



Making science
work for you

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**DOST- funded
organominerals
technology helps
deodorize
Boracay’s wastewater**

By Maria Elena A. Talingdan
S&T Media Service, *DOST-PCIEERD*



DOST helped preserve Boracay clear waters through its handy wastewater treatment system.

Boracay Island has long been the subject of issues regarding wastewater, drainage systems, and residual solid waste that fill the air with noxious odor. While there are regulations governing waste treatment in the island, the problem persists due to an inadequate treatment system especially with the continuous influx of tourists to the island.

Boracay may have found the answer to this problem through Department of Science and Technology’s (DOST)-developed Eco-Sep, an organomineral treatment used in a self-sustaining and portable wastewater treatment system.

Organominerals are mineral products that are formed by interaction of organic matter.

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Filipino S&T workers double in 20 years, according to DOST study

By Espie Angelica A. de Leon
S&T Media Service, *DOST-STII*

The number of Filipino professionals in science and technology (S&T) doubled from 1990 to 2010, with nursing, midwifery, and engineering registering the most number of professionals each.

This was revealed in a publication by the Department of Science and Technology-Science and Education Institute (DOST-SEI) titled “Human Resources in Science and Technology in the Philippines,” launched on April 22, 2015 at the Astoria Plaza Hotel, Pasig City.

The publication contains estimates on the country’s S&T professionals, established by a study conducted by SEI which utilized National Statistics Office census data for 1990, 2000, and 2010, among others

According to the study, there were 362,000 estimated workers in the Philippines in 1990. This estimate climbed to 593,000 in 2000 and leapt to 721,000 in 2010, posting an impressive 99.17 percent increase from 1990 to 2010.

This incredible growth of the Philippines’ S&T workforce suggests a positive effect on the economy, as “knowledge and technological creation through research and development

leads to better performance of major S&T-based industries,” according to SEI Director Dr. Josette Biyo

Of this total number, 211,000 or 29.2 percent of local S&T personnel were concentrated in the National Capital Region. Meanwhile, the Autonomous Region of Muslim Mindanao had the least number of S&T workers with only around 5,000.

“Our programs aimed at producing scientists and engineers have always been anchored to the belief that science, technology and innovation will lead us to development and by having a clear picture of our human resources in the field, we’ll know how much more we should work towards this endeavor,” explained Biyo.

However, the study also revealed that not all S&T occupational groups recorded an increase in number of workers. In particular, key professions in the fields of mathematics, statistics, life science, physics, and chemistry, indicated a huge dip in their numbers.

“We really need to focus on producing professionals from fields that have seen a

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According to the latest DOST study, the number of S&T professionals have reached an impressive 99.17% from 1990 to 2010.

DOST, industry partners launch 2015 Philippine Startup challenge

By Allan Mauro V. Marfal
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The Department of Science and Technology-Information and Communications Technology (DOST-ICT) Office, in partnership with Philippine Software Industry Association, Ideaspace, Huwaei, and Vibal Foundation launched the 2015 Philippine Startup Challenge (PSC) last May 20, 2015 at ICT Office Building in Diliman, Quezon City.

Now on its 2nd year, PSC is a student startup competition promoting technology entrepreneurship or “technopreneurship” among college students. It dares the students all over the country to create bolder, more creative software and internet-based innovations that solve real problems and help improve the lives of individuals worldwide.

To join the competition, each team must have four members composed of one faculty adviser and three students. The faculty adviser must have attended or will attend at least one of the preparatory boot camps for PSC. These are the Lean Startup 101 Boot Camp in 2014 and the boot camps for 2015 scheduled on the following dates: June 6 in Cebu City, June 13 in Davao City, June 20 in Iloilo City, July 4 in Baguio City, July 8 in Metro Manila, and July 25 in Cagayan de Oro City.

A preparatory boot camp is a series of workshops for faculty advisers and teachers of information technology and computer science for them to learn the basics about building and operating a startup company.



Participants of the Philippine Startup challenge show their trophies during a photo session. (Photo courtesy of Mary Joie Cruz, DOST-ICT Office)

Each aspiring team must submit a five-minute video pitch presentation of their startup idea by the end of August 2015. From the submitted entries, the ten best entries will be selected as finalists and the ten respective teams will be given further mentoring.

These ten finalists will then advance to the National Finals tentatively set in November 2015 where they will get the chance to pitch their products directly to funders, industry experts and government representatives. The top three teams will be

picked as winners, and thus gain funding and admission to business incubation.

“During the series of startup workshops that we have conducted before, we have seen the skills and potentials of our students all around the country in the field of engineering, computer sciences, and information technology,” said Monchito Ibrahim, deputy executive director of ICT Office.

On the initial run of PSC last year, 51 teams from different colleges and universities all over the country sent their entries. Four out of the top five winners came from outside Metro Manila.

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The Eco-Sep is a low-cost and deployable method for immediate installation of domestic wastewater clean-up anywhere in the country. Being enhanced with organominerals makes the Eco-Sep appropriate in disaster-stricken areas. Among others, it may be used in condominiums, housing projects, hotels and areas where wastewater treatment is a problem.

The Eco-Sep was developed by Dr. Merlinda Palencia of Adamson University whose research for the project was funded by DOST’s Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD).

Initially, Tacloban was the chosen demonstration area for the Eco-Sep following the disastrous effects of Typhoons Yolanda and Ruby. Three Eco-Sep Systems were installed for 522 residents in temporary shelters in Palo, Leyte with 61 latrines and 30 bathing cubicles.

The demonstration showed positive results, prompting Mayor Remedios Petilla of Palo, Leyte to recommend that the Eco-Sep be incorporated in the engineering design for the rehabilitation projects in Leyte.

Inspired by these results, DOST opted to help Boracay solve its wastewater problem.

The DOST team composed of Project Leader Dr. Palencia and staff from DOST-PCIEERD namely, Ninaliza Escorial, Laarni Piloton, and Candy Ilaw, together with the unicipal environment office and the local government of Boracay, applied the organomineral treatment in selected Materials Recovery Facilities (MRF) and some hotels within the beach area.

For the past two weeks, the team checked on the number and volume of septic tanks in the selected hotels for the computation of the dosage for the treatment. The team has also collected samples of raw wastewater.

In two facilities in Balabag and Manoc-Manoc in Boracay, the team sprayed organominerals to reduce odor from the heavy loads of garbage in the areas. Spraying was concentrated in biodegradable and some residuals that produce bad odor. According to reports, seven trucks of residual waste is generated in Brgy. Balabag alone.

Like the results yielded in Palo, Leyte, initial results on the use of the Eco-Sep system with organominerals in Boracay showed significant

reduction of odor both in the selected hotels and especially in the MRFs where results were almost experienced instantly.

One of the hotels that agreed for the testing said that it spends about P20,000.00 on commercially available chemical spray for the odor. Now it found the organomineral technology as a cheaper substitute.

In the jar test conducted by Dr. Palencia in a pumping station in Boracay, the caretaker reported that after organomineral application, the wastewater isolated for the jar test changed color and eliminated the bad odor. With the positive results shown in the jar test, the organomineral treatment was finally used on-site, resulting in a cleaner wastewater compared with raw wastewater.

Eventually, LGU Technical Operations Officer Glen Sacapano told the DOST team that the LGU is interested in applying the technology in the island to address the septic wastewater problem and to use it for the development of their industries. He suggested to Dr. Palencia to submit a proposal and policy recommendations on the management of septic wastewater using the developed technology.

Filipino S&T...from page 1

decrease. We shall consider these findings in carrying out our scholarship, advocacy and innovation programs," Biyo emphasized.

In addition, the country was also found to be lagging behind many other countries in terms of percentage of S&T workers to the total number of workers in a country. According to the study, S&T professionals in the Philippines made up a measly 5.6 percent of its overall workforce, putting the country in 31st position among 34 countries ranked for this purpose. Among these countries were Belgium which ranked first, Australia, Netherlands, US, UK, Germany, South Africa, India, and Indonesia.

Meanwhile, the number of Filipino S&T overseas workers rose from 40,000 in 1990 to 113,000 in 2010.

"Human Resources in Science and Technology in the Philippines" hopes to provide knowledge and policy directions to the local science community and be used as a basis for the formulation of S&T programs in the country especially where human resources are concerned.

Education for human resource development is one of DOST's main thrusts and will be one of the focal points at the upcoming National Science and Technology Week (NSTW) slated from July 24-28, 2015 at SMX Convention Center in Pasay City.

Copies of the publication will be distributed to government and academic agencies. It will also be available for downloading via the SEI website (sei.dost.gov.ph). (S&T Media Service)

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Technology information Institute (DOST)

New DOST facility to help tropical fabrics in mainstreams market



TROPICAL FABRICS SET TO ENTER MAINSTREAM VIA NEW DOST FACILITY. Department of Science and Technology (DOST) Secretary Mario G. Montejo (left) examines one of the newly acquired equipment for the Innovation Center for Yarns and Textiles during its launching last May 25, 2015 at DOST's Philippine Textile Research Institute (PTRI) in Bicutan, Taguig City. A P54M flagship project of PTRI, the said Innovation Center aims to put tropical fabrics such as piña and banana in the mainstream by producing more yarns of abaca, banana, pineapple and other indigenous fibers and make them available to handloom weaving communities and commercial millers or knitters in the country. PTRI has also partnered with Power Fashion, the company behind local clothing brands Unica Hija, Vise Versa, and Bayo, which has agreed to use said fabrics in one of their capsule collections. **(Text by Maria Luisa S. Lumioan / Photo by Henry A. de Leon, S&T Media Service, DOST-STII)**

By Maria Luisa S. Lumioan
S&T Media Service, DOST-STII

Clothing made from tropical fabrics such as piña and banana are usually used only during weddings, baptisms, burials and other special occasions. The Philippine Textile Research Institute of the Department of Science and Technology (DOST-PTRI) however is keen on making tropical fabrics more mainstream.

The establishment of PTRI's P54 M Innovation Center for Yarns and Textiles (ICYT) that will produce yarns customized to customers' and industry needs is a step closer to this goal which is part of the bigger objective of revitalizing the textile industry in the country.

"We aim to make indigenous yarns accessible to our handloom weaving communities as well as commercial millers or knitters," disclosed PTRI Director Celia Elumba during the launch of the Innovation Center last May 25 at the PTRI Compound, DOST Complex, Bicutan, Taguig City.

Dir. Elumba also revealed that PTRI has partnered with Power Fashion, the company behind the local clothing brands Unica Hija, Vise Versa, and Bayo, which has agreed to use locally produced tropical fabrics in one of their capsule collections.

The ICYT is just the first of PTRI's initiatives geared toward reviving the textile

industry. Senator Loren Legarda, who graced the launching, expressed support for these initiatives.

Meanwhile, DOST Sec. Mario G. Montejo noted that the DOST's efforts in reviving the industry is part of its contribution to the government's vision of inclusive growth as these are seen to bring economic activity in the countryside.

Promoting the use of tropical fabrics, said Legarda, will not only preserve our culture and heritage but will also help support the agricultural sector. Legarda is the author of the Tropical Fabrics Law which aims to promote Philippine tropical fabrics through the use of such materials for the official uniforms of government officials and employees.

PTRI will also establish regional handloom innovation centers and work on upscaling the natural dye production in the country to complement the Innovation Center.

Despite the decline of the textile industry in recent years, Sec. Montejo maintains his optimism especially with PTRI's research and development initiatives such as developing less costly ways to process agricultural waste into fabrics, producing bamboo fabrics and smart textiles. (S&T Media Service)

DOST Starbooks wows Eastern Visayas Librarians

By **Framelia V. Anonas**
S&T Media Service, *DOST-STII*

“Ang ganda pala! (It is so nice!)” a librarian exclaimed as the contents of STARBOOKS splashed onscreen, and participants on a hands-on demonstration browsed over the rich contents.

STARBOOKS, or Science and Technology Academic and Research-Based Openly Operated Kiosk Station, is the country’s first digital science and technology (S&T) library. It can be accessed offline, making it ideal for students and researchers in areas still unreached by the Internet and have no access to the latest S&T materials.

Browsing its contents is quite easy. Everything is categorized into S&T areas. Should users want more precise search of materials, the search bar is always helpful. Indeed, STARBOOKS made searching for S&T information much faster and easier compared with the card catalogs in traditional libraries. It is even better than Google because the contents are specific and localized and, best of all searched offline.

Developed by the Department of Science and Technology’s Science and Technology Information Institute (DOST-STII), STARBOOKS contains full text journal and research materials, news and feature articles, videos, and publications on S&T and livelihood. It also has Encyclopaedia Britannica in its collection, its contents categorized into elementary, high school, and college levels.

“It’s like bringing the whole DOST-STII library collection in every STARBOOKS unit,” said DOST-STII Officer-In-Charge Raymund E. Liboro.

Aside from availing of rich S&T information, STARBOOKS users also open themselves to



STARBOOKS ENCOUNTER | Librarians and IT staff from schools in Eastern Visayas learn how to use STARBOOKS and generate reports for monitoring purposes. Developed by the Department of Science and Technology – Science and Technology Information Institute (DOST-STII), the Science and Technology Academic and Research-Based Openly Operated Kiosk Station or STARBOOKS is the country’s first digital science and technology (S&T) library. It has thousands of S&T research materials, news and features, and videos that are accessed offline, facilitating research and search for livelihood opportunities in areas still unreached by the Internet. (S&T Media Service)

livelihood opportunities through how-to videos produced by DOST’s Technology Resource Center.

Meanwhile, participants in the hands-on demo were some 30 Eastern Visayas-based librarians and IT staff who were trained on how to use the STARBOOKS both as regular user and monitoring person.

Trainers Robelyn Cruz and Lloyd Mandapat of the DOST-STII STARBOOKS team likewise trained DOST’s regional staff on configuring STARBOOKS contents pre-installed in disks.

DOST-STII turned over 53 of these disks to DOST-VIII Regional Director Edgar Esperancilla for deployment in schools that are still getting their computers ready to become digital libraries. Region-based DOST staff led by Florentino Quiñones, DOST-VIII science research specialist and STARBOOKS coordinator,

will configure the STARBOOKS contents in respective sites.

STARBOOKS will be massively deployed in the regions affected by typhoon Yolanda (International code: Haiyan) to help schools and public libraries recover from their losses and build back even better libraries.

“I hope STARBOOKS will reach more areas in Region 8,” said Dir. Esperancilla. The region is among the first to avail of STARBOOKS since the project was launched in 2011.

With the wider coverage of STARBOOKS in the regions, more students, teachers, and researchers can finally have free access to thousands of DOST-STII’s S&T materials, and enrich their research and investigatory projects. And to schoolchildren and researchers in the Yolanda corridor, they are on their way to nicely building back better library experience.

in focus

Department of Science and Technology Secretary Mario G. Montejo (2nd from right) hands over to Surigao Del Norte Governor and Caraga Regional Development Council Chair Sol Matugas (3rd from right) copies of the Reference for Emergency and Disaster (RED) preparedness handbook, a collection of information on various natural hazards in the Philippines, early warning signs, high resolution hazard maps, and the preparations needed when disasters strike. The RED Book is presented in an easy-to-read format with informative photos and attractive graphics to help people become aware of the present hazards in their localities. Also in photo are (from right) DOST Undersecretary for Regional Operations Carol M. Yorobe, RDC Vice Chairperson and Regional Director of NEDA- Caraga Mylah Faye Aurora B. Carino, Regional Director of DOST Caraga Dominga B. Mallonga, and DOST Assistant Secretary Raymund E. Liboro. The DOST RED Book is available upon request at the DOST-Science and Technology Information Institute. (Photo by Henry De Leon, S&T Media Service, DOST-STII)

(Photos by Henry A. de Leon, S&T Media Service, DOST-STII)

