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work for you

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COA lauds DOST'S Starbooks

By **Rodolfo V. De Guzman**
S&T Media Service, *DOST-STII*

The Commission on Audit (COA) has lauded the Department of Science and Technology's STARBOOKS or Science and Technology Academic and Research-Based Openly Operated Kiosk Station, the first digital science library in the Philippines which can run without Internet connection.

In its final report of 2014, the COA indicated that STARBOOKS is one innovation that merits praise because it provides opportunities to deprived but deserving students in the countryside and gives them access to information on S&T for free.

"Looking at this program, bringing this library to far-flung areas is very noble as far as COA is concerned," stated Karlo Almonidovar, Commission on Audit supervising auditor

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Department of Science and Technology Assistant Secretary Raymund E. Liboro stands in front of a replica of the presidential citation that was awarded to the Science and Technology Academic and Research-Based Openly Operated Kiosk Station by the American Library Association at the San Francisco Library, San Francisco, California. Also in photo is Ms. Rosie A. Almocera, head of the Information Resources and Analysis Division of the Science and Technology Information Institute. *(Photo courtesy of Dr. Yasmin J. Liboro)*

Science now part of decision-making for national development -Roxas

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



Cabinet secretaries Mario G. Montejo (right) and Mar Roxas pose for the media before taking a ride at DOST's latest technology innovation, the Hybrid Electric Road Train during the opening of the 2015 National Science and Technology Week celebration. Roxas points out that "S&T is in fact in the fabric of decision making for national development." *(Photo by STII Media Service)*

Science used to be just one of those esoteric topics rarely spoken about in discussions and conversations. But it has broken through that mold. Now, science and technology are more widely used and benefited from by Filipinos.

Gracing the opening ceremony of the Department of Science and Technology's (DOST) National Science and Technology Week on July 24, DILG Secretary Mar A. Roxas affirmed this welcome development in his keynote address.

"No longer is S&T just for talking purposes or for compliance purposes; it is in fact in the very fabric of decision making for national

development," he said during the ceremony attended by DOST officials and staff, members of the scientific community, stakeholders, and special guests.

According to Roxas, important decisions made by government such as budget allocations, consider the S&T agenda.

"The contribution of DOST," Roxas stressed, "is in the nature of actual, practical, and actionable information that saves lives, that every single one of those communities, of those families who live in them, actually use and benefit from these."

In particular, the DILG secretary mentioned the 5-day window now being provided by

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DOST launches free Wifi project, aims for internet access by 99 percent of PH by 2016

By Allan Mauro V. Marfal
S&T Media Service, DOST-STII

The Department of Science and Technology (DOST) is looking to give Internet access to 99 % of the Philippine archipelago by 2016.

The Department believes that maximizing the tons of opportunities on the web could play a vital role in speeding up economic progress, specifically in the underserved and unserved areas.

This was shared by DOST Secretary Mario G. Montejo during the official launch of the Free Wi-Fi Internet Access in Public Places project of the Department on the opening day of the 2015 National Science and Technology Week (NSTW) last July 24, 2015 at SMX Convention Center in Pasay City.

The project targets to provide Internet connectivity services in 967 Class 3, 4, 5, and 6 municipalities and key cities nationwide. This will be made available in public places such as parks, plazas, schools, rural health units and government hospitals.

"Free Wi-Fi Internet Access in Public Places strives to enable Filipinos to harness the vast potential and benefits of having consistent Internet connectivity to improve their lives and assist in bringing the country toward progress," Montejo said.

First of all, Internet connection is capable of opening new markets for micro, small, and medium enterprises. It can also help the Mang Juans and Aling Marias who live in far-flung areas



Department of Science and Technology (DOST) Secretary Mario G. Montejo (2nd from right) and Senator Ralph G. Recto (3rd from right) press the button symbolizing the formal launch of the DOST's Free Wi-Fi Internet Access in Public Places Project during the 2015 National Science and Technology Week celebration at the SMX Convention Center, Pasay City. The project aims to provide Internet connectivity in the 967 3rd to 6th class municipalities and key cities in the country. Also in photo are DOST undersecretary Louis Napoleon Casambre (L) and DOST-ICT Office Deputy executive director Nicolas D. Ojeda, Jr. **(Photo by Henry De Leon, S&T Media Service, Dost-STII)**

to reach basic government services. In addition, Internet connectivity also helps improve education, emphasized Montejo.

Alpha Launch System

Last July 22, areas in Quezon City and Manila started to get free Internet access as part of an alpha launch test of Free Wi-Fi Internet Access in Public Places to help DOST's Information and Communications Technology Office (ICT Office), organizer of the project launch, to assess the system and make the necessary adjustments before rolling out the project on a larger scale.

These places are the Quezon City Memorial Circle, Quezon City Hall, PHILCOA, Social Security System, and LTO in Quezon City and Rizal Park in Manila.

ICT Office expected a maximum number of 4,550 concurrent Internet users for the recent pilot test, but is prepared to provide for and maintain the speed and connection quality for up to 117,000 users by the second quarter of 2016.

The network will implement a blacklist system to block potentially harmful and destructive websites to keep information secure.

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local weather forecasting, as it allows LGUs to strategize, mobilize, and implement their disaster preparedness and response measures.

Roxas also mentioned the significant drop in the number of casualties from storms that hit the Philippines between the latter part of 2014 and the present rainy season, due to the science-based warnings issued by the Department.

"The harmonized national S&T agenda is focused on specific and measurable results that address the pressing concerns of Mang Juan and Aling Maria," DOST Secretary Mario G. Montejo earlier stated.

Disaster preparedness is one of these concerns. Employment and livelihood are another.

According to Montejo, information communications technology has generated 1M jobs for Filipinos mostly in the countryside via online jobs. "Here, the only things they need

are a computer and Internet connection," he stressed.

Furthermore, Montejo explained that DOST's Free Wi-Fi Internet Access in Public Places project will help solve the digital divide in the Philippines. "By the end of the year, up to 20 M Filipinos will have internet access in public parks, plazas, libraries, the public spaces in high schools, colleges, universities, government hospitals, rural health units, public transport stations," Montejo said, adding that the people will benefit from the Internet's educational component, as well as from the employment and livelihood opportunities available in it, among others.

"Incomes and livelihood in the past were generated from land, a physical resource," Roxas said in his keynote address. "Today, income and livelihood is generated from knowledge, from applying theory into practice."

About us

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Framelia V. Anonas
Editor-In-Chief

Joy M. Lazzano
Copy Editor

James B. Infia
Layout

Maria Luisa S. Lumioan
Proofreader

Ferdinand D. Cartas
Circulation

Science and Technology Information Institute-
Department of Science and Technology
Bicutan, Taguig City, Metro Mla. 1631
Philippines

www.stii.dost.gov.ph

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DOST'S Project Roger keeps contact lines going during disaster

By Joy L. Lazcano

S&T Media Service, DOST-STII

Communications often are down during natural disasters, but the Department of Science and Technology (DOST) has developed a solution for this situation.

This solution is called Project ROGER or Robust and Rapidly Deployable GSM Base Station and Backhaul for Emergency Response network, a deployable GSM voice and SMS emergency network service that function when regular communications are unavailable after a natural disaster.

Project ROGER, funded by DOST and developed by UP Diliman's Electrical and Electronics Engineering Institute, was conceived after the country's experience with Super Typhoon Yolanda which destroyed communication lines, hampering rescue and relief efforts by the national and local governments.

Project ROGER allows local government first responders to communicate and coordinate rescue and relief efforts with the central command center through a dedicated Base GSM Transceiver Station. Said station provides mobile signal through a cellular tower and is backhauled or leveraged by a long range Wi-Fi access point to boost the cellular signals up to the LGU base command.

Local government officials including City and Municipal Disaster Risk Reduction Offices are issued a standard Subscriber Identification Module cards (SIM cards) to be used as a dedicated network line during emergency. The line will be used by the LGUs during disaster response efforts and all communication networks

are down with no alternative means of communication.

The 18-man team of engineers from the UPD-EEEEI made a pilot-testing in three barangays in Mercedes, Camarines Norte to determine the project's capability during real situations.

The Project ROGER team set-up a 15 meter cellular tower with parabolic antenna, or a grill-like antenna, which emits sector signals or the type of directional microwave antenna with a sector-shaped or pie-like shape radiation pattern. The cellular tower, along with its antenna, is set-up after a typhoon and when there are no available communication networks in the area.

Project ROGER is run by three-200ampere batteries connected to 100 watts solar panel, which is good to operate for three days.

During the pilot-test, Project ROGER has a maximum of up to seven pairings of mobile phone to keep the network efficiently working. The network has call and text capabilities with unlimited SMS.

Project ROGER will soon be rolled-out in various areas where network communications are sparse during inclement weather.



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assigned at the DOST. "The social impact of STARBOOKS is very important because this addresses one of the strategic objectives of the government which is poverty alleviation through education, and we approve of it, that's why COA is called 'partner in development.'"

STARBOOKS is a technological innovation of the traditional library, transforming it to digital format where it contains knowledge products and research materials such as scientific journals, audio-video productions and film clips, tutorials and detailed information on Filipino scientists and inventors and their works. It covers varied topics such as food and nutrition, health and medicine, energy, environment, livelihood technologies, and others. In 2013, its content was further beefed up by the addition of the Britannica Ultimate Encyclopedia 2013 Edition.

It is a virtual "library in a box" – bridging the technological divide to benefit students with limited access to the internet.

"The STARBOOKS program was conceptualized primarily to provide easy access to S&T information by our students especially in the countryside where we have limited Internet access," said DOST Secretary Mario G. Montejo. "Since this module requires no Internet connection, DOST is able to level the playing field in terms of providing updated knowledge products that otherwise could have been available only to those with financial means."

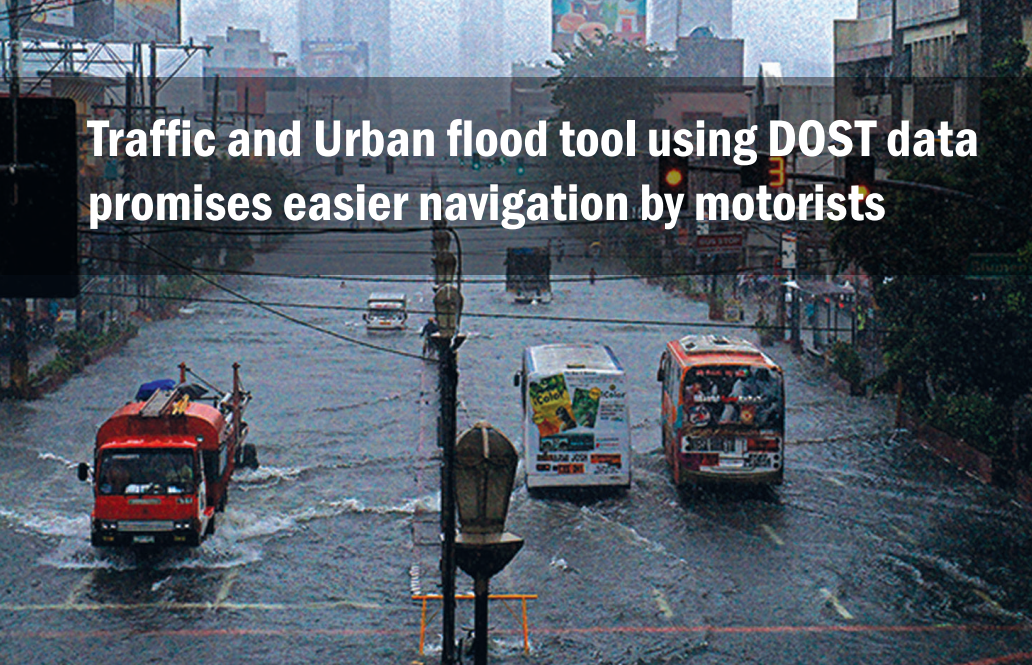
Recently, the American Library Association (ALA), an international organization of library associations in the United States, took notice of STARBOOKS and conferred the program with the ALA Presidential Citation for Innovative

International Library Projects last June 29, 2015 at the International Librarians Reception at the San Francisco Library in San Francisco, California.

"This is the essence of bringing education to far-flung areas. The program is worth pursuing because of its accomplishment as the program has already been distributed nationwide and has gained significant milestones," added the COA official.

As of this writing, DOST's Science and Technology Information Institute, the lead implementing agency for STARBOOKS, has already installed 654 units/kiosks in 69 provinces all over the country (Per COA Annual Audit Report as of December 2014, there were 12 STARBOOKS kiosks established in CAR, Masbate, Negros Oriental and MIMAROPA and 351 for schools, LGUs, provincial S&T centers and public libraries).

Traffic and Urban flood tool using DOST data promises easier navigation by motorists



By Joy L. Lazcano
S&T Media Service, *DOST-STII*

Teddy's typical drive to work starts from Espana Boulevard all the way to Commonwealth Avenue in Quezon City. During inclement weather, he would drive through various streets of Manila, dodging floods and traffic, only to be stalled in a gridlock due to knee-high floodwater.

In times like this, Teddy wishes for off-the-shelf solutions to help him navigate through the floods and the traffic on the streets.

Luckily, science and technology might just be the solution to his problem.

Currently on exhibit at the ongoing 2015 National Science and Technology Week (NSTW) at SMX Convention Center in Pasay City is a program for motorists and commuters called

Philippine Metro Advanced Traveler Information System or PhilMATIS.

A project of UP Diliman's Electrical and Electronics Engineering Institute, Computer Science Department, and the National Center for Transportation Studies, PhilMATIS is an integrated and science-based traffic and inundation decision making system for determining traffic volume and flood warning in real-time.

It has two component projects, Urban Flood and the vehicle traffic reporting system.

Using data from the Department of Science and Technology's Advanced Science and Technology Institute, Urban Flood determines, in real-time, the height of inundation in a

certain area after a relatively heavy downpour. It has ultrasonic sensor installed in a 3.2 meter post at the center island along San Diego up to Earnshaw Street in Espana, Manila. This sensor calculates the distance of the floodwater and bounces its signals in the form of echoes into its transceiver. It also possesses a data logger, which sends GPRS and SMS to its website in a three-minute interval. Close to achieving real-time data transmission, the Urban Flood monitoring system is estimated to be 95 percent accurate in determining flood height.

Urban Flood also has a 2 megapixel weatherproof camera for visual surveillance of floodwater. Eventually, 50 units of the Urban Flood system will be rolled out in various cities in Metro Manila through a partnership with the MMDA.

Meanwhile, the vehicle traffic reporting system sends out data and information on the volume, street capacity and vehicle speed in several streets in Metro Manila. "The algorithms used in determining the volume and vehicle speed were done by our local experts," said Dr. Adrian Roy Valdez of UP College of Engineering.

The vehicle traffic reporting system is installed at the gantry of a traffic light and consists of a standard-definition camera with infrared technology for night visuals and small computers. The camera captures the vehicle passing through the specific area while the computer measures the speed, street volume and traffic capacity. The data is then sent to a central base or a website which enables the end-user to monitor in real-time the traffic and vehicle volume in a specific time and area.

Both the Urban Flood and vehicle traffic reporting system are in their development and testing stages.

in focus



Searching for the stars. A student tries out a refractor telescope used by DOST-PAGASA astronomers in observing celestial bodies. This telescope and other real-life weather monitoring instruments, high-resolution maps, interactive digital displays, and many more were on display at the 2015 National Science and Technology Week celebration. (Photo by Joy M. Lazcano, S&T Media Service, *DOST-STIII*)