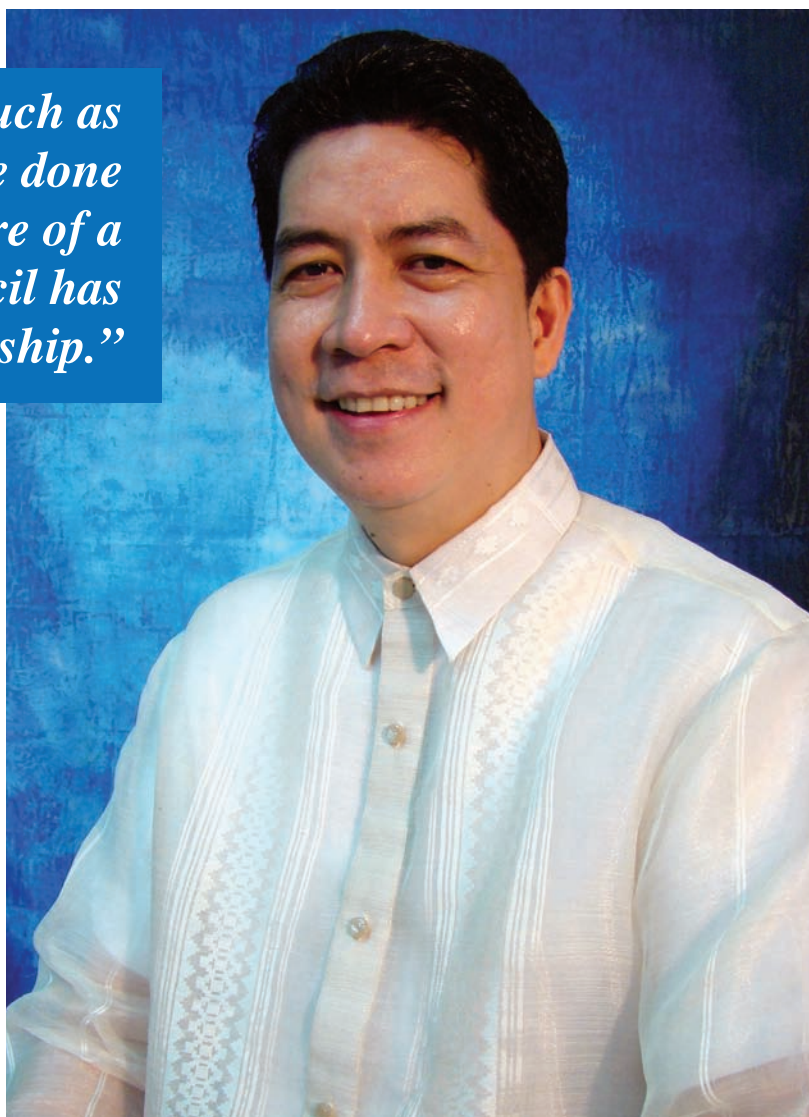
"Working in the government is an opportunity because one can use his position to leave a mark in Philippine society and contribute to the betterment of Filipinos, and a privilege, because only a few are

given the chance to utilize government support and resources to realize their goals and objectives," relates Dr. Montoya.

For the past seven years as the head of PCHRD, Dr. Montoya has seized every opportunity to further his goal of promoting and strengthening health research in the country. For his efforts, he earned the Presidential Lingkod Bayan Award which was conferred to him last September 19 by President Benigno Simeon C. Aquino III during the 112th anniversary of the Civil Service Commission.



*“I see this award not so much as a recognition of what I have done as an individual but more of a recognition of what the council has done under my stewardship.”*



The Presidential Lingkod Bayan Award is part of the Honor Awards Program of the Civil Service Commission which is an annual undertaking to recognize public officials and employees for outstanding performance and/or contributions and for consistent ethical behavior. The honor awards aims to motivate government employees to improve the quality of their performance and instill deeper involvement in public service.

Dr. Montoya was cited for his pioneering efforts in developing the country's health research system by setting up the Regional Health Research Development Consortia; supporting the development of diagnostics kits for life-threatening diseases such as leptospirosis and dengue through genomic and molecular technology; and working for the creation of the Association of South East Asian Nations' Network for Drugs, Diagnostics and Vaccines Innovation (ASEAN-NDI).

The establishment of Regional Health Research Development Consortia (RHRDC) in all 17 regions of the country including the Autonomous Region for Muslim Mindanao, has empowered and enhanced the capacities of health researchers nationwide. Researchers in the provinces have more access to funding for their researches. Furthermore, regions are empowered to create their own programs and formulate activities that will enhance the research capability in their locality and address their particular health research needs.

Meanwhile, the development of diagnostic kits for dengue and leptospirosis, one of the projects being funded and supported by PCHRD, aims to provide our countrymen fast, reliable and more affordable diagnostics for the said diseases.

On the other hand, ASEAN-NDI, an international initiative now adopted by

Association of South East Asian Nations, helps promote regional collaboration in research and development of traditional medicines, vaccines and diagnostic procedures for tropical diseases, as well as secure funding from World Health Organization-Tropical Disease Research.

While very much honored, Dr. Montoya was surprised to have been chosen to receive the award. “I really did not expect it because I have been with PCHRD for only less than seven years and I felt I still had to do more,” he said.

Duly recognizing the contribution of PCHRD and other institutions and individuals who worked towards achieving his goals, Dr. Montoya expressed, “I see this award not so much as a recognition of what I have done as an individual but more of a recognition of what the council has done under my stewardship.”

In leading the council, Dr. Montoya says he has always been guided by the tenets of SERVE--See the future (have

a vision) and share it with everyone in the organization; Engage individuals to participate in the realization the organization's objectives; Reinvent oneself to keep up with the developments and remain relevant to the times; Value results and relationships by duly recognizing the people's contribution and challenging them to realize their full potential; and Embody work ideals of ethics and integrity.

“These tenets have enabled me to develop our people such that the organization can run even if the leader is not there. I have always believed that no one is indispensable. Leaders come and go but the organization remains.” Dr. Montoya added.

Dr. Montoya imparts this message to his fellow government workers: “Whatever branch or agency we belong to, whatever our position whether as leader or rank and file, we always have to bear in mind that this is a public trust. Our position is both an opportunity and a privilege that we should use wisely.”



# New Academicians at DOST-NAST

By ALLAN ACE W. ACLAN  
S&T Media Service, *STII*

THE NATIONAL Academy of Science and Technology recently conducted the investiture of three new Academicians namely Engr. Jose B. Cruz Jr., PhD. (Electrical Engineering), Michael L. Tan, PhD. (Anthropology), and Dr. Alfonso M. Albano (corresponding member).

The Academy membership is a peer recognition for individuals who have demonstrated and earned distinction in various scientific and technological pursuits.

Engr. Jose B. Cruz Jr. was recognized for his outstanding accomplishment as a scientist and as an educator. His contributions to the dynamic game theory, Stackelberg (leader-follower) games have directly resulted in two economists winning the Nobel Prize in economics.

The said theory is also applied to disaster science and renewable energy. Moreover, Cruz was credited for his significant scientific and technological contributions in the field of electrical engineering.

Dr. Michael L. Tan, meanwhile, was recognized for his sustained outstanding researches, teachings, advocacies, and development work that demonstrate the usefulness of social scientific knowledge in advancing translational medicine. Cited in particular was his consistent efforts to revitalize scientific research on the understanding of the social and behavioral dimensions of HIV/ AIDS prevention and reproductive health promotions. He is currently the dean of the College of Social Science in UP Diliman.

Dr. Alfonso M. Albano, elected corresponding member because he is

based abroad, was recognized for his contributions in laying the theoretical foundation for the description of transport processes along the dividing surface between two dissimilar media and the refinement of computational techniques for the analysis of data from complex systems. He was also a DOST Balik Scientist in 2008 and 2009.

The three new academicians were conferred during the 34th Annual Scientific Meeting with the theme "Philippine Water 2050." The annual event gathers experts from all over the country to discuss how science and technology can respond to the national goals and purposes. It aims to provide analysis and scientific -based recommendations to the government and other sectors in the country







## Dr. Edsel Salvana is one of the Ten Outstanding Young Persons of the World

By ALLAN ACE W. ACLAN  
S & T Media Service, STII

THE DEPARTMENT of Science and Technology's Balik Scientist Dr. Edsel Maurice Salvana was nominated for this year's annual Ten Outstanding Young Persons (TOYP) of the World award.

The TOYP award is an international award conferred by the Junior Chamber International (JCI), an international non-profit organization of people aged 18 to 40 who focus on creating positive change in their communities.

On its 30th anniversary, JCI opened an online voting poll where young people around the world can participate in selecting the awardees.

The 37-year old HIV expert landed on the third place in the online poll with a

total vote of 2,000. The voting ended up last August 20, 2012.

Dr. Salvana is an expert in internal medicine, infectious diseases, and tropical medicine. He is currently chief fellow of the Division of Infectious Diseases and HIV Medicine of the Case Western Reserve University, and University Hospitals of Cleveland in Ohio. He left a productive career in the US last 2008 to return to the country as a DOST Balik Scientist. Having studied the HIV epidemic in Africa and the US, he was disheartened to find out that the disease was also on the rise in the Philippines.

Salvana's advocacy against HIV/AIDS had gained international recognition when he presented educational and action-oriented speeches to the United Nations and US Peace Corps. He had also received many awards, including Outstanding Young Scientist for 2010 by the National Academy of Science and Technology for his work in tropical medicine.

Originally established in 1975, DOST's Balik Scientist Program aims to support and strengthen the scientific and technological human resources in the Philippines and reverse the effects of migration of experts by encouraging Filipino scientists and technicians to return to the country and share their expertise and promote scientific and economic development.





UST students receives their PCHRD-Gruppo Medica Award during the Philippine National Health Research System Week held at Sofitel Manila

## DOST gives Gruppo Medica award to *tawa tawa* study as possible cure for dengue

By EDMON P. AGRON  
S&T Media Service, PCHRD

THE DEPARTMENT of Science and Technology recently awarded first prize to a study on *tawa-tawa* during the Philippine Council for Health Research and Development's Gruppo Medica Award. Researchers in said study were Ranya Akhrisi, Jhamaica Alanis, Edmerose Alas, Marc Oliver Armeña, Angeline Barrosa, James Victor Gan, Anna Andrea Sabado, Christanne Deanne Santiago, and Leah Corinna of the Faculty of Pharmacy of the University of Sto. Tomas in Sampaloc, Manila.

*Tawa-tawa* (*Euphorbia hirta*), also known as "gatas-gatas" in some parts of the Philippines, is a hairy herb grown in open grasslands, roadsides, and pathways. Many people have attested that this indigenous plant can cure dengue patients, making *tawa-tawa* one of the most popular "folkloric medicine" for dengue in the Philippines.

Despite its widespread use in the country, however, there had been no hard evidence to back its curative effect. *Tawa-tawa* and other Philippine herbs are current research priorities in DOST's drug development program which looks into natural substances from plants and animals as possible sources of cure for diseases.

DOST Secretary Mario Montejo said, "Natural products research in the country is being refocused and modernized by DOST as competition in the increasingly global industry becomes more intense."

To dig into *tawa-tawa's* alleged effectiveness as cure for dengue, students of the University of Sto Tomas (UST) – Faculty of Pharmacy in Manila City embarked on a study entitled "Investigation of the anti-thrombocytopenic property of *Euphorbia hirta* Linn (*tawa-tawa*) decoction in rat models." The study looked into the effects of *tawa-tawa* on dengue hemorrhagic fever (DHF) patient showing symptoms of low platelet count due to excessive bleeding or thrombocytopenia.

In the study, the students used certain drugs on rat models to mimic dengue hemorrhagic fever. They administered *tawa-tawa* decoction to the sample groups and collected blood samples to check for platelet count, bleeding time (duration of bleeding), and blood clotting times in several stages of the experiment.

Results showed that platelet count increased to 47 percent, depending on the drug used. Bleeding time was reduced up to 62 percent while blood clotting time

decreased to 58 percent compared with the control groups.

The researchers then concluded that administering *tawa-tawa* decoction to animal models helps improve their healing mechanism. *Tawa-tawa* was able to promote cell production and prevent platelet destruction. Improvement in the cell bleeding and clotting time showed that the indigenous plant can preserve and promote the hemostatic function of platelets.

The students also discovered in *tawa tawa* the presence of phenolic compounds, active ingredients assumed to be responsible in the increased platelet counts of tested animals.

Ryan Justin Raynes, one of the student researchers, said that through a phenolic determination assay, they were able to identify 'minute' phenolic compound in *tawa-tawa* samples. "Although there were small amount of phenolic compound in *tawa-tawa*, this was sufficient to exert effect promoting quality and quantity of platelets," Raynes said.

PCHRD – Gruppo Medica Award is given to undergraduate students engaged in herbal medicine research that have potential for practical or commercial applications.



# DOST Academician Romulo G. Davide gets Ramon Magsaysay Award

By DARVIN S. ROSA  
S&T Media Service, NAST

ACADEMICIAN ROMULO Davide of the Department of Science and Technology's National Academy of Science and Technology (DOST-NAST) is one of the six Ramon Magsaysay awardees for 2012. According to the Ramon Magsaysay Award Foundation, Davide was cited for "his steadfast passion in placing the power and discipline of science in the hands of Filipino farmers, who have consequently multiplied their yields, created productive farming communities, and rediscovered the dignity of their labor."

Davide, 78, is known as the "Father of Plant Nematology" for his groundbreaking research on nematode pests that infest, debilitate, and destroy agricultural crops. His pioneering and significant studies include host-parasite relationships, national survey and identification of nematodes infesting economic crops, and their cultural and biological control. Said researches enriched Philippine nematology and earned him international recognition and the distinction of being the first Filipino to be included in the "Who's Who" in nematology.

His researches on the cultural and biological control of nematodes have provided the Filipino farmers effective tools against nematodes, thereby increasing yield and income. Davide developed the first Philippine biological control agent called Biocon that can be used against nematode pests attacking vegetables, banana, potato, citrus, pineapple, and rice, among others. The product is an essential practical substitute for highly toxic and expensive chemical nematicides. Biocon is sold in the country as well as in Australia and Germany.

Davide also developed the Farmer-Scientists Research, Development, and Extension Program that empowered upland farmers in Cebu in identifying appropriate technologies for their farms, and equipped them with new knowledge and technologies. Said farmers' productivity, as well as their entrepreneurial capability,



greatly improved. Through his leadership and initiatives, this program is now adapted nationwide.

With the support of UPLB- College of Agriculture, he introduced to farming communities the use of several high-yielding varieties of corn, root crops and legumes that improved crop productivity.

He also introduced to farmers microbial fertilizers such as the UPLB-BIOTECH products BIO-N and NITROPLUS. These products can reduce the use of organic and inorganic fertilizers saving farmers more than PhP3,000 per hectare.

Davide is also recipient of other prestigious awards in the past, including the Gregorio Y. Zara Award for Applied Science by the Philippine Association for

the Advancement of Science, Inc. (1986), Jose Rizal Pro Patria Gold Medal Award by the Philippine government (1994), and the Outstanding Agricultural Scientist by the Department of Agriculture (1994), among others.

Davide acquired his BS Agriculture degree from UP Los Banos (1957), MS degree from the Oklahoma State University (1962), and his PhD from the North Carolina State University (1966).

The Ramon Magsaysay Award, named after the late Philippine President Ramon Magsaysay, was established to perpetuate the former Philippine President's example of "integrity in government, courageous service to the people, and pragmatic idealism within a democratic society." The award, considered as Asia's Nobel Prize, was in April 1957 by the New York City-based Rockefeller Brothers Fund with the concurrence of the Philippine government.

For 2012, six individuals received the prestigious award for their significant contributions in government service; public service; community leadership; journalism, literature and creative communication arts; peace and international understanding; and emergent leadership. Other Magsaysay awardees for 2012 include Chen Shu-Chu from Taiwan, Kulandei Francis from India, Syeda Rizwana Hasan from Bangladesh, Yang Saing Koma from Cambodia, and Ambrosius Ruwindrijarto from Indonesia.

Each awardee will receive certificate, Magsaysay medallion, and \$50,000 cash prize during the Presentation Ceremonies on August 31, 2012 at the Philippine International Convention Center in Pasay City.

The 2012 recipients are the latest additions to the 290 laureates who received Asia's highest honor to date. DOST-NAST members who previously received this award include Acd. Angel Alcala, Acd. Christopher Bernido and his wife Dr. Ma. Victoria Bernido, and the late National Scientist Fe del Mundo.



*Science journalists . . . from page 47*

Dr. Jinky Leilani Lu, a research professor of the National Institute of Health (NIH) University of the Philippines Manila, shared on the environmental and occupational health impacts of pesticide exposure and residues. According to Dr. Lu, there is an increasing reliance on pesticide use in the country's agriculture yet its deleterious effects on the community have not been widely recognized. Lu likewise informed participants of the 28 banned and restricted pesticides in the country.

Dr. Lu requested PSciJourn members to inform farmers that the NIH is willing to examine soil and water samples to determine the presence of pesticide residues, and whether or not the amount exceeds the set standard in order to set proper precautions for the safety of their respective communities.

Meanwhile, Dr. Carlos Primo David of the National Institute of Geological Sciences at the University of the Philippines Diliman discussed "Solving the problem of floods and other water-related issues." There are three water-related problems, according to Dr. David. One is on water scarcity, another is on flooding, and another is on water pollution.

He introduced different maps that showed various data, such as location of watersheds in the country, watershed population, rainfall, and even water district rates. Water rates in various areas, David said, depend on the percentage of lost water (also called non-revenue water) and on water connection density or the number of connections per square area.

David also presented the latest disaster risk management initiative of the Department of Science Technology, the Project NOAH or Nationwide Operational Assessment of Hazards. The project's website can provide rainfall probability within a few hours in certain areas, as well as important information on flood, rain, weather outlook, and weather stations, among others.

PSciJourn is a nationwide organization of Filipino science journalists founded in 2001 and organized by DOST-Science and Technology Information Institute.



**DOST's "star" exec gets Gawad sa Natatanging Kababaihan award.** Dr. Josette T. Biyo, executive director of the Department of Science and Technology's Philippine Science High School system, received the Gawad sa Natatanging Kababaihan by the Komisyon sa Wikang Filipino (Commission on Filipino Language) on its 5th anniversary last Aug. 24, 2012 at the Bayleaf Hotel in Intramuros, Manila. Along with 12 other exemplary women, Biyo was awarded for her exemplary support to the National Language of the Filipinos in the field of science and technology. On her award, Biyo said, "I feel honored to be a part of this league of women. I know a lot of other women deserve this award. "In 1998, the asteroid 13241 Biyo (1998 KM41) was named after her when she won the 2002 Intel International Science and Engineering Fair in Louisville, Kentucky. Biyo is the first Asian teacher to win the Intel Excellence in Teaching Award. (Text by Framelia V. Anonas, S&T Media Service, STII / Photo by DOST-PSHS)





Secretary Mario G. Montejo presents the DOST's side on the ongoing DICT debate in a forum organized by the Management Association of the Philippines (MAP) at the Hotel Intercontinental-Makati. He argued that it may no longer be necessary to create a Department of Information and Communications Technology since the Department of Science and Technology has the competence and experience to uphold the interests of the ICT sector. **(Alan C. Taule, S&T Media Service, STII)**



The ten Outstanding Young Scientist (OYS) awardees for 2012. Dr. Michelle Grace V. Paraso, environmental science, University of the Philippines (UP) Los Baños; Dr. Marcos B. Valdes Jr., animal genetics, Ateneo de Manila University (ADMU); Dr. Leslie Michelle M. Dalmacio, molecular biology and biotechnology, UP Manila; Dr. Thomas Edison E. De la Cruz, mycology, University of Santo Tomas (UST); Dr. Wilfredo A. Dumale Jr., biological and environmental engineering, Nueva Vizcaya State University; Dr. Dindo Agustin A. Tabanao, applied plant sciences, Philippine Rice Research Institute; Dr. Gemma Teresa T. Narisma, atmospheric science, ADMU; Dr. Bernard John V. Tongo, applied chemistry, UST; Dr. Derrick Ethelbert C. Yu, chemistry, De La Salle University; and Dr. Ronald U. Mendoza, economics, Asian Institute of Management. The OYS Award was conferred during the DOST-National Academy of Science and Technology's Annual Scientific Meeting on July 12, 2012 at the Manila Hotel.



As a sign of symbolic value, DOST Sec. Mario G. Montejo (right) hands a gift to Ambassador Roberto Carlos Vallarino Moreno (left) of Panama who paid a courtesy call on July 26, 2012 at the DOST Central Office, Taguig City, Metro Manila. **(Photo by Gerardo Palad/Caption by Allan Ace Aclan, STII)**



Department of Science and Technology Secretary Mario G. Montejo (middle) administers the oath of office of Dr. Rowena Cristina L. Guevara (seventh from right) as Executive Director of Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) of DOST, succeeding Dr. Amelia P. Guevarra who was promoted to the position of Undersecretary for Research and Development of DOST. Dr. Guevara was the former Chair of the Department of Electrical & Engineering in UP Diliman campus (2007-2010) and former Executive Director of the National Engineering Center (2004-2010). She was also the former Program leader for the Engineering Research and Development for Technology (ERDT) Project of DOST (2007-2010).



Medical procedure over the net. Surgeons based in Japan monitor a surgical procedure being done in Canada in real time through telemedicine. The Department of Science and Technology (DOST) promotes the use of telemedicine to various government health institutions to harness the power of communications and information technologies for faster delivery of clinical care. Telemedicine is provided through DOST's Philippine Research Education Government Information Network (PREGINET), the only research and education network in the Philippines interconnecting and catalyzing research among academic, government and research institutions. DOST, through its Advanced Science and Technology Institute, facilitated telemedicine sessions to the Veterans Memorial Medical Center and Philippine General Hospital to strengthen the hospitals' capabilities in providing better health care services. **(S&T Media Service)**

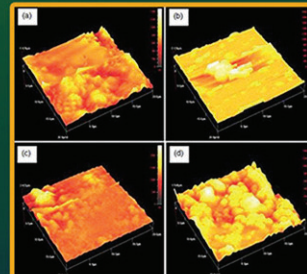
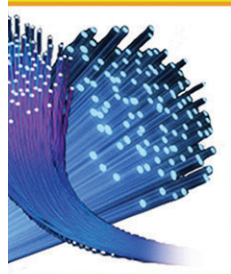


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