dost digest
A MONTHLY PUBLICATION OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY
FEBRUARY 2014 ISSN 2094-6570 Vol. 7 No. 2
Making science work for you

Inside

Skyline balloons fly. The DOST family flies yellow balloons to indicate everyone's commitment in achieving the "8 DOST Outcomes." The balloons are written with individual wishes of personnel so that the 8 Outcomes will be harmoniously achieved. **(Photo by Val Zabala, S&T Media Service, DOST-NRCP)**

Honey to treat wounds

By HANS JOSHUA V. DANTES
S&T Media Servise, *DOST-PNRI*

Experts from the Philippine Nuclear Research Institute – Department of Science and Technology (PNRI-DOST) have developed an effective wound dressing from local honey sources in the Philippines. Taking advantage of the antimicrobial properties of these local, readily available products, the DOST-PNRI experts produced a cheaper and comparable alternative – if not a better

continued on page 3

DOST execs, workers vow to carry out 8 priorities for 2014-2016

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

With sunny yellow as the Department of Science and Technology's (DOST) unifying color on a mild gray Monday morning, the Department's workers, officials and executives pledged their commitment to intensify their individual and collective efforts to achieve the "8 DOST Outcomes" on the so-called DOST Commitment Day held February 3, 2014 at the DOST Complex in Bicutan, Taguig City.

Said outcomes involve the use of science and technology (S&T) interventions to enhance eight areas, namely agriculture, MSMEs, industry, IT-BPM, government service, healthcare, human resources, and weather and geologic hazards en route to national development for 2014 and beyond.

Clad in yellow shirts and clutching yellow balloons, officials and employees of DOST, its various agencies and advisory bodies, as well as representatives of its regional offices, gathered to pledge their commitment to the Department's eight identified outcomes, the first of this kind of event ever held at the Department.

"As traditional industries are transformed and new industries such as nanotechnology are created, we need to ensure that our country is at a position of advantage in the global economy. We have to find our niches in order to compete effectively in high-value added sectors mentioned in the eight major outcomes and reap the many economic benefits this can bring," said DOST Secretary Mario G. Montejo in his opening message during the Commitment Day ceremony.

Montejo also reminded everyone to deal more effectively with issues concerning negative responses to science. "Whether these feelings stem from false premises – for instance, the environment versus technological advance, or from a simple misunderstanding of the impact of scientific advance, we have to do a better job in reminding the general public about the virtues of science," he remarked.

continued on page 2

DOST execs . . .
from page 1

After his speech, DOST directors, employee association presidents, and Sec. Montejo himself formally signed the Declaration of Commitment on a larger than life-sized tarpaulin with the title "Juan Direction: Our commitment to the 8 DOST Outcomes."Called the "Wall of Commitment", this was installed at the DOST Main Office Quadrangle. All DOST employees and workers are expected to affix their signatures on the tarpaulin to signify their commitment to work hand in hand for the realization of said eight major goals.

The commitment signing was followed by the highlight of the ceremony – the releasing of the yellow balloons on which personal wishes for the Department, the science community, and the country as a whole, were written. Sec. Montejo led the balloon release before the 3,000-strong warm bodies, a number significantly greater compared with ordinary Monday mornings when flag ceremonies are held at the main office.

Representatives from DOST regional offices as well as agencies located in Quezon City and Los Baños, Laguna boosted the group's number and upped the tempo for collective commitment as symbolized by affixing their signatures on the so-called "Wall of Commitment" and releasing balloons with their written wishes.

Sign up for the 8 DOST Outcomes. DOST personnel queue as they affix their signatures on the "Wall of Commitment" bearing the employees' collective and individual declarations to work hand-in-hand to fulfill the DOST's eight outcomes. Said outcomes involve the use of science and technology (S&T) interventions to enhance eight areas, namely agriculture, MSMEs, industry, IT-BPM, government service, healthcare, human resources, and weather and geologic hazards en route to national development for 2014 and beyond. *(Photo by Henry A. De Leon, S&T Media Service, DOST-STII)*

Titled "Juan Direction," a phrase coined by the DOST community to refer to the concept of the Filipinos' single, harmonized journey to progress, the DOST Commitment Day coincided with the weekly 8:00 am flag ceremony for government employees and served as year-starter for the Department's activities and projects for 2014.

Honey to...
from page 1

one already – to antibiotics for treating wounds and burns.

"Honey has, since ancient days, been used for medicinal purposes. Its composition makes it a very effective agent for healing wounds," said Biomedical Research Section Head Zenaida De Guzman.

According to De Guzman, honey is ideal as a wound dressing not only for its antimicrobial and potentially anti-inflammatory composition, but also for its low pH level that is suitable for fast healing.

Its sugar content helps in the granulation of wounds, while its low moisture gives honey a longer shelf-life. Further, honey's low water activity helps the dressing draw out water and pus, thereby drying the wound and reducing the chances of infection.

Among the samples obtained from the University of the Philippines Los Baños, three indigenous types of honey stood out: the pineapple flower honey from Bacolod which proved comparable to the average antibiotic, the scarce coconut honey from Mindanao, and the natural dark honey found in the highlands of Northern Luzon. The latter two matched, and at times even bested, antibiotics in dealing with pathogens such as *Staphylococus aureus*.

As they are readily available, these honey samples provided the material for the research section's honey dressings.

Results from initial testing in rabbits showed that the dressing healed the wounds around the same time as the generic Neomycin. In some cases, the honey treatment took effect a day ahead of the antibiotic.

Pre-clinical testing conducted in a government hospital showed that using honey dressing, full treatment of a burn patient was achieved earlier by a month than the usual healing time.

Sodium alginate made from brown algae, already used by hospitals for dressings, serves as a base for the honey treatment. They are mixed and molded into a gauze before being sprayed with calcium chloride to bind them.

After being cured, dried and packaged in vacuum-packed aluminum foil, the dressing is irradiated at 25 kilogray at PNRI's Multipurpose Irradiation Facility to keep it microbe-free and longer-lasting.

The Biomedical Research Section applied for the honey dressing's patent last year and hopes to eventually finish the clinical tests. Ms. De Guzman expects the product's commercialization to begin by 2015.

About us

The DOST Digest is published by the Science and Technology Information Institute-Department of Science and Technology
For comments, suggestions or queries, contact: (02) 837-2071 loc. 2148/839-2193 local 107 or email: dost.digest@gmail.com

Framelia V. Anonas
Editor-In-Chief
Joy M. Lazcano
Managing Editor
James B. Intia
Layout
Maria Luisa S. Lumioan
Proofreader

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

www.stii.dost.gov.ph

Like us on Facebook/Science and Technology information Institute (DOST)

DOST Secretary Mario G. Montejo (center) listens to Dr. Kristine Magtubo (left) of the University of the Philippines National Telehealth Center as she explains the features of RxBox during the First Philippine eHealth Summit held last February 4 at the Sofitel Philippine Plaza. RxBox is a biomedical device that measures and stores vital patient health information which can be transmitted to remote medical specialists. With them are Congressman Victor Yu, chairman of the Congressional Committee on Science and Technology and 1st District representative of Zamboanga Del Sur; and Oriental Mindoro Governor Alfonso Umali, president of the Union of Local Authorities of the Philippines. *(Photo by Henry A. de Leon, S&T Media Service, DOST-STII)*

eHealth technologies for smarter healthcare

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

The Department of Science and Technology's (DOST) trailblazing projects for the health sector took the spotlight at the First Philippine eHealth Summit held last February 4 at the Sofitel Philippine Plaza in Pasay City to pave the way for smarter healthcare by maximizing information and communications technology (ICT).

Using ICT for health, also known as eHealth, "is envisioned to transcend the constraints brought about by the country's archipelagic setup and limited budget," DOST Secretary Mario G. Montejo said during the event.

DOST projects for smarter healthcare include the RxBox, eHealth Technology Assisted Boards for LGU Efficiency and Transparency (e-TABLET), and the Philippine Health Information Exchange (PHIE).

RxBox: Connecting medics

Developed by University of the Philippines Manila-National Telehealth Center and DOST, the RxBox is a medical device which enables health workers in remote communities to consult with medical experts in urban areas, thus providing better access to life-saving healthcare services in isolated and disadvantaged communities nationwide.

It has built-in medical sensors for monitoring blood pressure and blood oxygen levels, assessing the strength of contraction of the mother's uterus, as well as electrocardiogram and fetal heart monitor. The data acquired by the sensors are stored in the device and may be transmitted to a specialist as the need arises and upon patient's consent. The RxBox is currently deployed in 21 sites in the Philippines.

e-TABLET: Managing medical records

The e-TABLET, on the other hand, is a tablet-based electronic medical record system developed by Ateneo de Manila's Institute of Philippine Culture and Ateneo Java Wireless and Competency Center.

Apart from being a platform for health workers to input and manage patient records, e-TABLET is also a decision-making tool for local government units which are given access to summarized simple medical data in the tablet. Armed with real time information, LGUs can make decisions such as allocating resources and manpower to respond to a certain medical situation in their locality. e-TABLETalso features a messaging system between the mayor and the municipal/city health officer. The tablet is currently deployed in 10 sites, namely San Jose Buenavista, Antique; Alcoy, Cebu; Sta. Rita, Pampanga; Isulan, Sultan Kudarat; Paombong, Bulacan; Anilao, Iloilo; Lal-lo, Cagayan; Dumalinao, Zamboanga del Sur; Guimba, Nueva Ecija; and Dinalupihan, Bataan.

PATIENT INFORMATION IN A TABLET. The e-TABLET is primarily a patient record system where health workers input and manage patient information. Individual patient information (above) remains with the attending doctor. Meanwhile, the summarized data in graphical form, such as the number of dengue cases (below), can be viewed by the local chief executive in his dashboard.

PHIE: Centralized medical records

To further enhance the country's healthcare delivery system, DOST and the Department of Health are also setting up the PHIE system by the end of 2014. PHIE will provide centralized database of health and medical records nationwide, allowing a patient to retrieve his medical records from anywhere in the country. With this system, patients can save time and effort, and avoid expenses from unnecessary or duplicate examinations.

Enhancing eHealth via TVWS connectivity

To ensure that the full benefits of eHealth can be realized, the DOST through its Information and Communication Technology Office (ICTO) is working to expand internet connectivity in far-flung areas. In particular, DOST-ICTO is tapping into the potential of TV White Spaces (TVWS) , or unused frequencies between broadcast TV channels, to provide an extremely cost effective means for internet connectivity and data delivery in areas underserved by telecommunications companies.

Aside from eHealth, DOST-ICTO also aims to maximize TVWS technology for applications in environmental sensor networks, educational content delivery, and government information systems.

F-House eyed as emergency shelter

It's called the "F-House" – a fast-build, firm,and fold-away shelter that can be highly useful in times of emergency. It can be assembled as quickly as a tent to house people during disasters, and can also serve as a depot for emergency supplies or distribution center for food, medicine and other supplies. It's very versatile, and it is locally available because it is made by Filipino experts.

Developed at the Department of Science and Technology - Forest Products Research and Development Institute (DOST-FPRDI), the F-House comes very handy in times of emergency.

"Like tents, the F-house can be folded, packed, stored and used repeatedly," said Dr. Rico Cabangon, chief of FPRDI's Engineered Products and Development Section. "Unlike tents, however, the F-house has a floor that can be mounted on specially designed prefabricated footings."

According to Dr. Cabangon, the height of the footings of the F-House can be adjusted when the terrain is not flat.

With regard to security, the F-House can be well-secured just like the regular house. It also offers the same indoor comfort and amenity of a permanent house because its structural design allows it to be resistant to weathering, extreme temperatures, winds, and other harmful natural forces.

The F-House is also stable during storms as tension cables tied to ground anchors secure the roof.

The F-house can also be easily transported. It can be put in a rigid case and placed at the back of a trailer or in a low-bed truck, in case of multiple deliveries. When dismounted from the trailer or truck, the F-House can be wheeled to destined location through prefabricated footings previously positioned and leveled.

"The rigid case can be unfolded and erected into a house in just one hour or less," assured Dr. Cabangon. "This can be easily done by four medium-built unskilled workers, using only simple carpenter's tools and gadgets."

Built to comfortably house a family of five, the prototype shelter can be very handy when not in use.

"It can be stored in a space approximately five times smaller than its actual service size," informed Cabangon.

Because it is highly compact when not in use, several units can be stored in a small warehouse.

The walls, floor, and roof are sheathed with weather-, termite-, fungi-, and fire-resistant wood wool cement board panels that are fixed and fastened using specially designed light-weight metal sections.

The prototype F-House is already integrated with provisions for power supply.

Cabangon also revealed that that the cost of fabricating one prototype with double walls was PhP 75,000 or roughly PhP 6,500 per square meter. The cost can still be lowered when mass-produced or when the walls are singly sheated.

In contrast to site-built low-cost houses that typically takes three to four months to build from planning to construction, the F-House can be acquired and erected instantly.

"We assure end-users that the fabrication of the F-House was adequately supervised in the shop using only quality-tested materials," said Cabangon. "The method of erecting the shelter was well planned and engineered. Hence, buying the F-house is like buying time when a safe and comfortable refuge is needed most."

Currently, Cabangon and the research team are working on for more improvements on the F-House, including its size, features, materials, and transportability, among others. *(Framelia V. Anonas, S&T Media Service)*

InFocus

Sec. Mario G. Montejo briefs Ms. Margareta Wahlström, UN special representative of the Secretary-General for Disaster Risk Reduction, on DOST's roadmap on climate change and disaster preparedness. Ms Wahlström's visit concerns the UN's invitation for the Philippines to produce a documentary that highlights and celebrates the country's achievements in the implementation of the Hyogo Framework for Action (HFA) in the past 10 years. The documentary will be presented in Japan during the Third World Conference on Disaster Risk Reduction next year. The HFA is a 10-year plan with the goal of substantially reducing disaster losses by 2015 by making nations and communities resilient to disasters. Primarily, this means reducing loss of lives and social, economic, and environmental assets when hazards strike.