



Making science
work for you

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First food processing innovation center launched in Davao City

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

The Department of Science and Technology (DOST) launched the first ever food processing innovation center in the country last May 15, 2014 at the Philippine Women’s College (PWC) of Davao in Matina, Davao City. The launch formally ushered a more dynamic food industry whose gains will cascade down to micro, small, and medium-sized enterprises, especially for those based in the region.

The P5.3M facility is a joint undertaking among the DOST, PWC, Department of Trade and Industry, Food Processing Association of Davao, and the local government of Davao City.

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Department of Science and Technology (DOST) Region XI Director Dr. Anthony C. Sales signs the Pledge of Commitment at the recently opened Food Processing Innovation Center – the first facility of its kind in the country. The signing and recitation of the pledge was one of the highlights during the launching of the facility poised to catapult Davao’s micro, small, and medium-based enterprises into world-class status.

DOST & DENR launch info center for Yolanda rehab

By FRAMELIA V. ANONAS
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Sec. Montejo demonstrates the use of hazard map, particularly in rebuilding the Yolanda-ravaged Tacloban City. The map is acquired and processed by the DOST-UP project “Disaster Risk and Exposure Assessment for Mitigation.” (S&T Media Service)

The Department of Science and Technology and the Department of Environment and Natural Resources jointly launched last May 17 the Yolanda Rehabilitation Scientific Information Center (YoRInfoCenter) to provide scientific data to national agencies and humanitarian organizations concerned with the rehabilitation of areas in Eastern Visayas ravaged by typhoon Yolanda.

YoRInfoCenter will serve as a one-stop shop that would provide government agencies and private organizations, local or foreign, with the latest satellite imageries and high resolution hazard maps that can be used as references in the rehabilitation effort.

It was launched at the UP Diliman National Engineering Center where it would be housed and manned by experts from the DOST Project Noah and its component called DREAM (Disaster Risk and Exposure Assessment for Mitigation), and the DENR’s Mines and Geosciences Bureau.

“We are providing data like the latest satellite imageries and high resolution

topographic maps for Yolanda areas,” Science Secretary Mario Montejo said

“We are also providing multi-hazard maps on floods and areas that could be prone to landslides and storm surges. On top of that we have experts that can be consulted about these datasets.” Montejo added.

“The DOST and the DENR have been using these information for the Yolanda effort but we have been getting numerous inquiries from many groups for these data. That’s why we have decided to come up with this center as a one-stop shop”, Montejo concluded.

“Indeed, there are many humanitarian groups working for the rehabilitation, and they would need our scientific data especially to determine hazard zones, in their effort to support government in building back better,” he said.

The DOST through the DREAM Program has launched earlier this year the SMARTER Visayas initiative Satellite-based Monitoring and Assessment of Rehabilitation in Typhoon-affected Regions (SMARTER Visayas) where it acquired the latest satellite imageries to assess damage of Yolanda.



The winners of the Geospatial World Policy Award present their trophy. From left to right: Prof. Eric Paringit, Associate Professor at UP Diliman, DOST Sec. Mario Montejo, Mrs. Montejo, and Mrs. Cecilia Rebong, Ambassador and Permanent Representative of the Philippines to the United Nations. (Photo from: LAsTools Facebook)

First food ...
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According to DOST Region 11 Director Dr. Anthony C. Sales, the facility “aims to produce value-added agricultural and fishery food products by becoming the hub for innovations and technical support services for the food processing industry in Davao region.”

Said support services include food testing, information, packaging and labeling design, consultancy services, trainings, and seminars. Through these services, the facility likewise aims to become a springboard for Davao’s food processors to reach local and global standards in processing technology.

“Food processing contributes more than 40 percent of the Philippines’ major manufacturing output,” said DOST Undersecretary for Regional Operations Carol M. Yorobe during the launching attended by representatives of the partner agencies, stakeholders, and the media. Yorobe added that the establishment of a food processing innovation center in every region of the Philippines is part of DOST’s S&T interventions for the food industry.

Housed within the PWC grounds at the heart of bustling Davao City, the center is GMP (Good Manufacturing Practices)-compliant and boasts of fabricated equipment by DOST’s Industrial Technology Development Institute as part of the Department’s High-Impact Technology Solutions program. These equipment hasten the production process and improve food and packaging quality in order to enhance product marketability and enable products to withstand transport.

Among these equipment are the vacuum fryer which allows frying of vegetables, root crops, mangoes, and jackfruit without eliminating their color and natural flavor; spray dryer which provides a faster and more efficient drying method and better control of powder quality; and the water retort which offers retortable pouch packaging as a low-cost, environment-friendly, and more convenient alternative. Retort refers to the method of heat sterilization that frees food products from pathogens, making the food shelf stable.

The food processing innovation center is also equipped with a vacuum evaporator for coco honey, tomato paste and condensed milk; freeze dryer for meats, fruits, and vegetables; vacuum packaging machine ideal for foods stored and packed in retortable pouches like cereals, nuts, cured meat, chips, and the like; and the immersion freezer which ensures faster cooling process.

The launch was highlighted by the recitation of the Pledge of Commitment by officials and representatives of the partner agencies. “Effective technology application and deployment are possible with the partnership of government and the academe,” Yorobe stressed.

Davao Region’s pioneering food processing innovation center also serves as a common service facility for food technology students and professors.

DREAM come true

DOST-UP project wins geospatial excellence award

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

The Department of Science and Technology’s (DOST) 3D mapping project called Disaster Risk Assessment, Exposure and Mitigation-Light Ranging and Detection Technology (DREAM-LiDAR) won the prestigious Geospatial World Excellence in Policy Implementation Award for 2014.

DOST Secretary Mario Go Montejo and DREAM program leader Dr. Enrico Paringit received the award on May 8 in Geneva, Switzerland.

A component of the Nationwide Operational Assessment for Hazards (Project NOAH), the DREAM-LiDAR addresses and helps mitigate the effects of flooding disasters in the country. This is done by collecting precise geospatial data with LiDAR to produce detailed topographic information that will enable the creation of more accurate flood inundation maps. Led by Dr. Eric Paringit, DREAM-LiDAR is by far the biggest single project that a research unit in the entire University of the Philippines system has ever undertaken.

The project’s main deliverable is an accurate national terrain elevation map to be used for creating flood plain inundation maps and for performing on-demand flood simulations. The digital terrain maps will cover all relevant river basins with one-meter horizontal resolution and 20-centimeter vertical accuracy.

The project has purchased three airborne LiDAR scanners and leased three small fixed-wing aircraft to survey 18 large river basins that total more than 100,000 square kilometers in area which is about one-third of the country.

The project requires elaborate preparation and training of local staff to carry out various technically challenging tasks such as hardware installation, flight planning, LiDAR quality checking, data pre- and post-processing, and flood modeling, among others.

DREAM-LiDAR, considered as a unique role model for the region, offers the opportunity of acquiring equipment, training local staff, and educating the public, as well as adding excitement to many young Filipino researchers.

Creating technical expertise as it is implemented in an educational institution, DREAM-LiDAR is constantly training and self-educating the local staff. Upon completion of the project, it is expected to have created a pool of highly-skilled LiDAR and Flood Mapping experts. These experts can apply their technical knowledge and skills in government agencies and commercial enterprises and get further value from the collected elevation data or innovate for novel 3D applications.

Aside from producing both product and expertise needed to exploit data at a much lower overall cost while also creating new tax-paying high-tech jobs across the Philippines, DREAM-LiDAR also hopes to inspire other nations in charting their own national mapping programs.

The DREAM-LiDAR project is housed at the National Engineering Center of the University of the Philippines Diliman in Quezon City.

Meanwhile, the Geospatial World Magazine owned by Geospatial Media and Communications (formerly GIS Development) conferred the award to DREAM. (S&T Media Service)

Gamma-ray scanning technology now available at DOST

By HANS JOSHUA DANTES
S&T Media Service

The Department of Science and Technology - Philippine Nuclear Research Institute (PNRI) is offering its services using Gamma Ray Column Scanning Technology to assist the local industries, such as oil refineries and petrochemical plants, in the inspection and investigation of process vessels. This technology makes it possible to “see” inside a process vessel, such as distillation columns in refineries or petrochemical industries, and quickly identify its problems without interrupting normal plant operations. Such technique saves the client company time, money, and other resources.

Called density profile, the technique provides significant information on the condition of the whole process and the vessel itself. Engineers, using the technology, can identify damaged or missing trays and their positions, extent of flooding and its location, liquid weeping and foaming, liquid levels, and blockages, among others. Thus engineers and operators can determine the status of the column and consequently make arrangements for maintenance and troubleshooting to prevent emergency shutdown.

Since the process does not involve direct contact with the insides of the vessels, it also avoids potential corrosion, temperature or pressure problems.

This precision nuclear tool could prove useful beyond troubleshooting structural

problems. The data gathered may also be used to improve the structures and processes of the plant, thus making them more efficient and reducing production down-time in cases of programmed shutdowns.

Meanwhile, process columns are crucial components in refining crude oil to turn it into valuable fuel, as well as in sustaining the plant’s cooling systems, among others. Plant shutdowns for maintenance could cost around \$1,200 per hour overseas, translating into millions of pesos in losses everyday for the local operators.

Prospective clients of the gamma-ray column scanning service range from members of the oil industry to operators of chemical plants.

Since the late 1990s, PNRI experts have provided gamma-ray services to major oil companies with local operations in the Central and Southern Luzon and local petrochemical companies. The DOST Grants-in-Aid project also kept the service and equipment upgraded with automated data-logging software and scanning systems.

For more information on gamma column scanning, please contact Section Head Adelina Bulos of the PNRI Isotope Techniques Section in Commonwealth Avenue, Diliman, Quezon City or call us at 929-6011 local 225 or 240. You can also send your queries at isotopetechniques@pnri.dost.gov.ph.



Gamma-ray column scanning technology, vital for oil and petrochemical companies need for quicker and more precise inspection of process vessels, is now available at the Department of Science and Technology-Philippine Nuclear Research Institute. (Photo courtesy of DOST-PNRI)



PLANNING AHEAD OF DISASTERS. A City Disaster Risk Reduction Manager (CDRRM) reaches out to post one component of his community’s disaster early action plan during a workshop for the 17th and final leg of “Iba Na Ang Panahon: Science For Safer Communities” (INAP-S4SC) at the Philippine International Convention Center held from May 29-30, 2014. INAP-S4SC is a joint information and education campaign (IEC) by the Department of Science and Technology, Department of the Interior and Local Government, and the Office of the Civil Defense. It provides an avenue for local chief executives and CDRRMs to map out plans of mitigating losses during calamities through DOST’s cutting-edge early warning systems. The National Capital Region leg also incorporated business and services continuity plans that will be adopted by the cities in the future. The IEC went around the country’s 17 regions during a three-month period to help communities design their disaster communication protocols by incorporating high-tech warning tools. (Photo by Henry De Leon, S&T Media Service, DOST-STII)



Battle of the bulbs



Biogas



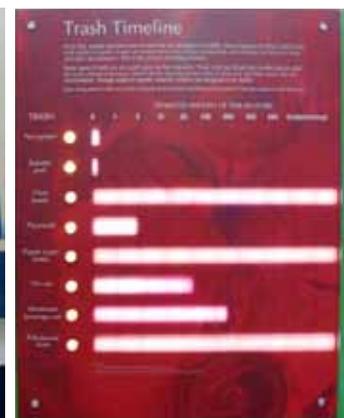
Recycling



Dual flush toilet



Water...every drop counts.



Trash timeline

Nine fun ways to learn about the environment

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

The summer heat may be scorching and school is out but it does not mean you give learning a break. In fact, knowing more about the environment has just been made more fun by nine new interactive exhibits sponsored by the Department of Science and Technology – Philippine Council for Industry, Energy and Emerging Technology (DOST-PCIEERD).

Set up at the Science Centrum in Marikina City, said interactive exhibits explain the effect of wastes, how to minimize waste and maximize the use of energy to protect the environment.

Battle of the Bulbs. Incandescent, halogen, compact fluorescent lamp (CFL), and light-emitting diode (LED) bulbs were installed in respective compartments to compare their efficiency in terms of brightness, life span, electric consumption, and amount of heat generated. The LED bulb appears as best choice for those who want to maximize resources as it had the brightest light, longest life span, and least power consumption.

Recycling. Some materials in the garbage, considered as waste, can actually be processed back into their original, raw form and used in making the same material or other products.

E-Waste. Recycling electronic wastes are best left to the pros because backyard recyclers

are exposed to health risks when they extract valuable materials from electronic devices.

Biogas. This exhibit shows how biodegradable wastes produce methane gas that can be used as fuel for the kitchen stove. A digester tank is filled with biodegradable wastes, and produces bubbles on the other tank which is filled with water. Methane, produced by microorganisms breaking down the wastes, causes the bubbling.

Phantom Power. Putting appliances on standby mode does not really turn them off, as they continue to use electricity. A television set, for example, consumes 8.2 watts in stand by mode. Chargers and extension cords do consume electricity when plugged in, even if they are not connected to gadgets or appliances. To save power, experts advise to pull the plug off the wall socket.

Trash Timeline. Garbage matters do not decompose at the same rate, or may not decompose at all. Newspapers, for example, decompose within a year, plywood in eight years, tin cans in more than 50 years, while glass bottles and styrofoams may not decompose at all (undetermined).

Dual Flush Toilet. This kind of toilet is now commonly used, with the half button for liquid waste and the full button for solid waste. But do you know how much liters of

water are used in flushing your waste? Three liters of water are actually used to flush down liquid wastes, and six liters for the solid ones. Thus, using dual flush will help bring down our monthly water bill.

Surface Runoff. Lowlands at the foot of bare mountains get easily flooded during a heavy rainfall compared with lowlands at the foot of mountains full of trees and vegetation. It is because water is absorbed by the trees and vegetation, preventing floods and other risks.

Water... Every Drop Counts! This exhibit shows how much water you use in some activities and how you can save water by trying other alternatives. For example, car washing using a garden hose makes you spend 122 liters of water but when you use a pail, you only spend 35 liters. Taking a bath under the shower uses up 148 liters but the Filipino way of using pail and dipper (“tabo”) is much more economic at 30 liters.

All of the said exhibits have button controls such that even young kids can enjoy the experience of viewing and using them. So while schools are not yet back, add fun to summer by visiting these exhibits at the Science Centrum, open Mondays to Saturdays, 8am to 5pm at the Riverbanks Center in Marikina City.