



11 years of bringing
S&T good news

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S&T vital in ushering 4th industrial revolution, says science chief

By **Rodolfo P. de Guzman**, *DOST-STII*
Photos by **Henry A. de Leon**, *DOST-STII*

From the time that fire was discovered by prehistoric man, human evolution has never been the same. With the invention of the wheel to the motorized car and then the sprouting of different industries to the upsurge of computers, society also marched to its cadence – now moving double time to embrace the dawning of the so-called Fourth Industrial Revolution – the age of big data, artificial intelligence, and robots.

“We, at the Department of Science and Technology, are taking off from what the President wants to see ...of reducing inequality, of how our regions and provinces perform and contribute to the growth of the economy with the coming of the Fourth Industrial Revolution,” said DOST Secretary Fortunato T. de la Peña.

The science chief was one of the panelists during the Annual Public Policy Conference held at the Shangri-La Plaza Hotel on 19 September 2018. The event, held in observance of the 16th Development Policy Research Month celebration, was organized by the Philippine Institute of Development Studies (PIDS), an attached agency of the National Economic Development Authority (NEDA).

The annual event gathered researchers and academics, policy makers, business leaders, civil society, and government to tackle issues and opportunities facing the Philippines as it embraces the Fourth Industrial Revolution or FIRE. This year’s theme was dubbed “Harnessing the Fourth Industrial Revolution: Creating Our Future Today.”

According to Sec. de la Peña, the DOST is strengthening its research and development (R&D) initiatives by encouraging more scientists and researchers to submit project proposals particularly those connected with state universities and colleges (SUCs) in the regions.

“As far as the Industrial Revolution 4.0 or FIRE is concerned, we are preparing our facilities to do R&D and we ensure that we make our services accessible through different platforms like ICT (information and communications



DOST Secretary Fortunato T. de la Peña (second from right) shares that the DOST is strengthening its R&D programs to encourage more local researchers and scientists to submit proposals for funding in preparation to meet the demands of the Fourth Industrial Revolution.

technology) and bring down our services to the people,” added Sec. de la Peña.

Further, the Secretary bannered DOST’s support for micro, small, and medium enterprises or MSMEs that comprise about 95% of registered businesses in the country, through the Small Enterprise Technology Upgrading Program (SETUP).

“We recently re-launched the Small Enterprise Technology Upgrading Program as SETUP 2.0 where we not only assist individual MSMEs improve their productivity and competitiveness but also extend our assistance to different industry sectors particularly in the regions,” disclosed de la Peña.

According to the science chief, the DOST is also forging institutional partnerships with different government agencies to prepare for the FIRE.

“We also recently signed a partnership with the Department of Trade and Industry (DTI) to show that there is synergy in government, that we can work together to help our MSMEs,” he added.

For the part of the private sector, Jaime Augusto Zobel de Ayala, chair and chief executive officer of Ayala Corporation, showed full support for the initiatives in gearing up for the 4th Industrial Revolution.

“I am optimistic about the Fourth Industrial Revolution because there is a sense of disruption, sense of revolution but with sense of hope, of finding opportunities in new ways. But we need to work together with the academe whose role is to harness new opportunities,” said Zobel de Ayala.

During the event, there was also a mini exhibit of the partner institutions of PIDS. Included in the exhibit were publications of the DOST-Science and Technology Information Institute and the DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD); and a model of the Diwata microsatellite of the DOST-Advanced Science and Technology Institute (DOST-ASTI). The other exhibitors were NEDA, Department of Labor and Employment (DOLE), DTI, and PIDS.

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DOST-Pisay eyes Palawan students for S&T scholarship

By **Rodolfo P. De Guzman**, *DOST-STII*
Photos by **Neil Anjo B. Bio**, *DOST-STII*

In a bid to draw elementary students to take science scholarship and go the STEM (science, technology, engineering, and mathematics) track when they get to high school, the Philippine Science High School (PSHS) or more commonly known as Pisay held a research summit in Palawan. Called the 2018 Science Research Summit, the event was held from 28 September to 1 October 2018 at the Skylight Convention Center in Puerto Princesa, Palawan.

During the summit, Pisay students from various campuses presented research studies—one for inter-Pisay competition and another for presentation to Palawan students. Teachers, meanwhile, were engaged not only as guides in the fair but also as participants to a seminar on Zika mosquito protocol training sponsored by the Global Learning and Observations to Benefit the Environment or GLOBE.

There were 63 student-prepared research papers presented out of the 107 submitted system-wide, covering six areas, namely biology, chemistry, material science, engineering, environmental science, and computational science.

“This four-day summit is designed to provide and share the latest information and to highlight numerous scientific discoveries of PSHS students and enable them to embrace the culture of scientific inquiry and share their experiences with co-Pisay students,” said PSHS Executive Director Lilia T. Habacon. Pisay, which is under the Department of Science and Technology (DOST), has its own special curriculum that is designed



Usec. Carol M. Yorobe enjoins Pisay student to make good use of their talents.



to develop students holistically but with strong emphasis on science and technology.

One of the special features of the summit was Hillary Diane A. Andales, a Pisay alum from the Eastern Visayas campus in Palo, Leyte, who shared her experience as a Pisay student and as the winner of the 2017 Breakthrough Junior Challenge held in the United States.



“When I was just an elementary student, I have always wanted to be part of the cream of the crop, of studying in Pisay whenever I see the three-storey building (in Palo) even if I have to sacrifice fun,” Andales said. She underscored the importance of having a dream and setting clear goals to be able to achieve success.

“For me it is important to have a dream, and my dream then was to enter Pisay but later I realized that Pisay is not the dream itself but one of my goals. Pisay is just a stepping stone to achieve my ultimate dream of creating a world that values learning; to change the world through science,” added Andales.

Also, during the opening ceremonies, Dr. Foong Tze Foon, chief executive officer of Nanyang Polytechnic International Singapore, one of the invited speakers, highlighted the importance of identifying the three D’s,

namely dream, difficulty, and destiny in order to succeed. He further said that Singapore, a couple of decades ago, invested in human capital by sending 1,000 scholars in different top universities in the world to learn new technologies that they brought back home.

The need to invest on the youth was echoed by DOST Undersecretary for S&T Services Carol M. Yorobe who represented Secretary Fortunato T. de la Peña. Usec. Yorobe urged the Pisay students to strive harder because they are the next generation of scientists, engineers, and mathematicians that the country will need in the future.

“As young scientists you must make good use of your talents for society and as you proceed in your career always remember your fellowmen, whether you are in the field of nuclear science, space technology, and data science. But with limited institutions offering these courses, we also consider sending scholars in institutions abroad. And with the Balik Scientist Program, our scientists and engineers can share their talents to benefit government, industry, and other sectors,” said Dr. Yorobe.

Aside from the orientation on the first day, the Pisay students also had a team building activity for them to meet other students from other Pisay campuses and build friendships and networks. Various campuses of Pisay have been established in all regions, namely Pisay Main Campus in Quezon City, CALABARZON, Eastern Visayas, Central Visayas, Western Visayas, Southern Mindanao, Zamboanga, Cordillera Administrative Region, Central Luzon, and MIMAROPA, the youngest campus which was established just this year. The establishment of Pisay campuses and having Pisay scholars all over the country is in pursuit of the Department’s goal of bringing science to the people.

DOST, STEMUP partner to train elem studes in robotics

Text and photo by Carlo B. Canlas, DOST-STII



Project 6 Elementary School took home 1 unit of mBot, medals, and certificate after garnering the highest overall score among the participants.

Grade school students from Pasay, Manila, Makati, and Quezon City (PAMAMAZON) were given a chance to learn basic robotics concepts at a training camp organized by the Department of Science and Technology-National Capital Region.

Selected grades 5 and 6 students from 19 public schools from the cities of PAMAMAZON participated in the robotics training camp held on 27 September at the Technological University of the Philippines-Integrated Research and Training Center. The robotics training camp was conducted to inspire young students to take up courses related to STEM or science, technology, engineering, and mathematics.

DOST-NCR partnered with STEMUP, a company that aims to ignite students' passion for STEM through hands-on learning programs. STEMUP founder Jerome Castañeda taught the students the basics of software and hardware engineering.

The students underwent interactive lectures about software engineering in the first part, where they were tasked to create games by using software coding on microbit.org. For the second part of the training, selected students were given the chance to program an educational robot called mBot. The mBot is an educational robot meant for beginners in programming, especially for children. This robot is compatible with Lego bricks and equipped with ultrasonic sensors, line follower sensors, Bluetooth module, light sensors, buzzer, button, RGB LED, and expansion ports.

Not everybody had the chance to perform the programming and assembly of mBots due to limited resources. Only the top eight schools with the highest scores qualified for the mBot programming and assembly.

The students' assignment was to assemble the robot and have it programmed. After that, students manually controlled the robots by connecting it to a phone or tablet using its Bluetooth module.

For the final challenge, students attached a balloon at the back of the robot, and a stick in

front. They played balloon fight with competing team. Their goal was to pop the opponents' balloons. San Jose Elementary School dominated the game after they survived seven other mBots.

All in all, Project 6 Elementary School ranked first in the tally of scores, followed by San Jose Elementary School, Cubao Elementary School, Andres Bonifacio Elementary School, and Pembo Elementary School in second to fifth place, respectively. Each of the top 5 schools received certificates of recognition and took home one mBot. Timoteo Elementary School and Palanan Elementary School tied for the sixth place, while Villamor Air Base Elementary School placed seventh overall.

Levelling up STEM education

STEMUP has been introducing the concepts of robotics, scratch programming, Microbit, 3D design, and 3D printing to children. The company aims to ignite a "maker" culture among young students and inspire them to take up STEM courses in the future.

"I was based in Singapore for the last nine years, and when I came back in 2016, I set up a company. At that time it was called 3DTayo, because my background is on 3D designs and 3D printing. I changed it to STEMUP in July 2017 because of my desire to level up STEM education in the country. The idea is to influence young children to pursue a STEM career," Engr. Castañeda explained.

As of 2017, only 39 percent of students enrolled in STEAM (science, technology, engineering, agri-fisheries, and mathematics) related courses. For the 2016-2017 school year, there were 1,428,614 or 39.8 percent enrollment rate on STEAM related courses, but only 145,131 graduated on these courses, which is just 11.61 percent.

The robotics training camp was part of the celebration of the PAMAMAZON Regional Science and Technology Week held from 26 to 29 September 2018.

Science chief...
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The conference was also made possible through the cooperation of sponsors, namely the Global Development Network, DTI, DOST-PCIEERD, DOLE, Department of Foreign Affairs, Bangko Sentral ng Pilipinas, Commission on Higher Education, Asian Development Bank, and the Australian Embassy in the Philippines.

ABOUT US

The DOST Digest is published by the Department of Science and Technology-Science and Technology Information Institute. For comments, suggestions or queries, contact: (02) 837-2071 to 82 loc. 2148/839-2193 local 107 or email: dost.digest@gmail.com

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www.stii.dost.gov.ph

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DOST to lead 2018 Nat'l Biotech Week festivity

By Allan Mauro V. Marfal, DOST-STII



14th National BIOTECHNOLOGY Week: Pambansang Hamon, Pambansang Solusyon

For this year, the Department of Science and Technology (DOST) will be at the forefront of staging an event that would help increase public awareness on the benefits of biotechnology.

DOST, together with various national government agencies, non-government organizations, and academe will hold the 2018 National Biotechnology Week (NBW) celebration on 13 to 17 November 2018 at the World Trade Center in Pasay City.

Carrying the theme “Pambansang Hamon, Pambansang Solusyon,” this year’s NBW will highlight how various biotechnology products, researches, and services could help address the challenges and limitations that exist in different areas in the country.

“In recent years, our scientists and different R&D (research and development) institutions have managed to discover new

knowledge, products, and services on how different applications of biotechnology could help in various sectors such as agriculture, healthcare services, disaster preparedness and management, and environmental conservation,” said DOST Secretary Fortunato T. de la Peña.

Sec. de la Peña also said that celebrating the NBW will give opportunity for everyone to demonstrate how collaboration among universities, the private sector, other government agencies, and the public can create new products and services that can benefit everyone.

During the five-day celebration, participating agencies will mount interactive exhibits that will feature different biotechnology researches and projects.

Various science and technology (S&T) fora, biotech jingle and Sabayang Bigkas competitions, S&T career talk, science

journalism writeshop, National Farmers’ Congress, biotech fun art, and a healthcare forum will be also conducted during the 2018 NBW.

Meanwhile, various activities have been conducted by participating agencies since April of this year to promote the upcoming NBW celebration. These include trainings, film showing, and biotech symposium.

Other government agencies and organizations that will be participating at the 14th National Biotechnology Week are the Department of Agriculture, Department of Education, Department of Health, Department of Environment and Natural Resources, International Rice Research Institute, Southeast Asian Regional Center for Graduate Study and Research in Agriculture, University of the Philippines (UP) Los Baños, Biotechnology Coalition of the Philippines, Commission on Higher Education, and the UP National Institute of Molecular Biology and Biotechnology.

Created by virtue of Presidential Proclamation No. 1414, NBW is celebrated every third week of November to highlight the many contributions of biotechnology to agriculture and food security, equitable health care services, development of industries and business enterprises, sustainable environment, economic development, among others.

For more information, visit and like NBW’s Facebook page <https://www.facebook.com/nbwphilippines/>.

inFOCUS

Science race under Manila’s forest park. Students from 18 high schools in the National Capital Region’s PAMAMAZON (Pasay, Makati, Manila, Quezon City) cluster joined the Amazing Science Race at Arroceros Forest Park in Ermita, Manila on 27 September 2018. The students formed eight teams with 10 members each. Each was tasked to answer science problems in eight stations with themes like element, atom, space, earth, body, power, time, and mind. In one station, students had to arrange the elements in the periodic table according to their atomic number. Spearheaded by the Department of Science and Technology-NCR, the event was part of the four-day Regional Science and Technology Week held 26 to 29 September 2018 in Manila. (Text by David Matthew C. Gopilan and photo by Gerardo G. Palad, DOST-STII)

