



Making science
work for you

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PH's first offline digital library helps rebuild Eastern Visayas after Yolanda and Ruby

Yolanda may have ravaged Region 8 in 2013, and Ruby destroyed in 2014 what was rebuilt from the spoils, but the local's thirst for knowledge can not be crushed.

The biggest proof of this is the additional five units of STARBOOKS or Science and Technology Academic and Research-Based Openly Operated Kiosk Station turned over at Southern Leyte State University (SLSU) in Sogod, Southern Leyte to be deployed in Bontoc, San Juan, Hinunangan, and Tomas Oppus, all in Southern Leyte.

Developed by the the Department of Science and Technology - Science and Technology Information Institution (DOST-STII), STARBOOKS is a one-stop-shop for S&T information that can be accessed without the aid of Internet. This digital library gives students and other interested individuals access to a wealth of digitized S&T information materials including books, journals, theses, dissertation, encyclopedia, and even livelihood videos that offer income opportunities.

Last year, Encyclopedia Britannica was integrated in the STARBOOKS content to broaden its user base to include elementary and high school students.

"We are helping our fellows in Eastern Visayas to get back on their feet by providing

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Searching for "Ruby". Southern Leyte State University Vice President for Academic Affairs Dr. Lorelie P. Duarte searches for some information about Typhoon Ruby at the Science and Technology Academic and Research-Based Openly Operated Kiosk Station (STARBOOKS) during its formal turn over led by the Department of Science and Technology's Science and Technology Information Institute (DOST-STII) at its Sogod, Southern Leyte campus. STARBOOKS is an S&T-based offline digital library that can be conveniently installed in barangays. A library-in-a-box, STARBOOKS contains about 11,000 full text literatures and livelihood videos to help not only students but also people who are searching for livelihood opportunities. Also in photo are Lloyd Mandapat of DOST-STII (right) and Dr. Dominador A. Clavejo, Provincial Science and Technology Director, DOST Region 8. (Photo by Joy M. Lazcano, S&T Media Service, DOST-STII)

DOST developed trash raker to rid QC of garbage problems

Quezon City will soon rid its estuaries of tons of garbage clogging its waterways with the recent turnover of an Automatic Trash Raker Facility (ATR) by the Department of Science and Technology (DOST) to the city.

The waterways run all the way to San Juan River which is blamed for the above-the-waist flooding in G. Araneta Avenue in QC and its nearby barangays.

Developed by DOST's Metals Institute Research and Development Center, the ATR was patterned after existing foreign developed trash rakers in Metro Manila's pumping stations. At five meters high and six meters wide, the machine has six rakes and is run by a 10 HP motor output. It collects trash thrice a day for 5-10 minutes, depending on the volume of garbage that flows especially during typhoons.

The ATR stands in the middle of Balingasa Creek along G. Araneta Avenue corner Mauban Street in Barangay Manresa, QC.

According to DOST Secretary Mario G. Montejo, studies showed that among the major contributors to Metro Manila floods is the inefficiency of garbage collections in estuaries and canals. Tributaries such as the Balingasa Creek are likewise blamed for

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Local experts develop dipstick kit for Philippine 'carabao' mango authentication

Known as the national fruit of the country, the pulpy-sweet mango is the third most important fruit crop next to banana and pineapple in terms of export volume and value, according to the Department of Agriculture High Value Crops Development Program.

The 'Carabao' mango, or otherwise known as the Philippine Super Mango, is one of the most loved varieties in the world for its sweetness, aroma, and exotic taste.

In the study on "Genetic Markers and Immuno-based Identification of Philippine 'Carabao' Mango", project leader Dr. Edgardo E. Tulin from the Visayas State University said that there is a problem with the authentication of Philippine 'Carabao' mango due to mislabelling in many nurseries and orchards in the country.

"We cannot be sure if the mango seedlings they have (in nurseries) are 'Carabao' mango. It takes years to bear fruit, so we really need

to be sure before we plant it. Otherwise, we will wait for five years; then, it's useless if we find out later that it's not 'Carabao' mango after all," says Dr. Tulin.

The study aims to develop a "dipstick" kit which when dipped into the mango leaf extract will react by showing a distinctive line with a dark purple color indicative of a positive ('Carabao' mango) reaction. Otherwise, no line and no color (other mango varieties) will appear on the membrane of the stick.

According to Dr. Tulin, with the completion of the study, the mango growers can be guaranteed that the planting materials being sold in the nurseries are true-to-type 'Carabao' mango. Likewise, the nurseries can confidently propagate genuine 'Carabao' mango seedlings.

The dipstick is a disposable product with an estimated cost of less than P100. The target markets of the said dipstick are

nurseries, plantations, or the Bureau of Plant Industry which can use it for accreditation of nurseries and other regulatory purposes.

Dr. Tulin however noted that there is no protein sequencing facility yet in the country, which could build a gap for this kind of initiative. Hence, he hopes to have a protein sequencing facility in the Visayas to further their research as 'Carabao' mango is the country's "gold mine".

The accomplishments of the project were presented during the Science and Technology Forum on Agri-Aqua Genomics held on November 26 at the ICTO Audio-Visual Room in Diliman, Quezon City in celebration of the 10th National Biotechnology Week. The forum was organized by the Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD), the funding agency of the project. (S&T Media Service)

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the immediate rise of flood waters during torrential rains.

"So what we did is look for an efficient garbage collection technology that will take these out of the creeks and go straight to the garbage trucks for proper disposal," he explained.

Montejo added that President Aquino asked for DOST's long-term solution to the problem concerning Manila Bay which has been bearing the brunt of major typhoons as tons of solid wastes from nearby cities end up sprawled over its shores.

Meanwhile QC Mayor Herbert "Bistek" Bautista called for government officials to work together and refrain from blaming each other when calamity strikes. "I will talk to the League of City Mayors and convince them to adopt this technology from DOST," said Mayor Bautista.

The ATR is scalable depending on the requirements of the adopter.

The technology does not only efficiently collect garbage from the estuaries, stressed Montejo, but also generates livelihood and jobs. "You (Mayor Bautista) might be proud that the fabricator of this technology is from Quezon City, so it does not only help us clear our waterways but it provides livelihood for your constituents," he explained.



Raking trash off Quezon City. Department of Science and Technology Secretary Mario G. Montejo (left) explains to Quezon City Mayor Herbert "Bistek" Bautista (right) during the formal turnover of the Automatic Trash Rake Facility (ATR) project how the ATR can help clean the city's open canals and estuaries from garbage that goes all the way to San Juan River system that is blamed for the above-the-waist floods in the G. Araneta Ave. area and its nearby barangays. The locally designed ATR can collect solid wastes from canals and estuaries and serve as an alternative to existing foreign developed equipment that are stationed in Manila, Taguig, and Pasig pumping stations. (Photo by Gerardo Palad, S&T Media service, DOST-STII)

In 2008, the Supreme Court issued a Writ of Continuing Mandamus which directed 13 government agencies "to clean up, rehabilitate and preserve Manila Bay, and restore and maintain its waters to make them fit for swimming, skin-diving, and other forms of contact recreation."

Until this day the Manila Bay waters remain polluted. A report by the Metro Manila Development Authority in 2012 said they collected 1,800 tons of garbage in Manila Bay, mostly plastics and wrappers washed out during heavy rains. (S&T Media Service)



DOST launches game development competition

The Philippine Science Heritage Center (PSHC), the country's resource center highlighting the significant contributions of Filipinos in the world of science, will start becoming interactive in 2015 as the Department of Science and Technology (DOST), through its advisory body, the National Academy of Science and Technology (NAST), launched the Salinlahi Evolution: Game Development Competition last December 5, 2014 at PSHC in Bicutan, Taguig City.

The competition, open to college students with the skills and talent for creating digital learning games anchored on science and technology (S&T), features group and

individual categories. The computer games should run on Windows while mobile games should run on Android devices. They should be in English and may be played even without internet connectivity.

The winning digital games will be featured at the PSHC, which is under the management of DOST-NAST. The plan is to have it exclusively distributed in the center for six months.

"Being a vital partner in education, centers have now ventured into the use of digital technology, especially interactive digital exhibits, to increase engagement of the public and to facilitate learning better," said Dr. Jaime C. Montoya, executive director

of DOST's Philippine Council for Health and Research Development (PCHRD) and focal person for PSHC.

Dr. Montoya added that it is preferable that the games are not time consuming and should incorporate S&T concepts reflecting PSHC's aim to honor and promote Filipino scientists and their contributions. They should not contain vulgarity, violence, defamatory language or any other subject deemed inappropriate for the tone of the competition.

The criteria for the competition are: 20 percent for relevance to the topic, idea/enjoyability, and game mechanics; 15 percent for graphics and sound; and 10 percent for trailer. Other details are still being finalized.

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technologies that are locally developed to support the continuous delivery of education especially during this stage of recovery," says DOST Secretary Mario G. Montejo.

Meanwhile, SLSU Vice President Lorelie Duarte said that STARBOOKS will help the students greatly since they can access quality full text references and other research materials that are relevant to their courses. SLSU offers four engineering courses and Graduate studies in Mathematics.

This is the second round of STARBOOKS installations after more than 40 units were installed in 2012. Consequently, the units were destroyed during typhoon Yolanda the following year, wreaking P48.79 billions

worth of damaged infrastructure including schools and libraries.


"We understand that many reference materials are destroyed during the two typhoons in the last two years and we cannot do anything about that anymore," said DOST Assistant Secretary Raymund E. Liboro. "But what we can do is to find solutions to these problems and keep our youth continuously pursuing their studies."

Southern Leyte is one of the most typhoon-visited provinces in the country. A number of typhoons pass through the province causing millions worth of damages and stalling classes during the monsoon season.

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The Ideation, Design, and Development Laboratory is housed inside the Provincial Science and Technology Center (PSTC) Laguna building, recently inaugurated by the Department of Science and Technology at Laguna State Polytechnic University in San Pablo City, Laguna. The IDD serves as a creative hub for small entrepreneurs, designers and students and as a launching pad for small, micro, and medium enterprises to attain greater business success. (S&T Media Services)

S&T Center in Laguna opens design lab for entres, students

An Ideation, Design, and Development Laboratory (IDD) is set to boost Laguna's micro, small and medium enterprises (MSMEs) as it opens its doors with the inauguration of the Department of Science and Technology's (DOST) Provincial Science and Technology Center (PSTC) Laguna last month.

The laboratory is PSTC Laguna's main facility which is situated within the sprawling campus of the Laguna State Polytechnic University (LSPU) in San Pablo City, Laguna.

Offering services in product development, design, and prototyping, the IDD aims to become a creative hub for entrepreneurs, independent designers, and students alike where ideas and innovations are grown and given a chance to concretize with the aid of top-flight technologies for business enhancement. Promising projects by students, in particular, will be evaluated and

tested in the center for commercialization potentials.

The IDD shores up its services by offering workshops in 3D printing and 3D CAD Design Software (Solid Edge Design Software) to DOST personnel, students and faculty members within and outside LSPU.

According to PSTC Laguna Provincial Director Engr. Samuel L. Caperiña, availing these services translates to several benefits for MSMEs such as increased sales, increased earnings, reduced cost and wastes, greater efficiency, and less energy.

"Design and innovation is a challenge not just in the private sector but also in the academic community," said DOST IV-A Regional Director Alexander R. Madrigal during the inauguration held on the occasion of DOST IV-A's 51st anniversary. "It's about time we catch up [with other countries] and start providing these ideation services to industries," he

stated, citing the example of Singapore where innovation is vibrant thus allowing its industries to be globally competitive.

Madrigal added that in other countries, research and development activities are mostly lodged in academic institutions, hence they decided to build the center inside LSPU.

PSTC Laguna ramps up preparations for Laguna-based businesses to be at par with their counterparts in neighboring Southeast Asian countries once the ASEAN economic integration kicks in by December 2015.

Hon. Angelica Jones B. Alarva, board member of Laguna's third district and chair of the province's livelihood committee, expressed her support for PSTC Laguna as well as DOST's other projects for livelihood and industry in Laguna. "If livelihood is strong, there will be more jobs available," she said during the press conference held at the Shanghai Palace Restaurant in San Pablo City.

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Nuclear technology for industry. Department of Science and Technology Undersecretary Amelia Guevarra (left) leads the inauguration ceremony of the Philippine Nuclear Research Institute (DOST-PNRI) Electron Beam Facility (E-Beam) during its 42nd Atomic Energy Week celebration which was recently held in Commonwealth Avenue, Diliman, Quezon City. The E-Beam facility is a take off from the Cobalt-60 which is used to sterilize hospital equipment and decontaminate food grade products among others. With this facility, DOST-PNRI can perform further research and development in improving various industrial applications such as polymer grafting and performance improvement of industrial tools and equipment. Also in photo are DOST-PNRI Director Alumanda De la Rosa (middle) and Cavite 1st District Representative Francis Gerald Abaya. (Photo by Gerardo Palad, S&T Media Service, DOST-STII)