DEPARTMENT OF SCIENCE AND TECHNOLOGY

NATIONAL RESEARCH & DEVELOPMENT CONFERENCE 2020

R&D Making Change Happen



About the Conference

5th National Research and Development Conference (5th NRDC) Theme: Research and Development: Making Change Happen

> Facebook Live November 9–11, 2020

The Department of Science and Technology (DOST) in compliance with Section 19 of Article IX of Republic Act No. 10055, otherwise known as the Philippine Technology Transfer Act of 2009, calls for a regular national conference of all government funding agencies (GFAs) and research and development institutes (RDIs) to:

- a) promote multi-disciplinary, joint, and cross collaboration in R&D;
- b) coordinate and rationalize the R&D agenda; and
- c) harmonize all R&D agenda and priorities.

Also, in Section 30 of the General Provisions of the 2020 National Expenditure Program, the DOST in coordination with government research institutions and other agencies shall facilitate dissemination of all outputs of programs and projects under the Harmonized National R&D Agenda (HNRDA) to appropriate government agencies, LGUS, academe, industry and communities, whenever applicable.

The yearly NRDC started in 2016 and is attended by representatives from the academe, industry, government agencies, international as well as nongovernment organizations.

For the 5th NRDC, the theme is "Research and Development: Making Change Happen." The results of R&D that changed or transformed the lives of Filipinos will be highlighted. Projects and programs of government funding agencies (CHED, DA, DENR, DICT, DTI, DOST) that have shown significant impact to both society and environment will be featured.

The 5th NRDC on 9, 10 and 11 November 2020 will be conducted via online livestreaming.

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Today marks the 5th National Research and Development Conference (NRDC) and I am very pleased that our partner government funding agencies (GFAs)—CHED, DA, DENR, DICT, DTI, DND, DOE, DOH, and DoTr continue to support us in in this yearly activity. This is a manifestation of our commitment to further strengthen our multi-disciplinary, joint and cross-collaborations in R&D as part of the country's harmonized R&D priorities and agenda.

The Covid-19 pandemic has greatly hampered many of our plans and programs this year but this has not prevented us from bringing to you the results of R&D that brought positive impacts to both social and environmental aspects of every Filipinos' lives. Our years of investment in R&D are bearing fruit and giving way to many significant breakthroughs especially in the areas of health research, agriculture, industry development and disaster risk management. This year, this is particularly evident in our response to the Covid-19 pandemic.

I am confident that amidst this pandemic, we at DOST, together with our partner government funding agencies, as well as the other partners in the academic, public, private sector, will continue to strengthen and encourage R&D focused on providing immediate, timely and relevant scientific solutions in this time of health crisis and beyond.

As we all rally towards recovery and renewed vigor for our country, we will keep on working together, as One Nation, for R&D that makes change happen!

T. de la Pena

Secretary Department of Science and Technology



Let me congratulate the officers and members of the Department of Science and Technology on the occasion of the 5th National Research and Development Conference (NRDC) for CY 2020, with the theme "Research and Development: Making Change Happen." The Department of Environment and Natural Resources (DENR) and staff bureaus work closely with the DOST to disseminate and promote research outputs of ready-to-commercialize programs and projects.

This partnership is important between the two agencies to further the course of Research, Development, and Extension (RDE). This is in coordination with other stakeholders; including other government agencies, academe, R&D organizations and private sectors.

One banner technology that was developed under our collective efforts is "Hi-Q Vam 1." This soil inoculant is cost effective, environment-friendly, and sustainable. DOST has been very instrumental in its commercialization when DENR's Hi-Q Vam 1 produced healthier and more robust forest/non-timber (e.g. bamboo species) and fruit trees/agricultural plants that can be utilized in various reforestation efforts, particularly in the National Greening Program (NGP). Also, DENR-Ecosystems Research and Development Bureau's (ERDB) clonal propagation technology used in NGP sites is one of our promotable technologies.

In this R&D conference, we again strengthen our efforts to develop technologies to support our country's vision in harmonizing its significant contributions to food security, health care services, education, industrial and economic development, and environment sustainability.

Roy A. Cimatu Secretary Department of Environment and Natural Resources



On behalf of the Department of Energy (DOE), my warmest greetings to the men and women of DOST, as you virtually hold the 5th NRDC with the theme, "Research and Development: Making Change Happen."

We commend the DOST family for its perseverance and adaptability amid the COVID-19 pandemic; to still be able to bring together key national agencies to showcase R&D programs and projects during this critical time.

Our present circumstances highlight the importance of R&D and information technology in effecting positive change in the lives of our fellowmen. Towards this end, the government and private sector must continue to work closely; primarily focusing on innovation, leaving no one behind as we transition to the new normal.

Rest assured that the DOE will always be your staunch partner for progress. We are confident that this year's NRDC will be a success and we look forward to more collaborations in the near future. *Maraming salamat at mabuhay*!

Alfonso G. Cusi Secretary Department of Energy

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Message

Congratulations for the successful conduct of the 5th NRDC! We are elated to be recognized for one of our programs in the DICT, the Electronic Business Permits and Licensing System (eBPLS), for bringing changes in the society through the use of information and communications technology (ICT) and as catalyst in changing the landscape of business regulatory trends and in easing of doing business.

With the COVID-19 pandemic, it emphasized the importance of digital transformation and the urgent need for a transition to e-governance in order to deliver public services efficiently. That is why the DICT is further strengthening its existing programs on connectivity and e-governance until our vision of a Digital Philippines is realized. One of the programs bringing about this change is the eBPLS software developed by the DICT, which enables the local government units (LGUs) and their constituents to apply for and process business permits electronically.

The eBPLS transitions towards an Integrated Business Permits and Licensing System (iBPLS), which integrates other business-related frontline services of the LGUs to create a system that will fully automate business transactions from end to end. The DICT, together with several government agencies are working together for the completion of the Central Business Portal (CBP) which will automate and streamline business registration in the Philippines and to which existing iBPLS and other permits systems of each LGU will be linked.

The ease of doing business law was enacted to streamline existing government systems and procedures to promote efficiency and reduce bureaucratic red tape through the development of ICT systems and institutional reforms.

It is high time that we show our commitment to the realization of a digital government. One that is able to thrive amid a pandemic, and more important, one that can continue to provide efficient services to the people.

Maraming salamat po! Mabuhay tayong lahat and God bless.

Gregorio B. Honasan II Secretary

Department of Information and Communications Technology



Greetings to the organizers of the DOST's 5th NRDC webinar. This year's theme, "Research and Development: Making Change Happen," is very fitting in our current situation as various government agencies highlight the results of their programs and projects that transformed the lives of Filipinos and significantly changed the society and the environment.

I am pleased to note that the topics in your conference are all aligned with the department's current thrusts, such as: new and innovative ways of treating diseases, solidarity treatment trial for hospitalized COVID-19 patients, teenage pregnancy in typhoondevastated areas, and the use of digital media in advancing HIV-AIDSrelated advocacies.

In this time of pandemic, your role in making change happen is indeed crucial. As we collectively fight against COVID-19, join us in our call for every Filipino to *BIDA Solusyon* and beat COVID-19! (Bawal ang walang mask, I-sanitize ang kamay/lwas hawak sa mga bagay, Dumistansya ng isang metro, and Alamin ang totoong impormasyon.) I wish your conference a big success. *Mabuhay ang* DOST! *Mabuhay ang sambayanang Pilipino*!

ancisco T. Duque III, MD, MSc Secretary Department of Health



In the last 5 years, the annual National Research and Development Conference served as a venue for bringing to the public the significant contributions of our R&D efforts in fostering innovation. Last year, we witnessed how the shared goal of joint and cross collaboration among the various government funding agencies strengthened and widened the scope of R&D cooperation in all sectors of society. This year may be an exception in view of the current pandemic, but this did not prevent us from producing more innovations that can even surpass the level of our R&D investment. The research community took on the challenge and came together with a shared goal—to generate scientific, researchbased solutions that will ensure the country's ability to adapt, evolve, and survive the COVID-19 pandemic. Indeed, the scientific community showed that R&D Makes Change Happen.

In the Global Innovation Index 2020, the Philippines reached, for the first time, the top 50 in the ranking. Considering that we were ranked 100th in 2014, this is quite an achievement. In the same Index, it shows that the Philippines produced more innovation outputs than some high-income countries, despite having much lower innovation inputs. The pandemic is an added manifestation that Filipinos are efficient innovators. We are excited for you to witness the various exceptional innovation outputs that showcase our R&D efforts in response to the global health emergency and other emerging national problems. The DOST commits to foster sustainable R&D in the country and we would like to thank our fellow researchers for sharing their accomplishments.

We welcome everyone to the 5th National Research and Development Conference.

Rowena Cristina L. Guevara Undersecretary for Research and Development Department of Science and Technology

Among the disaster risk management network, the concepts of whole-of-government and whole-of-society are often invoked as the approach to ensure engagement, participation, inclusion, and empowerment of relevant stakeholders. They are inspiring concepts, but we sometimes find that their actual application is lacking in soul.

The essence of the two concepts is simple - collaboration on and coordination of interests of various groups to achieve a common goal. In the higher scheme of things, it is considered *de rigueur* to commit to collaborate and coordinate. In practice, we experience how interest vectors actually pull in different directions. Collaboration and coordination is not so simple, after all.

Therefore, I would like to put a challenge to our researchers. Can you step out of your comfort zone by expanding your research team beyond your usual or traditional partners from your institute or scientific circle to include those from other disciplines? This also implies, of course, extending the boundaries of your research focus outwards of what is probably your core strengths.

The challenge I am proposing is to put into practice the collaboration and coordination of scientific interests, which would usually be confined by disciplines, to address higher societal aspirations. This is not new, but also not yet the standard. I am theorizing that whole-of-government and whole-of-society need to be experienced in small ways by different groups of people working together before they can take off as a well-understood, well-established way of doing things. I am putting my hope on you, our researchers, to push this theory forward.

Dr. Renato U. Solidum, Jr. Undersecretary for S&T and OIC Office of Undersecretary for Disaster Risk Reduction and Climate Change





On behalf of the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD), I would like to wish you all the best for your health and safety. Despite this difficult time, we answer the call of duty as an R&D institution as we hold the 5th NRDC through the virtual platform.

Technology and innovation are drivers of change. R&D makes change happen as it is the foundation of technology and innovation. This three-day conference will feature some of the technologies and innovations developed from governmentsupported R&D that have significant change in people's lives, economy, and environment, among others. Some of these technologies and innovations are already helping us cope with the effect of the pandemic. Continuous R&D is significant in preparing us to be resilient during unfortunate circumstances like the pandemic.

The need for resiliency is crucial in the agriculture, aquatic, and natural resources (AANR) sector due to its multifunctional roles in development, such as food security, poverty alleviation, environmental sustainability, and climate change adaptation and disaster mitigation. In light of the burden that the pandemic may impose on our resources, we in the DOST-PCAARRD will ensure that our investments in R&D are allocated efficiently and in response to crucial needs of agricultural development. But more importantly, I believe that we can overcome uncertainties brought by this pandemic by working together and leading post-pandemic upturn in agricultural research for development.

Again, let us all take care and stay in good health! *Mabuhay* tayong lahat!

Révnaldo V. Ebora

Executive Director Department of Science and Technology-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development



PROGRAM - DAY 1

9 November 2020, Monday

9:00 - 11:30 AM	National Anthem and Prayer Emcee: Ms. Maria Elena A. Talingdan, DOST-NRCP
	Welcome Remarks Dr. Rowena Cristina L. Guevara, DOST Undersecretary for R&D
	Keynote Message Sec. Fortunato T. de la Peña, Department of Science and Technology
	FEATURED R&D PROJECT / PROGRAM A. COVID-19 Initiatives Part 1
	Insights on Health in the Time of the COVID-19 Pandemic Sec. Francisco I. Duque III, Department of Health
	Gen-Amplify Coronavirus Kit Dr. Raul Destura, Manila Healthtek Inc.
	FASSSTER than COVID-19 Dr. Maria Regina Justina E. Estuar, Ateneo de Manila University
	COVID-19 Solutions Using Our Transponder Technologies Mr. Arcelio J. Fetizanan, Jr., Futuristic Aviation and Maritime Enterprise, Inc.
	Manufacturing Repurposing Project - Local Prodution of Medical - Grade PPE Coveralls (DTI) Exec. Dir. Ma. Teresita J. Agoncillo Confederation of Wearable Exporters of the Philippines (CONWER)
	GoClean Chamber: Full Body Disinfection in Seconds Dr. Francis Aldrine Uy, USHER Technologies, Inc.
	MATDEV 3D Printing Initiatives for COVID-19 Dr. Blessie A. Basilia, DOST-ITDI
	Bayanihan Manufacturing and Stopgap PPEs Prof. John Ryan Dizon, Bataan Peninsula State University
	Project RAMDAM, a relief monitoring and feedback tool Mr. Milben A. Bragais, Geographic Innovations for Development Solutions, Inc.
	Tracking made easy TrAMS+ Engr. Roseanne V. Ramos, University of the Philippines, Diliman
	QUESTION AND ANSWER Moderator: Exec. Dir. Jaime C. Montoya, DOST-PCHRD
	ANNOUNCEMENT

	B. COVID-19 Initiatives Part 2
1:00 - 3:50 PM	Insights on Government's Initiatives on Infrastructure and Development (TBA)
	GALING-PCAARRD: Kontra CoVID-19 Program Dr. Reynaldo V. Ebora, DOST-PCAARRD
	VCO vs. COVID: A Functional Food Against a Many-Faceted Disease Dr. Fabian M. Davrit. Ateneo de Manila University
	SOLIDARITY Treatment Trial: Multicenter Randomized Trial of Additional Treatments
	Dr. Marissa Alejandria, University of the Philippines, Manila
	C. Health Programs / Technologies
	Tuklas Lunas Program: Drug Discovery and Development from Philippine Biodiversity Mr. Philip Cruz, Herbanext
	INDAK
	Dr. Jacqueline Dominguez, St. Luke's Medical Center
	Teenage Pregnancy in Eastern Visayas after Typhoons Yolanda and Ruby Dr. Gloria Luz M. Nelson, University of the Philippines, Los Baños
	Going Viral: Using Digital Media Art for HIV-AIDS-Related Advocacies Dr. Brian S. Bantugan, St. Paul University, Manila
	QUESTION AND ANSWER Moderator: Exec. Dir. Marieta Bañez Sumagaysay, DOST-NRCP
	ANNOUNCEMENT

PROGRAM - DAY 2

10 November 2020, Tuesday

9:00 - 10:00 AM	D. Review / Amendment to the HNRDA
	Basic Dr. Marieta Bañez Sumagaysay
	DOST-NRCP Health
	Dr. Jaime C. Montoya DOST-PCHRD
	AANR Dr. Reynaldo V. Ebora DOST-PCAARRD
	DRR-CC Dr. Renato U. Solidum. Jr.
	Undersecretary for Disaster Risk Reduction and Climate Change, DOST
	Industry, Energy, Emerging Dr. Enrico C. Paringit DOST-PCIEERD



PROGRAM - DAY 3

9:00 - 10:30 AM	G. Agriculture and Aquatic Industries Part 1
	Insights on Agricultural Sustainability and Food Security (TBA)
	Winning the war on COCOLISAP Pest: The Nature's Way Dr. Divina M. Amalin
	De La Salle University
	Clonal Forestry (DENR-ERDB)
	Southern Luzon State University
	HI-Q VAM 1 for bamboo Plantation (DENR-ERDB)
	Mr. Webon O. Lomong-Oy
	CS First Green Agri-industrial Development
	Juan Algae for Every Juan
	MS. Soledad S. Garibay University of the Philippines Visavas
	Oniversity of the Philippines visayas
	Our Trepang can be a Treasure: Producing Good-Quality Trepang from Philippine Sandfish
	Dr. Kevin F. Yaptenco University of the Philippines Los Baños
	Oniversity of the Philippines Los Banos
	CRADLE – ROSANNA: Banana Disease Surveillance System
	Dr. Val A. Quimno
	University of Southeastern Philippines
	NICER – Flora and Fauna Assessment in Cebu Island Key Biodiversity Areas
	Dr. Archiebald Baltazar B. Malaki
	QUESTION AND ANSWER
	Moderator: Exec. Dir. Reynaldo V. Ebora DOST-PCAARRD

1:00 - 2:30 PM	H. Agriculture and Aquatic Industries Part 2
	The Taste of Success: Pinoy Gourmix (DA-BAR)
	Ms. Rose Mary G. Aquino
	Department of Agriculture-RFO-02
	Farming Superlicious Superworms (CHED)
	Dr. Emma Mituda-Sabado
	Mindanao State University Marawi
	The Scientific Wonders of Philippine Mushrooms
	Dr. Renato Reyes
	Central Luzon State University
	CRADLE: EggInnovation 4Healthier Filipinos
	Ms. Cecille Aldueza-Virtucio
	Batangas Egg Producers Cooperative
	Itik Pinas
	Dr. Rene C. Santiago
	National Swine and Poultry Research and Development Center,
	Department of Agriculture-Bureau of Animal Industry
	Nipa Palm Sugar Processing Technology (DA-BAR)
	Dr. Lope Santos III
	Foundation for Rural Enterprise and Ecology Development for Mindanao, Inc.
	QUESTION AND ANSWER
	Moderator: Exec. Dir. Reynaldo V. Ebora DOST-PCAARRD
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Farming Superworms (Zophobas morio) for Food

Superworms are mass bred and prepared into various food products; such as fried superworms, brownies, polvoron, lollipop, tarts, protein bars, burgers, etc. As researchers, we successfully mass reared superworms using food substrates and moisture sources that promote faster growth and development. Proximate analysis results indicate that superworms contain 61% moisture, 36% protein, 36% fat, 8% fiber and 2% ash. These were processed into the said food products.

Insects like superworms are a promising solution to the global food crisis because of their abundance and high protein content, aside from vitamins and minerals. Likewise, they are easier to farm and do not require big lands for production compared to livestock. They also use less water and produce waste materials that can be used as organic fertilizer.

Commercializing superworms and other edible insect pests into various food products may help address hunger, malnutrition, pest problems, and environmental degradation.





Emma Mituda-Sabado Faculty member College of Agriculture Mindanao State University, Marawi City

Ms. Sabado's educational background includes a Master of Science (MS) and Doctor of Philosophy (PhD) in Entomology from the University of the Philippines Los Baños (UPLB) and a Bachelor of Science (BS) in Agriculture, Major in Agronomy from the Mindanao State University, Marawi City.

She is an advocate of entomophagy, the practice of eating insects. She has been promoting this through the annual conduct of Insect Eating Festival (IEF) in Mindanao State University (MSU), Marawi City from 2012–2019. Through a grant-in-aid by the Commission on Higher Education (CHED), she and her fellow researchers were able to explore the potential of superworms (*Zophobas morio*) as food fit for human consumption. Her team further developed insect-based food products. Through this innovation, she hopes to promote entomophagy in the Philippines, as well as help solve hunger and malnutrition.

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Tourism 4.0-CorregiTour App

In today's rapidly changing business environment, tourism destinations from all over the world need to create a unique identity through branding for sustainable development and prosperity.

This is where CorregiTour mobile application comes in. This project is set to be utilized as a dynamic development in human interaction with their immediate environment as part of a promotional pursuit of historical events and cultural heritage of Corregidor Island, being the pilot project. Also, this will consign the Philippine Tourism and Academic industries in better statures.







Ar. Lawrence B. Dolores II Program Chair Technological Institute of the Philippines, Quezon City

Ar. Lawrence B. Dolores II or Architect Lance is currently the Program Chair for BS Architecture in TIP, Quezon City. He began his teaching career as a full-time faculty member of the institution in June 2012 and became the Program Chair in October 2016. He finished his MS in Construction Management at the Polytechnic University of the Philippines Manila and has earned units in Urban and Regional Planning at the University of the Philippines-School of Urban and Regional Planning in Diliman Quezon City. Currently, he is taking his second MS in Architecture, specializing in Architectural Heritage Conservation at the same university.

As a pursuing heritage conservationist, he studied several heritage sites; such as Corregidor, Baluarte de San Andres and Postigo del Palacio in Intramuros Manila, Presidencia de Majayjay in Laguna, and the Quiapo Golden Mosque in Manila.

Ar. Lance Dolores is an active member of the United Architects of the Philippines-Rizal East Chapter and former chapter Director on Education Committee. He is also a member of the Council of Deans and Heads of Architecture Schools in the Philippines.

GOURmix

Pinoy GOURmix is a mixture of rice, white corn and adlay grits enriched with malunggay powder, texturized vegetable protein, soybean, ground mongo, and ginger turmeric. DA-Cagayan Valley Research Center (CVRC) developed the product in 2014 to provide households and general food consumers with a cheaper, highly-nutritious, complete food, whose raw materials are abundantly available in the region.

Because of its nutritional value, the product was utilized on feeding programs of public and private institutions; such as ABS-CBN *Programa* GENIO, Isabela and Quirino's provincial local government units, Missionaries of Mary Mother of the Poor, PEARL feeding program, and DSWD-Region 2. A market license transfer agreement was also signed with the Jevita Sales and Marketing Corporation, Providers Multi-Purpose Cooperative, and *Asosasyon ng Ama sa Siyudad ng Ilagan* (AMA-SILA).

The product eventually led Cagayan Valley, a crop production-oriented region, towards product processing a business enterprise, enhanced crop value, food security, and improved nutrition.





Ms. Rose Mary Aquino Regional Technical Director for Research and Regulatory Department of Agriculture-Regional Field Office No. 2 Tuguegarao City, Cagayan

Pinoy Gourmix, the Filipino version of the US Manna Rice Pack usually used as a relief food, the brainchild of Ms. Aquino. Her more than 30 years of expertise in agricultural research, development, and extension services made tangible impact to the lives of farmers in Cagayan Valley. She also built strong linkages with various government and private institutions in promoting agripreneurship programs and projects. Her significant contributions in the field of agriculture was recognized by different organizations and research institutions, hence her recognitions as Outstanding Agri-Researcher/Scientist, Research Manager, Woman-Servant, National Finalist of CSC 2008 Pagasa Awardee, and 2017 Presidential Lingkod Bayan Awardee.

Farmers will always have a special place in her heart as she pursues more initiatives for their greater good.

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Nipa Palm Sugar Processing Technology

Nipa palm sugar, a natural sweetener with low glycemic index, is produced from the sap of nipa palm. In 2014, FREEDOM, Inc. proposed the project "Adoption and Utilization of Nipa Palm Sugar Processing Technology" due to its promising importance in health and wellness and as a natural sweetener. The project was funded under the DA-BAR's National Technology Commercialization Program, which provided livelihood opportunities to selected coastal communities.

In 2015, FREEDOM's Azucar de Lanuza bagged the "Best Product Award" during DA-BAR's 11th Agriculture and Fisheries Technology Forum and Product Exhibition. DA-BAR continuously supported FREEDOM's initiatives "Upscaling of Nipa Palm Sugar Processing Technology" and "Strengthening Nipa Sugar Processing and Enterprises in Selected Coastal Communities." Both projects improved the processing of nipa palm sugar, developed other nipa-based products, and established environment friendly nipabased products enterprises that provide employment, generate income, and contribute to the growth of the local economy.





Antonio S. Peralta Executive Director Foundation for Rural Enterprise and Ecology Development for Mindanao (FREEDOM), Inc.



Clonal Propagation Technology of Forestry Tree Species

The Southern Luzon State University (SLSU) produces quality planting stocks of more than 50 indigenous forest tree species in Mt. Banahaw de Lucban. Stakeholders from Paete, Laguna currently uses propagated Batikuling (*Litsea leytensis* Merr.) stem cuttings. Batikuling wood is the raw material for their woodcarving industry. Seminars and trainings on vegetative propagation, nursery and plantation establishment and management were conducted for the stakeholders of Paete, Laguna. The LGU established a demo farm for Batikuling clones and seedlings and nursery for non-mist propagation.

Likewise, the SLSU clonal facility is for students' researches on clonal forestry, genetic studies, and misting propagation system. Some of the researches were funded by the university, Philippine Tropical Forest Conservation Foundation (PTFCF), and DOST-PCAARRD.

As an income generating project (IGP) of the university, it engaged in a Memorandum of Agreement (MOAs) with DENR-Region IV-A and DENR-ERDB from 2014 to 2017 of more than P10 million worth of quality planting materials that were delivered in the different municipalities of Quezon province. It enabled the university to operate the clonal facility on a regular basis and employ laborers and research assistants.

Various seedling recipients include native forest tree enthusiasts, academe, government agencies (GAs/LGUs), and private firms for their corporate social responsibility (CSR) that sustained the quality production of clones of indigenous forest trees from the facility.





Kathreena E. Gutierrez Assistant Professor College of Agriculture Southern Luzon State University

Kathreena G. Engay-Gutierrez is a forester and environmental planner. She received her BS and MS degrees from UPLB. As an assistant professor of the Forestry and Environmental Science Department, College of Agriculture at Southern Luzon State University, she leads research and extension projects that focus on clonal propagation technology for the conservation of threatened native forest trees of Mt. Banahaw de Lucban. Her work engagements enabled her to publish papers on clonal propagation, environmental planning and management, application of GIS, disaster recovery and reconstruction, watershed and Agroforestry systems, and bioenergy and biofuels. She is the project leader and focal person of the SLSU NGP Clonal Forestry Project from 2012 to present.

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Hi-Q Vam 1 for Bamboo Plantation (Kawayan Tinik-Bambusa blumeana)

ERDB developed the "Hi-Q Vam 1," a cost effective, environment-friendly, and sustainable soil inoculant. Hi-Q Vam 1 produce healthier and more robust forest/ non-timber (e.g. bamboo species) and fruit trees/agricultural plants. It has been utilized in various reforestation efforts, particularly in the National Greening Program (NGP).

The community in Brgy Aguilar, Pangasinan adopted the technology resulting in healthier and more robust agricultural crops and fruit trees.

It is priced at P25 per kilogram (kg) available at the ERDB, College, Laguna.



For. Webon O. Lomong-oy Plantation Project Manager CS First Green Agri-Industrial Development, Inc.

For. Webon O. Lomong-oy is a licensed Forester and currently the Plantation Project Manager of CS First Green Agri-Industrial Development, Inc. located in Bayombong, Pangasinan. The company engages on bamboo industry development in the country through the establishment of large-scale bamboo plantations and a bamboo manufacturing plant. He earned his BS Forestry at Don Mariano Marcos Memorial State University, Bacnotan, La Union. His research papers together with his co-authors were presented in various bamboo organizations and conferences, including INBAR 2018 and 1st ASEAN Bamboo Congress 2019. He specializes on GIS mapping and master in planning and management.

His experience in bamboo plantation establishment with the aid of Hi-Q Vam 1 technology helped him successfully increase bamboo growth.

eBPLS

Delia E. Basada

OIC Government Digital Transformation Bureau-Development, Test, and Project Management Teams

The Electronic Business Permits and Licensing System (eBPLS Software) is a cloudbased software provided for use of cities and municipalities in electronic processing of business permits; such as online/walk-in application, review/endorsement process, payment (online/ over the counter), and permit issuance. As of date, 229 LGUs are already provided with eBPLS on operational, data build-up/testing, and training phases.

LGUs are provided with the eBPLS instance or their online eBPLS site during training, staging (data build-up and testing), and production state. Once data build-up and pilot testing is completed and the system is operational, their eBPLS URL is affixed to their official website/FB page so that the public can transact with them online. Ms. Basada was the a Systems Analyst and recently designated at the Project Manager of the eBPLS/iBPLS Project

Ms. Basada has been with the eBPLS Project Team, since the initial development of the online based eBPLS in 2017. The development initially started with the online application module only, and was later on expanded into a full online business permitting system that was provided to LGUs nationwide.

She was greatly involved in the capacity building of the regional offices of the DICT and its partner agency such as the Department of the Interior and Local Government, and the concerned academe/SUC, in which they started with providing the online eBPLS to four (4) LGUs only in 2018. At the current, 395 LGUs are now cloud provisioned with eBPLS.

The eBPLS, through the able leadership of Ms. Roberto and Ms. Basada and the teamwork of the Project Team, will transition into iBPLS before the end of the year, iBPLS means Integrated BPLS; wherein the online processing of Business Permit, Barangay Clearance, Building Permit, and Occupancy Permit will be integrated into the one system— the iBPLS.

Art in the Time of HIV-AIDS and Digitization in the Philippines

The project looked into the works and persons of artists who used digital media to produce advocacy materials for HIV-AIDS. Seventy artists were interviewed in five major cities and their works were observed and analyzed to understand what makes them tick. The study revealed new categories for digitized art, 3 types of artistadvocates, 4 key ideas that enable them, and 4 networks that make them powerful agents.

The results were disseminated in different forums and public speaking engagements. A policy brief and a monograph were produced to help disseminate the data.

The project empowered students in the researcher's university to develop new materials to optimize the use of digital platform to educate people about HIV-AIDS. This encouraged the conduct of related studies in the university level. HIV education was then intensified in the university and consortium in South Manila and November was declared as mental health month where HIV became a learning topic.





Dr. Brian Saludes Bantugan Director Center for Research, Innovation, and Development

Dr. Brian Saludes Bantugan is a communication and innovation strategist based in St. Paul University Manila. He currently works as Director for the Center for Research, Innovation, and Development, which he established in 2008. His art and digital media background helped propel the project more quickly. His research interest includes communication, media, culture, arts, migration, gender, elderly, and innovation studies. He is an inclusive development advocate who uses all forms of art to send his message across, given the time. He has had a number of solo and collaborative exhibitions in Toronto. Canada where he worked as writer, educator, and campaign volunteer for Greenpeace Canada and Pink Triangle Press. He has independently published four research-based books.

Exploring the Links of the Incidence of Teenage Pregnancy and Natural Disaster: The Case of Eastern Visayas Philippines

Former studies have characterized the sexual and nonsexual behavior of young population. This project, along with these variables. looked into the disaster experiences of youth 12-21 years old in severely and moderately typhoon-affected municipalities in Eastern Visayas in terms of the number of moves and length of stay in the temporary shelters. In addition to social and economic characteristics that confirmed past studies. research results showed that the youth who experienced moving once in emergency shelters during a disaster and have stayed less than 330 days in transitional shelters are the characteristics likely to be associated with teenage pregnancy. Youth especially in severely-affected municipalities residing in extended households who stayed longer in temporary shelters are more at risk for early pregnancies as compared to the youth in the moderatelyaffected municipalities.

Based on the study, the mitigating strategy to prevent teenage pregnancy is to provide immediate permanent shelters to relocated families in disaster-prone areas like Eastern Visayas. The root of the problem is still poverty where the poor residing in marginal areas are prone to be homeless during disasters, thus the solution is to have a concerted effort to minimize poverty in disaster-prone areas in the Philippines.



Gloria Luz M. Nelson Professor lecturer 5 IGRD College of Public Affairs

Winning the war on COCOLISAP Pest: The Nature's Way

Aspidiotus rigidus, an invasive pest commonly known as coconut scale insect (CSI) has reached devastating outbreak levels in different areas in the Philippines. This pest is still a threat in other coconut areas in the country as shown by the Species Distribution Model with high predictive power. Nevertheless, a native parasitoid Comperiella calauanica, first described in the Philippines, played a major role in the subsequent recovery of coconut plantations and stands in outbreak areas. Thorough field assessment revealed high specificity of C. calauanica on CSI and exhibited host density-dependent parasitism, a characteristic of an effective biological control agent. Natural parasitization and augmentative release of C. calauanica in CALABARZON and areas with recent invasion; such as Romblon, Bicol, Zamboanga Peninsula, and Basilan lifted the pest status of CSI to non-outbreak level, thus making CSI a minor pest. Mass rearing technology of C. calauanica is available and disseminated to respond to new areas of invasion of CSI.







Dr. Divina M. Amalin Faculty College of Science De La Salle University

Dr. Divina M. Amalin is a faculty of Biology under the College of Science at the De La Salle University. She received her BS Agriculture major in Entomology and MS Agriculture major in Entomology from UPLB. She finished her PhD major in Entomology from the University of Florida in Gainesville, Florida. She has a broad training and experience in research, teaching, and extension. She has a strong background in integrated pest management with emphasis on the use of biological control agents as reflected in her publications and research achievements. She also has thorough training on taxonomy and biosystematics of spiders both of agricultural and medical importance. She was able to prove that spiders are an important component of the natural enemy complex of citrus leafminer in South Florida for her PhD research dissertation. During her postdoctoral fellowship, she was one of the project leaders of the Florida and Offshore Biological Control Initiative: A cooperative Agreement between the UF and USDA-APHIS-PPQ Eastern Region. Currently, she is working on the IPM program for cacao pests in the Philippines and assumes the chairmanship for the ASEAN COCOA CLUB Technical Working Group on Good Agricultural Practices. She is also involved in the control of coconut scale insect using biological control agents.

ItikPINAS

The Philippines is raising duck to produce fresh duck egg for processing into 'balut' and salted egg. The Bureau of Animal Industry, through the National Swine and Poultry Research and Development Center and with funding from PCAARRD, initiated the Development of Improved Philippine Mallard Duck (PMD) called "ItikPINAS," meaning duck from the Philippines. This is to develop a breeding true-to-type Philippine mallard ducks selected for high egg production, predictable performance, and consistent product quality. The "IP Itim" or "ItikPINAS Itim" and "IP Khaki" or "ItikPINAS Khaki" groups were developed due to the stakeholders' high preference for brown and black plumage color during the the consultation meeting.

Results of the study showed that both male and female of "IP Itim" lines are black and IP Khaki are brown with uniform body weight at 18 weeks of age, produce the egg size suited for balut processing, and test-cross showing increased egg production. The cross between the two lines produced offsprings, where the duckling's sex can be determined through their plumage color (sexed-linked). The project adopted the pyramidal structure of breeding program to distribute the improved genetics to stakeholders—a small number of nucleus breeders produces breeding stocks for a larger number of multipliers who produce animals for more end-users or commercial and backyard duck raisers.



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Rene C. Santiago, DVM, MSc Agricultural Center Chief IV National Swine and Poultry Research and Development Center Bureau of Animal Industry

Dr. Rene C. Santiago is the Agricultural Center Chief IV of the National Swine and Poultry Research and Development Center. He obtained his Doctor of Veterinary Medicine at the Dr. Yanga Francisco Balagtas College in Bocaue, Bulacan. He finished his MS degree in Animal Science major in Animal Breeding at UPLB. His work in the development of Philippine native animals: pigs, chicken, and ducks enabled him to popularize the potential and benefits of local animal genetic resources. He authored the book, Philippine Native Animals Source of Pride and Wealth Worth Conserving and Utilizing, in 2016, and developed different production guides on native pig, chicken, and ducks in Filipino and translated in English and Visayas. He also has video presentations on native pig production and "ItikPINAS" production and management where Filipino farmers, including OFW's benefit from these extension materials. Currently, he is the National Coordinator of Philippine Native Animal Development (PNAD) program implemented by the Bureau of Animal Industry, and working as project leader of different R&D programs and projects related to the development of the Philippine native animals.

Our Trepang is a Treasure: Improved Processing & Drying of Philippine Sandfish

Steps in processing of sandfish into trepang include degutting, boiling, cleaning, and drying. Prototype equipment was developed to allow multi-batch cooking, mechanized removal of spicules, and drying using biomass waste or solar radiation. The technology package is appropriate for small-scale operations and is simple to operate and maintain.

The technology was promoted by radio interviews with Radio Agila DZEC 1062 kHz in 2016, and training courses conducted in 2016 and 2017 in coordination with two universities, fishers associations, and the DOST ILARRDEC. Participants in the training included small-scale processors, university researchers, and representatives of ILARRDEC.

Export-grade dried sea cucumber was produced using improved processing methods and prototype equipment. Initial feedback from potential users was positive, and profitability analysis showed a positive net present value and a benefit-cost ratio higher than 1.10. Internal rate of return had a range of 17-32%, depending on the level of investment in a small processing facility.





Kevin F. Yaptenco Professor and Chairperson Agricultural and Bio-processing Division IAE, CEAT, UPLB

The speaker is a full-time professor at the Institute of Agricultural Engineering of UPLB. He teaches courses in postharvest engineering for perishable crops, food and crop processing, control systems theory, and technology entrepreneurship. He served as a project leader in two projects on sea cucumber processing funded by DOST and PCAARRD. Under his leadership, the two projects developed 1 Philippine National Standard for dried sandfish, 3 peer-reviewed journal papers, and obtained a utility model grant.

As the Coordinator for the UPLB SIBOL Fab Lab, is an advocate of digital manufacturing technologies that can help micro-, small-, medium-scale enterprises modernize their operations; rapidly fabricate prototype components; promote their products; and penetrate markets.

Juan Algae for Every Juan

The microalgal paste production protocol was developed with 4 variants, namely: *Tetraselmis* sp., *Nannochloropsis* sp., *Chaetoceros calcitrans*, and *Chlorella vulgaris*. Microalgal paste are concentrated microalgae cells that can be used as feed for milkfish and shrimp in hatcheries. Using the algal concentrator technology, an increase in the production of microalgae paste per ton of culture from 1 to 3 kgs was achieved.

The microalgal paste can be refrigerated for 3 months without loss in nutritional quality. The availability of local algal paste as an alternative to live microalgae cultures and imported algal paste can lower the production cost and ensure steady supply of natural food in hatcheries.

When the microalgae program ended in June 2018, its proponents decided to join business coaching and mentoring through DOST-PCAARRD and UPV-Fisheries Technology Business Incubation in January 2018. Since then, the production of microalgal paste continued until the Algacon Aquafeeds Manufacturing (AAM) was established. AAM was recognized by DOST-6 as the first R&D Spin-off Company in Western Visayas.





Soledad S. Garibay CEO and Founder Algacon Aquafeeds Manufacturing (AAM)

Soledad Santos Garibav is a University Researcher III at the Institute of Aquaculture, College of Fisheries and Ocean Sciences at UP Visavas and the Diwata Aquascape Coordinator for the UPV Museum of Natural Sciences. For the past 5 years, her research work has been devoted to microalgae studies, which led to the development of microalgal paste for aquaculture funded by UPV and DOST-PCAARRD. When the project concluded in 2018, the R&D output was prepared for commercialization with the assistance of the UPV-Technology Transfer and Business Development Office (TTBDO) and **UPV-Fisheries Technology Business Incubator** (FTBI) Program. In June 2019, the First R&D Spin-off Company in Western Visayas, the AlgaCon Aguafeeds Manufacturing (AAM) was established through her leadership. With this research technology journey, Filipino hatchery operators can now avail themselves of this inexpensive, chemical-free, instant microalgae product. As a researcher, she encourages her colleagues to also go into commercialization for this is one way of promoting our own innovations and inventions. Also, Ms. Garibay is currently the President of the Western Visayas Association of Filipino Inventors Inc. (WVAFI Inc.).

ROSANNA: Banana Disease Surveillance System

"Synergize Academe-Industry Research Undertakings to Improve Productivity through Development of a Banana Diseases Surveillance System" is a project which aims to develop a near real-time decision support system for the detection and control of diseases in bananas. It is called the Real-time Online Surveillance for Banana (ROSANNA).

ROSANNA specifically focuses on two diseases, Black Sigatoka and Banana Bunchy Top, but was later expanded to tracking and tracing *Fusarium Wilt* and Moko diseases. Some of the technologies developed were the mobile application system for disease spotters, supervisor and managers, and web-based dashboard.

ROSANNA was developed at the University of Southeastern Philippines (USeP) and implemented at the Hijo Resources Corporation (HRC), a 340-hectares banana plantation. Private corporations, were not open to academe partnerships before as banana production operations appear to be highly confidential. However, with the CRADLE project, USeP was able to engage with 16 industries in regions XI and XII from 2017 to 2019. This generated P25 million for research, involving 100 or more faculty, students, and staff.

ROSANNA concluded in November 2019, but it was extended for 4 months with funding from HRC and was tried in HRC's 150-hectare banana plantation in Trento, Agusan del Sur.





Dr. Val A. Quimno Faculty Researcher and Director Office of the University Registrar University of Southeastern Philippines

Dr. Val A. Quimno is an Information Systems researcher and consultant, on technologies implemented in developing countries. His research interests include information systems, e-learning, ICT for development, information management, and embedded systems (including IoT). He published and presented papers in various national and international fora. Dr. Quimno is involved in ICT for development projects that have significant impact in communities that aspire to deliver information services using contemporary information technologies.

As the CRADLE project leader of USeP, Dr. Quimno was able to manage the entire project within the specified period and budget. His vast knowledge in ICT and electronics significantly helped in project conceptualization, design, and development of a near real-time decision support system for banana diseases.

As an information technology professional, he has handled several roles from systems engineer, network administrator, systems administrator, and project manager. He currently holds international IT certifications from Huawei and MikroTik. Also, Dr. Quimno is a Licensed Professional Electronics Engineer who provides consultancy work in electronics design, and project management and implementation.

Flora and Fauna Assessment in Cebu Island Key Biodiversity Areas

This research project receives funding from DOST-GIA under the Niche Centers in the Regions for R&D (NICER) of the 'Accelerated R&D Program for Capacity Building of Research and Development Institutions and Industrial Competitiveness' of the DOST's Science for Change (S4C) Program launched in 2017. Being implemented from January 2018 to December 2020, the project has done a comprehensive inventory and found new species records and a possible new species of both native and endemic flora and fauna in Cebu Island: 10 and 1 in Mount Nug-as, 5 and 1 in Mount Lantoy, and 6 and 1 in Mount Capayas. The project also established 38 plots in 4 KBAs, published 6 papers, updated database, developed and distributed 6 flora/faunal guidebooks/leaflets to the stakeholders. renovated the DOST-NICER office, constructed forest nursery greenhouse and screenhouse, purchased new R&D equipment, and forged collaboration with LGUs/POs/GOs, and Academe.





Archiebald Baltazar B. Malaki Director Climate Change Center Cebu Technical University

Archiebald Baltazar B. Malaki is a university professor of the College of Forestry and Agriculture at Cebu Technological University. He obtained his BS degree in forestry at the Visayas State College of Agriculture in Levte, finished his MS degree in environmental studies at the University of the Philippines in Cebu City, and completed his doctorate degree in environmental science at the University of the Philippines Los Baños. His outstanding leadership and sustained contribution to biodiversity conservation and climate change R&D programs in the country enabled him to receive the "2019 William D. Dar Research and Development Award" given by DOST-PCAARRD Graduate Alumni Association Inc. He also received the "CTU-Presidential Citation Award for R&D" and "Outstanding Faculty Award" in 2016 and 2019. He is a regular member of the National Research Council of the Philippines. Further, he authored and coauthored 38 published papers in local, national, and international peer-reviewed journals. He is currently the program leader of the CTU-DOST-NICER research project. He loves reading, writing, and nature watching.

INDAK: Improving Neurocognition through Dance and Kinesthetics

Ballroom dance is now a popular activity among the elderly worldwide. INDAK (Improving Neurocognition through Dance and Kinesthetics) is a product of a research done in Marikina, Philippines; which aimed to improve memory and other mental functions of elderly with mild cognitive impairment (MCI). The collaboration of a multidisciplinary team in neuroscience and human kinetics developed INDAK to stimulate the brain in multiple ways.

INDAK is a set of carefully sequenced ballroom dances learned in a specific approach through a modular dance program. This consists of 8 types of ballroom dance with increasing complexity, namely: Reggae, Cha-cha, Samba, Merengue, Bachata, Swing, Tango, and Salsa. These are administered by a trained INDAK teacher to the elderly 1 hour per session, twice a week for a total of 48 weeks. This is a specific approach to learning a set of carefullysequenced ballroom dances.

Before and after the program, the cognitive status, functionality, and neuropsychiatric symptoms of the participants were assessed. It was revealed that INDAK positively changed the cognitive performance, depression symptoms, sleep, and quality of life of the group of elderly who danced the INDAK compared to those who did not dance. The investigators concluded that INDAK is a novel and effective intervention to improve memory and mood of older Filipinos with MCI.

The program is currently offered by the Institute for Dementia Care Asia, a pioneer and leader of dementia care education in the Philippines. As part of Hi-Eisai Pharmaceuticals, Inc.'s CSR activity, INDAK was implemented in Barangay UP Village and Barangay Claret in Quezon City and Barangay Marikina Heights in Marikina City with 86 participants. It culminated through the program's first graduation ceremony in April 2018 at UP Bahay Kalinaw. Outpatients from St. Luke's Medical Center are also referred to enroll in the program as a home therapy.



Dr. Jacqueline Dominguez Head Memory Center, Institute for Neurosciences St. Luke's Medical Center-Global City

Dr. Jacqueline Dominguez is a neurologist with special interest in cognition and aging. She studied at St. Louis University College of Medicine, trained in Adult Neurology at St. Luke's Institute for Neurosciences and in dementia and related disorders at the Washington University in St. Louis. In 2010, she established the Marikina Memory and Aging Project (MMAP) which studies a longitudinal cohort of over one thousand elderly. It is now a local resource for dementia epidemiological data and contributor to global networks in the field like COSMIC. She strongly advocates to study brain risks through local research, translate and validate cognitive evaluation tools for local use, and develop non-drug interventions to maintain healthy brain aging. Her researches advanced neuroscience services in biomarkers and neuroimaging at St. Luke's. As an anthropologist, she studies cultural ecology of dementia care in Filipino homes. One of her major publication shows that dancing improves memory in the elderly.

Philippine Mushrooms: the Almost Forgotten Treasures From Mother Nature

Description of the Technology

Mykomining involves the extraction and evaluation of bioactive metabolites from Philippine wild, edible, and poisonous mushrooms. Mykopharming, on the other hand, is the domestication of wild, edible, and poisonous mushrooms and the development of their cultivation technologies for the pharmaceutical and biofunctional food industries.

Commercialization or Utilization for Public Good

The matured technologies are packaged and extended to the target beneficiaries through infomercials, workshops, and trainings. The formulations of the products are being protected through registration as utility models. Potential local partners from the industry are also identified.

Change/s that happened and/or impact

The potential of the Philippine wild, edible, and poisonous mushrooms has been harnessed and utilized. From the oftentimes ignored and almost forgotten wild genetic resources, these fungal species were noticed by the scientific community to open an industry for their pharmaceutical and biofunctional uses.





Dr. Renato G. Reyes Program Leader Tuklas Lunas Development Center Central Luzon State University

Dr. Renato G. Reves is the program leader of the Central Luzon State University's Tuklas Lunas Development Center. He earned his PhD in Forest Science from Tokyo University of Agriculture in 1999 through the Japanese Government Scholarship Program. His research specialization on mushroom science and biotechnology, as well as natural products from mushrooms has been harnessed when he did 4 postdoctoral fellowships in Japan, Germany, and USA, namely: a JSPS Research Fellow in 1999 at Tokyo University of Agriculture, Japan; an Inwent Fellow at the Technical University of Braunsweig, Germany in 2005; a JASSO Research Fellow at the Takasaki University of Health and Welfare, Gunma, Japan in 2009; and a Fulbright Research Fellow at Michigan State University in 2012.

His 58 research articles on mushroom have been published in web of science and Scopus indexed journals. His 4 books on mushroom and 3 chapters in books serve as reference guides for mushroom growers in the tropics. He owns an intellectual property in the form of utility model on the biotechnological production of mushroom betaglucan using coconut water as propagating medium.

Prof. RG Reyes is the current VP for Academic Affairs and the concurrent Director of the International Affairs Office of the Central Luzon State University.

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Tuklas Lunas

The Tuklas Lunas Program's goal is to produce worldclass medicines derived from the Philippine biodiversity, leveraging on local expertise and university-industry partnerships. Plant samples from around 20 partner institutions from all over the country were sent to selected laboratories for bioactivity testing, toxicity screening, and orthogonal assay. Bioactive extracts that passed efficacy and safety tests (around 10%) are developed by other program collaborators into standardized dosage forms: which were then used for stability studies, preclinical, and clinical tests. The first Tuklas Lunas product, a standardized tawa-tawa capsule, was launched by Herbanext in advance in 2019 as a food supplement to help address a national dengue crisis. Within a short span of time, close to 10,000 bottles of the product was brought to the market and the necessary raw material supply chain was established from an IP (Ati) community. Clinical studies are scheduled soon towards a longer term goal of a tawa-tawa drug. For 2020, Herbanext is making available an additional 7 standardized dosage forms; which have shown significant bioactivity against diabetes, hypertension, inflammation, and obesity.





Philip S. Cruz President and R&D Manager Herbanext Laboratories Inc.

Philip S. Cruz is the president and R&D manager of Herbanext Laboratories located near Bacolod City. Philip pioneered the commercial production standardized spray-dried herbal extracts in 2011 and became part of the Tuklas Lunas Program in 2013. His contributions to the program include the collection of over 380 plant extracts from Negros Island for bioactivity screening and the scale-up production of standardized herbal extracts and dosage forms. Philip's vision for his company is to be a leading manufacturer of functional food ingredients and active pharmaceutical ingredients from Philippine biodiversity. Complementing this vision is to establish medicinal plants farming as a high value crop for small farmers in Negros Island. Philip's advocacy is on the conservation of medicinal plants. He currently maintains a collection of over 200 species in his farm, several of which already showed promise in the Tuklas Lunas Program. Mr. Cruz is currently the president of the Natural Products Society of the Philippines.

Infra Monitoring

Concrete petrography is the application of the geologic discipline of petrography to assess and evaluate the composition and condition of concrete products. The causes of issues in concrete quality that lead to low strength and poor durability/serviceability may only be identified under the microscope. A 2-year DOST-PCIEERD program was launched to assess and evaluate concrete and concrete raw materials used in lifeline structures in Metro Manila. The program is co-implemented by DPWH-Bureau of Research and Standards. Stakeholders from different government agencies and in the industry benefited from timely information on the quality of the materials being used. Training and capacity-building have also been done for certain stakeholders from government agencies.





Jeremy James Cortez Jimenez Senior Geologist DPWH-BRS

Mr. Jimenez obtained his BS Geology from UPD in 2016 and continued his graduate studies in the same university. His field of expertise is on concrete petrography and concrete degradation. Mr. Jimenez is part of the research group that established the first certified concrete petrography laboratory in the Philippines in 2018. He is currently a senior geologist in a project team collaborating with DPWH-BRS for research in concrete and concrete raw materials being used in Metro Manila. In his spare time, Mr. Jimenez is interested in movies, streaming games, and making the perfect cup of coffee. His advocacies include the quality assurance of infrastructure and proper science communication.

Project PATURO

PATURO: Platform for Assessment and Tracking of Urbanization - Related Opportunities, is a collaboration between the City Government of Cauayan, the Asian Institute of Management, and the Isabela State University - Cauayan Campus. It aims to formulate a Smart Index, which is able to capture reliably and accurately a city's "health" – which emerges from the diverse interactions between a city's people, land, transportation system, and various economic activities. For this purpose, we will create a city simulator - a "real-world sandbox" consisting of data-driven, interacting models representing various aspects of a city - its people, land use, establishments like schools, stores, offices and banks, and transport network. We intend to develop a decision support tool that will integrate all data needed (geospatial, demographic, transportation, socio-economic) in a dashboard for on the fly and agile scenario planning of various city initiatives not just for Cauayan, but also for other cities, both in the Philippines and beyond.





Alva Presbitero Senior Data Scientist and Science Research Specialist Analytics, Computing, and Complex Systems Laboratory-Asian Institute of Management

Alva is a Senior Data Scientist and Science Research Specialist at the Analytics, Computing, and Complex Systems Laboratory of the Asian Institute of Management (ACCeSs@AIM). She joined ACCeSs laboratory this year right after completing her PhD in Computational Science at the University of Amsterdam, Netherlands, and ITMO University, Saint Petersburg, Russia in 2019, where she dedicated four years into understanding the inner workings of the human innate immune system through computational modeling.

At the moment, she is working as a lead scientist on PATURO: Platform for Assessment and Tracking of Urbanization-Related Opportunities, the first smart city project in the Philippines in collaboration with DOST-PCIEERD, the City of Cauayan, Isabela State University-Cauyan Campus and the Analytics, Computing, and Complex Systems Laboratory of the Asian Institute of Management.

She took her Master's and undergraduate degrees in Physics and Applied Physics at the University of the Philippines, Diliman, Quezon City, Philippines.

Powdered Egg

San Jose Batangas is the Egg Basket of the Philippines. It produces over 10 million of eggs a day with 450 registered egg farms.

Egg farming started in the 1960s has progressed with the industrialization and innovation of the egg producers. In 2009, the farmers formed Batangas Egg Producers Cooperative or BEPCO to develop different products from eggs such as liquid egg and frozen egg.

Industry has grown but was halted in 2017 by first Bird Flu incident resulting to millions of eggs to pile up. This problem prompted BEPCO and UP Diliman to apply for Development of Chicken Egg White Powder and Granules from Low-Value Edible Shell Eggs

The project transformed low value edible egg to food safe, shelf stable, equally high in protein, and easy to transport eggs that can be accessible for Filipinos. It will also help the industry in an event of a surplus.





Cecille Aldueza Virtucio Director Batangas Egg Producers Cooperative (BEPCO)

Cecille Aldueza Virtucio is a seasoned strategic and change management professional. She is a transaction banking director turned into an agritechpreneur and agricoop volunteer. Her recent experiences include driving agriculturerelated initiatives: such as closed-loop farming for the municipality of San Jose and Agri4Healthier Filipinos espousing the production of naturally-produced foods like eggs, fruits, and vegetables. Her strength lies in mobilizing people to meet agreed objectives and overcome challenges. She led the transformation of BEPCO into an egg innovation hub, including the creation of an egg product roadmap. She led Chef Jose,' a consortium for marketing and branding platform for local products. She is passionate to level up agriculture and professionalize the cooperative movement for the past 4 years. She carries with her more than 20 years of banking, product management, technology development, and financial management experience working as a bank executive covering Philippines, Vietnam, and Singapore.

She is a wife of a farmer, mother of 3 dynamic teenagers, and a certified plant enthusiast.

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FEWS (PAGASA)

The Philippines partnered with South Korea, through DOST-PAGASA and KOICA. This is to establish the automation of Flood Early Warning System (FEWS) for Greater Metro Manila, inaugurating the Pasig-Marikina-Tullahan River Basin Flood Forecasting and Warning Center (FFWC) in December 2018.

The project enables DOST-PAGASA to forecast way ahead of flooding incident by providing critical information for LGUs along Pasig-Marikina-Tullahan River basins to improve their responsiveness against possible hazards, lessen the impacts of flooding, and minimize casualties and property damages.

A series of IEC and community drills were conducted for MDRRMOs and BDRRMOs, as well as capacitating DOST-PAGASA personnel who operates the FFWC. Text blasts also served as a tool for accessible information dissemination.

Through the state-of-the-art operational FFWC facilities and equipment, communities at risk of river flooding are informed about the hazards through public address systems and flood markers with certain levels of measurement. This allows them to prepare and respond accordingly.

Engr. Roy A. Badilla Weather Services Chief Hydrometeorology Division DOST-PAGASA

Engr. Roy Badilla holds a Magister Scientiae earned from The International Institute for Geoinformation Science and Earth Observation in The Netherlands in 2008. Here, he pioneered a scientific study on *"Flood Modeling in Pasig-Marikina River Basin,"* tailor-fitted to make a leap forward in the success of the Flood Early Warning System Project for Greater Metro Manila.

He attended numerous training programs here and abroad, enhancing his technical expertise and leadership skills, which led to a number of contributions to the agency. He devoted more than three decades of service in DOST-PAGASA and continuously uses his scientific knowledge for the improvement of the agency's products and services, specifically in flood forecasting and warning services.

Beneath these career-driven success, the Leyte-born hydrologist, leader, and public servant is an adventurous wanderlust who spends his free time with his family and his pets.



The GeoRisk Philippines Initiative and the HazardHunterPH

"GeoRisk Philippines: Innovations for Resilience" is a DOST-funded multi-agency initiative, led by DOST-PHIVOLCS and initially participated by PAGASA, ASTI, MGB, NAMRIA, OCD, and DepEd. The vision of GeoRiskPH is to be the country's central source of information for accurate and efficient hazards and risk assessment to help the government increase the nation's resilience to natural hazards.

GeoRisk Philippines may be considered as a whole-of-government ICT platform and a governance platform. The GeoMapperPH is for data collection and will be used to populate the National Exposure Database. The GeoAnalyticsPH is for local government units (LGU) hazard data visualization and analytics and the HazardHunterPH is for multihazard assessment, near real-time earthquake monitoring, hazard map downloads, visualizations, and analyses.

In this presentation, GeoRisk Philippines will showcase results of the initiative and looks forward to forging more collaborations with national government agencies, LGUs, and other stakeholders for the development of the National Exposure Database for a more accurate and efficient hazard and risk assessments for natural hazards.

GeoAnalyticsPH?





Ms. Mabelline T. Cahulogan PHIVOLCS

Mabelline T. Cahulogan is the project proponent of the DOSTfunded Geospatial Information Management and Analysis Project for Hazards and Risk Assessment in the Philippines or GeoRisk Philippines. She is the head of DOST-PHIVOLCS' Geomatics and Hazard Assessment Service Section of the Geology and Geophysics R&D Division. Platforms and methods introduced by GeoRisk Philippines were institutionalized and operationalized in her Section.

Under her leadership, online services for production and distribution of hazard assessment reports, hazard maps and other GIS products were established. Currently, the Geomatics and Hazard Assessment Service Section leads in strengthening the Remote Sensing (RS) capacity of the Institute to interpret and deliver RS results to better understand geological processes to complement other R&D works in the institute and contribute to hazards and risk assessments.

She is a geologist and has been a part of the institute's various earthquake- and volcano-related hazards mapping since 2007. She was part of the mapping team that re-evaluated the Valley Fault System (GMMA-READY, 2012-2014), which became instrumental to the release of Valley Fault Atlas in 2015 and PHIVOLCS FaultFinder in 2016. She was involved in the generation of Active Fault Maps, Liquefaction Hazard, and Lahar Hazard Maps under the READY Project (2007–2010). Her other research involvements were related to Paleoseismology (2009–2014) and remote sensing (2009– present). She has been a part of the institute's quick response teams, responding to earthquakes and volcanic eruptions since joining the Institute. Prior to joining DOST-PHIVOLCS, she worked for two years at a consultancy firm doing groundwater exploration.

She has a Masters of Natural Hazards from the Australian National University (2011) and a Bachelor of Science in Geology (2005) from UPD. She was born in Zamboanga City and grew up in Isabela, Basilan.

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Manufacturing Repurposing Project– Local Production of Medical-Grade PPE Coveralls

The Department of Trade and Industry (DTI) and DOH, in partnership with the Confederation of Wearable Exporters of the Philippines (CONWEP) and other stakeholders from the private sector have collaborated to locally produce medical-grade PPE coveralls. The goal of the project is to produce 300,000 medical grade PPE coveralls per month that will be supplied to the country's health facilities and workers.

The manufacturing of medicalgrade PPE coveralls was a new line of production for firms in the country's garments and textile industry. DTI, DOH, and CONWEP worked together to ensure that the PPE coveralls would meet global and national standards and manufacturing specifications in order to be medical-grade. This entailed sourcing the right raw materials, proper designing, product development, and testing until the prototype has met the criteria of medical use. CONWEP member firms also needed to adjust their production process and bring in more and new equipment for mass production.

The initial 10,000 PPE coveralls were donated to UP-PGH on April 22. The DOH acknowledged the value of these medical-grade PPE as significant in the fight against COVID-19 and ensuring that sufficient protection is provided to the country's health workers.



Maria Teresita Jocson-Agoncillo Executive Director and Board Advisor Confederation of Wearable Exporters of the Philippines (CONWEP) and Confederation of Philippine Manufacturers of PPE (CPMP)

Ms. Agoncillo is the executive director of CONWEP representing the Philippines' largest association of export manufacturing industry sectors of apparel, textile, travel goods (i.e. travel and sports bags, handbags, articles normally carried in handbags or wallets, etc.). As CONWEP executive director, she is very much involved in high level discussions and negotiations with both local and international government and trade institutions, advocating business and investment policies and trade agreements, supportive of improved competitive position and increased market access of the Philippine exporters in foreign markets.

She completed her Bachelor of Arts (BA) in International Studies at Maryknoll College and her Masters in Marketing Management at the Netherlands International Institute (RVB) in Maastricht, The Netherlands. Her career started as a public servant with the Center for International Trade Expositions and Missions (CITEM), an agency of the Department of Trade and Industry. She eventually became the division chief of the Wearables Department for 7 years. She joined the private sector through the Confederation of Garment Exporters of the Philippines (CONGEP) in early 2000. With CONWEP, she became secretary-general of the ASEAN Federation of Textile Exporters Industry, an umbrella organization of 10 countries from 2003 to 2005. To date, she is the chief delegate of the Philippines in all AFTEX negotiations and has been a consistent industry representative in the United States-Philippines trade negotiations.

Likewise, she remains the executive director and corporate secretary of the Philippine China Business Council.

GALING-PCAARRD: Kontra Covid-19 Program

The GALING-PCAARRD Kontra COVID-19 Program is DOST-PCAARRD's response to help heal the communities affected by the outbreak of the Corona Virus Disease (COVID-19) in support of the Bayanihan to Heal as One Act.

'GALING' or Good Agri-Aqua Livelihood Initiatives towards National Goals, is also a Filipino term which means HEALING (from COVID-19) and EXCELLENCE (resonating PCAARRD's tagline, Excellence in AANR innovation). When pronounced with a slow accent, GALING also means FROM, denoting that the technology offerings of the program are from the various R&D initiatives of DOST-PCAARRD.

The GALING-PCAARRD Program aims to help alleviate the situation in COVID-19 affected communities around the country through technology-information sharing, food product distribution, and provision of food production technologies and livelihood opportunities. The Program has three Major Components:

- Teknolohiya-Kaalaman para sa Pamayanansharing of technology and information through information, education and communication (IEC) materials;
- Lingkod Alalay sa Pamayanan-food product distribution to affected communities and frontliners; and
- 3.) Pagkain at Kabuhayan sa Pamayanan-food production and livelihood projects.

Recognizing the uncertainty associated with the COVID-19 pandemic, PCAARRD is also implementing a new project designed to boost the country's fight against the disease. The project, Rebuilding the Agriculture, Aquatic and Natural Resources in Response to Covid-19 or REAARRC, is the R&D complement of GALING-PCAARRD. It is a P50M project that aims to provide S&T-based solutions in the AANR sector in response to the COVID-19 pandemic.

The GALING-PCAARRD Program is an inter-agency collaboration involving the 15 Regional R&D Consortia or the PCAARRD in the Regions.



Reynaldo V. Ebora Executive Director DOST-PCAARRD

Dr. Ebora is the executive director of PCAARRD, a sectoral planning council of DOST. He is responsible for leading the Philippine National Agriculture, Aquatic and Natural Resources Research and Development System (NAARRDS) in the formulation of frameworks, thrusts, and programs for the development of the agriculture, aquatic, and natural resources (AANR) sector, as well as in the generation and allocation of funds for this purpose.

Dr. Ebora obtained his BS Agriculture major in Entomology as COCOFED scholar and MS in Entomology (Insect Pathology/Microbial Control) from UPLB. He pursued his PhD in Entomology at the Michigan State University, USA, as a Rockefeller Foundation Fellow. He also completed an International Post-graduate university course in Microbiology at the Osaka University in Japan, and his post-graduate studies as Visiting Fellow on Intellectual Property Management/Technology Transfer at the International Service for the Acquisition of Agri-biotech Applications (ISAAA) AmeriCenter, Department of Plant Breeding, Cornell University in Ithaca, New York, USA.

Covid FASSSTER

Description/background of the technology

Previous outbreaks of vaccine-preventable diseases and the current COVID-19 pandemic affirm the need for an operational disease modeling and surveillance system that will facilitate evidence-informed policymaking in preventing and managing outbreaks. An effective disease surveillance platform should be able to accommodate data from different health information systems for a more localized modeling.

Use of the technology specific to COVID-19 surveillance and response

Feasibility Analysis on Syndromic Surveillance using Spatio-Temporal Epidemiological ModelleR (FASSSTER) is a scenario-based disease modeling and surveillance platform that generates COVID-19 models and analytical tools designed to provide information such as scenariobased projection of cases at the peak, LGU risk classification, health care utilization, socio-economic and security indicators, and spatial analysis; which serve as basis for policy and guidelines in managing the pandemic.

Outputs of technology deployment/roll-out and perceived impact

The data generated from FASSSTER guides the IATF-EID and LGUs in assessing the effects of preventive and control measures in place, estimating the number of human and material resources; which should be prepared and deployed to enable prompt response to the healthcare needs of their citizens and planning for the implementation of community quarantine and resumption of socioeconomic activities in their localities.



Dr. Maria Regina Justina E. Estuar Executive Director Ateneo Center for Computing Competency and Research (ACCCRe)

Dr. Maria Regina Justina E. Estuar established the disease modeling and surveillance research in 2016 under the PCHRD-funded project FASSSTER. She is a tenured full professor at the Ateneo de Manila University where she serves as executive director of the Ateneo Center for Computing Competency and Research (ACCCRe) and heads the Ateneo Social Computing Science Laboratory. Awarded 2019 TOWNS for Science and Technology, Dr. Estuar's work for the past 15 years involved the understanding of how to design and implement ICT solutions to uplift the lives of ordinary Filipinos, specifically in the area of health and disaster.

The FASSSTER than Covid19 disease modeling and surveillance platform's design and evolution provides inspiration on how to lead, manage, and sustain a multi-disciplinary team, combining different perspectives towards one single goal—to beat COVID-19.

Development of 132 Units of Specimen Collection Booth

During the lockdown, the Futuristic Aviation and Maritime Enterprise, Inc. (FAME) offered to help fight COVID-19 and submitted a proposal to DOST-PCIEERD and DOST-PCHRD to develop a smart specimen collection booth (SCB) that can be used by frontliners for testing COVID-19 patients safely. The proposal was approved and a design was created and approved.

FAME manufactured 132 SCBs and were distributed to hospitals all over the country through the help of the Office of Civil Defense, Philippine Coast Guard, and Philippine Air Force. The SCB design was made open and uploaded to the DOST website for others to download and replicate. A lot of companies in the provinces and other countries, as well have downloaded the design and manufactured it.





Arcelio "Junjun" Fetizanan Jr. CEO and Founder Futuristic Aviation and Maritime Enterprise, Inc. (FAME)

Mr. Arcelio "Junjun" Fetizanan Jr. is a private pilot, mechanical engineer, and an innovator. He has been in the IT (software and hardware) industry for the past 19 years. He developed FAME transponders originally to solve tracking and monitoring issues in the aviation industry. He realized that the IOT device that he made can also be used for tracking maritime vessels and for sending telemetry data from sensors. It is also being used now for fish catch documentation and traceability.

MATDEV: 3D Printing Initiatives for COVID-19

Through 3D-printing, the Development of Multiple Materials Platform for Additive Manufacturing Project (MATDEV) of the DOST-Industrial Technology Development Institute (ITDI) teamed up with some hospitals in Metro Manila and other nearby cities to address their needs for personal protective equipment (PPE); such as 3D printed face shields, ear relief bands, and improved medical accessories and devices like 3D printed venturi valves, diffusers, and others for more effective treatment of COVID-19 patients.

Since 2019, MATDEV is undertaking research and development of polymers, plastics, ceramics, and composites for advanced manufacturing. It is under the Advanced Manufacturing Center (AMCen), DOST's soon to rise facility to strengthen the additive manufacturing competency in the country.





Dr. Blessie A. Basilia Chief Science Research Specialist Materials Science Division, DOST-ITDI

Dr. Blessie A. Basilia's field of expertise is Nanotechnology and 3D Printing Technology. She is currently the program leader of AMCen and project leader of MATDEV. With the current COVID-19 pandemic, increase in the number of affected patients tend to overwhelm different hospitals and other medical facilities. This resulted in a high demand and possible shortage of appropriate PPE and other medical devices. MATDEV utilized 3D printing technology to help solve this problem by identifying and supporting the needs of the different hospitals.

Stopgap PPE via Bayanihan Manufacturing

The COVID-19 pandemic has caused shortage of PPE. The additive manufacturing technology or 3D printing, has shown to be a very useful technology in producing stopgap PPE locally. This project focused on the production of different PPE badly needed by our healthcare workers last March to May 2020 when there was a great need for PPE. Different types of PPE, such as face shields, mask flanges, ear guards, and door pulls were produced and distributed to local hospitals and business establishments. Other approaches were also employed, such as establishing a 3D Printing Farm, as well as combining additive manufacturing (3D printing) and formative manufacturing (injection molding). With this project, about 3,000 sets of PPE were distributed to health workers and other frontliners. A new framework called Distributed and Cooperative Additive Manufacturing (DiCAM) Network also called as Bayanihan Manufacturing in the local context, has been proposed. Publications related to the project are also briefly discussed.





Dr. John Ryan C. Dizon, PhD, PIE Industrial Engineer and Professor Bataan Peninsula State University

Dr. Dizon is a professional industrial engineer and a professor of Mechanical Engineering at the Bataan Peninsula State University (BPSU). He obtained his BS Industrial Engineering at Saint Louis University, Baguio City and finished his PhD and Postdoctoral Fellowship at Andong National University, South Korea. He was also a visiting scholar at Case Western Reserve University in Ohio, USA where he trained and conducted research on the additive manufacturing technology. To date, he has about 45 published papers regarding advanced materials. He also has 14 utility models registered with IPO Philippines. Dr. Dizon is the project leader of BPSU's Additive Manufacturing Research Laboratory (AMReL), which was inaugurated last 2019 and is the first 3D printing research laboratory in the country.

Kokoy, as he is fondly called by friends and colleagues, plays different musical instruments; such as the guitar, bass guitar, drums, and violin. He loves reading leadership books and enjoys basketball and swimming, as well.

The Enhanced Tracing for Allocation of Medical Supplies (TrAMS+) Project

The College of Engineering of the University of the Philippines Diliman (UPD) has formed a COVID19 response team with the aim of providing engineering solutions to the critical needs of the country. One of the project initiatives of the College is the Tracing Allocation for Medical Supplies (TrAMS), which is implemented by the UP Training Center for Applied Geodesy and Photogrammetry (TCAGP), the research and extension arm of the UP Department of Geodetic Engineering (DGE). The project is then funded by DOST and monitor-managed by the Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD). It then officially became the Enhanced Tracing Allocation for Medical Supplies (TrAMS+).

The TrAMS+ project is led by Engr. Roseanne V. Ramos of the UP DGE with student researchers and faculty mentors. They are in charge of the web and mobile applications development for displaying and sharing of information on medical supply inventories of selected major hospitals in the NCR The project operated from May 1, 2020 to July 31, 2020 with support from the DOST-PCIEERD. It aimed to help the government in the proper allocation of much needed medical resources by developing an online system for providing information on hospital resources and inventory, real-time requests of medical supplies, and possible sources of medical supplies. The project created a web visualization tool for tracking information regarding health facilities' medical resources based on volunteered or crowd-sourced information. The project had a total of 86 partner hospitals actively contributing their supply inventory to the TrAMS+ website accessible at https://trams.com.ph/.



Roseanne V. Ramos Assistant Professor Department of Geodetic Engineering University of the Philippines

Roseanne V. Ramos is currently an assistant professor at UP DGE. She obtained her BS degree in Geodetic Engineering and MS degree in Geomatics Engineering with a specialization in Geoinformatics in the same university. Her research interests include the use of geospatial technologies for environmental applications. She recognizes the value of collaborations with different scientists and researchers using remote sensing (RS) and geographic information systems (GIS) to develop maps and models for various environmental applications such as water and air quality monitoring.

A Covid-19 Initiative: Development, Deployment and Testing of Project RAMDAM

Project RAMDAM is a COVID-19 initiative comprised of a Mobile App and a Web Portal that serves as a platform for residents and LGUs to share accurate information regarding relief packs and cash assistance distribution. The system aims to provide efficient data management and monitoring for the LGUs and feedback and request mechanism for the citizens. The system will complement the LGUs' relief management and monitoring in times when transparency, accountability, and efficiency are needed.

The project development and testing are funded by DOST-PCIEERD in coordination with DOST-CALABARZON.

After the development and testing phase, the project is now in continuous coordination with the potential users of the system like DILG, DSWD, and Office of Civil Defense for possible nationwide applications not only during a pandemic but also for the common natural hazards that the Philippines experience.





Milben Alejandro Bragais, EnP Licensed Forester and Environmental Planner

Milben Alejandro Bragais is a graduate of BS Forestry (Cum laude) and MS Environmental Science in UPLB. He is a geographic information system (GIS) practitioner in the fields of environmental science and disaster risk reduction and management. He is a co-founder and the incumbent President of Geographic Innovations for Development Solutions, Inc. (GRIDS), an environmental and planning consultancy firm that provide scientifically-based decisions using GIS and remote sensing.

Through GRIDS, Baragais provides capacity building training for LGUs, academe, students, researchers, and all interested professionals to mainstream the application of GIS to the climate change adaptation efforts in the Philippines.

He also lead the team from GRIDS in the development and implementation of Project RAMDAM, a pilot-tested relief distribution and monitoring tool that can be used for COVID-19 and other disaster response of the government.

A Covid-19 Initiative: USHER GO-CLEAN Disinfecting Chamber System Deployment

GoCLEAN Chamber

COVID-19 threat is real. It spreads through direct contact of individuals to contaminated surfaces like garments, footwear, human hands, and limbs. The best way to protect people from contamination is by disinfecting both in-bound and out-bound personnel traffic in building structures. USHER Technologies Inc. (USHER) fabricates a low-cost mobile disinfection and anti-Corona virus chamber called "USHER GoClean Chamber."

It is FAST, SAFE, and EASY.

FAST because it disinfects in-bound guest of buildings within 5–10 seconds. It is also SAFE because it sanitizes guests through a mist system that uses a cost-effective solution. EASY because the chamber is highly portable or can be moved quickly.

USHER's goal is to reach out most number of LGUs and private sector firms like hospitals to mitigate the rising frontliners' risk of contamination. USHER Goclean is here to help fight the life threating effects of COVID-19 and protect healthcare personnel, traffic enforcers, sanitation clerks, cleaners, among others.

Add-on to the chamber is the HOCLOMAC device. With this, the chamber will have the ability to produce its own potent and safe disinfectant solution for its daily operation. To add to the GoClean As One initiative is the GIZMO, an easy to use portable device that disinfects documents and bills.



Dr. Francis Aldrine Uy Founder and President, USHER Technologies Inc. and Dean, School of Civil, Environmental and Geological Engineering Mapua University, Philippines

Dr. Francis Aldrine Uy is the project leader of the Universal Structural Health Evaluation and Recording System (USHER), a 24/7 structural health monitoring online platform for infrastructures that aim to improve its clients' preparation and response to strong earthquakes and typhoons.

He was the DOST-PCIEERD 2018 Outstanding R&D Awardee on Special Concerns and 2018 World Summit Awards Winner for Smart Settlements and Urbanization.

Since 2008 up to present, he is the dean of the School of Civil, Environmental, and Geological Engineering at the Mapua University. He graduated BS Civil Engineering from Mapua Institute of Technology, MS Civil Engineering from Technological University of the Philippines, and PhD Civil Engineering from UPD. He is a recipient of the ASEAN Outstanding Science Diplomat Award. Moreover, Dr. Uy and the USHER system, was again internationally recognized in 2019 with Outstanding Engineering Achievement Award given by the ASEAN Federation of Engineering Organizations (AFEO). Dr. Uy was likewise acknowledged as one of the 2019 Manila Water Foundation Engineering Excellence Prize awardees.



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