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work for you

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Getting closer to “Smarter Philippines” as world zooms in on emerging economies

By Joy M. Lazcano
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Smarter technologies and capabilities made possible by the Department of Science and Technology (DOST), are out to bolster the Philippines’ global competitiveness amid forecasts that the country will rise as the world’s 16th largest economy, leaping 27 places from its current position.

In his presentation during the recent opening of the North Luzon leg of the Regional Science and Technology Week (RSTW) at the Benguet State University in La Trinidad, Benguet, Alejandro Melchor III, executive director of DOST’s Information Communication Technology Office (DOST-ICTO), revealed that the world is now looking at the Philippines and other Asian countries as the fastest growing economies.

“Who will deliver the fastest growth in 2050? Number one, China, traditional; second, India, and surprisingly, the Philippines,” exclaimed Melchor.

Smarter Philippines

DOST leverages these projections to prepare the country towards this global economic shift as it directs the journey toward a “Smarter



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Philippines,” a program which will enable the country to achieve global competitiveness by developing and deploying smarter technologies. In particular, Smarter Philippines aims to enhance capabilities and thus give

local and global investors more options to invest in agriculture, industries, governance, climate change adaptation, human capability, jobs creation, healthcare, and micro, small and medium enterprises (MSMEs).

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DOST Secretary Mario G. Montejo congratulates Fabian Espiritu, one of the most successful SETUP beneficiaries, during the awarding of the Best National SETUP Adopter for 2013. (Photo by Henry De Leon, S&T Media Service, DOST-STII)

SETUP steps up support to entrepreneurs

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

Science Secretary Mario G. Montejo pledged more support to micro, small and medium enterprises through the enhanced Small Enterprise Technology Upgrading Program (SETUP) of the Department of Science and Technology (DOST).

SETUP, a nationwide strategy to boost the operation and productivity of micro, small, and medium enterprises (MSMEs) by providing collateral and interest-free loan for technology innovations, has been helping thousands of small enterprises since its implementation some ten years ago.

Banking on SETUP’s success in the previous years, DOST now aims not only to provide enhanced firm-level S&T interventions through increased support fund and strengthened S&T consultancy services and trainings but also to provide industry-level interventions.

Such interventions include development of Industry S&T Road Maps as well as the establishment of industry support services such as innovation centers, technology incubators, testing centers and technology resource centers.

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For smarter farming, the program will address perennial problems in rice sufficiency, mango productivity, livestock and fish productions, and improvement of coconut yield via enhancement of the fruit's genetic makeup. Coconut is one of the country's most promising crops, generating \$1.45B in annual revenues.

Smarter MSMEs will strengthen the sector by providing innovative, cost-effective and appropriate technologies that enable MSMEs to develop and produce competitive products that meet world-class standards.

Meanwhile, Smarter Industries will provide state-of-the-art facilities and capabilities which will enable local industries to move up the value chain and attain global competitiveness.

For the electronics and semiconductor sectors, DOST unveiled the Advanced Device Materials and Testing Laboratory earlier this year to enhance their productivity.

Furthermore, Smarter Industries will also help widen the global market share of the local business process outsourcing (BPO) industry which is poised to attain world leadership in four more fast-growing BPO services namely healthcare information management, finance and accounting, human resources and creative process outsourcing. Further strengthening the capabilities of the BPO industry is DOST's Next Wave Cities Program which will ensure that BPO employment will be spread throughout the country.

To achieve good governance and transparency, Smarter Government will provide an ICT-based transformation of

governance and the delivery of government services and information. Projects such as IGov Philippines, a secured online government payment services and TV white space, and an internet connectivity using untapped UHF and VHF TV channels, will provide innovative government services to people, even in the countryside.

To address the absence of public doctors especially in far-flung areas of the country, technologies such as the RXBox, a portable medical device that could check the patient's electrocardiogram or ECG, heart rate, blood, pulse rate and blood oxygenation, can provide immediate diagnosis by transmitting the test results to affiliated medical doctors through the internet or mobile phones.

Global seismic shift

According to Dir. Melchor, an Asian Development Bank survey showed that the combined gross domestic products of ASEAN, China and India could quadruple and exceed the combined US and European economies in the coming years. Meanwhile, the region's share in world investments is projected to reach 40%. "Every \$100B of world investments, \$40B will go to the Asian region," Dir. Melchor said.

The DOST-ICTO official also mentioned a global research by the Hongkong and Shanghai Banking Corporation indicating that by 2050, world attention will turn to "new emergers" as the world economy undergoes a seismic shift.

Seismic shift refers to a global economic transformation from the economic superpower countries to new and emerging economies.

Montejo declared that these strategies would lead to the establishment of SMARTER MSMEs that would sustain economic growth, respond to globalization challenges, prepare for ASEAN community, and help address pressing national problems. He defined SMARTER MSMEs as Sustainable, Market-Oriented, Agile, Resource-efficient, Technology-based, Environment-friendly and Responsive firms.

Montejo noted that SETUP has proven itself as "a very viable program for creating jobs in the countryside."

Around 94.5 percent of SETUP projects are located outside Metro Manila.

He explained that for every P50,000 worth of assistance to small enterprises, one sustainable job is created. Further, if the salaries of the workers for one year were factored in, the value created is even higher than the actual financial support given to MSMEs, he added.

He emphasized that the funds given to MSMEs are paid back to the government within a certain period.

As of June this year, DOST has supported 1,299 MSMEs through SETUP, with assistance amounting to P 256 M – or one half of this year's target.

When SETUP started in 2002, it initially helped 31 MSMEs with assistance amounting to P 15 M. For the past three years, the budget for SETUP has increased from P 139 M in 2010, to around half a billion pesos in 2013—a significant jump, according to Montejo. In 2012, DOST assisted a total of 3, 272 MSMEs with a value of support amounting to P375 million for 593 projects.

Fish drying in Cagayan now quicker and cleaner

By Grace R. Lara
S&T Media Service, DOST-II

There will now be less sun drying of fish products along the roads of Caraoan, Gonzaga's the second set of multi-commodity Solar Tunnel Dryer (MCSTD) in the province of Cagayan was installed and inaugurated recently.

Sun drying is one of the most common and traditional methods of food preservation in the Philippines. Although the cost of the process is fairly cheap, sun drying becomes problematic during the rainy season. Also, sun dried products are more prone to microbial contamination due to exposure to wind and dust.

Philippine Center for Postharvest Development and Mechanization (PHilMech) bats for the solar tunnel dryer as an appropriate alternative to sun drying and commercial mechanical dryer. A modified

type of dryer fabricated by researchers from the Hohenheim University in Germany, the solar tunnel dryer is convenient to use, cheaper, and entails lower operation costs compared with commercial dryers available in the market.

The dryer too is easily installed and maintained, and offers simultaneous, efficient, and hygienic drying of commodities. Food dried using the solar tunnel dryer has longer preservation time because the dryer kills micro-organisms.

In January this year, Department of Science and Technology (DOST) installed the first solar tunnel device in Cagayan at Minanga, Gonzaga.

Led by Gonzaga Mayor Carlito F. Pentecostes and DOST Regional Director Urdujah A. Tejada, the inauguration of

the second set of dryers was participated in by DOST Provincial Director for Cagayan Teresita A. Tabag, Cagayan State University-Gonzaga CEO Ferdinand C. Oli, PHilMech Enterprise Development Division Chief Dr. Helen F. Martinez and Rural Improvement Club President Mrs. Emelia Realica.

Mayor Pentecostes stressed the significance of the dryer in maintaining clean and hygienic products in the market. He mentioned that drying along the roadside will now be strictly prohibited. This is in accordance to the aim of the province to bring back the trademark "Gonzaga's Best". He has also mentioned that the use of the dryer will greatly benefit the people of Caraoanas as it will help them dry their fish products quickly and cleanly.

DOST strengthens weather projects, equipment to save lives and resources

By George Robert E. Valencia
S&T Media Service, DOST-STII

The Department of Science and Technology (DOST) continues to reinforce its weather-related projects and equipment to ensure the safety of Filipinos and prevent the loss of properties and resources. As of September 2013, 1,000 hydromet sensor-equipment have been locally produced, and 638 of them have been installed nationwide. Included here were 400 automatic rain gauges and 238 water level monitoring sensors.

These sensors now send real time weather and river water level data used by our warning agencies while the public can also access through Project NOAH (www.noah.dost.gov.ph). The DOST's Project NOAH or Nationwide Operational Assessment of Hazards is the government's lead program for disaster prevention and mitigation.

More flood early warning systems

In the past 40 years, the country has only managed to build four independent flood early warning systems in Pampanga, Agno, Bicol, and Cagayan Rivers with funding from the Japan International Cooperation Agency.

"Through the Department of Science and Technology's (DOST) DREAM Project (Disaster Risk Exposure, Assessment and Mitigation), a component of Project NOAH, the country is accelerating its capacity in flood forecasting without foreign assistance," stated Science Secretary Mario G. Montejo.

The DOST-DREAM Project, in collaboration with the University of the Philippines, seeks to establish an integrated flood early warning system in all the 18 major river basins—areas that are considered most vulnerable to flooding during severe weather event. The DOST-DREAM Project uses state-of-the-art LiDAR (Light Detection and Ranging) technology to produce highly accurate three-dimensional (3D) flood maps.

To date, 17 out of 18 river basins have been LiDAR-mapped, covering an area of 25,000 square kilometers of flood plains.

A year after its launching, the DREAM Project has been proven effective during last year's and recent occurrence of "habagat" with Marikina City posting zero casualty.

The DOST-DREAM Project started in late 2011 following the release of Php 1.6 B through the Disbursement Acceleration Program (DAP) funding mechanism. Later, the DOST hydromet sensors development project also received a Php 150 M funding to produce and install 1,000 hydromet sensor-equipment nationwide to boost the country's flood warning capabilities.

The DREAM project also helped map out safe and unsafe areas and identify possible



DOST personnel install weather equipment is one of the country's major rivers.

relocation sites in Compostela Valley following the devastation brought by Typhoon Pablo in 2012.

"What has not been accomplished in the past four decades, the DOST is poised to finish in two years," Montejo added.

Weather forecasting hub

In the pipeline is a weather hub that will enhance the weather forecasting capability of the country.

Called the National Meteorological and Climate Center (NMCC), the weather forecasting hub will be equipped with state-of-the-art information technology facilities that include research laboratories, weather and climate modeling hubs, a training center and an auditorium to hold symposia and seminars. It will be housed at the DOST- Philippine Atmospheric, Geophysical and Astronomical Services Administration or PAGASA Central Office at the Science Garden Complex in Agham Road, Diliman, Quezon City.

Once the center is operational, weather related activities will be at par with other international weather centers. Likewise, local weather experts will be highly equipped to conduct weather and climate modeling and prediction as well as pursue studies on weather and climate related disasters that will enable us to prepare and respond to them.

The project cost is Php275M for the construction of the building and structure outlay, office equipment, furniture and fixtures. This amount is part of the total Php425M disbursed to PAGASA under the DAP of the Department of Budget and Management (DBM).

More Doppler radars

DOST-PAGASA was also allotted P 150M for the project titled "Enhancement of Doppler Radar Network for National Weather Watch, Accurate Forecasting and Flood Early Warning" which includes the construction of Doppler radar towers in Iloilo, Zamboanga City, Busuanga, and Palawan.

The Department of Public Works and Highways (DPWH) will handle the construction of the radar towers.

The project also includes the procurement of one Doppler Weather Surveillance Radar System to be installed in Iloilo at the western seaboard to complete the coverage and monitoring of weather systems in the country.

To date, there are 10 Doppler radars installed in strategically located areas in Subic, Baler, Baguio, Tagaytay, Cebu, Tampakan, Hinatuan, Virac, Aparri and Guiuan. The other two radars to be installed next year will be in Quezon, Palawan and Basco, Batanes. By 2014, DOST-PAGASA aims to have a total of 15 Doppler radars operational to monitor weather conditions all over the Philippines.

The DAP is a funding mechanism instituted by the Department of Budget and Management (DBM) to fast track the disbursement of funds for priority projects of the government that include, among others, public works, agricultural infrastructure, housing relocation and resettlement, local government units assistance, rehabilitation of the railway system and weather forecasting.

Ceramic filters give more people access to potable water

By Violy Balaoing Conoza
S&T Media Service, DOST-ITDI

Responding to the urgent need for potable water in several areas in the country, Secretary Mario G. Montejo instructed all DOST regional offices and the Industrial Technology Development Institute (DOST-ITDI) to join hands and roll out nationwide the DOST-developed ceramic water filter.

The DOST-ITDI-developed ceramic-based water filter can remove contaminants in drinking water, making them perfect for home use. Three models were developed, two pot-type ceramic water filters of 6.5 and 1.5 L capacity; and the latest edition, the candle type water filter.

"The filter is made from red clay, and we added nano (very, very small or minutest) antimicrobial agent that can eliminate water-borne microorganisms," said Supervising Science Research Specialist and lead researcher Josefina Celorico.

The ceramic filter is lodged in a plastic container with a faucet at the bottom for collection of the filtered water. The ceramic filters are easy to install and maintain, and reasonably priced. According to Celorico, production cost per piece for the candle type water filter is Php80.00, and while the pot type amounts to around Php190.00. "At this point, we had established the ceramic filters' flow rate at 2-3 L/hour," she added.

Both types of water filter can purify tap water, deep well water, and raw water (from ponds and spring). Through the filters, safe, potable drinking water is readily available and accessible even in remote areas.

The filtered water passed the Philippine National Standard or PNS for drinking water in both tests/counts for Coliform and Escherichia coli, the most common water borne disease-causing microorganisms.

Moreover, the ceramic water filters have also undergone field testing at National Housing Authority households in



Two pot-type ceramic filters are now available at DOST Regional Offices.

Muntinlupa City and Cagayan de Oro City. Feedback from user are positive: "nagagamit sa pagluluto," "masarap ang lasa ng tubig," "nakatipid sa pagbili ng mineral water," "maayos," "walang problema," "kailangan maingat sa paglinis" (it can be used in cooking, the water from the filter tastes good, we saved from buying mineral water, it is orderly, we did not encounter problems, need to be careful in cleaning).

As of press time, roll-out activities are on going in the regions. Further, ITDI is testing clay samples from all regions to find the best suitable material for the water filters. Consultative meetings and assessment are conducted with interested groups or possible adopters. Clay materials have to pass the physical property tests, including water absorption, porosity, shrinkage, bulk density, temperature and flow rate for ceramic water filters. Clay from Regions 1 (Ilocos Sur), III (Tarlac and Aurora), V (Camarines Sur and Sorsogon), VIII (Leyte, Aklan), X (Cagayan de Oro), and XII (South Cotabato) passed said tests and considered as potential materials. Testing is still ongoing in other regions.

DOST Region 3 conducted training in Arayat, Pampanga using Tarlac clay and produced 250 pieces of 1.5 liter capacity filters. The finished products will be distributed to identified beneficiaries in the region. Meanwhile, a Memorandum of Agreement was forged with a possible technology adopter in Cagayan de Oro City. Another potential adopter in Vigan, Ilocos Sur, meanwhile, rehabilitated his kiln.

Reports say that water-borne diseases such as diarrhea and dysentery are often caused by contaminants such as microorganisms and particulates (solid particles) present in tap and ground water. Often, to avoid getting contaminated, people are forced to buy commercially sold bottled water, adding up to their expenses and causing more damage to an already very tight budget.

For those who are interested, please contact Dr. Nuna E. Almazor, Director, Industrial Technology Development Institute (ITDI), DOST Cmpd., Gen. Santos Ave., Bicutan, Taguig City at tel. no. 837-2071 to 82 local 2215, telefax 837-3167, or email-nealmanzor@dost.gov.ph.

InFocus

Project NOAH gives copies of flood maps and digital elevation models to mayors and LGU representatives during the recent "Report to Stakeholders" held at NEC Building in UP Diliman, Quezon City. From left: DREAM Project Leader Dr. Enrico Paringit; DOST ASec. Raymund Liboro; Sta. Maria, Pangasinan Mayor Teodoro Ramos; Alcala, Pangasinan Mayor Ryan Paolo Mencias; Victoria, Tarlac Mayor Candido Guiam III; former representative Mark Cojuangco; Mangaldan, Pangasinan Mayor Bona Fe Parayno; Project NOAH Exec. Dir. Dr. Alfredo Mahar Lagmay; Aries Aquino, MDRMO of Bautista, Pangasinan; Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIERD) Exec. Dir. Dr. Rowena Cristina Guevarra; Mariza O. Mandocdoc, VP for Business Dev't and Business Enhancement Group, Clark Development Corporation. (Text by Suzette Dalumpines/Photo by Caejay Valerio, S&T Media Service, DOST-STII)

