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Briones is new ITDI Director

DOST Secretary Fortunato T. dela Peña as he swears in Dr. Annabelle V. Briones as ITDI's new director.

Photo Credit: RRUdelaCruz

ITDI has a new director.

Sworn in on February 21, 2019 as the agency's third woman leader, Dr. Annabelle V. Briones succeeds Dr. Maria Patricia V. Azanza who served from 2016 to 2017.

Dr. Briones, as well, was Deputy Director for Research and Development while serving concurrently as Officer-in-Charge of the Office of the Director.

Starting out as Science Research Specialist I at the then National Institute of Science and Technology (NIST), she was promoted eventually to Supervising Science Research Specialist and later as Chief Science Research Specialist of the Chemicals and Energy Division (CED).

Proficient in both chemistry and engineering, her decades' worth of research on natural health products, hydrocolloids, alternative fuels, and pharmaceuticals, including development and national roll out of the Philippine Mosquito Ovicidal/Larvicidal (OL) Trap System: DOST Anti-Dengue Device won for her and ITDI various accolades within the Philippine scientific community and the world. Finally, all these contributions earned her the title of Scientist I in 2018.

A local of Balingasag, Misamis Oriental, she earned a degree in chemistry from Xavier University-Ateneo de Cagayan in Cagayan de Oro City in 1981. Three years later, she formed part of the ITDI family, then NIST.

Director Briones took an advance degree in chemistry from the University of Santo Tomas and a doctorate degree in engineering from Keiogijuku University in Japan.

Indeed, many words describe Dr. Annabelle V. Briones -- outstanding researcher, brilliant scientist, and strict yet compassionate leader. A fabulous and loving wife and mother of three, now, ITDI Director. ***(RRUdelaCruz)***

S&T NEWSROUND

2019 Edition Asian Scientist 100 lists DOST-ITDI's Torres, Paglicawan

6 other Pinoy researchers in list

In an early March 2019 article of the Asian Scientist Magazine, it announced that 2019 has a new list of 100 scientists who are outstanding in their fields.

Dr. Juliana Chan, founder and editor-in-chief of Asian Scientist Magazine and a Young Global Leader of the World Economic Forum herself, announced the names that qualified for inclusion in the 2019 Edition of the Asian Scientist 100. Asian Scientist 100 listed its first 100 scientists in 2016.

Gathered from diverse disciplines that covered from materials science to molecular biology and particle physics, the list named representatives from China, India, Japan, Malaysia, Singapore, South Korea, the Philippines, Taiwan, Thailand, and Vietnam.

These include 17 in Life Sciences, 15 in Biomedical Science, 12 in Engineering, 12 in Materials Science, 9 in Leadership, 8 in Chemistry, 8 in Environmental Sciences and Geology, 7 in Agriculture, 7 in Mathematics, and 5 in Physics.

At DOST, Drs. Rosalinda C. Torres and Marissa A. Paglicawan, both of the Industrial Technology Development Institute, are joined by six others from the Philippines.

Torres, who is Scientist I and Chief of the Standards and Testing Division, qualified under Chemistry for her research on the larvicidal ability of Philippine medicinal plants. Paglicawan, also Scientist I and Head of the Advanced Materials Section at the Materials Science Division, qualified under Materials Science for her research on turning Manila hemp or abaca into an engineering material.

Japanese researchers dominate both disciplines.

Photo Credit: RRUdelaCruz

Rosalinda C. Torres

Marissa A. Paglicawan

Others from the Philippines are Artemio Salazar of the University of the Philippines (UP) Los Baños for Agriculture; Rody Sy of UP Manila for Biomedical Science; Ricardo Balog of the University of Sto. Tomas and Elmer Dadios of De La Salle University for Engineering; Gay Jane Perez of UP Diliman for Environmental Sciences and Geology; and Charissa Marcaida Ferrera of UP Diliman for Life Sciences.

These *"100 outstanding thinkers and innovators from Asia who are pushing the envelope with their research"* are making Asia the striking center of radical research and development efforts.

The Asia Scientist Magazine reports that this is so because Asia currently supplies the world a quarter of its publications written by Asians now numbering a third of all scientific researchers worldwide. It added that the 2010 U.S. National Science Foundation Key Science and Engineering Indicators reported that these represented a shift in the world's scientific research center of gravity to Asia.

Furthermore, it cited the Science and Engineering Indicators 2012 released by the US National Science Board, which recorded that, the largest global science and technology gains in recent years occurred in Asia - 10 which consists of China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand.

In comparison, US' share in global R&D efforts between 1999 and 2009 dropped from 38 to 31 percent; Asia's share grew from 24 to 35 percent during that period.

For the full list of scientists featured in the Asian Scientist 100 (2019 edition) please refer to the Asian Scientist Magazine.

The Asian Scientist Magazine is an award-winning science and technology magazine that highlights research and development news stories from Asia to a global audience. The magazine covers science, medical and technology news updates from the Asia and Australasia regions. ***(AMGuevarra)***

ITDI launches first technology business guide

Photo credit: RRUdelaCruz

In a first, DOST-ITDI launched a technology business guide on 27 of its technologies with nearly 200 of the business, science, and public sectors on March 29, 2019 at Crimson Hotel in Muntinlupa City.

The event, with the theme, *"Tayo Na Pillipinas, Angkinin AmBisyon Natin!* (Ugnayan sa Taas-Antas ng Teknolohiya ng ITDI), aimed to boost transfer of generated technologies for public use and consumption.

Of the 27 technologies, five were shortlisted and pitched by the technology generators themselves, namely, the DOST *tablea*, drum dried fruit flakes, dietary fiber from calamansi waste, compact wastewater treatment system for quick service restaurants, and the nanoclay.

This activity is the outcome of DOST-ITDI's partnership with the Department of Trade and Industry's Export Marketing Bureau (DTI-EMB), when the former decided to embark on a new technology check strategy to rank market readiness of 27 technologies that it developed.

The project intended to bridge the knowledge, attitude, and practice gaps through an experiential and participatory strategy for pilot testing and institutionalization of pre-commercialization strategies. This involved ITDI's Technology Licensing Officers (TLOs), science communicators, and researchers who worked hand in hand to improve the current technology transfer process and to increase the chances of innovations being adopted in the production sector.

Results of the project have been compiled into a 226-page compendere supported by 27 Technology Readiness Assessment full reports. Given these, the project is expected to impact various industry sectors such as those from manufacturing, accommodation and food service, and other services establishments. Given the potential of the technologies presented, the local business sector is hopeful in making these innovations accessible to Filipinos.

A remarkable component of the event was a pledge of commitment among the key players namely, the government, industry, and youth sectors to help make this endeavor a success. Government R&D led by DOST Usec Guevara pledged to *"to achieve the ultimate goal of increasing the level of technology readiness of DOST and work together with our partners towards the sustainability and success of this endeavor "*, while the industry group with the DTI on the other hand, vowed *"to work together so that the developed technologies of DOST achieve the level of technical maturity for commercialization, and we signify our commitment to this partnership which we believe can help foster the Philippine innovation ecosystem."*

For their part, the youth sector represented by Grade 6-10 students expressed their appreciation, and said *"Sa pangkahalatan, kami na mga kabataan ay kasamang makikinabang sa pagunlad ng ekonomiya dahil sa mga na-develop o nalinang na teknolohiya ng DOST-ITDI. Kaya't kami po ay talagang nagpapasalamat sa DOST-ITDI."* They also suggested that DOST do studies to lessen traffic, care for mother earth, and explore FDVR (Full Dive Virtual Reality) technology for R&D.

As one of the first in the DOST system to conduct such rigorous assessment of its technologies for market viability, the pre-commercialization activity is a testament of ITDI's commitment to make local industries globally competitive, while empowering its scientists in research and development. ***(MVAtienza/VBConoza)***

New STD pride - DOH, FDA lab accreditations

The Standards and Testing Division (STD-ITDI) obtained two new laboratory accreditations from the Food and Drug Administration (FDA) and the Department of Health (DOH).

The Health Facilities and Services Regulatory Bureau (DOH-HFSRB) granted accreditation to its Inorganic Chemistry Section of the Chemistry Laboratory for its drinking water testing facility on January 30, 2019. This means the laboratory is recognized as being qualified to carry out tests for drinking water relative to chemical safety parameters under the Philippine National Standards for Drinking Water. It further means that it is kitted with the required equipment and devices, technically competent and proficient lab personnel, and fully compliant test processes. The accreditation is valid for two years and will expire on 31 December 2020.

Two weeks earlier, its Inorganic and Organic Chemistry Sections of the Chemistry Laboratory and Microbiology Section of the Biological Laboratory were granted accreditation by FDA for food and bottled water testing following the ISO/IEC 17025:2005 standards. The laboratory accreditation is valid until 17 February 2021 and is in accordance with the provisions of RA 9711, also known as the Food and Drug Administration Act of 2009.

Photo credits: RRUdelaCruz

With these new accreditations, confidence in STD's technical competence and proficiency in ensuring public safety is doubly strengthened and fully guaranteed.

STD is one of four testing laboratories of ITDI. It has, currently, four laboratories certified as PNS/ISO IEC 17025:2005 compliant. One other ITDI laboratory, ADMATEL (Advanced Device and Materials Testing Laboratory) is ISO IEC 17025:2005 certified as well.

A third lab, NML (National Metrology Laboratory), is the first and only laboratory in the Philippines to get accreditation since 2010 under the terms of ISO/IEC 17025:2005 by the Deutsche Akkreditierungsstelle (DAkks), the national accreditation body of the Federal Republic of Germany, to perform calibrations in the fields of mass, temperature, pressure, and electricity. ***(ARCDablio)***

LGU-Atimonan takes on i-SALT

DOST-ITDI team led by Engr. Carlos J. de Vera *(fifth from left)* **with Antimonan Mayor Rustico Joven Mendoza** *(fourth from right)*

ITDI continues to live up to its vision of being a propelling provider of technological innovations as another cooperative entrepreneur adopted the i-Salt processing technology.

In Quezon Province, which has a Type IV Climate, rains are evenly distributed throughout the year. Thus, salt production by solar drying process is not recommended. With the improved salt (i-Salt) processing technology of ITDI, salt production is now possible here even in humid and rainy areas like the municipality of Atimonan.

▶ 5

DOST holds first summit on advanced manufacturing

Two of DOST's line agencies, the Industrial Technology Development Institute (ITDI) and the Metals Industry Research and Development Center (MIRDC) conducted the first summit and groundbreaking ceremony of the Advanced Manufacturing Center (AMCen) on March 15, 2019.

In response to the department's challenge to be part of the Industrial Revolution 4.0 (IR4), ITDI and MIRDC collaborated to establish AMCen. Under IR4, traditional manufacturing will transition to innovative 3D printing technologies, processes, and materials.

One of the first in Southeast Asia, DOST's AMCen is envisioned to provide a shared facility for advanced additive manufacturing technologies. This aims to strengthen the competitiveness of our local industries through technological innovations and commercial applications of advanced additive manufacturing, as well as the development of new and local materials.

The program consists of two projects:

1. Development of Multiple Materials Platform for Additive Manufacturing (MATDEV); and
2. Research on Advanced Prototyping for Product Innovation and Development using Additive Manufacturing Technologies (RAPPID-ADMATEC).

MATDEV, which will be implemented by ITDI, will undertake research and development of materials such as polymers/plastics, metals, ceramics, and composites for advanced manufacturing using local and indigenous materials.

▶ 6

LGU-Atimonan... *from p. 4*

The first of such facilities in the area, Caridad Ilaya Multi-Purpose Cooperative (CIMPC) and PPAR Enterprise and General Merchandise realized its market potential during a tour and visit of one in Pangasinan. It thus adopted i-Salt to achieve

Counter clockwise: **On-Site Installation; Salt Iodizing Machine; Evaporation Setup**

entrepreneurial development within their community and to take advantage of its long coastal lines.

A team from ITDI installed the set of salt iodizing machines on January 14 to 23, 2019. Led by Engr. Carlos J. De Vera, head of the Process Development Section of CED-ITDI, together with Christopher C. Bauzon of TSD-ITDI, Melquiades B. Canceran, Juan Zabala, and Hilario Caña, the team set up the salt evaporation unit at the CIMPC compound.

They also put in a salt iodizing machine to allow for infusion of iodine in salt for added value and in compliance with Republic Act No. 8172, known as An Act for Salt Iodization Nationwide (ASIN) Law. With these setups, locals will be able to produce fine salt with high purity at a shorter period as compared to solar drying.

In appreciation, LGU-Atimonan Mayor Rustico Joven Mendoza said that, *"We are grateful to ITDI for their technical assistance in establishing this salt facility. We hope for success of this project."*

CIMPC will also benefit from equipment performance testing and on-site trainings which will complete the technology transfer process.

ITDI, in collaboration with DOST IV-A, entered into an agreement with CIMPC in December 2018. DTI funded the project under their Bottom-Up Budgeting Program, which aims to provide employment opportunities to locals. ***(OEEvangelista)***

ITDI's new packaging facilities to rise soon

On March 5, 2019, ITDI held a groundbreaking ceremony that marked the start of the construction of its Packaging Technology Division's (PTD) new facilities, the Simulation Packaging Testing Laboratory (SPTL) and Green Packaging Laboratory (GPL).

DOST Secretary Fortunato T. de la Peña led the ceremony together with USEC for R and D Dr. Rowena Cristina L. Guevara, Director of PCIEERD Dr. Enrico Paringit, ITDI Director Dr. Annabelle Briones, ITDI Deputy Director for Administrative and Technical Services Dr. Diana L. Ignacio, and members of the EXECOM, PTD staff and Packaging Industry private sector.

The repair of the PTD buildings is under the PCIEERD-funded project entitled *"Upgrading and Enhancing the Capacity of the Packaging Technology Division in Packaging Research and Innovation"* which aims to upgrade and enhance the capability of PTD in developing new packaging technology and innovations, performance evaluation of packaging in the supply chain, packaging testing to assure food safety, and world class packaging design addressing the packaging needs of MSMEs in the country. ***(FSVictoria)***

PTD offers new testing services

Meanwhile, alongside this development, the PTD is also expanding its technical services to better serve and satisfy the needs of the industry. Three new packaging test services are now available, namely, weathering test, texture analysis, and headspace gas analysis.

The first, weathering test, as its name implies measures physical changes in products and materials caused by deteriorating environmental factors. The weathering test chamber simulates and accelerates outdoor conditions, which results in damage caused by sunlight, temperature, and moisture. Physical changes in products and materials such as loss of strength and discoloration (fading, yellowing) that happens over months or years can be simulated in the weathering test chamber with results available within a week or two, depending on the product and/or material.

Texture analysis, on the other hand can be quantified with the use of an analyzer to determine the "physical feel of something." A wide scope of food products can be tested with this equipment. Product characteristics such as softness of bread, hardness of butter, cohesiveness of jam, crispiness of snack foods, chewiness of dried fruits, viscosity of cream, sauces, yoghurt and similar products, and firmness of raw fruits and vegetables, among others, can be measured and analyzed.

Further, compression testing of pharmaceutical pills, tablet candies, and other similar items to check for degree of hardness can be made using the texture analyzer. Use of the device is not limited to food products. Change in texture characteristics like brittleness of plastic cutleries like disposable cup, compression strength of spring, and piercing strength of plastic packaging film can also be tested.

Lastly, headspace O_2 and CO_2 gas analysis provides accurate and fast measurement of concentration of O_2 and CO_2 in a package. The test is suitable for fresh fruits and vegetables enclosed in modified atmosphere packages and other gas-flushed food products like cupcakes and snack foods.

For service rates and other inquiries, call or email the Packaging Technology Division, ITDI at (02) 837 7530/ (02) 837 2071 Local 2271; and at packaging@itdi.dost.gov.ph. ***(ATBasbasanJr.)***

DOST holds... *from p. 5*

The aim is to reduce cost of raw materials and increase utilization of local resources for high-end applications.

RAPPID-ADMATEC, on the other hand, will be implemented by MIRDC. They will lead and handle product innovation through rapid prototyping of new and innovative product ideas. They will also conduct process development in support of the MATDEV team to realize the full potential of local materials.

According to Dr. Rigoberto C. Advincula, Balik Scientist and AMCen consultant, the project aims to provide an 'ecosystem' for its stakeholders — a place where opportunities for collaboration among government, industry, and the academe can happen to realize the promise of additive manufacturing in the country, while providing new services and products. ***(MVAtienza)***

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Science Chief leads launch of ITDI's 3D CT X-Ray

Photo credits: RRUdelaCruz

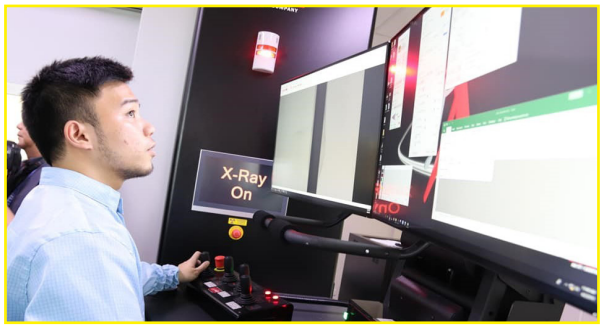
DOST Secretary Fortunato T. dela Peña, together with R&D Usec Guevara, S&T Services Usec Yorobe, ROS Usec Manzano, and ITDI Director Briones, formally introduced to the public ADMATEL-ITDI's newest tool for advanced high-resolution imaging, the 3D Computed Tomography (CT) X-Ray on April 2, 2019.

Launched at the Philippines' premier facility for failure analysis and materials characterization, the event themed "Expansion, Expertise, Excellence, ADMATEL towards Long Term Competitiveness and Sustainability" showed the extensive features of the X-Ray machine to some 160 DOST officials, industry representatives, and media guests.

With its newest acquisition, ADMATEL, or Advanced Device and Materials Testing Laboratory, will be able to provide industry with greatly expanded services coupled with freshly strengthened expertise of staff. Further, it will amplify its goals to provide quality service with a faster turnaround time.

A nondestructive scanning technology, using the PHP42 million 3D CT X-Ray equipment will allow ADMATEL to view and inspect external and internal structures of an object in three-dimensional space. This is so because computed tomography works by taking hundreds or thousands of two-dimensional, digital radiography projections around a 360-degree rotation of an object.

Algorithms will then be used to reconstruct the two-dimensional projections into a three-dimensional CT volume. As such, parts of a sample may be viewed in slices at different angles. ***(MVAtienza)***



NML preps for shift to ISO/IEC 17025:2017

The National Metrology Laboratory (NML-ITDI) is preparing to adopt the new edition of ISO/IEC 17025.

Described by many as the most popular standard for the competence of testing and calibration laboratories, ISO/IEC 17025:2017 is the updated version and *"takes into account the latest changes in laboratory environment and work practices."*

In line with these, NML laboratory staff underwent a series of training to refresh themselves on the general requirements for laboratory competence set under ISO/IEC 17025 and the changes under the 2017 edition.

NML's core group for the implementation of ISO/IEC 17025:2017 led by NML Chief Aurora V. Kimura (*fourth from left*) with SGS Academy trainer Ellen Cruz (*fifth from left*).

Photo credits: JATrillana

The first of trainings was handled by Accuservices, Inc. on March 05, 2019 at La Breza Hotel in Quezon City. This was attended by Sabino Paulo Leones, Maryness Salazar, Loreibelle Abian, and Gerry Boy Garinggan.

The second training on March 22 offered by the Philippine Trade Training Center (PTTC-DTI) in Pasay City was attended by Linda Nora Taleon, Aries Ordoña, and Jes Andre G. Trillana. Some 40 participants from various calibration and testing laboratories in the country joined them.

Meanwhile, ITDI Director Annabelle V. Briones opened conduct of the third training with the Philippine Accreditation Bureau (PAB-DTI) as trainor on April 1. Held at the NML Executive Building in Bicutan, participants included all NML staff.

Speakers from PAB included Dir. Ernani Dionisio, Jenebert Opinion of the Promotion and Documentation Division, and PAB trainer Engr. Aldwin B. Tagapan.

On April 3-5, SGS Academy Philippines provided to select staff the last and most intensive course in the series. NML Chief Aurora V. Kimura, together with Monalisa Enot, Gerry Boy Garinggan, Marco Latosa, Paulo Leones, Maryness Salazar, and Kiveen Suycano attended the training.

SGS, as world leader-company in inspection, verification, testing, and certification, covered techniques in designing a Quality

STD trains DOST IX on heavy metals detection, shifting to PNS ISO/IEC 17025:2017

Guided by the World Food Code or Codex Alimentarius, the Standards and Testing Division (STD-ITDI) continually leads standards and testing laboratories nationwide in ensuring that *"safe, good food (is available) for everyone - everywhere."*

With the aggressive growth in international trade, food production, sale, and consumption now occur presently in quantities and varieties that require that these be tested and certified as to their safety, quality, and fairness.

The Food Code pushes for processing and testing of food products that consumers can trust to be safe and of high quality. As well, it provides for importers' need for assurance that these are in accordance with their specifications.

In compliance with these standards and guidelines, STD conducted the first of its annual series of trainings on heavy metals under the project "Capability Assurance System for Metal Content Assessment in Agricultural Produce, Water and Environmental Samples" which aims to enhance technical competence of Philippine laboratories under OneLab.

Two of its staff Ruth L. Damian, a registered chemical technician, and Rodney C. Salazar, a registered chemist, held an in-house, three-day, and two-part training workshop on analysis and detection of lead and arsenic on February 20-22, 2019 at the Regional Standards and Testing Laboratory (RSTL) of DOST IX in Zamboanga City.

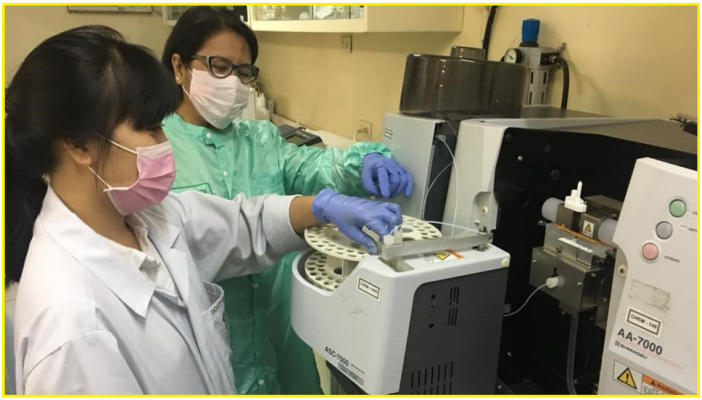
Heavy metals are food contaminants that can enter food and water sources. These can accumulate in trace concentrations in milk and other beverages, processed meat, and raw foods. Long-term exposure to arsenic in drinking water can cause cancer in the skin, lungs, bladder, and kidney. Lead poisoning can cause loss of appetite, headache, hypertension, abdominal pain, renal dysfunction, fatigue, sleeplessness, arthritis, hallucinations, and vertigo.

Laboratories like RSTL IX, hence, can assist producers and processors in early detection and analysis of their presence in foods. As well, they can aid in maintaining presence of heavy metals in processed food at allowable limits of concentration. The training thus on use of hydride vapor generation atomic absorption spectrophotometry (HVG-AAS) aims to check best utilization of the equipment including presence of arsenic in fish and other sea foods, and drinking water.

Meanwhile, lead in water may be checked using graphite furnace AAS. For accuracy of methods, Damian and Salazar used Certified Reference Materials (CRMs) with known amounts of arsenic and lead during the training.

Simultaneously, Admer Rey C. Dablio, a registered chemist and accredited external assessor of the Philippine Accreditation Bureau (DTI-PAB), conducted a workshop on the transition of DOST-RSTL IX to the new PNS ISO/IEC 17025:2017 standard. Dablio assists PAB in conduct of awareness and compliance trainings, inspection, and other conformity assessment services.

During the workshop, DOST-RSTL IX executed gap analysis to check readiness of their existing documented quality management system against the new standard. The workshop aimed to prepare DOST regional laboratories for the actual transition which should be fully implemented by December 1, 2020. ***(IEUbando; AMGuevarra)***



Ruth L. Damian, RChT, conducting hands-on training on the analysis of arsenic using HVG-AAS.

Admer Rey C. Dablio, RCh (seated, 2nd R), with management and staff of the DOST IX, Zamboanga City after the training on the Transition to PNS ISO/IEC 17025:2017.

NML preps... *from p. 7*

Management System (QMS) that is compliant with the requirements of the 2017 edition standard. As well, it showed staff how to perform risk assessments and develop quality objectives; and interpret management, technical and support processes required to implement the system in order for NML to be accredited.

The preparations are expected to enable NML to smoothly transition to ISO/IEC 17025: 2017 thus maintaining and sustaining its technical capability to offer services that meet international standards. ***(JATrillana)***

Our Business Is Industry

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