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TECHNO Bulletin

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ITDI turns 117



Photo credit: RRUdelaCruz

For the first time, the Industrial Technology Development Institute (DOST-ITDI) celebrated its founding anniversary at the historic Jose Rizal Hall of the Philippine International Convention Center (PICC) last July 3, 2018. Turning 117, its festivity was themed *"Building Linkages and Competencies Toward National Development"*.

Since 1901, the Institute, which originated as the Bureau of Science and actually preceded establishment of its home department, the Department of Science and Technology (DOST), has been providing Philippine industries with innovative and functional technologies vital to improving processes and increasing productivity.

In keeping with the higher purpose of the event, more than 300 of ITDI's staff opened the day with a Thanksgiving Mass. Meanwhile, DOST Secretary Fortunato T. dela Peña, as special guest, centered his inspirational message on lauding ITDI's numerous contribution to national development.

This was followed by the signing of the Memorandum of Understanding (MOU) between ITDI and 17 partner universities of the Graduate Research Collaboration Program (GRCP). Further, the Institute recognized its recent retirees and graduate scholars, and awarded its model employees for 2018, namely: Sheryl Pesito – Packaging Technology Division (PTD); Rey Adan – Environment and Biotechnology Division (EBD); and Kiveen Suycano – National Metrology Division (NMD).

As well, Arch. Lydia M. Abaña, former PMISD Chief, talked about the importance of mainstreaming Gender and Development (GAD) into ITDI activities.

Games to promote and strengthen camaraderie among the staffs also punctuated the celebration which ended with the Orange Team beating the Red (2nd place), Yellow (3rd place), Blue (4th place), and Green (5th place) teams in a series of games. This year's anniversary celebration was organized by the Materials Science Division (MSD) and NMD. (RRUdelaCruz)

DOST-ITDI Launches i-SALT Project for Improved Cooked Salt Processing



Ribbon cutting during i-SALT project launching

(From L-R): SPO3 Flordelino Diaz, JM Salt Refinery Manager Grace Monterola, Provincial Director Felicidad Gan, LGU-Infanta Representative Mildred Hernandez, OIC-ITDI Director Annabelle Briones, DOST Secretary Fortunato dela Peña, JM Salt Refinery Owner Judy Monterola, DOST-1 Director Armando Ganal, Undersecretary for Regional Operations Brenda Nazareth-Manzano, and PSI Oliver Baniqued

Photo credit: RZMLWalde



DOST-Secretary Fortunato dela Peña experienced harvesting salt using the ITDI-improved evaporating setup.

Infanta, Pangasinan – Aiming to improve the productivity and efficiency of local salt producers, the Department of Science and Technology – Industrial Technology Development Institute (DOST-ITDI), headed by Dr. Annabelle V. Briones, launched i-SALT Project in cooperation with JM Salt Refinery last September 18, 2018.

The i-SALT Project is about designing and prototyping of salt processing equipment which targets to help salt processors to boost their production and improve their salt quality by complying with RA 8172 aka ASIN (An Act for Salt Iodization Nationwide) Law.

The project launching was held on the opening day of the regionwide Science and Technology Week in Pangasinan. It was graced by key officials from different agencies of DOST, representatives from LGUs, cooked salt processors, and other private sectors.

DOST-Secretary Fortunato dela Peña delivered a keynote speech, and led the ribbon cutting and tour around the salt production facility of JM Salt Refinery. He even experienced harvesting salt using the ITDI-improved evaporating setup.

DOST-Region 1 Director Armando Q. Ganal encouraged JM Salt Refinery to apply for Small & Medium Enterprise Technology Upgrading Program (SETUP) of DOST in order to replace their conventional pans with the newly developed ones. The ITDI-improved pans will help them to produce finer salt with higher purity in shorter cooking time.

The use of the spin dryer and salt iodizer was also demonstrated to the public showcasing the advantages of using the technology as compared to the laborious nature of the traditional method. These innovations will help producers process salt even during rainy conditions and will allow them to uniformly infuse salt with iodine as required by Food and Drug Administration.

The event ended with closing remarks from Undersecretary for Regional Operations, Ms. Brenda Nazareth-Manzano, emphasizing that DOST is extending zero-interest loans to those salt processors who are willing to adopt the offered technology. As long as they comply with the SETUP eligibility and application requirements, DOST is willing to help and assist them in keeping with DOST's mantra - "science for the people". *(RZMLWalde)*

ITDI's MSD garners awards for Utility Models

Renewable Resource-Based Biodegradable Thermoplastics won Second Place in this year's National Invention Contest and Exhibits (NICE), Best Utility Model category, held last August 16, 2018 at Le Pavillion, Pasay City.

It was developed by Dr. Marissa A. Paglicawan, Scientist I and Supervising SRS and MSD Chief Dr. Blessie A. Basilia, together with Ma. Teresa V. Navarro, Supervising SRS; Carlo S. Emolaga, SRS II; Delmar D. Marasigan, and Rosito P. Cerbito. The team aimed to advance a sustainable and eco-efficient alternative to production and use of non-degradable plastic wastes. *(DDGotis/CSEmolaga)*

Photo credit: CSEmolaga



ITDI, EMB take on new techno check strategy

The Industrial Technology Development Institute (DOST-ITDI), in partnership with the Export Marketing Bureau (DTI-EMB), took on a new technology check strategy to rank market readiness of 27 ITDI-developed technologies.

A systematic, metric-based process and report, Technology Readiness Assessment (TRA) Review assesses the readiness level and maturity of technologies. It covers technology; manufacturing and quality; and programmatic aspects such as customer focus and documentation.

Adelia M. Guevarra of TSD-ITDI, TRA Review proponent and project leader, explains that, as is TRA is a tool for managing technology risks; reducing company vulnerability to adoption of young technology, as well as; buoying prudent use of government funds and other resources.

With Nelia Elisa C. Florendo as project chair, Dr. Violeta B. Conoza as co-chair, and Delia D. Gotis as assistant project leader, TSD led 22 technology generators and a project management team of 18 in the review of 12 of ITDI's food processing, 6 health and wellness, 6 green engineering, and 3 nano technologies as follows:

Team 1, FIC HITS Technologies with Engr. Marvin P. Mendoza and Engr. Joannalene T. Tuazon as scribes -- Drum Dried Mango Flakes of Maria Elsa M. Falco; Freeze Drying Technology and DOST Spray Drying Technology for Food Application, Oliver C. Evangelista; and Thermal Processing using DOST-developed Water Retort and Vacuum Frying Technology of Rommel C. Belandres;

Team 2, Other Food Processing Technologies with Cristopher C. Bauzon and Jhovi Ann E. Duquiatan as scribes -- Cacao Tablea of Maria Dolor L. Villaseñor; Ready-to-Eat Chicken Arroz Caldo of Daisy E. Tañafranca, Floridel V. Loberiano, and Grace D. Noceja; Alternative Sugar from Nipa Sap of Charito M. Villaluz; Ready-to-Drink Coconut Milk in Stand Up Retortable Pouches of Ma. Lourdes S. Montevirgen; Food Colorant from *Monascus purpureus* of Dr. Ursela P. Guce-Bigol; Blast Frozen Durian "Sealed for Freshness" of Loberiano, Tañafranca, Dane Archibald Balanon, and Ericson Nolasco; and Cacao Bean Roaster of Dr. Norberto G. Ambagan;

Team 3, Health and Wellness Technologies with Sammuel S. Sario and Engr. Anthony G. Del Rio as scribes -- Hard-Shell Carrageenan Capsules from Red and Purple Seaweeds, and High Dietary Fiber from Calamansi Waste Production Technology of Dr. Annabelle V. Briones; Salt Iodization Machine of Carlos J. de Vera; and Novel Slimming Agent in a Fat-Burner Cream, Herbs-Based Analgesic Balm, and MOSYMU Antidiabetic Health Supplement from Malunggay (*Moringa oleifera*), Duhat (*Syzygium jambolanum*), and Saba Banana (*Musa acuminata*) of Dr. Rosalinda C. Torres;

Team 4, Green Engineering Technologies with Christopher C. Bauzon and Jhovi Ann E. Duquiatan as scribes -- ITDI Charcoal Carbonizer of Apollo Victor O. Bawagan; Compact Wastewater Treatment System Design of Rochelle L. Retamar; Electric Plastic Densifier of Dante C. Vergara; Dual-Drum Composter Equipment for Solid Waste Management of Dr. Myra L. Tansengco; 4C Oil Spill Adsorbent Technology of Dr. Emelda A. Ongo; and Abaca-Fiber Reinforced Composite of Dr. Marissa A. Paglicawan; and

Team 5, Advanced Technologies with Sammuel S. Sario and Engr. Anthony G. Del Rio as scribes -- Production of Nanoclay from Local Bentonite Ore of Dr. Blessie A. Basilia; Nano Precipitated Calcium Carbonate (NPCC) Production from Indigenous Limestone Minerals of Josefina C. Celorico and Mar Christian O. Que; and Biodegradable Polymers Production of Dr. Paglicawan.

Here, ITDI used a schematic adopted from the Air Force Research Laboratory (AFRL). Developed by William Nolte of AFRL, the Excel-based Technology Readiness Level (TRL) Calculator Version 2.2 was lifted from the open sources of the Defense Acquisition University.

ITDI further engaged six trade partners from EMB and 15 industry influencers selected from a shortlist of 229 top companies of the country to form five TRA Teams. Here, EMB rendered its expertise on determining technologies which make business sense and have business value; how best to develop and expand export trade prospects of the 27 technologies; and selecting which from the 27 technologies/ products to trade and further develop following current market trends.

Together, the teams assessed the readiness of the 27 technologies and their Project Readiness to Transition level. The reviews were held on September 26-28, 2018 for the teams on health and wellness and green engineering. Meanwhile, the teams on food innovation/processing and advanced technologies conducted the review on October 10-12.

Results of the project are being compiled into a 200-page compendere supported by 27 TRA full reports which are expected to impact various industry sectors. This compendere will be launched early next year with the DTI and industry partners. (AMGuevarra)



Photo credit: RRUdelaCruz

TASK Program to bridge KO, PH ties

The Industrial Technology Development Institute (ITDI) of the Department of Science and Technology (DOST) and the Korea Institute for Advancement of Technology (KIAT) have jointly launched the program entitled Technology Advice and Solutions from Korea (TASK) for the Philippine Food Processing Sector under the 2018-2020 Korea-Philippines Cooperation.

The program hopes to assist Philippine food companies in solving manufacturing difficulties and issues that include improvement of product quality, production efficiency, and compliance to standards.

The implementation phase of the TASK program consists of four high-level steps which include: Company Selection, Technical Difficulties Analysis, Technology Transfer and Advice, and Performance Evaluation.

Last September, ITDI conducted the first stage of TASK – company selection. Together with DOST-NCR it identified 40 food companies that will form part of the program. These were later visited by experts of the Korea Food Research Institute (KFRI) and ITDI for stage two of the program -- evaluation and identification of current technical difficulties.

As capping activity of TASK for the year, a one-day seminar entitled, *“Building Bridges: Korea-Philippines TASK Program for the Food Processing Sector,”* will be conducted for the initial 12 companies on December 17 at the National Metrology Building-ITDI in Bicutan, Taguig City.

Topics for discussion include: The Principles of HACCP and its Application in the Factory; Korean Market Access for Philippine Food Products; and ITDI Support to the Food Processing Sector. **(AMGuevarra)**

Photo credit: AMPallaya



KFRI and ITDI food experts with participating companies.

Showcasing Pinoy Biotech at the 14th National Biotechnology Week

The National Biotechnology Week (NBW), now on its fourteenth installment, is the science community's annual event to highlight the endeavors of the Philippines in biotechnology. This year's NBW, themed *“Bioteknolohiya: Pambansang Hamon, Pambansang Solusyon,”* was spearheaded by the Department of Science and Technology (DOST) and was held at the Hall D of the World Trade Center, Metro Manila last November 13-17, 2018.

The event was participated in by eight DOST agencies, among them the Industrial Technology Development Institute (ITDI). Two ITDI technologies were featured, namely *“Food Colorant from Monascus purpureus”* and *“Decolorization of Textile Dye and Wastewaters by Laccase from Pleurotus florida.”* Other agencies and institutions that participated include Department of Agriculture, Department of Environment and Natural Resources, Department of Health, Department of Education, and University of the Philippines Los Baños.



Photo credit: RRUdelaCruz

Notable figures present during the opening ceremonies were Senator Cynthia A. Villar, who served as keynote speaker, and DOST Secretary Fortunato T. dela Peña. During the closing ceremonies on November 17, DOST, represented by Undersecretary for R&D Usec. Rowena Cristina L. Guevara, handed over the NBW flag to next year's organizing agency, the DOH (Department of Health).

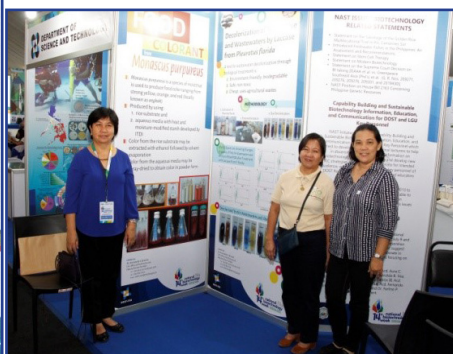
S&T... *from p. 4*



The NBW has been held yearly since November 2007, in accordance to Presidential Proclamation No. 1414 by then President Gloria Macapagal-Arroyo, which states that *"it is the policy of the*

government to promote safe and responsible use of modern biotechnology and its products as one of several means to achieve and sustain food security, equitable access to health services, a sustainable and safe environment, and industry development"

It aims to showcase the various efforts of major government agencies, private institutions, and state universities and colleges (SUCs) in the field of biotechnology. **(RRUdelaCruz)**



'Coaching the Coaches' seminar conducted for STI managers

Another strategic effort to uplift the level of productivity and competitiveness of Science and Technology managers and Research and Development experts was effected through a three-day seminar on 'coaching the coaches'. The seminar entitled *"Coaching Workshop on Developing an Entrepreneurial Mindset for ITDI"* was held on November 7-9, 2018 at the Crimson Hotel in Alabang, Muntinlupa City.

Gathered to learn new business and marketing strategies from a newfound coach, the Hybridigm, were ITDI R&D directors, managers, supervisors, and technology transfer officers led by Dr. Annabelle V. Briones, Officer-In-Charge, Office of the Director and Deputy Director for Research and Development; Dr. Diana L. Ignacio, Deputy Director for ATS; and Ms. Nelia Elisa C. Florendo, project proponent and Chief SRS, Technological Services Division.

Resource speakers discussed topics/cases to open the minds of participants to the different facets of business, and learn new marketing strategies that can help meet their goals.

The introduction of Ms. Antonia Arroyo and Mr. Ariel Dashell Aaron Lopez on the Innovative Landscape of the Philippines and the Understanding of the Go-To-Market Strategy, tickled the minds of the researchers on how to understand the value of the technology they are generating.

Also, Ms. Arroyo's discussion on Market Validation enlightened the tech transfer staffs on the idea of targeting market area and strategy.



The question on who will buy and why will people buy the product (or technology) also arose during the discussions. It was pointed out that knowing the target buyer or adopter is important in preparing for the strategy in marketing certain technologies.

The importance of IP management was also discussed while different technology transfer models were presented. In addition, crafting a good business model was emphasized which forms part of a good technology presentation or pitching.

Other topics focused on strategic/effective commercialization. The business model canvass as an effective tool in visualizing the many elements involved in the chosen venture and its importance in technology transfer was also tackled. Lastly, elevator pitching with Hybridigm team was conducted. **(DGotis/AMPallaya)**

ITDI Participation... *from p. 8*

Inquiries

The event had a total of 26,932 visitors/viewers. An average of 300 inquiries was recorded for ITDI. A survey was also implemented and from those distributed, 143 were retrieved. From those retrieved, some of the topics/technologies that emerged as most sought-after include fruits and vegetables processing, FIC technologies, tablea, nanoencapsulation of herbal products/drugs, RTE relief foods and drink, and packaging technologies.

Relative to this, at the Business Area where ITDI pre-commercialization innovations were featured, some engagements with clients were promising and follow through efforts are now underway.

Forum

The ITDI also conducted a forum - **"DOST-ITDI R&D and Technical Services: The Road to Competitive Advantage"** on July 19, 2018, 1:00-5:00 PM, at the WTC Function room 3. About 123 attended the forum where the following topics were presented: Testing for specific packaging related contaminants and Packaging Handbook, X-ray computed tomography, Rubber and rubber-based products: World class testing capabilities, and Development of a compact wastewater treatment system for Quick Service Restaurant (QSR).

Meanwhile, at the RSTW celebrations nationwide, featured technologies/services were selected by the regional offices from the ITDI-NSTW line up. Inquiries and requests were duly referred and endorsed to the concerned regions/officers. **(ITDI S&T Media Service)**



**ITDI goes to the Regions: RSTW 2018.
July-December 2018.**



ITDI Participation @NSTW 2018 a Success

The 2018 National Science and Technology Week (NSTW), a yearly event hosted by the DOST was successfully staged last July 17-21, 2018 at the World Trade Center (WTC) in Pasay City with the theme *"Science for the People: Innovation for Collective Prosperity."*

Before the main event at WTC, a soft opening was held at the SMX Convention Center, SM Lanang Premier in Davao City on July 6-8, 2018 with the theme *"DOST in the lives of the Filipinos."*

President Duterte graced the soft opening in the evening of July 6 where he was toured by the Secretary along with DOST officials in pre-identified technologies/areas in the exhibition hall. Thereafter, the President delivered his message where he expressed support for technology and innovation.

Right after the Manila celebration, RSTW (Regional Science and Technology Week) celebrations followed.

This year's show essayed the impact of STI or Science, Technology, and Innovation in the life of *Juan* and to national development in the larger picture as depicted in three clusters namely STI@Home, STI@School, and STI@Workplace. A marketplace area was also included which featured the products of micro, small, and medium enterprises (MSMEs) assisted by DOST regional offices which were sold through DOST's One Store.

The ITDI participated in two clusters namely, STI@Workplace led by PCIEERD, and STI@Home led by PCHRD.

STI@ Workplace

The STI@ Workplace cluster adopted a *Farmville* to *Cityville* concept where visitors were treated to an experience simulating a visit to a farm with all the technological innovations from livestock to machineries and processes; onwards to the city or cityville or industryville where recent R&D outputs/technologies, technical services crucial to industry productivity, as well as innovations to boost the institute's technology transfer program were showcased.

Specifically, ITDI's showcase composed of R&D (technologies – completed and on-going), S&T/Technical services, RTE relief foods and isotonic drink for DRRM, and Technology Transfer Innovations at the Science Café/Business area.

The ITDI showcase presentation comprised of technology/technical service posters, sample products, video/AVPs, complemented with print collaterals. Technical staffs were also present to attend to visitors and inquiries. The availability of sample products and videos coupled with the readiness of staffs to attend to queries facilitated dynamic interactions and engagement with the viewers/visitors. In particular, provision of a led wall for the technical services area was a plus, it was not only eye catching, it proved to be an essential technology and display medium for such a big event/area as the NSTW STI@Workplace. S&T services were made more appealing through the medium, inducing viewers to ask questions and get engaged with technical staffs.

Following is a list of ITDI's offerings at the 2018 NSTW:

R&D

1. Nanozeolite sorbent material for heavy metal removal from wastewater
2. Carbon quantum dot sensors for food packaging
3. Nanocomposite geomembrane for environmental application
4. Ultrafiltration (UF) hollow fiber nanocomposite membrane for water purification
5. Abaca fiber-reinforced composite for transport application
6. 4C oil spill adsorbent (chitosan-calcium carbonate composite)
7. Improved salt production technology
8. Nanoencapsulated herbal drugs as health supplement
9. Nanozeolite-CO₂ capture system in boilers
10. Resistant starch for dietary applications

S&T/Technical Services

1. Modular multi-industry innovation center
2. Chemical and biological metrology
3. Onelab
4. Integration of testing services for rubber and rubber-based products
5. ADMATEL (Advanced Device and Materials Testing Laboratory)

DRRM (Disaster Risk Reduction Management)

1. Ready-to-Eat (RTE) Disaster Relief Foods
2. Emergency Isotonic Drink

Office/Business Area

ITDI Pre-Commercialization Innovations (through Technology Offerings)

- FIC Main food technologies
- Other food processing technologies
- Health & Wellness
- Green Engineering technologies
- Advanced technologies

STI@Home

ITDI-developed toiletries and detergents, and essential oils formed part of the STI@Home. Product samples with descriptions were displayed in the comfort room area while the essential oils at the massage area. These included:

1. Lotion
2. Cream
3. Shampoo
4. Bath soap
5. Handwash
6. Liquid dishwashing detergent
7. Fabric conditioner
8. Liquid laundry detergent
9. Essential oils

► 5

Our Business Is Industry



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