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SCIENCE STRENGTHENS ITS TIES IN ILOCOS SUR

By: Florde Liza L. Alida, DOST 1

With the aim of bringing science closer to the people through establishing the Municipal Science and Technology Coordinating Council (MSTCC) in all the local government units in Region 1, the Department of Science and Technology Region 1 (DOST 1) recently conducted two districtwide Science and Technology Caravans in the province of Ilocos Sur through the Provincial Science and Technology Center (PSTC) in collaboration with the Local Government Units (LGUs) in Ilocos Sur.

The S&T caravans were held in the Municipality of Sinait for the First District and Sta. Cruz for the 2nd District on May 9-11, 2018 and June 20-22, 2018, respectively, to showcase DOST programs and services, and adaptable technologies from its attached agencies.

Among the S&T programs showcased the Science and Technology Academic Research-Based Openly Operated Kiosk System (STARBOOKS), Small Enterprises Technology Upgrading Program (SETUP), Packaging and Labeling Services, Technical Assistance

and Consultancy Services (TACS) and more. DOST services were also provided during the duration of the caravan, such as blood pressure (BP) and electrocardiogram (ECG) monitoring using the RxBox technology, calibration of weighing scales, technology fora, and technology trainings for free.

The MSTCC, intends to enhance and strengthen a better implementation of S&T programs and services at the grassroots level. Among the mandates of MSTCC is to come up with community-based proposals that will address S&T related concerns in the community.











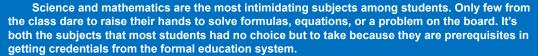






EDITORIAL

Of Embracing S&T Literacies





Science, Technology, Engineering, and Mathematics (STEM) have been recognized as the most important drivers of economic development. Thus, the Department of Science and Technology (DOST) is on track in creating more policies to strengthen STEM education to produce more productive engineers, mathematicians, and scientists in the country.

DOST Programs assisting S&T skilled individual are continuous from the grade school to the graduate schools. The S&T Scholarship programs of DOST encourage STEM skilled students and professionals to pursue their excellence in S&T. Also, the S&T digitized library or the Science and Technology Academic Research-Based Openly Operated Kiosk Station (STARBOOKS) is being circulated all over the region. This stand-alone kiosk provides quality and reliable information from the various fields of S&T in the form of videos, text, and audio.

Interactive S&T learning tools are also invading the classroom scene making science and math hour more fun and exciting. Among the DOST projects is the Science Explorer, a mobile laboratory in a bus travelling to schools and places that do not have science laboratories. Another one is the 21st Century Classroom Learning that uses the augmented and virtual reality in discussing phenomena, movement of things, space, and more. Also, the mobile planetarium, an inflatable and portable planetarium of the DOST's Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) allows individuals to be able to appreciate the grandeur of planets and stars in a very compact stage.

The DOST's effort in bringing these innovations to schools and libraries is continuous while it encourages students to exert more on innovations. Likewise, it continues to build and expand connections to its partner-agencies, Local Government Units (LGUs) and other stakeholders to fast-tract the adaption of these significant innovations.





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> Telefax: (072) 888-3399 CP #: 0917-840-8695 or 0998-962-0235 Email: dostregion1@gmail.com

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RXBOX IS ONE WITH THE BI-CENTENNIAL CELEBRATION OF ILOCOS NORTE

By: Carla Joyce Cajala, DOST 1

The Province of Ilocos Norte held their Bi-Centennial celebration last May 16-22, 2018. As part of the celebration, an event entitled "Bicentennial Mega Tienda ni Gob" with the theme "Natibker a Komersio, Para Iti Nadur-as nga Ilokano" (Stronger Trade, for a Successful Ilocano) was held in the Centennial Arena of Laoag City in Ilocos Norte. A number of government agencies staged their services for the public. Each municipality of the Province of Ilocos Norte showcased their creative products as a way to present what they can distinctly offer.

The celebration started with the ribbon-cutting



Hon. Matthew M. Manotoc tries blood pressure taking through the RxBox Technology of DOST, one of the technologies featured during the Ilocos Norte Bi-centennial celebration.



The Bicentennial Tienda ni Gob celebration was graced by SBM Matthew M. Manotoc (1st from right) accompanied by DOST1 Regional Director, Dr. Armando Q. Ganal (3rd from left), along with Provincial Science and Technology Director of Ilocos Norte, Mr. Jonathan Viernes (1st from left) and other officials from the Provincial Government Unit of Ilocos Norte.

which was led by Sangguniang Panlalawigan Senior Board Member, Hon. Matthew Marcos-Manotoc along with the DOST Regional Director, Dr. Armando Ganal, Provincial Science and Technology Director of Ilocos Norte, Mr. Jonathan Viernes and other officials from the Provincial Government of Ilocos Norte. Sharing the same goals with the province to provide utmost and excellent health care to the people, the RxBox medical device was one of the services offered by the Department of Science and Technology. Other services were on Calibration of weighing scales and Portasol or the portable solar drying technology. A Techno-Forum for the topics on Food Safety and Product Packaging and Labeling were also discussed by DOST. After the opening program and during his rounds of the booths and exhibits, SPM Manotoc personally tried the Blood Pressure Check of the RxBox device.

Ilocos Norte has 6 beneficiary sites for the RxBox project. This will aid to provide better access to life-saving health care service through maximizing the established benefits of Information and Communication Technology in the Health Care aspect.

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DOST DEPLOYS STARBOOKS IN SAN FABIAN NATIONAL HIGH SCHOOL

SEC DELA PEÑA VISITS RESSTEEL CONSTRUCTION IN CANDON CITY

By: **Donnabhel Ann M.** Flores, PSTC Ilocos Sur

The Department of Science and Technology (DOST) Secretary Fortunato T. Dela Peña visited Ressteel Construction, one of the DOST-Small Enterprise



Technology Upgrading Program (DOST-SETUP) assisted firms in Brgy. Bagani Gabor, Candon City, Ilocos Sur on May 30, 2018 after the 10th Commencement Exercises of the Philippine Science High School – Ilocos Region Campus (PSHS-IRC) as guest of honor and speaker. The secretary's visit intends to see the progress and impacts of the SETUP interventions provided to the frim.

Mr. Reynaldo A. Garringo, owner of Ressteel Construction, were full of gladness and excitement as he toured Secretary Dela Peña, DOST Region 1 officials, PSHS Executives and Candon LGU around the firm's production area where most of its efficient equipment for iron works were acquired through SETUP.

The SETUP interventions in 2011 and 2016 enabled the firm to attain 330% increase monthly gross sales from its benchmark gross sales of Php120,000 while an 8-hours' worth of ironwork job can now be done roughly in 1-2 hours only. Other impacts include savings on outsourcing practices, new products lines, improved and expanded production area,



DOST Secretary Fortunato T. Dela Peña (fourth from right) posed with Ressteel owner Reynaldo A. Garringo. Also in photo are (R-L) PSHS-IRC Ronnalee N. Orteza, Ilocos Sur Provincial S&T Director Mr. Ramon S. Sumabat, DOST-1 Regional Director Armando Q. Ganal, Candon City Mayor Eric G. Singson, MD., and PSHS Executive Director Lilia T. Habacon.

and acquisition of other high-end iron works equipment acquired through their own funds.

"Actually we were not that serious in putting up this business back then, and we started here (pointing to the working area now built in iron trusses) which was just roofed with coconut leaves before," said Mrs. Felicidad Garringo. She added that the firm was awarded as Regional Best SETUP Adoptor in 2015 and that they are thankful to DOST for having this kind of program that opened doors of opportunity and success.

"When we learned about the SETUP program of DOST assisting business firms in priority sectors such as metals and engineering, we did not hesitate to grab the opportunity and submitted our application," said Mr. Garinggo. He also added that DOST is the only agency where he felt the profound support of the government to small enterprise owners like him.

Sec. Dela Peña congratulated the couple for successfully adopting the technology equipment through SETUP, as well as to their continually expanding business.

SCHOOL LIBRARIES IN ILOCOS SUR GOT DIGITIZED

By: **Florde Liza L. Alida**, DOST

Due to the unavailability of rapid information resources such as internet connections and insufficiency of updated books among public schools, the Department of Science and Technology (DOST) donated 1 unit each of Science and Technology Academic and Research-Based Openly Operated Kiosk System (STARBOOKS) to 21 secondary schools in the 2nd District of Ilocos Sur alongside to the Science and Technology Caravan held on June 20-22, 2018 at Sta. Cruz Public Market, Sta. Cruz, Ilocos Sur.

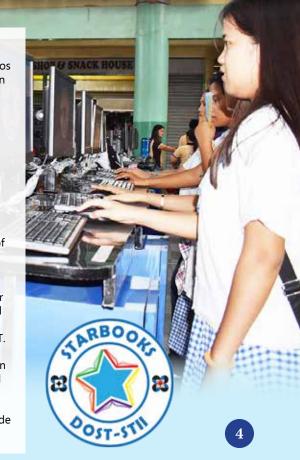
The 21 secondary schools in the 2nd District of Ilocos Sur were Pagangpang National High School, Sugpon National High School, Palali National High School, G. del Pilar National High School, Agagrao National High School, Cervantes National High School, San Emilio National High School, Tagudin National High School, Basug National High School, Burgos National High School, Nagbukel National High School, Narvacan NHS, Suyo NHS, Banayoyo NHS, Santiago NHS, Salcedo NHS, Quirino NHS, Narvacan NHS, San Esteban NHS, Sigay NHS. Previously,

11 units were also awarded to selected secondary schools in the 1st District of Ilocos Sur on May 9, 2018 during the S&T Caravan at Sinait, Ilocos Sur.

A user's training seminar was also conducted to the principals, school heads, librarians, and other teachers from the selected schools to further equip them on the technical management of the technology, such as user registration, administration, researching, and more.

The training and demonstration was followed by the signing of Memorandum of Understanding (MoU) between the school principals and DOST 1. The MOU defines the rules of each institution, wherein the DOST will ensure maintenance and monitor the efficacy of the technology in the school while the school administration will submit assessments and other reports to the DOST.

The STARBOOKS is an offline collection of digitized science and technology related information in the form of texts, video, and audio. It also serves as one stop S&T information source gathered from worldwide reliable sources.



DOST LAUNCHES CEST IN ILOCOS NORTE; FIELD STUDY CONDUCTED

By: John Oliver De Vera, DOST1-CEST

As part of the launching of the Community Empowerment through Science and Technology (CEST) Program in the Municipality of Dumalneg, Ilocos Norte, the Department of Science and Technology Regional Offrce 1 (DOST-ROI) conducted a Rapid Rural Appraisal (RRA) on May 28-31,2018 to four barangays in the municipality.

The RRA gathered baseline data and gave a clear picture and understanding on the current situation of the four communities namely Barangay Cabaritan, Kalaw, Quibel, and San Isidro. The gathered data will serve as basis in the determination and crafting of proposals for the implementation of appropriate interventions in the five priority areas ofthe CEST Program which include Livelihood or Economic Enterprise Development, Health and Nutrition, Human Resource Development, Environmental Protection and Conservation, and Hazard Mitigation and Climate Change.







Dr. Armando Q. Ganal, the DOST-I Regional Director, said that the program generally aims to empower the poor and marginalized sector in Dumalneg as it ranks the first in poverty incidence in the entire province based on Philippine Statistics Authority (PSA) data.

The three-day field study include focus group discussions with the key informants in the locality, validation of data gathered through ocular inspection of the site, and reporting and review of consolidated data with the key informants. The study was facilitated by members of the core group fiom DOST- I and the Mariano Marcos State University (MMSU), the partner academe of DoST-1 in the implementation of the program in the municipality.







The advocacy and consultative meeting with the community

Prior to the conduct of the field study, DOST-I conducted preliminary activities such as the advocacy and consultative meeting on February 28 to March 1 and March 22 to 23, 2018 at the Municipality of Dumalneg and MMSU in Ilocos Norte.

The advocacy meeting with LGU-Dumalneg and MMSU focal persons was initiated to introduce CEST program and gain commitment of the municipality and the SUC to engage in pa(nership for the implementation of the program.

After positive responses during the advocacy meeting, a consultative meeting was held at the University Training Center (UTC), MMSU to identifo and establish the profile of barangays as priority pilot areas of assistance, determine possible package of S&T interventions for implementation, and define the roles of stakeholden to the program. The meeting was attended by the core group members of MMSU, DOSTI, and unit heads and representative per focus area of LGU-Dumalneg.



DOST-TAPI TRAINS YOUNG SCIENTISTS IN LA UNION

By: Florde Liza L. Alida, DOST 1

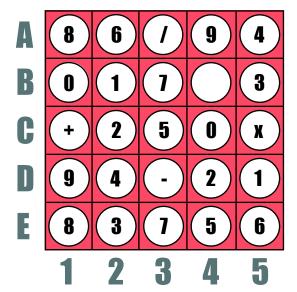
To create a stepping ground for young Filipino inventors in the field of innovation and entrepreneurship, the Department of Science and Technology- Technology Application and Promotions Institute (DOST-TAPI) in cooperation with the DOST Region 1-Provincial Science and Technology Center (DOST 1-PSTC) in La Union, conducted a training on Invent School Program to high school students in La Union recently.

The 2-day training and workshop aimed to provide a venue for the enhancement of students' interest in creativity, inventiveness, and potentials in the field of S&T, and increase awareness on Intellectual property Rights (IPR). During the training, the students were challenged to come up with a technology or processes that address community issues they have identified in terms of agriculture, energy, medicine, and more.

The training which was participated by around 40 teachers and students from the different secondary schools in the First District of La Union is among the activities during the S&T Caravan held at Pacoy Ortega Gym in San Fernando City, La Union on May 2-4, 2018.



LET'S PLAY TENDO



Find/complete the following equations whose **RESULT NUMBER** is **1**. Refer from the table on the left and write the coordinates of the equation.

EQUATION	COORDINATES	POINT VALUE (PV)
1. 4 - 3 = 1	D2D3E2	1
2 4 = 1		
3 2 = 1		
4. 52 = 1		
5 24 = 1		
6.4 + = 1		
7 x 5 = 1		
8. 1 _ 2 = 1		
9 2 x 1 = 1		
10. 2 _ 2 + _ = 1		



TENDO is a new mathematical game device invented by **Bobby F. Cabe** in San Fabian Pangasinan. The Tendo is a combination basic operation and numbers from 0 to 9. This requires the players to set an answer or Result Number, and locate all the equations whose answer falls to the players' Result Number by connecting the numbers and operations in the 5x5 dices.



Mike's Stainless Steel Fabrication, one of the Department of Science and Technology (DOST 1) assisted firms in San Fernando City, La Union through the Small Enterprise Technology Upgrading Program (SETUP) is soaring high as its quality produced stainless steel products continuously making waves in the national market.

THE RISE OF MIKE'S SSF

Mr. Mike Ruiz finally broke out of his shell when he quitted his job from a stainless steel fabrication shop in Manila and found his way to San Fernando City, La Union where he worked in an owner-type jeepney fabrication shop, met and married an Ilocana daughter, Ms. Jenilyn R. Ruiz, who was then working in a car servicing center.

With his dream to put up a steel fabrication that will sustain his family's financial needs, Mike and his wife saved their earnings until they had enough and decided to put up the Mike's Stainless Steel Fabrication in Barangay Madayegdeg, San Fernando City, La Union.

During its startup, the firm is a one-man shop using manually operated tools. From fabricating owner-type jeep, he shifted to the production of Kitchen sinks, stainless steel railings/gate/windows, bakery oven, grease trap, cart, cabinets, and more. When he can no longer handle the operation alone, hired his three younger brothers to help in the shop.

Winning a contract in Vigan City, Ilocos Sur is Mike's first engagement to bigger projects. His earnings from this contract were invested to other basic tools for his shop.

According to Mr. Ruiz, one of the problems he encountered is the influx of competitor firms that offer lower service rates. This led him to create more products like water tanks, food tables, Burger griller, fryer, bed, and more.

STEELING THE STEEL WITH SETUP

The strong competition in the market and low productivity pushed the Ruiz couple to open another door to enhance the quality of their products. They decided to enroll their firm in SETUP where they availed a total of more than Four million pesos for three consecutive awards under the program.

"Noong una, mabagal ang produksyon, lahat mano-mano hanggang sa nakakuha ako ng SETUP, napabilis ang produksyon namin. Halimbawa, instead na gagawin naming 10 minutes ang cutting, naging ilang Segundo nalang," said Mr. Ruiz.

Among the machines they purchased are Mandrel Tube Bender (Roll Forming Machine), Box and Pan Bender, Roller Bending Machine, Power Press, Spot Welding Machine, a set of Die Molds, Drill Press, Belt-driven

Compressor, Powercraft Air Plasma Cutter, and MIG Welding Machine.

"Ngayong available na ang mga machines, nagagawa ko na lahat ng gusto kong gawin, hindi gaya noon na gusto mong gumawa ng isang bagay, pero wala namang makina, at nakakabili na kami ng karagdagang gamit," explained Mr. Ruiz.

Aside from the equipment, the DOST through the Provincial Science and Technology Center (PSTC) in La Union provided an energy audit in order to ensure safety electrical setup in the firm. It also provided free seminars on Metals Identification and Selection, TIG Welding, and Productivity and Quality/ Occupational Health and Safety to enhance skills, knowledge, and productivity of its workers.

MIKE'S SSF AND ITS ADVOCACY

As Mike's SSF saturates bigger markets from north to south of the country, like some various popular hardwares, construction companies, hotels and resorts, and other companies from Region 1, 2, 4B, and in the National Capital Region (NCR), helping back the community is also important for Mr. Ruiz.

"Kung makaangat tayo ng kunti, dapat kasama ang mga tao ko dahil kung wala sila, 'di ko makakamit ang narating ko ngayon lalo na sa mga kaibigan, pamilya at asawa ko, at higit sa lahat sa Panginoon na laging nakasubaybay sa amin," said Mr. Ruiz.

Mr. Ruiz said that sharing of blessing is the most fulfilling thing on earth. The couple was able to provide S/S gate and arch with leters for Pinoma Elementary School in Caoayan City worth P500,000.00, signage for Good Shepherd Chapel in Saint Louis University in Tuguegarao City worth P150,000.00, signage for Banbanan Brgy. Hall in Surigao del Norte worth P250,000.00. They also sponsor events for the Architects/ Contractors Associations, and more. Further, instead of selling the metal scraps produced by the firm, he freely gives them to any garbage collector roaming around their village. He also accommodates On-the-Job-Training students from the nearby schools like the Don Mariano Marcos Memorial State University (DMMMSU).

"Ibinabahagi ko lang ang mga naibigay sa akin ng Panginoon na blessing, ibinabalik ko lang sa mga tao. The more na nagbibigay ka, the more na nakakatanggap ka. Masarap ang pakiramdam kapag tumutulong ka,walang katumbas na pera at hindi mo maiisip na nalugi ka," ended Mr. Ruiz.

Mike's Stainless Steel Fabrication is the 2017 Best SETUP Adoptor in Region 1 and was nominated to compete for the 2017 National Best SETUP Adoptor during the National Science and Technology Week Celebration at the World Trade Center in July, 2018.

ENTREPRENEURS IN PANGASINAN UNDERGO TRAINING ON MICROSOFT EXCEL AND ACCOUNTING

By: Bernalyn P. Martinez, PSTC Pangasinan

Dagupan City, PANGASINAN - Forty-one (41)
Micro, Small and Medium Enterprises (MSMEs)
participated in the one-day Training on Microsoft Excel
and Accounting through the Department of Science and
Technology Region 1 (DOST)- Provincial Science and
Technology Center in Pangasinan, in partnership with the
University of Luzon and Philippine Institute of Certified
Public Accountants (PICPA)-Pangasinan Chapter, at the
College of Accountancy, University of Luzon in Dagupan
City, Pangasinan last May 24, 2018.

The 41 trainees are representatives of firms in Pangasinan assisted under DOST's Small Enterprises Upgrading Program (SETUP). The training intends to strengthen the country's innovation system by enabling MSMEs to address their technological requirements and limitations to improve their productivity and efficiency through technical trainings.

Mr. Jharam A. Tolentino, an instructor from the College of Accountancy of the university, taught the participants on how to prepare personal budget by managing money by preparing spending plan and preparing cash budget. This topic tackles cash receipts and cash disbursement from all the other operating budget schedules of the firm.



Meanwhile, Mr. Sunny Luigi F. Prado, SAP Laboratory Administrator of the university, introduced the Microsoft Excel. Hands-on training was conducted where the participants learned the basics of Microsoft Excel, such as selecting, entering and deleting data. He also taught on how to insert, remove and merging the cell, rows and columns. They also learned on how to organize, analyze and sort data using the application.

The training is among the interventions of DOST-SETUP. It highlighted the basics of book keeping and accounting as well as the basic formula and some formatting techniques using Microsoft Excel in their accounting transaction.





DOST-PANGASINAN INTRODUCES ONLINE MARKETING AND EXPERT'S POOL APPS TO MSMES

By: Bernalyn P. Martinez, PSTC Pangasinan





neExpert and OneSTore are two web-based platforms of the Department of Science and Technology (DOST) to address the needs of its clients looking for an expert on their production problem and widen the market of their products.

With the advancement of technology, the DOST Regional Office No. 1 through its Provincial Science and Technology Center in Pangasinan conducted Technology Forum the OneExpert and OneSTore to forty (40) owner and/or managers of assisted Micro, Small and Medium Enterprises in Pangasinan.

The OneExpert is an interactive nationwide pool of science and technology experts online intended to provide technical advice and consultancy services to Filipinos anywhere in the Philippines. It also aimed to provide resource speakers for trainings and seminars related to S&T topics. It has also a feature wherein the users can chat with the expert and may mingle with them by answering their inquiries.

On the other hand, the OneStore platform was created for the DOST-assisted MSMEs in promoting their products online. This platform utilizes e-commerce in fast-growing market through online shopping. The entrepreneurs may enroll, upload and

display their products to the website for free, this aimed to expand their market locally and internationally.

The training was followed by a demonstration and a hands-on training on the use of OneExpert and OneStore app using their computer, laptops, tablets and smartphones. OneExpert and OneStore, can be browsed at www.oneexpert.gov.ph and www.onestore.ph.

9 SCHOOLS IN LU OPT DOST'S STARBOOKS

By: Florde Liza L. Alida, DOST-1



Nine secondary schools in the First District of La Union were recently awarded with 1 unit each of the Department of Science and Technology's (DOST's) Science and Technology Academic and Research-Based Openly Operated Kiosks (STARBOOKS) alongside the S&T Caravan held at the Pacoy Ortega Gym, San Fernando, La Union last May 2-4, 2018.

The schools from the nine municipalities of the first district of La Union, which were selected due to unavailability of rapid information resources such as internet connections and insufficiency of updated books are Bacnotan National High School, Balaoan National High School, Corrooy National High School, Doña Francisca Lacsamana de Ortega Memorial National High School, Duplas National High School,



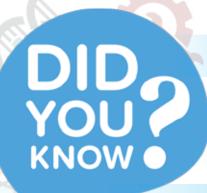
Luna National High School, San Juan National High School, Lipay Integrated School, and La Union National High School.

A user's training seminar was also conducted to the principals, school heads, librarians, and other teachers from the selected schools to further equip them on the technical management of the technology, such as user registration, administration, researching, and more.

The training and demonstration was followed by the signing of Memorandum of Understanding between the school principals and DOST, which was represented by Dr. Paulina P. Nebrida, Assistant Regional Director for Technical Operations and Racquel M. Espiritu,

the Provincial Science and Technology Director of La Union. The MOU defines the rules of each institution, wherein the DOST will ensure maintenance and monitor the efficacy of the technology in the school while the school administration will submit assessments and other reports to the DOST.

The STARBOOKS is an offline digitized library which contains science and technology related information in the form of texts, video, and audio. It also serves as one stop S&T information source gathered from worldwide reliable sources.



"Polio vaccine was discovered using Philippine monkeys."



"**Urine** is normally used in drug detection, but Dr. Enrique Ostrea discovered that the use of meconium (the baby's first stools) was more sensitive since the drugs taken by the mother accumulate in the fetus' intestines. This mec test is now used by the US National Institutes of Health, and Ostrea has received numerous awards and US patents."

"The world's rice research leader, **International Rice Research Institute (IRRI)**, is located in **Los Baños**, **Laguna Philippines**. The leading rice exporter is Thailand, followed by the USA. The Philippines' foremost rice breeder, Dr. Rodolfo Aquino, was one of the scientists who developed IR8, the 1966 strain of the rice variety that launched Asia's "Green Revolution." In 1970, Dr. Ricardo Lantican of Los Baıos led a corn research that saved America's corn industry from the Southern leaf blight."

"Dr. Antonio Mateo made the double-flaring tool (DFT) for plumbing installation for airtight sealing of joints. He was awarded the WIPO Gold Medal in Geneva, Switzerland in 1994. His company AMECOS also markets the fire blanket, a Filipino innovation that saves lives and properties in case of fire."



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