

18th Annual Meeting & Scientific Forum

21-22 November 2024

Vivere Hotel and Resorts, 5102 Bridgeway Avenue,
Filinvest Corporate City, Alabang, Muntinlupa City

*"Career Scientists:
Shaping the future
globally through
science and technology"*



National Academy of Science and Technology, Philippines
SCIENTIFIC CAREER SYSTEM
Philippine Association of Career Scientists, Inc.

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National Academy of Science and Technology, Philippines
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Philippine Association of Career Scientists, Inc.

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Published by: National Academy of Science and Technology, Philippines
3rd Level Science Heritage Building
DOST Complex Bicutan, Taguig
Metro Manila 1631 Philippines

18th Annual Meeting and Scientific Forum

Layout by: Mark Joseph R. Zuñiga
Cover design, graphics from Freepik (www.freepik.com)

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MESSAGES



CIVIL SERVICE COMMISSION

Office of the Chairperson

To the Members of the Scientific Career System and the Philippine Association of Career Scientists,

I am honored to extend my warmest greetings to all of you as you gather for your 18th Annual Meeting and Scientific Forum. This year's theme, "*Career Scientists: Shaping the future globally through science and technology*," resonates deeply with the rapidly evolving global challenges and opportunities.

As the Chairperson of the Civil Service Commission and the Scientific Career Council, I recognize the pivotal role that career scientists play in advancing our nation's development. Your dedication to harnessing scientific knowledge and technological innovation is essential in addressing societal needs and enhancing the quality of life for all Filipinos.

The collaboration among scientists, policymakers, and the public has never been more crucial. The COVID-19 pandemic and the numerous natural hazards that Filipinos are constantly exposed to yearly have underscored the importance of scientific research in public health, climate change, and sustainable development. We must foster an environment where science can thrive, enabling us to develop solutions that are not only locally relevant but also globally significant.

This forum presents a valuable opportunity for dialogue, collaboration, and sharing best-fit practices. It is a platform for exchanging ideas and fostering a community of innovators dedicated to shaping a better future. I encourage each of you to engage actively in discussions, network with your peers, and explore new avenues for collaboration. As we look to the future, let us reaffirm our commitment to integrity, excellence, and service to our countrymen in our scientific endeavors. Together, we can inspire the next generation of scientists and ensure that the Philippines continues to contribute meaningfully to global scientific advancements.

Thank you for your dedication to this vital sector and your various fields of expertise. I wish you a successful meeting and an inspiring forum. Mabuhay!



**DEPARTMENT OF
SCIENCE AND
TECHNOLOGY**

Dr. Renato U. Solidum, Jr.

Secretary
Department of Science
and Technology

I extend my warmest greetings to the members of the Scientific Career System (SCS) and the members of the Philippine Association of Career Scientists, Inc. (PACS) on the celebration of your 18th Annual Meeting and Scientific Forum.

This year's theme "*Career Scientists: Shaping the future globally through science and technology*," is topical. It puts career scientists at the center of providing intellectual leadership to respond to the world's most pressing concerns.

In September, the World Risk Index 2024 revealed a sobering reality: the Philippines remains the most at-risk country in the world when it comes to responding and coping with natural hazards and disasters, and that has been the case since 2009. Additionally, with regard to the Sustainable Development Goals, it seems that we have been reporting modest achievements over the years, with some unfavorable performance in other key areas. This underscores the need for concerted action.

As men and women of science, my challenge is for each of us to commit our efforts to alleviating the living conditions of our communities, especially of the marginalized. How can we amplify the impact of our scientific pursuits? How can we improve our nation's resilience? And how can our work be aligned more effectively with the objectives outlined in the Sustainable Development Goals?

As we gather some of the best minds in the country in this meeting, I look forward to thought-provoking discussions that will yield game-changing insights on how our career scientists can continue shaping the future through science, technology and innovation (STI). The challenges before us are indeed formidable, yet I am assured that we are equal to the task. We have the power to shape the future by providing solutions and opening opportunities through STI.



**NATIONAL ACADEMY OF
SCIENCE AND
TECHNOLOGY**



Acd. Jaime C. Montoya

President
National Academy of
Science and Technology, Philippines

Congratulations to the Scientific Career System (SCS) and the Philippine Association of Career Scientists, Inc. (PACS) on the celebration of your 18th Annual Meeting and Scientific Forum with the theme, "*Career Scientists: Shaping the future globally through science and technology.*" This event underscores the vital role that our career scientists play in tackling global challenges through innovative solutions and groundbreaking scientific achievements.

In today's rapidly changing world, science and technology stands at the heart of progress. The contributions of our scientists not only drive national development but also shape the trajectory of the global community. The work you do spans all aspects of society—improving health, advancing agriculture, addressing climate change, and ensuring food security. Your research and discoveries are crucial in navigating the complex challenges we face today while laying the foundation for a resilient and sustainable future.

This year's theme reflects our collective commitment to fostering a strong and dynamic scientific community that transcends borders. As career scientists, your dedication to expanding knowledge and pushing the boundaries of innovation is key to creating a future where science and technology serves as an engine for global progress.

At the National Academy of Science and Technology, Philippines (NAST PHL), we recently concluded our regional and annual scientific meetings with the theme, "*Beyond farm productivity: Transforming the Philippine food system to address equity, consumer health, and environmental issues.*" These discussions focused on implementing national plans developed over the past two years, emphasizing the interconnectedness of agriculture, the environment, and consumer health. This holistic approach exemplifies how science, when applied strategically, can address a range of pressing issues, further boosting our nation's global competitiveness.

The SCS continues to play a pivotal role in providing incentives and support to attract and retain highly skilled research personnel in the science and technology sector. We cannot overstate the importance of the work they do and the contributions they make in shaping a sustainable and prosperous future for all.

On behalf of the Academy, I extend my best wishes for a successful event. I congratulate the organizers for their excellent preparations, and I commend SCS and PACS as key partners of NAST Philippines in our mission to achieve "a progressive Philippines anchored on science."



**PHILIPPINE ASSOCIATION
OF CAREER SCIENTISTS,
INC.**

Dr. Pierangeli G. Vital

President

**Philippine Association of
Career Scientists, Inc.**

It is my privilege and honor to welcome you to the 18th Annual Meeting and Scientific Forum of the Philippine Association of Career Scientists, Inc. (PACS).

This year's theme, "*Career Scientists: Shaping the future globally through science and technology*," is a product of a fruitful discussion among career scientists, the PACS Board, and the Scientific Career System Secretariat. It envisions the PACS to be at the forefront of research, innovation, and community service, with support from the Civil Service Commission (CSC), Department of Science and Technology (DOST), and the National Academy of Science and Technology (NAST).

The forum provides a means for the continuing efforts of PACS to contribute to the understanding and appreciation of science, engineering, and technology. It magnifies the role of each career scientist in making an impact in every discipline across the globe.

In this regard, allow me to thank the following for making this event possible. First, the SCS, NAST, DOST, and CSC for the support and guidance all throughout the preparation up to the event, as well as the vast assistance extended to career scientists. Next, the speakers and resource persons for taking some time out of their busy schedules to share their expertise with regards to our theme. Third, and most importantly, the PACS Board, committee chairs/co-chairs and members, and all career scientists, for their dedication and commitment to supporting PACS activities. As I was given an immense responsibility to lead the country's best career scientists, I truly feel their support and encouragement all throughout this fiscal year.

With poster pitch and institutional award as innovations this year, I would like to congratulate all poster presenters, authors, and awardees. Likewise, I welcome the newly conferred career scientists to the organization. You truly embody the vision of SCS and PACS.

With these, I wish you all the best in our annual meeting. May we maintain our harmonious working relationships, foster new collaborations, and reflect deeply on the role of career scientists in shaping the nation and the world.

Thank you very much. *Mabuhay ang mga career scientists!*



The **Scientific Career System (SCS)** was established within the Civil Service pursuant to Executive Order No. 784 on 17 March 1982 and formally organized on 19 July 1983 with the issuance of Executive Order No. 901 by then President Ferdinand E. Marcos in order to support and encourage the development of science and technology through recognition and reward of scientific merits of highly productive researchers in the government service. The system was initiated at the National Science and Technology Agency (now the Department of Science and Technology) being the primary agency in the field of scientific and technological development. Through Presidential Decree No. 1416, the Civil Service Commission was tasked to administer the implementation of the System as co-implementer of the DOST (source Executive Order 901).

The System was further reinforced by Section 4 of RA 8439 or the Magna Carta for Scientists, Engineers, Researchers and other Science and Technology Personnel in the Government. In February 2023, Executive Order (EO) No. 17, series of 2023 "Revising the Implementing Rules and Regulations of the Scientific Career System under Executive Order No. 901 (s. 1983)" was signed by President Ferdinand E. Marcos, Jr.

The Scientific Career System is a system of recruitment, career progression, and recognition that awards scientists rank into qualified research personnel in the government service. The system is co-implemented by the Department of Science and Technology (DOST) and the Civil Service Commission (CSC), with the DOST Secretary and CSC Chair serving as co-chairs of the Scientific Career Council. The SCS program is now administered by the National Academy of Science and Technology, Philippines (NAST PHL).

Evaluation and Ranking

Nominees both for Admission and Promotion are evaluated based on their scientific outputs, which in the Merit System are divided into Part A: Scientific Productivity – not less than 80% of points (discoveries and inventions, utility models, and scientific publications) and Part B: Scientific and Professional Standing – not more than 20% of points (prestigious scientific awards, paper presentations, etc). Conferred scientists are ranked to receive the corresponding salary grade as follows: Scientist I, SG 26; Scientist II, SG 27; Scientist III, SG 28; Scientist IV, SG 29; Scientist V, SG 30.

Incentives and Benefits

Conferred scientists are entitled to receive the following support grants: Representation and Travel Allowance; Magna Carta benefits; Travel assistance (local) –SCS-related activities only, eg. Attendance to fora/consultation meetings organized by the SCC Secretariat; Membership in international scientific organization and/or subscription to scientific journals; Publication assistance; Foreign travel assistance (oral paper presentation) – USD 3,000 per scientist every two years.

Qualifications for SCS Rank

Full time researchers in government research and development institutes, full time researchers (non-faculty) in state universities and colleges, etc with completed master's degree and 10 years of productive professional R&D work in the government service.

Scientists' Membership (1984-2024)

Since its establishment, the System has conferred scientist rank to 217 researchers in the scientific community. As of November 2024 there are 70 active Career Scientists.

2024 SCIENTIFIC CAREER COUNCIL

Office of the Chairperson

CSC Chairperson
Chair

Dr. Renato U. Solidum, Jr.

DOST Secretary
Co-Chair



Acd. Jaime C. Montoya

NAST PHL President
Member



Dr. Aimee Lynn A. Barrion-Dupo

NRCP President
Member



Atty. Angelo A. Jimenez

UP System President
Member



Ms. Luningning E. Samarita-Domingo, CESO III

NAST PHL Director
Executive Secretary



2024 TECHNICAL WORKING GROUP

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Acd. Estrella F. Alabastro

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Acd. Evelyn Mae Tecson-Mendoza
Acd. Eufemio T. Rasco, Jr.
Acd. Victor B. Amoroso
Acd. Arvin C. Diesmos
Dr. Isidro C. Sia

2024 SPECIAL TECHNICAL COMMITTEE

asd

agricultural
sciences
division

Chair

Acd. Eufemio T. Rasco, Jr.

Members

National Scientist Dolores A. Ramirez
Dr. Portia G. Lapitan
Dr. Carmencita D. Mateo
Dr. Renato SA. Vega

etsd

engineering
sciences and
technology
division

Chair

Acd. Estrella F. Alabastro

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Dr. Maria Natalia R. Dimaano
Dr. Edanjarlo J. Marquez
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sciences
division

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Dr. Monet M. Loquias
Dr. Doralyn S. Dalisay
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nsd

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sciences
division

Chair

Acd. Fabian M. Dayrit

Members

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Acd. Maribel G. Nonato
Dr. Roland V. Sarmago
Dr. Polly W. Sy

ssd

social
sciences
division

Chair

Acd. Agnes C. Rola

Members

Acd. Cristina J. Montiel
Dr. Lawrence B. Dacuycuy
Dr. Joyce L. Arriola
Dr. Marie Paz E. Morales

2024 ACTIVE CAREER SCIENTISTS

agricultural sciences



EDWIN P. ALCANTARA, Ph.D.
Career Scientist II



DIONISIO G. ALVINDIA, Ph.D.
Career Scientist IV



MARY JANE A. AMAR, Ph.D.
Career Scientist I



EVELYN C. AME, Ph.D.
Career Scientist I



EDWIN C. ATABAY, Ph.D.
Career Scientist II



EUFROCINA P. ATABAY, Ph.D.
Career Scientist II



SANCHO G. BON, MSc
Career Scientist I



JOSE ALAN A. CASTILLO, Ph.D.
Career Scientist I



CASIANO H. CHORESCA, Jr., Ph.D.
Career Scientist I



**LUCILLE ELNA E.
DE GUZMAN, Ph.D.**
Career Scientist I



FE M. DELA CUEVA, Ph.D.
Career Scientist II



DINDO KING M. DONAYRE, MSc
Career Scientist I



DANILDA H. DURAN, Ph.D.
Career Scientist II



PEREGRINO G. DURAN, Ph.D.
Career Scientist I



ANGEL B. ENCARNACION, Ph.D.
Career Scientist I



ESTER B. FLORES, Ph.D.
Career Scientist I



LENY C. GALVEZ, Ph.D.
Career Scientist I



MARIA LUISA D. GUEVARRA, Ph.D.
Career Scientist I



RODELIO G. IDAGO, Ph.D.
Career Scientist I



JUANITO P. JIMENEZ, Jr., Ph.D.
Scientist I

2024 ACTIVE CAREER SCIENTISTS



JAYVEE C. KITMA, Ph.D.
Career Scientist I



LEILA D. LANDICHO, Ph.D.
Career Scientist I



MERDELYN C. LIT, Ph.D.
Career Scientist II



ROSALY V. MANAOIS, MSc
Career Scientist I



NORVIE L. MANIGBAS, Ph.D.
Career Scientist III



EUFROCINIO D. MARFORI, Ph.D.
Career Scientist I



EDWIN C. MARTIN, MSc
Career Scientist I



CLARO N. MINGALA, Ph.D.
Career Scientist IV



MELISSA P. MONTECALVO, MSc
Career Scientist I



ULYSSES M. MONTOJO, Ph.D.
Career Scientist I



MARIA THERESA M. MUTIA, Ph.D.
Career Scientist I



MARCELA M. NAVASERO, MSc
Career Scientist II



JONATHAN M. NIONES, Ph.D.
Career Scientist I



GLENDA B. OBRA, MSc
Career Scientist I



LERMA C. OCAMPO, Ph.D.
Career Scientist I



REYNANTE L. ORDONIO, Ph.D.
Career Scientist I



MARITA S. PINILI, Ph.D.
Career Scientist I



MARILYN O. QUIMADO, Ph.D.
Career Scientist I



RIZA A. RAMOS, Ph.D.
Career Scientist I



RENE C. SANTIAGO, Ph.D.
Career Scientist I



MUDJEEWEIS D. SANTOS, Ph.D.
Career Scientist V



ROEL R. SURALTA, Ph.D.
Career Scientist III



LOURDES D. TAYLO, Ph.D.
Career Scientist I



MARVIN A. VILLANUEVA, Ph.D.
Career Scientist I

2024 ACTIVE CAREER SCIENTISTS

biological sciences



GAYVELLINE C. CALACAL, MSc
Scientist I



MARIA CORAZON A. DE UNGRIA, Ph.D.
Career Scientist IV



CUSTER C. DEOCARIS, Ph.D.
Career Scientist I



CHITHO P. FELICIANO, Ph.D.
Career Scientist I



RODNEY H. PEREZ, Ph.D.
Career Scientist I



JAZELYN M. SALVADOR, MSc
Career Scientist I



JOY ANN P. SANTOS, MSc
Career Scientist I



FIDES MARCIANA Z. TAMBALO, MSc
Career Scientist I



MINERVA FATIMAE H. VENTOLERO, Ph.D.
Career Scientist I



PIERANGELI G. VITAL, Ph.D.
Career Scientist II

engineering sciences and technology



ELMER G. BAUTISTA, Ph.D.
Career Scientist I



MARISSA A. PAGLICAWAN, Ph.D.
Career Scientist I



JESSIE O. SAMANIEGO, Ph.D.
Career Scientist I



ANDRES M. TUATES, Jr., Ph.D.
Career Scientist I

2024 ACTIVE CAREER SCIENTISTS

health sciences



FERDINAND V. SALAZAR, Ph.D.
Career Scientist I

mathematical and physical sciences



CHARITO T. ARANILLA, Ph.D.
Career Scientist I



ALVIE A. ASTRONOMO, Ph.D.
Career Scientist I



ANGEL T. BAUTISTA VII, Ph.D.
Career Scientist I



CHARITA S. KWAN, Ph.D.
Career Scientist I



JORDAN F. MADRID, Ph.D.
Career Scientist II



VALLERIE ANN I. SAMSON, Ph.D.
Career Scientist I



MARCELINO Q. VILLAFUERTE II, Ph.D.
Career Scientist I

social sciences



MA. CECILIA R. ANTOLIN, Ph.D.
Career Scientist I



JESUSA C. BELTRAN, Ph.D.
Career Scientist I



JAIME A. MANALO IV, Ph.D.
Career Scientist II



GIGI B. CALICA, Ph.D.
Career Scientist I

RATIONALE

Event title

18th Annual Meeting and Scientific Forum of the Scientific Career System (SCS) and the Philippine Association of Career Scientists, Inc. (PACS)

Date and venue

21-22 November 2024, Vivere Hotel & Resorts Alabang

The SCS is a pivotal recruitment and career progression framework established under *Executive Order No. 784 s. 1982*, aimed at developing a highly qualified pool of scientific personnel within the government service. Reinforced by *Republic Act No. 8439* and its amended version, *Republic Act No. 11312*, the SCS recognizes and awards Scientist Rank to qualified research personnel, enhancing their contributions to national development. The recent *Executive Order No. 17 s. 2023*, signed by President Ferdinand E. Marcos, Jr., further strengthens this system.

PACS is the premier association of scientists recognized by the SCS, committed to serving the Filipino people through excellence in scientific research, education, and training. PACS fosters collaboration among career scientists and advocates for policies that prioritize science and technology in national development.

The 18th Annual Meeting and Scientific Forum, with the theme, "*Career Scientists: Shaping the future globally through science and technology*," is a significant gathering dedicated to the advancement and recognition of career scientists within the Philippine scientific community. This year's theme emphasizes the critical role of career scientists in utilizing science and technology to address global challenges and foster sustainable development.

Dr. Renato U. Solidum Jr., Secretary of the Department of Science and Technology, will serve as keynote speaker. Dr. Solidum will discuss the integral role of career scientists in shaping policies and advancing scientific initiatives that can transform our future.

Plenary Talks

1. Livestock biotechnology: Innovations driving sustainable livestock production
2. Aquatic and natural resources: Strategies for preserving and managing our aquatic ecosystems
3. Plant biotechnology: Advancements in crop science for food security and climate resilience
4. Vaccine self-sufficiency: The importance of local vaccine development for public health
5. Artificial Intelligence: Leveraging AI to enhance research and industry practices

Scientific Poster Session

A vibrant scientific poster session will showcase the research of career scientists and their mentees, offering an interactive platform for networking, collaboration, and exchange of ideas.

PROGRAM

21 November 2024

12:30 NN – 1:00 PM
1:00 PM – 4:00 PM

Registration
2025 Planning workshop

LUNINGNING E. SMARITA-DOMINGO,
CESO III

Director IV, NAST PHL and Executive
Secretary, SCC

4:00 PM – 8:00 PM

Annual meeting

DR. PIERANGELI G. VITAL

President and Career Scientist II
Philippine Association of Career
Scientists, Inc.

22 November 2024

7:00 AM – 8:00 AM
8:00 AM – 8:05 AM

Registration
Invocation and National
Anthem

8:05 AM – 9:15 AM

Opening program
Welcome message

ACADEMICIAN JAIME C. MONTOYA

President
National Academy of Science and
Technology, Philippines

Message from the SCC Chair

OFFICE OF THE CHAIRPERSON

Chairperson
Civil Service Commission and Chair,
SCC

Introduction of the keynote
speaker

DR. PIERANGELI G. VITAL

President
Philippine Association of Career
Scientists, Inc.

Keynote Message

DR. RENATO U. SOLIDUM, JR.

Secretary
Department of Science and
Technology

Recognition Rites
Past SCC Members
Past STC Members
SCS Awardees

DR. RENATO U. SOLIDUM, JR.

PROGRAM

ACADEMICIAN JAIME C. MONTOYA

President

National Academy of Science and
Technology, Philippines

LUNINGNING E. SAMARITA-DOMINGO, CESO III

Director IV, NAST PHL
and Executive Secretary, SCC

Group photo

Opening of exhibits and posters

DR. ANDRES M. TUATES, JR.

Chair, Poster Committee
Philippine Center for Postharvest
Development and Mechanization
Department of Agriculture

9:15 AM – 9:30 AM

Health break

9:30 AM – 11:30 AM

Plenary talks

DR. PEREGRINO G. DURAN

Career Scientist I
Philippine Carabao Center
Department of Agriculture

Livestock biotechnology

DR. CASIANO H. CHORESCA, JR.

Career Scientist I
NFRDI
Department of Agriculture

Aquatic and Natural Resources

DR. LOURDES D. TAYLO

Career Scientist I
Institute of Plant Breeding
University of the Philippines Los Baños

Plant Biotechnology

DR. LEODEVICO L. ILAG

Corresponding Member, National
Academy of Science and Technology,
Philippines

Artificial Intelligence

ACD. CHRISTOPHER P. MONTEROLA

Member, National Academy of Science
and Technology, Philippines

PROGRAM

11:30 AM – 12:00 NN

Open forum

DR. DANILDA D. HUFANA-DURAN

Vice President
Philippine Association of Career
Scientists, Inc.

12:00 NN – 1:00 PM

**Lunch and viewing of
posters**

1:00 PM – 2:00 PM

**Panel discussion and
sharing of experiences of
new academicians**

ACD. CLEOFAS R. CERVANCIA

Member, NAST PHL

ACD. FORTUNATO T. DE LA PEÑA

Member, NAST PHL

DR. VALLERIE ANN I. SAMSON

Moderator
Career Scientist I
Philippine Nuclear Research Institute
Department of Science and
Technology

2:00 PM – 3:00 PM

Poster pitch

**Contributory posters by scientists
and their co-authors**

3:30 PM – 4:00 PM

Health break

4:00 PM – 4:15 PM

Awarding of poster papers

DR. ANDRES M. TUATES, JR.

Chair, Poster Committee
Philippine Center for Postharvest
Development and Mechanization
Department of Agriculture

Rapporteur

DR. ERLINDA GANZON-NARET

Career Scientist I
University of the Philippines Visayas

4:15 PM – 4:30 PM

Closing Remarks

LUNINGNING E.

SAMARITA-DOMINGO, CESO III

Director IV, NAST PHL and Executive
Secretary, SCC

Masters of Ceremony

DR. JORDAN F. MADRID

Career Scientist II
Philippine Nuclear Research Institute

DR. MARY JANE A. AMAR

Career Scientist I
University of the Philippines Visayas

KEYNOTE SPEAKER PROFILE



Dr. Renato U. Solidum, Jr.

Secretary
Department of
Science and Technology

He is a Filipino geologist and government official. He is the current Secretary of the Department of Science and Technology (DOST). Before his appointment as Secretary, He served as DOST Undersecretary for Scientific and Technical Services and as the Director of the DOST - Philippine Institute of Volcanology and Seismology (PHIVOLCS).

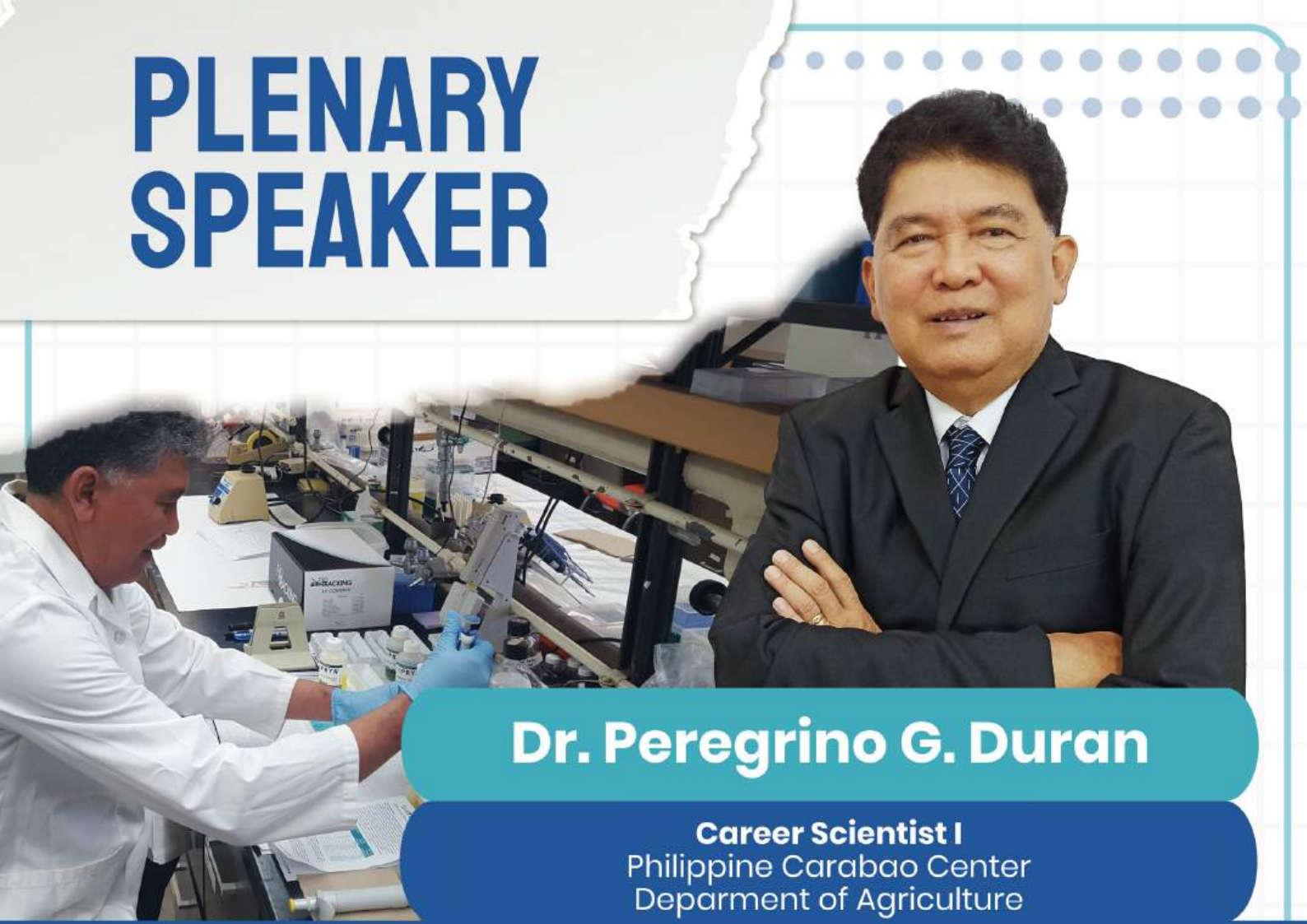
In recognition of his contributions to public service, organizational development and disaster risk reduction in the Philippines, He has received numerous awards, including:

- Presidential Lingkod Bayan (Public Servant) Award
- Presidential Citation for Public Service
- Professional of the Year in the field of Geology by the Professional Regulation Commission
- Excellence Award for Government Service by the Philippine Federation of Professional Associations
- Presidential Career Executive Service Award by the Career Service Executive Board

Dr. Renato U. Solidum, Jr. is the Secretary of the Department of Science and Technology (DOST) of the Philippines. He has worked with DOST for the past forty (40) years and rose from the ranks. He started his professional career at the DOST – Philippine Institute of Volcanology and Seismology (PHIVOLCS) in 1984 after graduating with a BS in Geology degree from the University of the Philippines (UP) Diliman in the same year. He served at PHIVOLCS in varying capacities, starting as Science Research Specialist I and became its Director in 2003. He pursued his graduate studies at the University of Illinois at Chicago, USA, earning a MS degree in Geological Sciences at the University of Illinois, Chicago, USA and the Scripps Institution of Oceanography, University of California San Diego (UCSD), obtaining a PhD degree in Earth Sciences.



PLENARY SPEAKER



Dr. Peregrino G. Duran

Career Scientist I
Philippine Carabao Center
Department of Agriculture

Dr. Peregrino G. Duran is a Supervising Science Research Specialist who specialized in animal breeding and reproduction. He has expertise on artificial insemination (AI) and pregnancy diagnosis, estrus synchronization, and induced ovulation, multiple ovulation and embryo transfer, ultrasonography, ultrasound-guided ovum pick-up, vaginal cytology and ovarian palpation/characterization per rectum as well as breeding soundness evaluation and fertility check of water buffalo bull for AI and natural breeding. He plays a key role in the production and propagation of upgraded and genetically superior water buffalo in the Philippines by applying reproductive biotechnologies both at institutional herds and farmers' animals in the villages. He has also served as a resource speaker and trainer on reproductive biotechnologies.

PAPER ABSTRACT

Multiple ovulation and embryo transfer for the production of genetically superior dairy and beef animals

Peregrino G. Duran, Ph.D.

Scientist I, Philippine Carabao Center – Department of Agriculture,
Science City of Muñoz, Nueva Ecija 3120
perduran95@yahoo.com

The advancement of reproductive biotechnologies has revolutionized livestock breeding, with Multiple Ovulation and Embryo Transfer (MOET) emerging as a pivotal technique. MOET involves the hormonal stimulation of donor females to produce multiple ova, which are then fertilized and transferred to recipient females. This method significantly enhances the genetic potential of dairy and beef herds by enabling the rapid multiplication of superior genetics.

This presentation will explore the principles and procedures of MOET, highlighting its application in both dairy and beef cattle. Key topics will include hormonal protocols for superovulation, the process of embryo collection and transfer, and the criteria for selecting donor and recipient animals. Additionally, the presentation will address the benefits of MOET, such as increased reproductive efficiency, accelerated genetic gain, and the ability to preserve and propagate valuable genetic traits.

Case studies will be presented to illustrate the practical implementation and success of MOET in improving livestock productivity and genetic quality. The discussion will also cover the challenges and limitations of the technique, including the need for skilled personnel, the cost of hormonal treatments, and the management of recipient herds.

PLENARY SPEAKER



Dr. Casiano H. Choresca, Jr.

Career Scientist I

National Fisheries Research and Development Institute
Department of Agriculture

Dr. Casiano H. Choresca Jr. hails from Calayo, Cabatuan, Iloilo. He finished his Bachelor of Science in Fisheries major in Aquaculture at the Iloilo State College of Fisheries, as a DOST-SEI Scholar, *cum laude*. He obtained his Master's and Doctor of Philosophy Degree in Veterinary Medicine (Aquatic Medicine) at the Seoul National University, Seoul Korea. He was a visiting scholar at the Laboratory of Molecular Genetics and Reproduction, National Institute of Basic Biology, Okasaki City, Japan working on germline stemcell niche in medaka fish.

His major projects are on the molecular detection of the emerging aquatic viruses specifically on the Tilapia Lake Virus (TiLV) in the Philippines, which causes mass mortality in tilapia fry and fingerlings, Iridovirus in milkfish, and molecular detection of emerging bacterial pathogens in Tilapia and other freshwater and marine fish.

In the field of reproductive biotechnology, he worked on the establishment and cryopreservation of fin explants and somatic cells as donor cells and induce spawning in fish. Currently, his project focused on the reproductive biotechnology of the fish on induced breeding of mudfish (*Channa striata*) or commonly known as *dalag* and climbing perch (*Anabas testudineus*) or locally known as "*puyo*", "*martiniko*" or "*liwalo*". His publications are on cell biology, fish diseases, aquaculture, and biotechnology.

Currently, he is a Senior Science Research Specialist at the Department of Agriculture -National Fisheries Research and Development Institute (DA- NFRDI)-Fisheries Biotechnology Center. He also serves as the Head of the Genetics and Breeding Section of the Aquaculture and Research and Development Division and at the same time newly designated Officer in Charge of the Brackishwater Research and Development Center based in Lala, Lanao del Norte.

Dr. Choresca was a recipient of The Outstanding Young Men of the Philippines (TOYM) in 2019 given by the JCI Philippines and the Gerry Roxas Leadership Foundation.

PAPER ABSTRACT

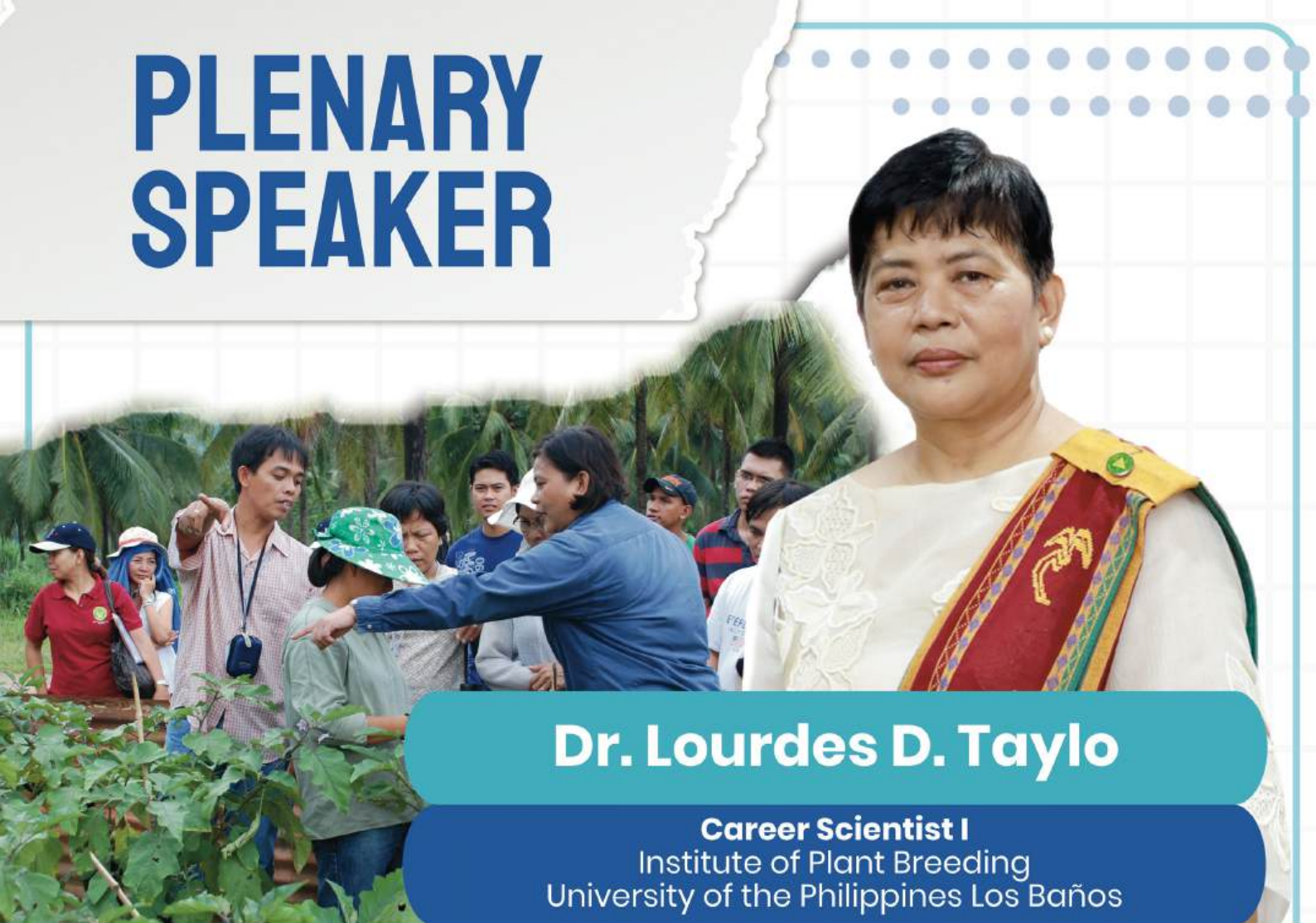
Enhancing Aquaculture and Fisheries productivity through biotechnology: Fisheries Biotechnology Center R4D initiatives and interventions

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The establishment of the Agricultural Biotechnology Center (ABC) of the Department of Agriculture (DA) in response to Administrative Order (AO) 21 series of 2005 led to the creation of the Crops, Livestock, and Fisheries Biotechnology Centers. The AO 21 of 2005 amended by AO 26 of 2021 reoriented and strengthened the agricultural biotechnology R4D agenda. The Department of Agriculture- Fisheries Biotechnology Center (DA-FBC) is hosted by the Department of Agriculture - National Fisheries Research and Development Institute (DA-NFRDI) mandated to develop strong linkages, collaborations, and networking among fisheries biotechnology stakeholders towards the development, promotion and enhancement of fisheries biotechnology in the Philippines. The operationalization of FBC contributes to the development of disease detection protocols and management, breeding and strain improvements, and feed and nutrition biotechnology advancements. Currently, the Center leads the Hatchery Production (HatchPro Program) of the DA-NFRDI that aims to strengthen the fisheries industry towards sustainable and climate resilient industry through the application of biotechnology. This presentation highlights the R4D initiatives and interventions of the DA- FBC, specifically the potential of these advancements to address the key gaps facing the fisheries and aquaculture industry, and to contribute to global food security.

PLENARY SPEAKER



Dr. Lourdes D. Taylo

Career Scientist I
Institute of Plant Breeding
University of the Philippines Los Baños

Dr. Lourdes D. Taylo, Scientist I, from the Institute of Plant Breeding, College of Agriculture and Food Science, University of the Philippines Los Baños (UPLB), is a Senior Entomologist, specializing on host plant resistance (HPR) to insects. She is the lead entomologist developing vegetables with improved insect resistance traits, an eco-friendly and sustainable strategy to manage insect population reducing the application of harmful insecticides. Using innovative technologies in studying host plant-insect interaction, high throughput phenotyping of large numbers of germplasm is done faster and more precisely saving valuable resources. Diversity analysis of insect populations using morphological and molecular analyses of mitochondrial cytochrome oxidase 1 provided insights on the genetics of a pest species that will be helpful in designing an effective insect pest management plan. More importantly, the bioefficacy against an insect pest is an important measure of the field performance of advanced breeding populations with promising insect-resistant traits.

She was also a member of the breeding team in the development of the four National Seed Industry Council (NSIC)-registered first hybrid eggplant varieties developed at UPLB, and registered under the Plant Variety Protection (PVP), two eggplant hybrids and two inbred lines. She is the lead entomologist in the research and development of the UPLB's first genetically-engineered Event EE-1 eggplant developed against the chronic insect pest eggplant fruit and shoot borer now in near commercialization stage, which is hoped to increase crop productivity of eggplant farmers while reducing significantly the application of insecticides and its labor cost. Aside from okra and eggplant, she, together with her colleagues at IPB, also studies cowpea and sweet potato.

In the past decade, she has authored/co-authored eight scientific and peer-reviewed journal articles in ISI journals, participated in national and international scientific meetings and has been a recipient of local, national and international awards.

PAPER ABSTRACT

From lab to farm: Unlocking the potentials of Bt eggplant in the Philippines

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Eggplant, *Solanum melongena* L., is among the most important, cheap, and popular vegetable crops grown and consumed in the Philippines. The most destructive insect pest of eggplant, particularly at the fruit-bearing stage, is the fruit and shoot borer (FSB), *Leucinodes orbonalis* Guenee (Lepidoptera: Crambidae), reaching 80% yield loss per cropping season. Farmers prefer chemical spray over other integrated pest management control options to minimize yield loss. Frequent spraying accounts for at least 30% of the cost of production and poses immediate and long-term hazards to human health, non-target insects, and the environment.

Genetically engineered, insect-resistant eggplant with cry1Ac gene, Bt eggplant with event EE-1, was developed by the Indian-based Maharashtra Hybrid Seed Company (MAHYCO) to provide an effective control of FSB and reduce insecticide applications. The Agricultural Biotechnology Support Project II (ABSP II) at Cornell University, supported by the United States Agency for International Development (USAID), facilitated the transfer of the Bt eggplant (Event EE-1) to the University of the Philippines Los Baños (UPLB). This eggplant (Event EE-1) was then conventionally bred to produce Event EE-1-derived open-pollinated (OP) and F1 hybrid varieties.

After two decades, the UPLB Bt eggplant obtained the Biosafety Permit for Propagation (22-001Propa) from the Department of Agriculture-Bureau of Plant Industry that authorizes UPLB to disseminate and cultivate Bt eggplant hybrids on a commercial scale in areas that favor GM planting. The Court of Appeals, in its decision dated 17 April 2024, had granted to the environmental group MASIPAG the *Writ of Kalikasan* (Writ of Nature) and ordered UPLB to stop the commercialization of the Bt eggplant and its planned seed deployment to eggplant farmer-beneficiaries in target communities. This legal challenge forestalls the potential of Bt eggplant to improve eggplant production among Filipino eggplant farmers and provide consumers with access to safe and better quality eggplant fruits.

PLENARY SPEAKER



Dr. Leodevico L. Ilag

Corresponding Member
National Academy of Science
and Technology, Philippines

Dr. Leodevico L. Ilag obtained his Bachelor's Degree in Biology, *magna cum laude*, at the University of the Philippines Los Baños. He then pursued his Ph.D. in Microbiology and Immunology at the University of Tennessee Center for the Health Sciences in the United States of America. Thereafter, he served as a post-doctoral research fellow at the Purdue University in the USA working on the structural biology of viruses and viral proteins.

Dr. Ilag has more than 25 years of solid research in the discovery, preclinical and clinical development of biologics and dietary/food ingredients (peptides, proteins, antibodies, natural products, agricultural waste streams) with applications in oncology, cardiovascular disease, CNS, infectious disease, metabolic disease and dermatology; and technical experience in antibody engineering; structural biology; virology; immunology; biochemistry; microbiology; and genetics. Being a virologist for more than two decades, working on institutions here and abroad, Dr. Ilag has more than 30 publications on virology and immunology in peer-reviewed international journals, several presentations in national and international conferences, and several patents under his name. He has worked on the characterization of antigen-antibody interactions on different pathogens and how these may be utilized in the development of diagnostics and therapeutics – an expertise earnestly sought for in the implementation of the initial research projects of the VIP. In his long tenure as an academic, Dr. Ilag has worked on a number of projects characterizing the mechanisms of viral infections.

Aside from Dr. Ilag's experience as a researcher and an academic, his experience as a member of the top management of several international private institutions allowed him to see the needs on the ground in terms of diagnostics, therapeutics, and vaccines – either for medical or veterinary purposes. The VIP would benefit immensely from this experience of Dr. Ilag as this would guide the VIP onto the translation of the R&D results of the VIP into products and processes, which the medical and veterinary fields need. During his tenure in the private industry, he successfully led the development of a functional proteomics platform involving immunization, generation of antibody phage library, selection of novel antibodies, and the like.

PAPER ABSTRACT

Reimagining vaccine self-sufficiency in the Philippines

Leodevico L. Ilag, Ph.D.

National Academy of Science and Technology, Philippines

Vaccines are among the major milestones in modern medicine towards disease prevention. As early as 1900, the Philippines produced its own vaccines and was even a net exporter of vaccines. However, since then, the Philippines has imported all its vaccine requirements and represents a long-term security risk.

To gain a better understanding of the current state-of-the art, it is important to understand some basic tenets of immune protection. The difference between passive and active immunisation will be discussed including possible alternatives for passive immunisation. Although vaccines have been primarily associated with the active/adaptive immune response, one of the overlooked components and an important ingredient of this vaccine, is the adjuvant. The adjuvant plays a critical role in determining the vaccine's efficacy including preventing the original antigenic sin as well as avoid antibody dependent enhancement.

Finally, the pros and cons of various vaccine technologies – e.g. subunit, nucleic acid and other vaccine technologies will be presented for consideration towards vaccine self-sufficiency in the Philippines.

PLENARY SPEAKER



Dr. Christopher P. Monterola

Academician
National Academy of Science
and Technology, Philippines

Dr. Christopher Monterola is a well-published physicist, machine learning scientist, educator, and technology advisor. He holds the Aboitiz Chair in Data Science and is a full professor at the Asian Institute of Management (AIM), where he is the founding head of the Aboitiz School of Innovation, Technology, and Entrepreneurship (ASITE). He also leads the Analytics, Computing, and Complex Systems (ACCeSs) lab as Principal Scientist and Executive Managing Director. Chris has mentored over 200 data scientists and physicists, including 12 PhDs, across various sectors, both locally and internationally.

His Complexity Science and AI R&D expertise has driven multi-million-dollar projects in the Philippines and Singapore, benefiting enterprises, governments, and society. Beyond academia, Dr. Monterola serves as the Lead Independent Director at Xurpas (\$X), a publicly listed tech company, and has been a key consultant in several Philippine companies' and government agencies' digital transformation efforts. He played a pivotal role in shaping the National AI Roadmap for the Philippines, serves on the EDCOM2 Standing Committee, and sits on the advisory committee for the Philippine Development Plan 2023–2028. In recognition of his accomplishments, Dr. Monterola was conferred the rank of Academician in 2020 by the National Academy of Science and Technology (NAST), the highest recognition and scientific advisory body of the Philippines.

AI in an emerging economy: Implications for careers in science and research

**PAPER
ABSTRACT**

Christopher P. Monterola, Ph.D.
National Academy of Science and Technology, Philippines

This talk is designed for career scientists and researchers navigating the rapidly evolving landscape of opportunities in the Philippines and beyond. I will explore how advancements in data science and artificial intelligence (AI) are reshaping industries and society, drawing from real-world examples of our collaborative projects with industry partners, government agencies, and research institutions. Additionally, I will provide a live demonstration of how generative AI and related technologies are transforming career trajectories within scientific and research fields. Through these insights, I will discuss the skills and roles expected to emerge in data science, AI, and related disciplines, specifically for those dedicated to scientific and research careers. To conclude, I will offer a forecast of how the exponential growth in AI will shape the future of science and research, highlighting the profound impact on the world of tomorrow.

PANELIST



Prof. Fortunato T. de la Peña

Academician

National Academy of Science
and Technology, Philippines

Professor de la Peña is a distinguished figure in engineering education and science and technology management. His remarkable career spans 43 years at UP, where he made significant contributions as Professor of Industrial Engineering & Operations Research. Most recently, he served as DOST Secretary. As an engineering educator and S&T administrator, his career is marked by lasting contributions to S&T capability building.

His expertise in industrial engineering, particularly in productivity improvement, facilities design, quality management, and engineering economy has been invaluable. Throughout his career, he has demonstrated visionary leadership and innovative initiatives. He spearheaded changes in Industrial Engineering programs at UP, notably the institution of the Diploma Program. He focused on productivity and quality through technology in programs for SMSEs at the UP Institute of Small Scale Industries, which he headed and was pivotal in DOST programs such as Manufacturing Productivity Extension (MPEX) Program.

His industrial engineering and productivity articles have made an impact in the private and public sector. His dedication to advancing R&D and efforts in engineering education and technology development have earned him widespread recognition. He received the *Honorary Fellow Award* from the ASEAN Federation of Engineering Organizations for being an outstanding engineering professional. Other recognitions include the *Asian Productivity Organization Meritorious and Distinguished Award 2021*, an honorary Doctor of Laws from UP, and the Ateneo de Manila Award for government service.

He played pivotal leadership roles in various institutions, including the establishment of the UP National Engineering Center, the DOST Technology Business Incubation Program, and the Philippine e-library Program. His contributions are also reflected in numerous co-authored books on "*Science for the People*" and laws he helped push to be enacted.

PANELIST



Dr. Cleofas R. Cervancia

Academician

National Academy of Science
and Technology, Philippines

Dr. Cleofas Cervancia is a world-renowned bee scientist. She was president of the Apimondia Regional Commission for Asia and currently, she sits as its adviser. She received the 2023 APIBA Academic Excellence Award in Venezuela and the 2016 Mt. Everest Pollination Award in Nepal. She was a resource person during the 2023 Bee Garden Party in England, with Queen Camilla as guest.

She is involved in community development and regularly conducts beekeeping training programs, which have established small and medium-scale enterprises in rural areas. These enterprises provide livelihood opportunities in Muslim municipalities in Lanao del Sur and the Mangyan community in Mindoro. Her pioneering work has established a sustainable bee industry in the Philippines focusing on the potential of native stingless bees for pollinating crops and for producing various bee products. Her work has been successfully adopted in countries such as Malaysia, Indonesia, Korea, and Thailand.

Her interdisciplinary approach to bee research while collaborating with experts from various fields resulted in the development of mathematical models, pollen identification tools, and policy formulations for Bureau of Agriculture and Fisheries Standards and Technical Education and Skills Development Authority's Beekeeping training programs. She has two patents tracing the geographical origin and bee species that produces the bee products, thereby ensuring product authenticity. Together with the team from UPLB College of Vet Med, bee products are now applied in apitherapy. Stingless bee propolis and honey have the potential to treat tumors, promote hair growth, heal wounds, and inhibit skin germs. These findings paved the way for the Philippine honey and propolis to enter the foreign market.

She has authored and co-authored 75 publications in refereed journals, book chapters, books, and technical bulletins. She is a recipient of national awards like the CSC *Lingkod Bayan* and NRCP Achievement Awards.



COMPETING POSTER PAPERS

Improving popular indica rice varieties for rice tungro spherical virus (RTSV) resistance through floral dip-based gene editing

Reynante L. Ordonio^{1*}, Rhona Jane B. Fabros¹, Marlon C. Garcillano¹, Luilene M. Sibulburo¹ and Trinidad C. Fernando¹

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Rice has long been subject to improvements through conventional or marker-assisted breeding. Gene editing provides a more precise tool to improve crops or existing varieties, such as rice that is resistant to tungro, a major disease of rice. Traditional plant gene editing largely relies on tissue culture for genetic transformation and plant regeneration. While it is widely known that Japonica varieties (e.g., Nipponbare) are amenable to tissue culture, indica varieties, which predominate in the Philippines, are very challenging to work with due to their recalcitrance. For this reason, we explored, for the first time, the use of non-tissue culture-based techniques, particularly floral dip, to genetically transform the pre-anthesis flowers of rice through direct contact with *Agrobacterium tumefaciens* harboring a CRISPR-Cas9 construct designed to target the *elf4g* gene to induce resistance to the rice tungro spherical virus (RTSV). This was followed by screening the resulting T1 seeds for antibiotic (hygromycin) resistance and genotypic analysis. The elimination of tissue culture means that the process is faster, cheaper, and completely avoids the problem of unintended mutations (somaclonal variation). Out of the popular indica varieties that we tested, NSIC Rc 402 was successfully transformed and edited as evidenced by the growth of the lines in the presence of hygromycin, resistance to tungro for three successive generations, and DNA sequencing. This demonstrates that floral dip is another robust approach that can be used for more efficient gene-editing rice and possibly, other cereal crops as well.

02 COMPETING POSTER PAPERS

Ensuring food safety: Detection of enteric viruses in fresh produce by real-time polymerase chain reaction

Joy Ann P. Santos¹, Trixie Jerah A. Balot², Lovely Lorraine Igat², Jirah Mae C. Garcia³, Maria Theresa T. Tengco^{1*}, Miguel V. Mondragon¹, Elchin Juanico-Magno¹ and **Pierangeli G. Vital¹**

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Foodborne outbreaks caused by human enteric viruses have been associated with fresh produce in various regions globally. Despite the risk of contamination from pre-harvest to post-processing, reports on the occurrence and molecular detection of these pathogens in raw and minimally processed fruits and vegetables are limited in the Philippines. To address this problem, this study aimed to detect norovirus GI (NoV GI), rotavirus A (RVA), and human adenoviruses (HAdVs) on select fresh produce (cucumber, lettuce, spring onion, strawberry, and tomato) collected from wet markets in Quezon City, Philippines using real-time PCR (RT-PCR). The most prevalent human enteric virus from the samples collected was HAdVs (46% or 23 out of 50 samples), while both RVA and NoVGI have lower prevalence at 4%. Compared to the reported 50% human infectious dose (HID50) of the tested viruses, the calculated copy number for RVA-positive samples was relatively lower. However, alarming copy numbers for NoV GI and HAdVs detected were close to or higher than the HID50. This study is limited to reporting the viral contamination of selected fresh produce in the Philippines. Moving forward, an in-depth analysis of the possible source of these pathogens may be conducted to prevent viral outbreaks associated with fresh produce.

03 COMPETING POSTER PAPERS

Application of *Nannochloropsis* algal paste in milkfish seed production: Larval survival and rotifer production

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¹National Fisheries Research and Development Institute

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The use of algal paste in milkfish hatcheries has not been widely adopted in the Philippines despite its relative advantages over conventional phytoplankton. To encourage its use and demonstrate its practical advantages, the National Fisheries Research and Development Institute conducted a technology validation study on the use of algal paste in milkfish hatchery in two stages: (a) on-station trials at NFRDI-Freshwater Fisheries Research and Development Center; and (b) on-hatchery trials in BFAR-operated Legislated Hatcheries in Perez and Tagkawayan, Quezon. In these trials, three hatchery aspects were studied following the standard protocols for milkfish larviculture and natural food production: (1) mass culture of rotifer fed phytoplankton; (2) milkfish larviculture; and (3) phytoplankton mass culture; comparing two treatments: (a) T1 – *Nannochloropsis* algal paste; (b) T2 – conventional *Nannochloropsis* algae. The results of the study showed that rotifer production was not statistically different ($P > 0.05$) between T1 and T2 in on-station trials ($51.389\text{M} \pm 1.771\text{M ind.ton}^{-1}$, and $53.434\text{M} \pm 1.789\text{M ind.ton}^{-1}$, respectively) and on-hatchery trials ($151.833\text{M} \pm 5.463\text{M ind.ton}^{-1}$, and $182.875\text{M} \pm 4.286\text{M ind.ton}^{-1}$, respectively). Larval survival was significantly different ($P > 0.05$) between treatments at on-station trials with $36.22 \pm 8.13\%$ and $44.89 \pm 0.97\%$, respectively but was not statistically different ($P > 0.05$) at on-hatchery trials ($48.0 \pm 1.53\%$, and $45.0 \pm 2.91\%$, respectively). Phytoplankton growth was not statistically different ($P > 0.05$) between T1 and T2, with $6.529 \times 10^6 \text{ cells.ml}^{-1}$ and $6.719 \times 10^6 \text{ cells.ml}^{-1}$, respectively (on-station trials) and $4.067 \pm 0.148 \times 10^6 \text{ cells.ml}^{-1}$ and $4.254 \pm 0.061 \times 10^6 \text{ cells.ml}^{-1}$, respectively (on-hatchery). Cost analysis showed that the use of algal paste is relatively more expensive than regular phytoplankton. Based on these results, algal paste could be an alternative to conventional phytoplankton for milkfish larviculture and rotifer production. However, the cost of algal paste may be a limiting factor. Thus, a cost-efficient algal paste is needed to encourage its widespread adoption.

04 COMPETING POSTER PAPERS

Evaluating fresh and lyophilized pituitaries from freshwater fishes to induce spawning in captive-bred striped snakehead *Channa striata* (BLOCH, 1793)

Casiano H. Choresca Jr.^{1 *}, John Wilbert A. Orilla¹, Fiona L. Pedroso³, Faith Loraine T. Magbanua¹, Dave B. Abarca², Maria Theresa T. Oclo¹, Ma. Jodecel C. Danting²

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In the Philippines, the aquaculture potential of striped snakehead *Channa striata* remains largely untapped and its production over the years has shown a continual decline due to overfishing, detrimental human practices, and limited local knowledge on its cultivation. To address these challenges, induced spawning technology is seen as a viable approach with the present work aiming to utilize fresh and lyophilized pituitary glands from African catfish (*Clarias gariepinus*) and Nile tilapia (*Oreochromis niloticus*) to induce spawning in *C. striata*. At a dose of 25 mg pituitary kg⁻¹ fish body weight, both fresh and lyophilized catfish pituitaries, along with lyophilized tilapia pituitaries, successfully induced the spawning of *C. striata*. The results were comparable to the control treatment using salmon gonadotropin-releasing hormone analogue and domperidone solution (SGnRHa+DOM) at a dosage of 0.5 mL kg⁻¹ fish body weight. The pituitary treatments yielded high rates of fertilization and hatching, ranging from 82.32±19.96% to 93.07±8.33% and 50.34±10.84% to 91.17±1.65%, respectively. The latency and incubation periods were recorded to be between 21.58±1.06 hours to 21.9±0.5 hours and 3.00±3.00 hours to 26.00±0.00 hours, respectively. The relative fecundity ranged from 8.31±4.20 to 51.4±7.60 eggs kg⁻¹ female breeder's body weight. This work documents the first successful spawning inductions in *C. striata* using pituitaries from African catfish and Nile tilapia, providing valuable information about their potential as effective induced spawning agents for increased *C. striata* production.

05

COMPETING POSTER PAPERS

Molecular identification of armyworm, *Spodoptera pecten* Guenee (Lepidoptera: Noctuidae) from Luzon Island, a new record for the Philippines

Michelle S. Guerrero, **Melissa P. Montecalvo**, Trisha Garcia, Richel Repolido, Angeline Omaña, Ericka Mae Ojeniar, **Mario M. Navasero, Jr.**, Maria Teresa Atienza, Maricon dP. Javier, Michelle Tandang, Rochelle A. Quiñones and Barbara L. Caoili, and **Marcela M. Navasero***
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The armyworm, *Spodoptera pecten* Guenee, is a polyphagous pest with a broad distribution across the Indo-Australian tropics, New Guinea, Japan, and Hawaii. Traditionally, the classification of *Spodoptera* species has relied on morphological features such as male genitalia, antennae, and wing color patterns. However, advancements in molecular analysis offer more precise tools for species identification. This study presents, for the first time, the partial coding sequence of the cytochrome oxidase subunit I (COI) gene from two *S. pecten* populations collected from Laguna and Batangas in Luzon Island, Philippines. The unidentified *Spodoptera* species from these provinces exhibited a 99% sequence identity with *S. pecten* samples from Pakistan, Papua New Guinea, and India, thus confirming the species identification as *S. pecten*. The DNA barcode generated from this study is pioneering for *S. pecten* in the Philippines. This molecular identification method is crucial for several reasons. It enhances the accuracy of species identification, which is fundamental for effective Pest management strategies. Moreover, it provides essential insights into the diversity of *Spodoptera* species in the Philippines, which has been previously underestimated. This information is vital for conservation biology, as it helps in understanding the ecological roles and evolutionary history of these species. Additionally, the findings support future research in evolutionary biology by offering a genetic basis for studying population dynamics, species interactions, and environmental adaptations.

Comparative analysis of sensory attributes in fresh-frozen, thawed, steamed, and canned *Sardinella lemuru* (Bleeker, 1853) relative to sardine species in codex standard for canned and sardine-products, CXS 94-1981

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With the existing technical barrier to trade (TBT) affecting the Philippine sardine industry, this study evaluates the sensory attributes of *Sardinella lemuru* or locally known as *tamban* in various processing states - fresh-frozen, thawed, steamed, and canned - against reference sardine species in CXS 94-1981 under Section 2.1 Product Definition. The assessment focused on analyzing the visual, olfactory, retro-olfactory, gustatory-trigeminal, and tactile attributes of the sardine samples, following ISO 8586:2012 and CAC/GL 31-1999 standard sensory evaluation protocols. Samples of *S. lemuru* and the reference species (*Sardinella aurita*, *Sardinella pilchardus*, and *Sardinella maderensis*) were analyzed in different processing states by 13 to 31 trained sensory panelists from ISO/IEC 17025 accredited EU laboratories. The results indicated that the sensory characteristics of fresh-frozen and thawed *S. lemuru* did not significantly differ ($p > 0.05$) from *S. pilchardus*, except in firmness, where *S. lemuru* was notably less firm. Post-hoc analysis revealed that the distinctive sensory traits of steamed *S. lemuru* include its less briny odor, saltiness, and moistness compared to the reference species. Spider plots and further post-hoc analysis showed that the sensory attributes of canned *S. lemuru*, in different packing mediums (brine and vegetable oil), were not significantly different ($p > 0.05$) from at least one of the reference species, except for its superior skin integrity and lower firmness. Notably, the characteristic sardine aroma and taste of *S. lemuru* are comparable with the reference species. These findings suggest the possible amendments of CXS 94-1981 to include *S. lemuru* in the list of species aiming to enhance the competitiveness of Philippine sardines in global markets.

07 COMPETING POSTER PAPERS

Morphological description of *Mistichthys luzonensis* Smith, 1902 in Lake Manapao, Buhi, Philippines

Ma. Lourdes D. Merilles*, Jeremiah E. Barela, Dominic Q. Garcia, Joann M. Encina, Myla C. Muyot, Lilian C. Garcia, **Minerva Fatimae H. Ventolero**, **Maria Theresa M. Mutia**

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Mistichthys luzonensis Smith, 1902 or locally known as *sinarapan*, hails as the world's smallest commercial fish that is known only in Lake Buhi, Philippines. Aside from Lake Buhi, reports of this species inhabiting a number of lakes in the Bicol Region have surfaced. Still, morphological evidence supporting that *M. luzonensis* actually exists in other lakes is conspicuously lacking. Thus, this study aims to describe the morphological features of *M. luzonensis* collected in Lake Manapao – the only lake known to have a viable *sinarapan* population. Samples were collected in Lake Manapao using a man push net called *sarap* and brought to the laboratory for morphological and meristics analysis. Results showed that the *sinarapan* specimens possess a fusiform body, with semi-transparent coloration, and distinct pigmentation patterns consistent with those originally described by Smith (1902) and Herre (1927). The fish exhibits two separate dorsal fins, with the first dorsal fin containing 3-5 spines and the second dorsal fin featuring 7-9 soft rays, while the anal fin contains 10-12 soft rays. Sexual dimorphism was observed, with males exhibiting longer fin rays, broader bodies, and distinct jaw dentition compared to females. Despite minor variations in fin ray counts and jaw morphology, likely due to environmental adaptations, the morphological and meristic characteristics largely conform to the original descriptions of *M. luzonensis*. These findings provide crucial data for the accurate identification of *M. luzonensis* and have a significant implications for the conservation and management of *sinarapan* populations across other lakes in the region.

08 COMPETING POSTER PAPERS

Ovarian response of riverine water buffaloes in wagyu-based superovulation treatment

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Riverine buffaloes of Bulgarian and Brazilian origins were propagated in the Philippines in early 2000 by artificial insemination and natural mating to produce animals for milk and meat purposes. However, the inherent problems of late maturity, anestrus, silent estrus, and long service period among females resulted in long calving intervals. With the nature of single ovulation in this animal species, propagation was slow. With this, a superovulation treatment found efficient in Wagyu was adopted and 5 Riverine cows ages 10 to 12 years old were treated. The superovulation treatment was done by adopting a Wagyu-based superovulation protocol. Briefly, Controlled Internal Drug Release (CIRD) was implanted into the vagina of 5 riverine buffaloes on Day 0, followed by injecting Antrin R10 from Day 7 at decreasing doses (2 cc AM/PM, 1.5 cc AM/PM, 1.0 cc AM/PM) and prostaglandin injection on Day 9 (AM) plus removal of the CIDR (PM), then artificial insemination on Day 11 (PM) and 12 (AM). Ovarian response checked by ultrasonography on Day 11 prior to artificial insemination showed an average of 5.6 ± 1.7 Graafian follicles on the ovaries. On Day 18, an average of 5 ± 1.2 corpora lutea and an average of 1.8 ± 1.8 unovulated ovarian follicles were observed on the ovaries by ultrasonography. The results show that Wagyu-based superovulation treatment can increase the number of ovulatory oocytes from 1 to at least 5 oocytes. This improves and increases the reproduction potential of Riverine buffaloes; however, incidence of unovulated follicles remains to be elucidated. Sustained efforts will be made to further improve the ovulatory response of Riverine buffalo to superovulation treatment and prepare the technology for commercial use.

09 COMPETING POSTER PAPERS

Tracing nutrient flows: a deep dive into Taal Lake and its major river tributaries

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Nutrient loading significantly impacts the aquaculture and non-aquaculture zones of Taal Lake, contributing to a detrimental shift in its trophic status from oligotrophic to eutrophic, primarily as a result of anthropogenic activities. Increased human activity in Taal Lake has heightened concerns regarding water quality. This study aims to assess and compare nutrient concentrations in Taal Lake and its major river tributaries—Lipote, Palsara, and Bugaan River. The research was conducted for 6 months, encompassing both the dry and wet seasons of 2024, from March to August. A multi-faceted approach was utilized, incorporating water quality monitoring of essential nutrients including total phosphate, dissolved phosphate, nitrite, nitrate, and ammonia, through spectrophotometric method. Additionally, in situ analyses of physicochemical parameters such as temperature, dissolved oxygen, total dissolved solids, total suspended solids, salinity, and pH—were conducted using YSI EXO 2 Multiparameter Sonde. Water samples were systematically collected from designated aquaculture and non-aquaculture sites around the lake, as well as from the upstream, midstream, and downstream sections of the three major tributaries. Results showed that non-aquaculture areas exhibit no significant difference ($p > 0.05$) with the aquaculture areas of the lake resulting in homogeneity of nutrient concentrations. Among the tributaries assessed, Bugaan River exhibited significantly elevated total phosphate and nitrate concentrations at 0.9490 ± 0.2987 ppm and 3.0475 ± 0.3245 ppm, respectively. Nitrate accumulation in domestic waste arises from urine and excreta, as well as runoff from adjacent farmland (Dike et al., 2010). High phosphate levels in rivers are primarily attributed to agricultural runoff and leaching, along with detergent-laden wastewater (Bastre et al., 2018). The findings highlight the need for targeted management of nutrient hotspots in non-aquaculture areas and river tributaries, alongside effective strategies for aquaculture zones to address both point and non-point sources, ensuring water quality, biodiversity, and sustainability of aquatic systems.

Growth, survival, and digestive enzyme activities of mudfish *Channa striata* at early feeding

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This study explores various diets and their corresponding effects on the growth and survival of *Channa striata* (mudfish) larvae at early feeding in pursuit of developing appropriate feeding strategies for mudfish. The 28-day feeding trial involved four different treatments, where mudfish larvae were initially fed with *Moina sp.* starting from the 3rd day after hatching (DAH) at the onset of exogenous feeding until the 14th DAH. This was followed by a 10-day gradual weaning period, transitioning to one of the following diets: trash fish (Treatment 1), chicken intestine (Treatment 2), and a formulated diet (Treatment 3). The control group was fed with *Moina sp.* throughout the trial. Proximate analysis revealed that the formulated diet, composed primarily of fish and soybean meals, had the highest protein (42.65%) and fat (16.24%) content. Results showed that the formulated diet resulted in the highest growth performance, with significantly higher weight (0.1630 ± 0.0125 g) and length gain (25.00 ± 2.65 mm) at 30 DAH compared to the other treatments ($p < 0.05$). Despite the enhanced growth, fish fed with the formulated diet exhibited the lowest survival rate (45.59%), raising concerns about its digestibility and palatability. This result suggests that feeding preference, diet texture, and nutrient composition could increase mortality. Fish fed with trash fish achieved the highest survival rate (64.03%). Further analysis of digestive enzymes, particularly pepsin, and amylase activities, revealed no significant differences across treatments. It is recommended to further investigate the role of other important digestive enzymes (e.g., lipase, trypsin, chymotrypsin) and assess whether variations in feeding frequency or environmental stressors affect enzyme activity and overall larval survivability.



COMPETING POSTER PAPERS

The first attempt on captive rearing of Bali *Sardinella* (*Sardinella lemuru*) (Bleeker, 1853) in the Philippines

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Sardinella lemuru (*S. lemuru*) or *tamban* is an important food fish in the country that contributes significantly to the economy and food security, ranking 2nd highest in capture fisheries production and dominating the small pelagics. Being an IUCN near-threatened species, factors like climate change, postharvest and regulatory challenges have been identified as contributors to the declining trend in production. To address these challenges in production, this study was conducted to support the sustainability of sardine fisheries in the country through the development of aquaculture technology for *S. lemuru*. As there is no technology yet on the captive breeding of *S. lemuru*, the first phase of the study conducted experimental live transport trials and domestication for broodstock development. The first live capture and transport trial was conducted in Balayan Bay, Batangas, achieving a 73% survival rate corresponding to 137 live *S. lemuru* samples collected by ring net in June 2024. Mortalities encountered during collection were largely due to lesions and scale loss resulting from handling, which stabilized after a week. After 100 days in captivity, 54 *S. lemuru* individuals are currently maintained at the NFRDI-FFRDC hatchery corresponding to 39% survival rate. Live *S. lemuru* are reared in circular tanks with a flow through water system maintaining the following water parameters: water temperature at 26.1-29.9°C; dissolved oxygen at 7.96-10.83 mg/L; salinity at 30-32 ppt; and pH at 7.9-8.9. These water parameters are all within the optimal range also observed in the fishing ground in Balayan Bay. Feeding regimen involved twice-daily feedings of *Artemia salina* and *Nannochloropsis oculata*. The research findings provide novel and scientific breakthrough on its first attempt to develop captive breeding protocols of *S. lemuru*.

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COMPETING POSTER PAPERS

The threat of tilapia lake virus and vaccine development using baculovirus expression vector system (BEVS) in the Philippines

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Tilapia is a significant fish in the fisheries and aquaculture industry. It is currently under threat from a recently discovered segmented, single-stranded, negative-sense Orthomyxo-like virus called Tilapia Lake Virus (TiLV) or Tilapia tilapinevirus under the new family Amnoonviridae. Several massive fish kills have been reported in several continents from 16 countries affecting farmed and wild *Oreochromis* spp. and other species of fish to-date. In this study, we detected TiLV and aimed to develop oral subunit vaccine candidate using baculovirus expression vector system (BEVS) in *Trichoplusia ni* larvae. Regions with high tilapia production were chosen as sampling sites for the molecular detection of segment 3 (259bp) of the TiLV using PCR. As for development of vaccine candidate against TiLV, the entire S4 and S8 segments of TiLV that were codon-optimized for expression in insect cells were recuperated from pFastBac-S4 and pFastBac-S8. They were subsequently ligated into pMV2 transfer vector and were homologously recombined with extended host-range ABM-Bac-eIF4E baculovirus genome developed in the laboratory. Recombinant ABM-Bac-eIF4E-S4-His and ABM-Bac-eIF4E-S8-HA baculoviruses were purified and were used to infect early 4th instar larvae of *T. ni* for protein production. Western blotting was used to detect the recombinantly expressed proteins. *Trichoplusia ni* larvae were observed to be susceptible to infection with recombinant ABM-eIF4E-S4-His and ABM-eIF4E-S8-HA. Taken together, presence of TiLV in the Philippines was confirmed and ABM-Bac-eIF4E baculovirus-infected *T. ni* larvae is a viable biofactory and cheaper alternative for the recombinant expression of protein subunits that can be utilized in the development of oral prophylactic vaccine for fish infections such as TiLV disease.

Assessing the potential of microalgae isolated from freshwater bodies in Luzon for phosphorus bioremediation

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Bioremediation is an emerging technique in reducing pollution. It is a natural and efficient process that eliminates the harmful effects of heavy metal contamination in the environment. Microalgae is among the organisms used and studied for research bioremediation techniques. In this project, previously collected and identified microalgal samples from Angono Lake, Laguna Lake, and Marikina River were explored for their potential in reducing amounts of phosphorus in synthetic wastewater. Morphological and molecular identification methods were performed to accurately identify the isolates. The 18S rRNA was sequenced and BLAST results of microalgae sequences showed high percentage similarities that indicate the species to be *Chlorella sorokiniana* (99.22%), *Actinastrum hantzschii* (98.15%) and *Tetradescmus obliquus* (97.4%). Excessive presence of phosphorus may indicate eutrophication in water bodies which is considered as a significant environmental concern. Bioremediation is an important technology that is a cost-effective and environmentally safe way of reducing contaminants in water. Lastly, the results of this project will serve as baseline in developing an efficient way of utilizing microalgae.

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COMPETING POSTER PAPERS

Realizing livelihood sustainability and enhancing freshwater production through seed stock provision to fish farmer

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The decline in total fish production in Western Visayas has been primarily attributed to decreased production volumes from the marine and inland municipal fisheries sectors. To address this issue, a project was initiated to promote fish culture technology and enhance aquaculture production of high-quality freshwater fry and fingerlings in the region, including Davao del Sur. As part of this project, hatcheries in Iloilo, Guimaras, Negros Occidental, and Davao del Sur were upgraded, leading to the production of 1,314,438 fry, comprising 65,000 mudfish, 689,438 catfish, and 560,000 tilapia seed stocks. Subsequently, 892,535 fingerlings - 27,000 mudfish, 499,835 catfish, and 365,700 tilapia - were distributed to beneficiaries. The provision of seed stocks to farmers resulted in lower production costs and increased income for the local fisherfolks. Moreover, the project provided valuable hands-on training to 161 participants from different fish farmer associations in Iloilo, Guimaras, Negros Occidental and Davao del Sur. The results of the project demonstrated that these interventions were highly effective in enhancing the capacity development in the field of freshwater fish culture. Consequently, it is strongly recommended to replicate such projects to improve freshwater aquaculture.

NON-COMPETING POSTER PAPERS

Electron beam-irradiated Tilapia skin as a potential wound dressing materials

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Tilapia is commonly farmed for its meat, while the fish skin is typically discarded as a by-product, which contributes to environmental waste. The use of tilapia fish skin as a material for wound dressings has been the subject of recent research. In Brazil, doctors have utilized tilapia skin as a xenograft wound dressing for victims with burn medical wounds, showing a promising potential of these by-products for biomedical applications. This study compares native and processed tilapia fish skins as potential wound dressings, with varying processing methods: one group is processed with a very minimal distilled water-saline solution-distilled water soaking method; while the other group is processed with a sequence of soaking in warm water, acetic acid, isopropyl alcohol, and a glycerol-saline solution prior to drying it in an oven. Wound dressings from both processing methods were subjected to a final step of electron beam irradiation for sterilization. A comparative analysis was conducted to assess the differences in chemical, thermal, mechanical, and surface properties of the wound dressings. Bioburden assays were conducted to assess sterility of the materials as wound dressings. This research highlights the potential of utilizing by-products that are typically discarded for healthcare applications.

Exploring mental health issues among rice farmers in the Philippines in relation to climate change impacts

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In the developing countries of Asia, mental health concerns among farmers in relation to climate change impacts is an uncharted research territory. This paper aims to explore the mental health concerns of rice farmers in relation to climate change impacts and recommend strategies to assist them. This study was conducted in Bulakan and Calumpit in Bulacan province in the Philippines. These two towns are heavily affected by climate change impacts. Interviews with rice farmers, key informants, and other government institutions were conducted. The biopsychosocial-spiritual model of mental health guided the analysis of this study. The results show that while farmers hardly attribute their experiences of natural disasters to climate change, their description of what they are going through fits well with the global understanding of climate change impacts. Three themes emerged in relation to farmers' coping mechanisms to climate change impacts: evasion, keeping a positive mindset, and relying on social support. It appears that challenges in adapting to climate change impact cause farmers to suffer from mental health issues such as worry, fear, sadness, and poor sleep quality. In dealing with the mental health issues of rice farmers, systemic and holistic approach is necessary. This research joins the cohort of studies establishing links between climate change impacts and mental health issues.

Exploring the potential of bagalunga (*Melia azedarach* L.) as a sustainable alternative to exotic plantation species

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The potential use of Bagalunga (*Melia azedarach* L.) was assessed based on its physical and mechanical properties. Tests were conducted following ASTM D143-2019, using samples from Sariaya and Unisan in Quezon Province. Results showed that trees from Unisan had 13.48% higher green moisture content (MC) and 14.24% higher basic relative density (RD) than those from Sariaya. However, their tangential (TS), radial (RS), longitudinal (LS), and volumetric shrinkage (VS) were 12.21%, 4.42%, 28.94%, and 7.83% lower, respectively. The RD of *M. azedarach* was similar to *Gmelina arborea* and *Acacia mangium*, and higher than *Falcataria falcata*. In terms of VS, it was comparable or higher than other species with medium to low shrinkage. Strength tests showed that trees from Unisan had higher strength than those from Sariaya, although both were classified as medium strength—comparable to *Swietenia macrophylla*, *G. arborea*, and *A. mangium*, and stronger than *Eucalyptus deglupta*, *Hevea brasiliensis*, and *F. falcata*. Axial height influenced MC, RD, LS, and VS, with minimal variation in mechanical properties. The bending performance of *M. azedarach* was fair in solid wood and very good in laminated wood. Furniture made from this wood passed all tests under ISO 7173-1989. The species exhibited good to excellent machining properties, and polyurethane and PU-non grain raising (NGR) were the recommended finishes. For veneering, *M. azedarach* was rated in appearance class E due to its distinctive growth rings. Its plywood density of 430 kg/m³ makes it suitable for structural products, with plywood classified as Class I using urea formaldehyde and Class II/III using phenol-formaldehyde. Overall, it met the standards of ISO 12466-2:2007 for plywood.

Expression analysis of OsSWEET14 in bacterial leaf blight-resistant msl 40 and msl 37 mutant rice lines through RT-PCR

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Deployment of disease-resistant cultivars remains to be the best method to combat rice BLB. However, due to climate change and pressure on the pathogen population caused by large-scale and long-term cultivation, earlier deployed resistant cultivars have now succumbed to the disease. In this regard, PhilRice used induced mutation using gamma ray as a tool to produce new alleles for resistance against BLB, producing promising sister lines, MSL 40 and MSL 37. Gene sequencing revealed that a 2-bp insertion was found in the promoter region of the OsSWEET14 gene. To investigate the functional impact of this mutation on OsSWEET14 expression, reverse transcription-polymerase chain reaction (RT-PCR) was conducted. When challenged with the bacterial pathogen *Xanthomonas oryzae* pv. *oryzae* (Xoo) strains PXO 86 or PXO 61, the wild-type OsSWEET14 gene exhibited a significant upregulation, as evidenced by increased band intensity. Conversely, no such upregulation was observed in the mutant lines. This suggests that the TAL effectors secreted by Xoo, which typically induce the expression of OsSWEET14 in susceptible varieties, are unable to recognize or interact with the mutated promoter region. This observation suggests that the observed resistance exhibited by the mutant lines can be attributed to the disruption of the TAL-mediated upregulation of OsSWEET14 gene. These findings underscore the potential of induced mutagenesis for developing novel rice cultivars with enhanced resistance to BLB.

Molecular detection of extended-spectrum beta-lactamase (ESBL) genes in *Escherichia coli* isolated from vegetables in selected urban farms and wet markets in Metro Manila, Philippines

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Beta-lactam antibiotics are among the most widely used antibiotics. However, some enterobacteria such as certain strains of *Escherichia coli*, produce extended-spectrum beta-lactamases (ESBL), which the efficacy of beta-lactam antibiotic treatment, posing significant health threat. This study aims to detect ESBL genes in *E. coli* isolated from raw vegetables from selected urban gardens and wet markets in Metro Manila, using in-house designed primers for polymerase chain reaction (PCR). The primer pairs for three ESBL genes blaCTX-M, blaTEM, and blaSHV, designed in this study successfully amplified the desired amplicon sizes, demonstrating potential utility in PCR-based detection of ESBL genes in *E. coli* isolates. Overall, out of the total 419 vegetables collected, 70 were contaminated with *E. coli*, with the prevalence of ESBL genes at 5.71%. The results of the study may be used to improve the current detection methods of ESBL producing bacteria thereby contributing to the current knowledge on antimicrobial resistance in food-borne pathogens.

Optimization of endogenous internal control for qPCR assays using poultry samples

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Avian viruses, such as avian influenza, retroviruses, and adenoviruses, are a major concern of the poultry industry. Quantitative real-time polymerase chain reaction (qPCR) is a fast and reliable method of detecting and quantifying these viruses. Extraction of poultry and viral DNA/RNA are commonly done simultaneously, which is why there is a need to develop an endogenous internal control (EIC) to validate the success of the extraction. In this study, we developed primers and Taqman-based probe targeting the hydroxymethylbilane synthase (HMBS) gene based on the avian reference sequences available at the National Center for Biotechnology Information (NCBI) database. These primers and probe set have successfully amplified samples from market-bought chicken organs, such as liver and gizzard. These primers were also tested against market-bought porcine muscle tissue and had negative results. This study has shown the effectivity of these primers to amplify various chicken tissues, as well as its specificity to poultry samples. Future studies should aim to optimally multiplex these primers together with viral detection primers to expedite the validation and quantification process.

Understanding family farming in the Philippine context

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There is an underrepresentation of voices from Asia in the global family farming discourse. To respond to this gap, this paper seeks to understand family farming in the Philippines to provide a more nuanced and context-specific insights especially in light of diversity of societal challenges and overall farming environments. The Food Systems Approach guided the analysis of this paper. We advance that family farming in the Philippines could be understood by looking at the drivers that enable or constrain its productivity. We advance the concept of 'love' as an important element that relates to family farming. We explore 'love' as it relates to cooperation and succession along with its theoretical and pragmatic implications with respect to family farming debates. In terms of policies, we found that there exist many challenges and opportunities for family farmers; farmers unequally benefit from interventions; and that many of them are unaware of their entitlements.

Understanding the uptake of NSIC Rc160

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This study explored the uptake pathway of NSIC Rc160, a PhilRice-bred rice variety. NSIC Rc160 is known for its excellent eating quality and its popularity across the Philippines. The study employs innovation mapping in pursuing the inquiry. Stakeholders were invited and the initial findings using the innovation mapping tool was expanded upon through key informant interviews and focus group discussions in nine provinces in the Philippines: Nueva Ecija, Pangasinan, Tarlac, Bulacan, Samar, Leyte, Davao del Sur, Agusan del Sur, and Surigao del Sur, through criterion, snowball, and purposive sampling. The study finds that the variety was indeed successful in terms of how it spread across the country and the level of acceptance by various stakeholders. The extent of its success, however, is stifled by the weaknesses in the innovations system brought about by the competing and conflicting goals of its actors. The study brings insights on these conflicts in the innovations system that if resolved could benefit the future innovations that will be supported by this

Unpacking the climate change adaptation 'toolbox' of rice communities in Central Luzon

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Agriculture is among the sectors that will severely suffer from the impacts of climate change. Hence, it is imperative that climate change adaptation mechanisms are in place to ensure that food production will not be compromised in the future. This study looks into the climate-adaptive mechanisms available in the rice communities of Central Luzon in the Philippines. This region produces a significant volume of rice, with Nueva Ecija, one of its provinces, as the top rice-producing province of the country. Multiple methods including desk review and focus group discussions were employed in responding to the research questions set forth in this study. It was found that while there are mechanisms, especially technologies, available for farmers, these mechanisms are inadequately deployed. There is a chasm in technology deployment that prevents farmers from optimizing the benefits from these technologies to help them adapt to the impacts of climate change. Rehabilitation efforts and the social dimension of climate change are also inadequately addressed by the climate-adaptive mechanisms in place.

What are the aspirations of the Filipino rice farmers?

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This study aims to understand Filipino rice farmers' aspirations, both farming and non-farming-related. Aspirations are indicative of the directions that farmers want to take. Understanding aspirations can help the government and interested third-party entities to provide impactful initiatives to farmers. There's a dearth of studies looking at the aspirations of Filipino rice farmers in recent years. The Role Identity Theory guided our analysis in this study. This study is predominantly qualitative, with focus group discussion as the main method of collecting data. The research sites were Kalinga, Nueva Ecija, Laguna, Quezon, Northern Samar, Zamboanga del Sur, Sultan Kudarat, and Agusan del Norte. Among the farming-related aspirations relate to property, fair price, infrastructure, government support, and good governance. The non-farming related aspirations relate to infrastructure development; progress; government support and governance; love, passion, peace, and unity; wellness and long life.

Rapid spread of banana 'bugtok' disease in Luzon and validation of integrated management approaches

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"Bugtok", caused by *Ralstonia solanacearum* species complex, is one of the most significant and destructive diseases of cooking bananas. Infected fruits exhibit pulp discoloration and hardening of the fruit flesh, even upon ripening. Affected fruits often become inedible, causing approximately 60% of harvest losses. Disease spread is mainly due to thrips and other foraging insects. It has been reported to be widely present in the Mindanao and Visayas regions but was previously considered absent in Luzon based on official reports. However, recent reports of 'Bugtok' disease symptoms in Palawan have challenged this assumption. This prompted an effort to validate disease presence in Luzon and to evaluate various intervention practices. Pathogen isolation was done from 'bugtok'-infected fruits collected from different provinces in Luzon. Molecular analyses of the partial regions of the endoglucanase (*egl*) and the DNA mismatch repair (*mutS*) genes confirmed the pathogen as *Ralstonia solanacearum* Phylotype II and is present in Palawan, Cavite and Laguna Provinces. In addition, 'Bugtok' isolates were genetically distinct from other *R. solanacearum* isolates

Nursery rearing of spiny lobster (*Panulirus ornatus*) in marine floating cage to assess its growth and survival

Jennifer A. Poniente^{1*}, Francisco F. Santos¹, Karen D. Candilosas², Mary Nia M. Santos¹, Jayson G. Candones¹, Joseph Christopher C. Rayos¹, Lilian C. Garcia¹

¹National Fisheries Research and Development Institute
Corporate 101 Bldg. Mother Ignacia Avenue, South Triangle,
Quezon City 1103 Philippines

²Bureau of Fisheries and Aquatic Resources – National Mariculture Center
Coastal Road, Brgy. Cagangohan Panabo City, Davao Del Norte

In some areas of the Philippines, particularly Surigao, Zamboanga, and Davao Oriental, many lobster species are prevalent. There is however, a widespread lack of cost-effective hatchery and nursery technology for lobsters. Most of the spiny lobster production comes from wild fisheries while aquaculture production accounts for only a small portion of the total production. This study investigates the feasibility of nursery culture of lobster in 1 m x 1 m x 1 m marine floating cages in Panabo Mariculture Park in Davao del Norte, Philippines. Two stocking densities were tested in a Complete Randomized Block Design (CRBD) – 80 and 130 per m³ and the growth and survival rate of juvenile spiny lobsters after 120 days of culture were evaluated in three independent experiments. The results showed that growth and survival rates correlated positively with stocking density. Lobster cultured at a stocking density of 80 per m³ showed significantly higher growth (15.18 g, 24.98 mm) and survival rates (35%) than those cultured at a high stocking density of 130 per m³ (11.39 g, 23.03 mm, 30%). The data collected in this pioneering study will be useful to refine and further develop nursery culture technology for spiny lobsters in the Philippines.

AWARDEES

Appreciation for Retired Career Scientists

in recognition of significant contributions towards the advancement of Science and Technology in the Philippines. Their outstanding accomplishments as Career Scientists of the Scientific Career System (SCS) helped address the pressing challenges in their fields of expertise.

LUCILLE V. ABAD, Ph.D.

Career Scientist III
Philippine Nuclear Research Institute -
Department of Science and Technology

EVELYN F. DELFIN, Ph.D.

Career Scientist I
Institute of Plant Breeding
College of Agriculture and Food Science
University of the Philippines Los Baños

NELLY S. AGGANGAN, Ph.D.

Career Scientist II
National Institute of Molecular Biology and
Biotechnology -
University of the Philippines Los Baños

FE ESPERANZA CARIDAD J. ESPINO, MD, Ph.D.

Career Scientist I
Research Institute for Tropical Medicine
Department of Health

IMELDA ANGELES-AGDEPPA, Ph.D.

Career Scientist IV
Food and Nutrition Research Institute-
Department of Science and Technology

MICHAEL A. GRAGASIN, Ph.D.

Career Scientist I
Philippine Center for Postharvest
Development and Mechanization-
Department of Agriculture

RICARDO F. ORGE, Ph.D.

Career Scientist III
Philippine Rice Research Institute -
Department of Agriculture

Appreciation for Past Scientific Career Council Chair

ATTY. KARLO A. B. NOGRALES

Scientific Career Council Chair (2022-2024)

in recognition of his dedicated service to the Scientific Career Council (SCC) as Chair from 2022 to 2024. His leadership was instrumental toward the efficient and effective performance of the Scientific Career System (SCS).

AWARDEES

SCS-PACS Service and Institutional Awards

LOLITA M. DOLORES, MSc

for her outstanding service and sustained excellent job performance relative to SCS and PACS. As treasurer of PACS since 2017 (up to present) - prepares PACS financial reports, bank resolutions for PACS bank accounts, and PACS' budget proposal and income generating activity including sponsorship packages for PACS annual meetings and symposium; collects annual dues and other financial obligations for PACS' activities, files PACS' annual ITR and SEC registration.

Philippine Rice Research Institute (PhilRice)

for its long tradition of supporting researchers for conferment under the Scientific Career System (SCS) that has put and continuously improved its enabling environments for its researchers to perform well in their respective R and D works, become more productive and consequently, qualify for conferment and/upgrading of ranks. Through the years, PhilRice has so far produced 22 Career Scientists and continuously supported their upgrading of ranks.

2023–2024 Awards Received by Career Scientists

MARCELA M. NAVASERO, MSc Career Scientist II

2024 Presidential Lingkod Bayan Award given by the Civil Service Commission (CSC) for her exemplary contributions to agricultural science, particularly in pest management and crop protection, significantly impacting the country's agricultural productivity.

MERDELYN T. CAASI-LIT, Ph.D. Career Scientist II

Eduardo A. Quisumbing Medal for Basic Research (Outstanding Research and Development Award) given by Department of Science and Technology (DOST) during the National Science and Technology Week (NSTW) in recognition of her outstanding scientific research titled, "Host resistance of corn to major insects pests (Asian Corn Borer, *Ostrinia furnacalis*, and Fall Armyworm, *Spodoptera frugiperda*) and other relayed basic entomological studies" that helps in providing farmers with resistant corn and in prolonging the useful life of modern insect-protected maize. These varieties serve as the farmer's first line of defense against pests, reducing damage and chemical inputs, increasing harvest and eventually farm income, in a healthier, cleaner, and biodiverse environment.

AWARDEES

PIERANGELI G. VITAL, Ph.D.

Career Scientist II

Gabay Award (Division of Biological Sciences) given by the National Research Council of the Philippines (NRCP) in recognition of her outstanding contribution to improving microbial food safety that promotes inclusive and sustainable development through the creation and adoption of several Philippine National Standards, particularly "Application of general principles of food hygiene to the control of foodborne parasites" which supports and strengthens Republic Act 10611 (Food Safety Act of 2013). She represented the academe and research institutions in the Technical Working Group of the Department of Agriculture - Bureau of Agriculture and Fisheries Standards. Her expertise in microbiology resulted in the completion of the Standard - the primary purpose of which is to provide science-based guidance on preventing, reducing, inactivating, and controlling foodborne parasite hazards that present public health risk.

ROSALINDA C. TORRES, Ph.D.

Retired Career Scientist I

Outstanding Professional of the Year Award in Chemistry given by Professional Regulation Commission (PRC) for her distinguished contribution and professional competence of the highest degree in the field of Natural Products and Organic Chemistry. Her exemplar service in her profession as Chemist of DOST-Industrial Technology Development Institute shows her commitment and professionalism in her field. Her competence, excellence, and commendable track record have earned her various awards and recognition which significantly contributed to the advancement of science and technology and addressed the pressing challenges of the chemistry profession. Her relentless dedication to the professional organizations is a testament of her outstanding career and meaningful contribution in socio-related activities.

ANGEL T. BAUTISTA VII, Ph.D.

Career Scientist I

2023 Civil Service Commission (CSC) Pag-Asa Award under the Honor Awards Program (HAP) - Search for Outstanding Government Workers given by the CSC for creating a standardized test to authenticate honey producers and products to ensure consumers purchase genuine, unadulterated honey. The DOST PNRI Honey Team established the nation's sole testing laboratory for stable isotope testing, a method used to determine honey authenticity. This initiative has led to an ongoing national campaign offering free authenticity testing for honey, which has already received 109 samples from all across the country.

ANGEL T. BAUTISTA VII, Ph.D.

Career Scientist I

Gabay Award given by the National Research Council of the Philippines (NRCP) in recognition of his outstanding research and contribution to ensuring the authenticity and traceability of honey in the Philippines through stable isotope analysis, which has led to the 2022 revision of the "Philippine National Standard for Honey - Product Standard - Specifications" and adopted technologies on "Tools for Determining Geographical and Bee Species Origins of Philippine Honey."

AWARDEES

NORVIE L. MANIGBAS, Ph.D.

Career Scientist III

Outstanding Book Award given by National Academy of Science and Technology (NAST) during the 46th Annual Scientific Meeting (ASM) for book titled "Rice Breeding Operations Manual of the Philippine Rice Research Institute" which is an operations manual is an indispensable guide for the R&D workers who aspire for excellence in performing their tasks with improved accuracy, consistency, and effectiveness. This highly specialized manual on the rice breeding operations at PhilRice is a welcome material to support the continuous improvement agenda to remain responsive to the needs of the general public. The manual also discusses new methods used in increasing genetic variability that are applied in the breeding program and have been successful in releasing high-yielding varieties.

FE M. DELA CUEVA, Ph.D.

Career Scientist II

Outstanding Scientific Paper Award given by National Academy of Science and Technology (NAST) during the 46th Annual Scientific Meeting (ASM) for paper entitled "Gamma Radiation and in vitro induced banana bunchy top virus (BBTV) resistant mutant lines of banana cv 'Lakatan'(Musa sp., AA)".

OLIVIA P. DAMASCO, Ph.D.

Retired Career Scientist I

Outstanding Scientific Paper Award given by National Academy of Science and Technology (NAST) during the 46th Annual Scientific Meeting (ASM) for paper entitled "Gamma Radiation and in vitro induced banana bunchy top virus (BBTV) resistant mutant lines of banana cv 'Lakatan'(Musa sp., AA)".

EVELYN C. AME, Ph.D.

Career Scientist I

2024 Achievement Award during the 2024 Regional Science, Technology, and Innovation Week (RSTW) for her exemplary scientific contributions. Her dedication to scientific research and innovation has significantly advanced the region's capabilities and her leadership has inspired the next generation of researchers.

EUFROCINA P. ATABAY, Ph.D.

Career Scientist II

LEADS Agri Award For Agricultural Research during the 73rd Philippine Association for the Advancement of Science and Technology (PhilAAST) Annual Convention for her expertise in animal reproductive biotechnology, specializing in cryobiology and cryopreservation, and whose innovative ideas lead to the crafting of a comprehensive blueprint for an intensified reproductive management program for buffaloes and the development of the national genetic improvement program for buffalo and cattle in the Philippines.

AWARDEES

CHARITO TRANQUILAN-ARANILLA, Ph.D.

Career Scientist I

- Silver Medal for Hemostat Technology
- Bronze Medal for Super Water Absorbent Technology
- Special Award for Super Water Absorbent Technology from King Khalid University - Center for Innovation and Entrepreneurship

Given by International Federation of Inventors Association during the 49th Geneva International Exhibition of Inventions at Switzerland in recognition of her significant contributions to the advancement and promotion of Radiation Technology. Her dedication to research on radiation-engineered natural polymeric materials contributed to the development of hemostat and super water absorbent gel technologies.

FERNANDO B. AURIGUE, MSc

Retired Career Scientist I

Bronze Award for the DOST-PNRI Super Water Absorbent Technology during the 49th International Exhibition of Inventions Geneva at Geneva, Switzerland as Team Member, for the successful research and development of biodegradable, non-toxic super water absorbent gel from cassava starch and acrylic acid that absorbs water 500 times its dry weight. The technology is designed for agriculture to conserve water, enhance plant growth and drought tolerance, and support the environment especially during water shortage or El Niño.

ELMER G. BAUTISTA, Ph.D.

Career Scientist I

Outstanding Achievement Award given by Central Luzon State University (CLSU) for his outstanding contribution in farm mechanization. He has developed useful machines such as the riding attachment for handtractor, multipurpose seeder for rice, corn, and mungbean.

CASIANO H. CHORESCA, Jr., Ph.D.

Career Scientist I

Outstanding Alumni Award given by the Iloilo State University of Fisheries Science and Technology (ISUFST) for his outstanding accomplishment in his chosen field of endeavor that made an impact not only in Iloilo but also to the country and brought honor, glory, and prestige to the university.

PEREGRINO G. DURAN., Ph.D.

Career Scientist I

2024 Philippine Society of Animal Science - Compania J. M. Inc. Distinguished Researcher in Animal Science Award for his contributions to the field of animal science, particularly in the field of water buffalo research in reproduction and breeding. His research endeavors have not only enhanced the scientific understanding of livestock production but also translated into practical solutions that benefit farmers and contribute to the growth of the industry.

AWARDEES

DANILDA D. HUFANA-DURAN, Ph.D.

Career Scientist II

2024 Professional Achievement Award: Pursuit of Excellence Category given by Central Luzon State University Kappa Epsilon Alumni Association for her remarkable professional achievements in the field of animal science. Her numerous accolades underscore her tireless contributions to scientific innovation and development. Her award is a testament to her relentless pursuit of excellence.

JUANITO P. JIMENEZ, Jr., Ph.D.

Career Scientist I

2023 DPGAA William D. Dar Research & Development Award in appreciation and recognition of his exceptional leadership and innovative contributions in the field of forest utilization. As a forest product engineer, Dr. Jimenez's expertise is focused on wood and non-wood products research and development including wood and bamboo drying, thermal modification treatments, development of bio-based composite panels such as plywood, particle board, engineered bamboo and natural fiber-reinforced thermoplastics.

LEILA D. LANDICHO, Ph.D.

Career Scientist I

2023 Outstanding Extension Project given by the Philippine Extension and Advisory Services Network during the PhilEAsNet Symposium for her significant contribution to extension science, technology generation, and its substantial impact to the community at a low cost of intervention.

EUFROCINO D. MARFORI, Ph.D.

Career Scientist I

World Invent Singapore Silver Medal as the inventor of WiltCure biopesticide given by the organizing committee of WorldInvent Singapore in recognition of his patented invention presents an innovative solution to problems confronting food production and security, a essential solution that is in harmony with nature. His innovation reminds us that scientific excellence, guided by moral and social responsibility, holds the key to a future where global problems can be solved without compromising the health of humans and our environment.

ANDRES M. TUATES, Jr., Ph.D.

Career Scientist I

Distinction Award 2024 given by the Philippine Federation of Professional Association (PFFPA) in recognition of his outstanding achievement, dedication, commitment, hard work, sincerity and selflessness, thereby bringing the agricultural and biosystems engineering profession to a higher level through his accomplishments in research and development while performing his job as an agricultural and biosystems engineer.

AWARDEES

PIERANGELI G. VITAL, Ph.D.

Career Scientist II

Sakura Science Program Grant Award given by Japan-Asia Youth Exchange Program in Science, Japan Science and Technology Agency and Kyushu Institute of Technology as a talented foreign science and technology human resources for short term visit to Japan.

PIERANGELI G. VITAL, Ph.D.

Career Scientist II

Achievement Award given by Quezon City Science High School (QCSHS GAD) for her unwavering support, dedication and expertise provided to the Quezon City Science High School's Gender and Development (Bunser Burner: Empowering Kisay Women in STEM).

PIERANGELI G. VITAL, Ph.D.

Career Scientist II

International Publication Awards given by the University of the Philippines System for her papers published in international, peer-reviewed, and Scopus- or WOS-indexed journals.

PIERANGELI G. VITAL, Ph.D.

Career Scientist II

Fellow (highest rank) by the Philippine Academy of Microbiology, Inc. She is the conferred youngest Fellow of the Academy; selected based on rigorous standards of education, field of expertise, and unwavering discipline in microbiology.

CONSTANCIO A. ASIS, Ph.D.

Retired Career Scientist I

Outstanding Viscan Award under the Science, Technology, and Innovation Category in recognition of his outstanding contribution to Science, Technology, and Innovation. His research on the interaction mechanisms of nitrogen - fixing bacteria in leguminous and non-leguminous crops has significantly increased the plant's ability to use nitrogen from the atmosphere, thereby decreasing reliance on chemical fertilizer; and his pioneering research in using the leaf color chart (LCC) for rice contributed to the promotion of sustainable nitrogen management to maximize productivity.

EDWIN C. ATABAY, Ph.D.

Career Scientist I

Citation Award given by Department of Agriculture-Bureau of Agricultural Research (DA-BAR) National Research Symposium as one of the Top Qualifying Papers under the Technology Generation Category for the paper titled "The efficiencies and applications of timed artificial insemination technologies for genetic improvement and intensified calf production in dairy buffaloes".

AWARDEES

EUFROCINA P. ATABAY, Ph.D.

Career Scientist I

Citation Award given by Department of Agriculture-Bureau of Agricultural Research (DA-BAR) National Research Symposium as one of the Top Qualifying Papers under the Technology Generation Category for the paper titled "The efficiencies and applications of timed artificial insemination technologies for genetic improvement and intensified calf production in dairy buffaloes".

OLIVIA P. DAMASCO, Ph.D.

Retired Career Scientist I

UPLB Outstanding Research Team Member in recognition for the research team's outstanding contributions in advancing the knowledge in the field of genetic improvement and disease management, which propelled the institution in the forefront of banana research and innovation. Through their collective efforts, the team has consistently produced research of the highest caliber, publishing impactful scientific articles and addressing pressing concerns in the local banana industry. Their contributions have significantly enriched the institution's reputation and elevated its standing in the global scientific community.

FE M. DELA CUEVA, Ph.D.

Career Scientist II

UPLB Outstanding Research Team Member in recognition for the research team's outstanding contributions in advancing the knowledge in the field of genetic improvement and disease management, which propelled the institution in the forefront of banana research and innovation. Through their collective efforts, the team has consistently produced research of the highest caliber, publishing impactful scientific articles and addressing pressing concerns in the local banana industry. Their contributions have significantly enriched the institution's reputation and elevated its standing in the global scientific community.

DINDO KING M. DONAYRE, MSc

Career Scientist I

Outstanding Viscan Award under the Science, Technology, and Innovation Category.

ESTER B. FLORES, Ph.D.

Career Scientist I

Citation Award given by Department of Agriculture-Bureau of Agricultural Research (DA-BAR) National Research Symposium as one of the Top Qualifying Papers in Technology Generation Category for the paper titled "The efficiencies and applications of timed artificial insemination technologies for genetic improvement and intensified calf production in dairy buffaloes"

AWARDEES

JAIME A. MANALO IV, Ph.D.

Career Scientist II

Outstanding Alumnus Award - Pursuit of Excellence category given by Canaman Central School, Canaman, Camarines Sur.

EDWIN C. MARTIN, MSc

Career Scientist I

Outstanding Alumnus given by Central Luzon State University Alumni Association, Inc. (CLSUAAl) in recognition of his scientific contribution to the field of Weed Science as a Career Scientist of the Philippine Rice Research Institute (PhilRice). His contributions to the scientific community led to the development of weed control management strategies for wet direct seeded rice, upland rainfed ecosystems, and rice-based cropping systems.

ULYSSES M. MONTOJO, Ph.D.

Career Scientist I

Citation Awards given by Department of Agriculture-Bureau of Agricultural Research (DA-BAR) National Research Symposium for the research papers:

- "Demographic patterns and socio-economic drivers of salt production in the Philippines"
- "From shore to shelves: Technology verification and refinement for the production of a market ready smoked fish in Romblon".

ERLINDA G. NARET, Ph.D.

Retired Career Scientist I

2024 Top Ten Outstanding Ilonggos of Iloilo City (TOIIC) given during the City's 87th Charter Anniversary. She was recognized for her achievements in Aquaculture and Fisheries.

ERLINDA G. NARET, Ph.D.

Retired Career Scientist I

Top 1 Highest Investor of the UPV Employees Cooperative during its General Assembly.

REYNANTE L. ORDONIO, Ph.D.

Career Scientist I

Loyaltee Awardee for 10 years of dedicated service to DA-PhilRice.

JAIME A. MANALO IV, Ph.D.

Career Scientist II

Loyaltee Awardee for 15 years of dedicated service to DA-PhilRice.

AWARDEES

RICARDO F. ORGE, Ph.D.

Retired Career Scientist II

Outstanding Viscan Award under the Science, Technology, and Innovation Category in recognition of the technologies he developed, which helped provide farmers with added income, opportunities, and coped with the negative effects of climate change.

RODNEY H. PEREZ, Ph.D.

Career Scientist I

Outstanding Viscan Award under the Science Technology and Innovation Category. His research on food microbiology and biotechnology particularly on the understanding of the biosynthesis and mode of action of food-grade antimicrobial peptides known as bacteriocins has helped advance understanding of how these compounds work thus paving the way for their applications across industries.

ACD. ROEL R. SURALTA, Ph.D.

Career Scientist III

Outstanding Viscan Award under the Environmental Stewardship and Sustainability category in recognition of his outstanding achievements in his field of expertise.

RIZA G. ABILGOS-RAMOS, Ph.D.

Career Scientist I

1st Place (Health and Nutrition category) during the 27th Federation of Plant Science Associations of the Philippines (FPSAP) Scientific Conference in recognition of their work on the upcycling, or the creative reuse of lees, a by-product of rice wine processing. Aside from transforming lees into a nutrient-enhancing ingredient to popular foods, such as dried noodles, their work increases the value of rice wine manufacture and reduces the wastes generated from the process.

EUROCINA P. ATABAY, Ph.D.

Career Scientist I

1st Place for the poster titled "The birth of Pag-Asa through multiple ovulation and embryo transfer technology for the multiplication of calves for dairy".

ESTER B. FLORES, Ph.D.

Career Scientist I

1st Place Poster for poster titled "The birth of Pag-Asa through multiple ovulation and embryo transfer technology for the multiplication of calves for dairy".

AWARDEES

LENY C. GALVEZ, Ph.D.

Career Scientist I

Silver Award, Best Paper during the 2024 National Research Symposium in recognition of her outstanding contribution to the advancement of detection techniques for abaca viruses in support to sustainable farming and enhanced economic viability of small-scale abaca farmers. Her dedication to develop detection kits specifically designed for on-site use, making them accessible and practical for abaca and banana farmers. Her goal is to empower farmers with accessible tools for effective crop monitoring, enabling informed decision-making and improved agricultural practices.

LENY C. GALVEZ, Ph.D.

Career Scientist I

Silver Award, Best Poster during the 2024 National Research Symposium in recognition of her outstanding contribution to the advancement of detection techniques for abaca viruses in support to sustainable farming and enhanced economic viability of small-scale abaca farmers. Her dedication to develop detection kits specifically designed for on-site use, making them accessible and practical for abaca and banana farmers. Her goal is to empower farmers with accessible tools for effective crop monitoring, enabling informed decision-making and improved agricultural practices.

LENY C. GALVEZ, Ph.D.

Career Scientist I

1st Place, Best Paper during the 56th 2024 Pest Management Council of The Philippines Annual Scientific Conference (PMCP) in recognition of her outstanding contribution to the advancement of detection techniques for abaca viruses. Her research on plant pathology and biotechnology, particularly in understanding the nature, mechanisms, and detection of viral diseases in abaca, has significantly contributed to the abaca industry's efforts to combat the spread and impact of these viral threats.

ROSALY V. MANAOIS, MSc

Career Scientist I

1st Place (Postharvest category) during the 27th Federation of Plant Science Associations of the Philippines (FPSAP) Scientific Conference in recognition for their contribution on providing information on the glycemic indices of commonly planted rice varieties that are currently readily available to consumers. With this work, they aim to aid consumers on the effective prevention and management of diabetes and breeders and researchers on the development of healthier rice varieties.

ROSALY V. MANAOIS, MSc

Career Scientist I

1st Place, Best Poster Competition (Health and Nutrition category) during the 27th Federation of Plant Science Associations of the Philippines (FPSAP) Scientific Conference in recognition for their work on the upcycling, or the creative reuse of lees, a by-product of rice wine processing. Aside from transforming lees into a nutrient enhancing ingredient to popular foods, such as dried noodles, their work increases the value of rice wine manufacture and reduces the wastes generated from the process.

AWARDEES

JAYVEE A. CRUZ-KITMA, Ph.D.

Career Scientist I

24 DA-BAR NRS Best R&D Paper (Bronze Award) in recognition of his outstanding contribution to science and technology. The research on the effects of nanofertilizer on the growth and yield, root system development, and soil health has helped advance our understanding on how nanofertilizer can help maximize agricultural productivity and profitability, while also potentially enhance soil health and reduce environmental problems.

JAIME A. MANALO IV, Ph.D.

Career Scientist II

Citation Award during the 2024 DA-BAR National Research Symposium for the paper "Understanding family farming in the Philippine context".

JUANITO P. JIMENEZ, JR., Ph.D.

Career Scientist I

2024 Best Paper (1st Prize) in the 12th World Bamboo Congress given by the World Bamboo Foundation held in Taiwan for his paper "Glue-bond performance of dendrocalamus asper backer using cold-setting and thermosetting adhesives," as this research explored the application of cold-setting and thermosetting adhesives to bond Dendrocalamus asper bamboo strips, offering an innovative and sustainable approach for creating stronger, more durable engineered bamboo products. The work holds immense potential for various industries, including construction, furniture, and other daily-use items, contributing meaningfully to sustainable development.

LOURDES D. TAYLO, Ph.D.

Career Scientist I

2024 Best Paper Award in Entomology given by the Philippine Association of Entomologists, Inc. during the 56th Pest Management Council of the Philippines Anniversary and Annual Convention on June 24-26, 2024, at Aklan, Philippines, for their significant contributions demonstrating the potential benefits of the cultivation of Bt eggplant with Event 'EE-1' in increasing the marketable yield of the Filipino eggplant farmers while protecting the environment.

REYNANTE L. ORDONIO, Ph.D.

Career Scientist I

Best Paper Award for the paper "Stakeholders willing to accept beta-carotene-enriched rice: Findings from the pilot-scale deployment of Malusog rice in the Philippines" given during the joint conference of Crop Science Society of the Philippines-Society for the Advancement of Breeding Researches in Asia and Oceania (CSSP-SABRAO) for their outstanding research contribution and dedication to the advancement of agricultural biotechnology and public health by addressing the pressing issue of Vitamin A deficiency (VAD) in the Philippines through the innovative use of biofortified rice. Their work has provided invaluable insights into the acceptance and potential for deployment of Golden Rice (GR) in targeted communities and serves as an inspiration to researchers and policymakers alike, demonstrating the power of science and innovation to address pressing societal challenges.

AWARDEES

ACD. ROEL R. SURALTA, Ph.D.

Career Scientist III

2024 DA-BAR NRS Best R&D Paper (Bronze Award) in recognition of his outstanding contribution to science and technology. The research on the effects of nanofertilizer on the growth and yield, root system development, and soil health has helped advance our understanding on how nanofertilizer can help maximize agricultural productivity and profitability, while also potentially enhance soil health and reduce environmental problems.

FERNANDO B. AURGIE, MSc

Retired Career Scientist I

Silver Prize Medal for the New Plant Growth Promoter Technology given by the Korean Invention Promotion Association at the Seoul International Invention Fair 2023 for excellent efforts in the research and development of a new plant growth promoter from radiation-modified kappa-carrageenan. The product for agricultural use enhances growth and development of various crops, increases yield, and improves resistance to pests and diseases.

EUFROCINA P. ATABAY, Ph.D.

Career Scientist II

Best Paper Award in Biotechnology given during the 61st Philippine Society of Animal Science Scientific Meeting and Annual Convention for the paper titled "Improved AI efficacy through an ovarian structure-based controlled breeding program in post-partum water buffaloes".

EUFROCINA P. ATABAY, Ph.D.

Career Scientist II

Best Paper Award in Biotechnology given during the 61st Philippine Society of Animal Science Scientific Meeting and Annual Convention for the paper entitled "Improved AI efficacy through an ovarian structure-based controlled breeding program in post-partum water buffaloes".

JESUSA C. BELTRAN, Ph.D.

Career Scientist I

Best Paper Award for the paper titled "Stakeholders willing to accept beta-carotene-enriched rice: findings from the pilot-scale deployment of Malusog Rice in the Philippines" given during the joint conference of Crop Science Society of the Philippines-Society for the Advancement of Breeding Researches in Asia and Oceania (CSSP-SABRAO) for their contribution to the advancement of agricultural biotechnology and public health by addressing the pressing issue of Vitamin A deficiency (VAD) in the Philippines through the innovative use of biofortified rice. Their work has provided invaluable insights into the acceptance and potential for deployment of Golden Rice (GR) in targeted communities and serves as an inspiration to researchers and policymakers alike, demonstrating the power of science and innovation to address pressing societal challenges.

EXECUTIVE SECRETARY'S REPORT

Dir. Luningning E. Samarita-Domingo, CESO III



The SCS held the Oath Taking of the newly conferred and upgraded career scientists on 4 September 2024, at the Luxent Hotel, 51 Timog Avenue, South Triangle, Quezon City. The Scientific Career System (SCS) and the National Academy of Science and Technology hosted the event.

The Civil Service Commission (CSC) and the Department of Science and Technology (DOST), through the SCS under its recognition program, conferred the Scientist rank to 3 new researchers and upgraded the rank of 3 scientists. They are as follows:

Department of Agriculture

- Dr. Norvie L. Manigbas, Scientist III

Department of Health

- Dr. Ferdinand V. Salazar, Scientist I

University of the Philippines

- Dr. Marita S. Pinili, Scientist I
- Ms. Fides Marciana Z. Tambalo, Scientist I
- Dr. Edwin P. Alcantara, Scientist II
- Dr. Pierangeli G. Vital, Scientist II



The 2024 newly conferred and upgraded career scientists with the Scientific Career Council (SCC), agency heads representatives, and emcees (from left): Dr. Juanito T. Batalon, Dr. Marian P. De Leon, Dr. Marita S. Pinili, Dr. Ferdinand V. Salazar, Ms. Fides Marciana Z. Tambalo, Atty. Karlo A. B. Nograles, Dr. Pierangeli G. Vital, Dr. Edwin P. Alcantara, Dr. Norvie L. Manigbas, Ms. Luningning E. Samarita-Domingo, Dr. Roel R. Suralta, and Dr. Alvie A. Astronomo. (Photo by DOST-STII)

The newly conferred and upgraded career scientists were sworn in by the Scientific Career Council (SCC) Chair, Atty. Karlo A. B. Nograles of the CSC. Members of the Council include the Executive Secretary and Director IV of NAST PHL, Ms. Luningning E. Samarita-Domingo.

With this development, the roster of scientists conferred under the System brings the total number to 217 since the System was institutionalized in 1983 by then President Ferdinand E. Marcos.

In 2024, the SCS Secretariat received 12 applications for admission to the system and 6 applications for upgrading. Of the 12 applications for admission, 4 from the Department of Agriculture (DA), four (4) from the Department of Science and Technology (DOST), and 4 from the University of the Philippines System. Of the 6 applications for upgrading, 3 from DA and 3 from UP System.



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DR. ANGEL T. BAUTISTA VII
Secretary



MS. LOLITA M. DOLORES
Treasurer



DR. EVELYN B. GERGON
Auditor



**DR. FE ESPERANZA CARIDAD J.
ESPINO**
Board Member



DR. MERDELYN T. CAASI-LIT
Board Member



DR. NORVIE L. MANIGBAS
Immediate Past President



Philippine Association of
Career Scientists, Inc.

CONSTITUTION AND BY-LAWS

PREAMBLE

We, the Career Scientists of the Philippines, recognizing the need to consolidate and harmonize our expertise and efforts to achieve professional goals and aspirations through the adoption of effective strategies for the advancement and promotion of science and technology in the country, do hereby organize ourselves into the Philippine Association of Career Scientists (PACS), Incorporated, and ordain and promulgate this Constitution and By-Laws.

ARTICLE I: NAME AND OFFICE

Section 1. The Association shall be known as the Philippine Association of Career Scientists, Incorporated, hereinafter, referred to as PACS.

Section 2. The office of the Association shall be c/o Scientific Career Council Secretariat, 3rd Level, Philippine Science Heritage Building, Department of Science and Technology Complex, General Santos Avenue, Bicutan, Taguig City.

ARTICLE II: VISION

A premier association of scientists conferred by the Scientific Career System united to serve the Filipino people with the highest level of scientific knowledge and skills.

ARTICLE III: OBJECTIVES

- A. To harness and utilize the collective expertise of members in the promotion of research, education, and training in science and technology;
- B. To foster closer ties among Career Scientists, and serve as catalyst for cooperative endeavors in science and technology,
- C. To provide a forum that will recommend policies and priority areas to the government regarding science & technology issues through the Department of Science and Technology and/or other concerned agencies, and;
- D. To promote and protect the rights and well-being of the members.

ARTICLE IV. MEMBERSHIP

Section 1. Any person conferred with the rank of Scientist by the Scientific Career System shall automatically become a member of the PACS.



Philippine Association of
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Section 2. Types of Members

2.1. Founding Members – Career Scientists conferred by the Scientific Career System whose names are reflected in the Articles of Incorporation

2.2. Regular Members – All Career Scientists conferred by the Scientific Career System.

ARTICLE V: BOARD OF DIRECTORS AND OFFICERS

Section 1. The Board of Directors (BOD) shall be composed of seven members duly elected biennially by the majority of the members during the general assembly. The BOD shall elect from among themselves the officers of the Association, namely, the President, Vice-President, Secretary, Treasurer, Auditor and two members of the BOD.

Section 2. The BOD shall be the policy-making body of the Association. They shall have the power to initiate plans and programs designed to achieve the goals and objectives of the Association and to recommend to the Scientific Career System actions on important matters brought before it.

Section 3. The presence of a majority of the BOD shall constitute a quorum for the transaction of business and every decision of a majority of the quorum duly assembled as a BOD shall be a valid association act.

ARTICLE VI: DUTIES AND RESPONSIBILITIES OF OFFICERS OF THE BOARD OF DIRECTORS

Section 1. The President shall be the Chairperson of the BOD who shall provide leadership in attaining the objectives of the Association. The President shall regularly schedule board meetings. He shall preside all meetings and approve all authorized disbursements. He shall prepare and submit to the BOD an annual summary report of all PACS activities. The President shall represent the PACS in all activities called for.

Section 2. The Vice President shall assist the President in all his functions. He shall discharge the duties and responsibilities of the President in case of the latter's incapacity or absence. The Board elects a President and a Vice-President should the two positions become vacant before the regular term expires.



Philippine Association of Career Scientists, Inc.

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Section 3. The Secretary shall channel all the necessary communications pertaining to the affairs of the BOD to the members. He shall keep the records of the minutes of the meetings of the BOD and shall keep safely and systematically all records, papers and books of the board as directed by the BOD. The Secretary shall also assist the President in scheduling meetings of the BOD and shall countersign all deeds, leases and conveyances executed by the BOD.

Section 4. The Treasurer shall keep an account of all assets, disbursements, credits and finances of the organization and other matters pertaining to office as directed by the BOD. He shall deposit all checks and amounts of the Association and he shall be the only officer of the Association who can withdraw such deposit. However, in doing so, the President or Vice President shall act as co-signatories in all bank transactions. The Treasurer shall collect membership and annual dues from all members. In case of non-payment, the treasurer shall call the attention of the members to settle their dues to ensure collection of funds.

Section 5. The Auditor shall have the power, authority, and duty to examine, audit and settle all accounts pertaining to the revenues and receipts of and expenditures or uses of funds owned or held in trust or pertaining to the Association and all related financial matters reported by the Treasurer.

Section 6. The immediate Past President of the Association shall be an Ex-Officio Member of BOD in the succeeding two years and shall serve as adviser of the BOD.

ARTICLE VII: MEETINGS

Section 1. The annual general assembly shall be held in November of each year. It shall include, among others, the presentation of scientific papers, exhibits, etc., and a business meeting.

Section 2. The BOD shall hold regular meetings at such time and place designated by the President with the approval of the Board members.

Section 3. Special meetings shall be called by the President as the need arises.



Philippine Association of
Career Scientists, Inc.

CONSTITUTION AND BY-LAWS

Section 1. The funds of PACS shall be derived from dues, donations, proceeds from annual conventions and other meetings and other sources as may be determined by the BOD.

Section 2. A one-time membership fee shall be collected from all new members. Regular annual dues shall also be collected from all members which can be paid on or before the annual meeting. Members who failed to pay their annual dues for two consecutive years shall be considered not in good standing.

Section 3. All dues to be collected shall be determined by the BOD. Notice of any proposal to change the amount shall be sent to all members at least 30 days before the annual meeting.

ARTICLE IX: COMMITTEES

Section 1. The BOD shall appoint such standing, special, and Ad Hoc Committees as needed for conducting the business of the Association.

Section 2. Standing and special committees shall be constituted in response to the needs of the Association or the SCS. Interim reports may be requested and a final report shall be made to the BOD at the close of the period.

Section 3. Ad hoc Committees maybe created for the accomplishment of a special purpose limited in scope and time. Reports of the Committee shall also be made to the Board.

ARTICLE X: AMENDMENTS

Section 1. Proposed amendments shall be submitted in writing to the Secretary at least one month before the annual meeting. A majority vote by the members present is required.

Section 2. Any amendment that has been approved shall take effect immediately.

ARTICLE XI: EFFECTIVITY

Section 1. This Constitution and By-Laws shall take effect upon ratification by majority of the members of the Association.

RECENT SCS ACTIVITIES

The SCS conducted 11 orientations and mentoring participated by research personnel, finance, and administrative personnel from different government research institutions.

The seminars were aimed at increasing the number of career scientists and encouraging research personnel across the country to pursue a career in science and apply in the SCS. The orientation covered topics on Scientific Career System; predatory journals and conferences; ethics for researchers; DOST Magna Carta benefits; and career talk and mentoring from. The seminars are as follows:

- SCS Orientation for Finance and Administrative Personnel – 30 January 2024
- SCS Orientation and Mentoring in Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) – 21-22 February 2024
- SCS Orientation and Mentoring for DOST Los Baños Cluster – 13 March 2024
- SCS Orientation for Davao Oriental State University (DOrSU) – 19 March 2024
- SCS Orientation and Mentoring for DOST Taguig Cluster – 28 May 2024
- SCS Orientation and Mentoring in Bicol Region – 19-20 June 2024
- SCS Orientation and Mentoring for DENR-Ecosystems Research and Development Bureau Research Personnel – 28 June 2024
- SCS Orientation and Mentoring for DA-Fisheries Cluster – 9 August 2024
- SCS Orientation and Mentoring for DOST Quezon City Cluster – 6 September 2024
- SCS Orientation and Mentoring in Caraga Region – 24-25 September 2024
- SCS Orientation and Mentoring in Cordillera Administrative Region (CAR) – 21-22 October 2024
- SCS Orientation and Mentoring in National Capital Region (NCR) - 12 November 2024
- SCS Orientation in Ilocos Region - 18 November 2024



SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
AGRICULTURAL SCIENCES DIVISION (ASD)			
REYNALDO G. ABAD	Career Scientist II	Entomology and Plant Pathology	December 18, 1995
RIZA G. ABILGOS-RAMOS, Ph.D.	Career Scientist I	Nutrition and Dietetics and Food Science	April 22, 2022
TEOTIMO M. AGANON, Ph.D.	Career Scientist I	Rodent Biology and Entomology	June 23, 2005
NELLY S. AGGANGAN, Ph.D.	Career Scientist II	Forest Biotechnology and Plant Pathology	June 9, 2014
EDWIN P. ALCANTARA, Ph.D.	Career Scientist II	Entomology	June 9, 2014
MARINA A. ALIPON, Ph.D.	Career Scientist I	Wood Science and Technology	February 1, 2002
DIONISIO G. ALVINDIA, Ph.D.	Career Scientist IV	Postharvest Pathology and Mycology	June 23, 2010
EVELYN C. AME, Ph.D.	Career Scientist I	Freshwater Aquaculture	September 10, 2023
MARY JANE S. APINES-AMAR, Ph.D.	Career Scientist I	Fish Nutrition and Immunology	March 13, 2013
EUSTAUIO G. ARAGONEZ JR., Ph.D. †	Career Scientist I	Wood Science and Wood Anatomy	July 26, 2001
APOLINAR B. ASCENCION, MSc †	Career Scientist I	-	June 6, 2002
CONSTANCIO A. ASIS, Ph.D.	Career Scientist I	Soil Microbiology	January 17, 2008
EDWIN C. ATABAY, Ph.D.	Career Scientist II	Animal Reproductive Biotechnology	March 5, 2014
EUFROCINA P. ATABAY, Ph.D.	Career Scientist II	Animal Reproductive Biotechnology	March 5, 2014
FERNANDO B. AURIGUE, MSc	Career Scientist I	Horticultural Plant Breeding and Plant Tissue Culture	February 27, 2017
CHRISTINA M. BAJET, Ph.D.	Career Scientist I	Entomology and Agricultural Chemistry	June 9, 2014
SANCHO G. BON, MSc	Career Scientist I	Agriculture and Plant Genetic Resources Conservation	March 13, 2013
MERDELYN T. CAASI-LIT, Ph.D.	Career Scientist II	Host Plant Resistance Entomology and Plant Stress Physiology	March 13, 2013
SUSAN MAY F. CALUMPANG, Ph.D.	Career Scientist I	Chemical Ecology and Pesticide Management	June 9, 2014
SOFRONIO D. CAMACHO, MSc	Career Scientist I	Forest Resources Management	May 17, 2019
JOSE ALAN A. CASTILLO, Ph.D.	Career Scientist I	Forest Ecology and Carbon Forestry	October 18, 2019
CASIANO H. CHORESCA, JR., Ph.D.	Career Scientist I	Fisheries Aquaculture and Fisheries Biotechnology	October 15, 2021
AURORA M. CORALES, Ph.D.	Career Scientist I	Community Development and	October 16, 2020
ROLANDO T. CRUZ, Ph.D.	Career Scientist I	Agronomy	July 23, 2008
JAYVEE A. CRUZ-KITMA, Ph.D.	Career Scientist I	Soil Microbiology	December 11, 2017
OLIVIA P. DAMASCO, Ph.D.	Career Scientist I	Crop Physiology and Plant Tissue Culture	May 17, 2019
MOISES R. DE GUZMAN †	Career Scientist I	-	-
ARNEL N. DEL BARRIO, Ph.D.	Career Scientist I	Animal Science Nutrition	March 5, 2014
FE M. DELA CUEVA, Ph.D.	Career Scientist II	Host Plant resistance and Molecular Plant Quarantine	May 17, 2019
EVELYN F. DELFIN, Ph.D.	Career Scientist I	Soil Science and Crop Physiology	May 20, 2022
LOLITA M. DOLORES, MSc	Career Scientist I	Molecular Plant Pathology and Plant Virology	March 13, 2013
DINDO KING M. DONAYRE, MSc	Career Scientist I	Weed Ecology and Management	December 11, 2017

SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
VICENTE G. DOSADO, Ph.D.	Career Scientist II	-	July 14, 1993
PEREGRINO G. DURAN, Ph.D.	Career Scientist I	Animal Science Breeding and Reproduction	May 16, 2013
ARSENIO B. ELLA, MSc	Career Scientist III	Wood Science and Wood Anatomy	August 31, 2001
ANGEL B. ENCARNACION, Ph.D.	Career Scientist I	Fisheries Postharvest Technology	October 16, 2020
SENEN H. ESCAMOS, MSc	Career Scientist I	Agronomy	March 13, 2013
CRISANTO R. ESCANO †	Career Scientist III	-	December 19, 1991
RAMIRO P. ESCOBIN, Ph.D.	Career Scientist I	Forest Products and Plant Taxonomy	January 17, 2008
ZENITA B. ESPILOY, MSc †	Career Scientist II	Forest Botany and Plant Anatomy	August 20, 1998
ALFONSO N. EUSEBIO †	Career Scientist I	-	-
ESTER B. FLORES, Ph.D.	Career Scientist I	Animal Breeding and Veterinary Medicine	December 3, 2020
FAUSTINO V. FRANCIA †	Career Scientist III	Forest Biology and Forest Ecology	-
SERGIO R. FRANCISCO, Ph.D.	Career Scientist I	Agriculture	November 18, 2009
NONITO S. FRANJE, Ph.D.	Career Scientist I	-	April 21, 1992
VICENTE G. GALLEGU, MSc	Career Scientist I	-	December 18, 1995
VIVENCIO C. GALLEGU, MSc	Career Scientist I	Crop Protection and Coconut Crop Production	December 18, 1995
LENY C. GALVEZ, Ph.D.	Career Scientist I	Plant Pathology and Biotechnology	October 16, 2020
ESPERANZA G. GAMINDE, Ph.D. †	Career Scientist II	-	August 20, 1998
CARLOS M. GARCIA, Ph.D.	Career Scientist I	Wood Preservation and Management of Structural Pests	January 17, 2008
EVELYN B. GERON, Ph.D.	Career Scientist I	Plant Pathology	July 23, 2008
ALEXANDER JOEL G. GIBE, Ph.D. †	Career Scientist I	-	May 16, 2013
MAGDALENA Y. GIRON, Ph.D.	Career Scientist II	Research Product Pathology	July 24, 1996
MARCELINO M. GUEVARRA, MSc	Career Scientist I	-	December 19, 1991
MARIA LUISA D. GUEVARRA, Ph.D.	Career Scientist I	Horticulture and Crop Breeding	May 20, 2022
DANILDA D. HUFANA-DURAN, Ph.D.	Career Scientist II	Animal Science and Reproductive Biotechnologies	May 16, 2013
RODELIO G. IDAGO, Ph.D.	Career Scientist I	Project Analysis, Design and Development of Postharvest and Mechanization Systems	February 28, 2023
JUANITO P. JIMENEZ JR., Ph.D.	Career Scientist I	Forest Products Engineering and Wood Science	August 4, 2022
ROMEO V. LABIOS, Ph.D.	Career Scientist I	Crop Production and Physiology	March 13, 2013
LEILA D. LANDICHO, Ph.D.	Career Scientist I	Agronomy and Crop Production	May 20, 2022
ROSALINA M. LAPITAN, Ph.D.	Career Scientist I	Animal Nutrition	March 5, 2014
SEVERINO S. MAGAT, Ph.D.	Career Scientist IV	Soils and Plant Nutrition	December 19, 1991
RODEL G. MAGHIRANG, Ph.D.	Career Scientist I	Plant Breeding	March 13, 2013
STANLEY C. MALAB, Ph.D.	Career Scientist I	Forest Resource Management	August 22, 2003
VICENTE C. MALLARI, JR., Ph.D. †	Career Scientist I	-	July 24, 1996
ROSALY V. MANAOIS, MSc	Career Scientist I	Food Science and Rice Chemistry	January 12, 2022
NORVIE L. MANIGBAS, Ph.D.	Career Scientist III	Rice Breeding and Crop Physiology	December 5, 2013
TERESITA F. MARCOS, Ph.D.	Career Scientist I	Entomology and Insect Ecology	August 22, 2003
LYDIA M. MARERO	Career Scientist II	Botany	December 18, 1995

SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
EUFROCINIO D. MARFORI, Ph.D.	Career Scientist I	Plant Tissue Culture and Plant Natural Products	March 13, 2013
ROGACIANO Z. MARGATE	Career Scientist III	Agriculture, Crop Agronomy, and Farming Systems	December 19, 1991
ERLINDA L. MARI, Ph.D.	Career Scientist I	Utilization of Biomass Resources	August 20, 1998
EDWIN C. MARTIN, MSc	Career Scientist I	Weed Ecology and Management	October 18, 2019
CLARO N. MINGALA, Ph.D.	Career Scientist IV	Veterinary Medicine	December 12, 2011
ROSARIO G. MONSALUD, Ph.D.	Career Scientist I	Microbial Ecology and Culture Collection	March 13, 2013
MELISSA P. MONTECALVO, MSc	Career Scientist I	Mycology and Pest Management	May 18, 2023
ULYSSES M. MONTOJO, Ph.D.	Career Scientist I	Fisheries Science	September 10, 2023
ARNALDO P. MOSTEIRO, MSc	Career Scientist III	Forest Products Processing	December 19, 1991
MARIA THERESA M. MUTIA, Ph.D.	Career Scientist I	Fish Breeding and Aquaculture	October 15, 2021
ERLINDA G. NARET, Ph.D.	Career Scientist I	Fish Nutrition and Aquaculture	June 9, 2014
MARIO V. NAVASERO, MSc	Career Scientist II	Entomology	March 13, 2013
MARCELA M. NAVASERO, MSc	Career Scientist II	Pest Biology and Biological Control Entomology	March 13, 2013
JONATHAN M. NIONES, Ph.D.	Career Scientist I	Plant Breeding	October 18, 2019
GLENDA B. OBRA, MSc	Career Scientist I	Radiation Entomology and Integrated Pest Management	February 27, 2017
LERMA C. OCAMPO, Ph.D.	Career Scientist I	Reproductive Biotechnology in Livestock	May 21, 2021
REYNANTE L. ORDONIO, Ph.D.	Career Scientist I	Plant Molecular Breeding and Genetic Engineering	May 17, 2019
EUGENIA D. ORPIA	Career Scientist I	-	December 18, 1995
ALFREDO D. PALO	Career Scientist II	-	April 21, 1992
ROLENDIO N. PALOMAR, Ph.D.	Career Scientist I	Agriculture	February 1, 2002
LUCILLE ELNA E. PARREÑO-DE GUZMAN, Ph.D.	Career Scientist I	Seed Technology and Physiology	May 20, 2022
MIRIAM E. PASCUA	Career Scientist I	Garlic Agriculture and Plant Breeding	August 22, 2003
CECILIA B. PASCUAL, Ph.D.	Career Scientist I	Plant Disease Resistance and Molecular Plant Pathology	March 13, 2013
HERMINIO M. PAVA †	Career Scientist III	Agricultural Studies	April 21, 1992
VALENTINO C. PERDIDO, Ph.D.	Career Scientist I	Crop Science Researches and Agronomy	December 18, 1995
MARITA S. PINILI, Ph.D.	Career Scientist I	Plant Pathology and Plant Virology	May 15, 2024
FILIBERTO S. POLLISCO	Career Scientist I	Timber Mechanics and Wood Physics	-
FLORENCIA B. PULHIN, Ph.D.	Career Scientist II	Climate Change and Environmental Forestry	March 13, 2013
MARILYN O. QUIMADO, Ph.D.	Career Scientist I	Plant Tissue Culture and Plant Anatomy	May 20, 2022
JULIETA D. RECUENCO	Career Scientist I	Entomology	December 19, 1991
EDILBERTO D. REDOÑA, Ph.D.	Career Scientist III	Agronomy and Plant Breeding, Genetics	February 1, 2002
SOTERO S. RESILVA, MSc	Career Scientist I	Entomology	October 18, 2019
ERLINDA P. RILLO, MSc	Career Scientist IV	Agriculture and Coconut Crop Production	April 21, 1992

SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
JUSTO P. ROJO, Ph.D. †	Career Scientist IV	Forest Botany and Plant Anatomy	December 19, 1991
GABRIEL O. ROMERO, Ph.D.	Career Scientist I	Biology and Genetics	February 1, 2002
CLARO M. SANTIAGO, Ph.D.	Career Scientist I	Microbial Genetics	-
RENE C. SANTIAGO, Ph.D.	Career Scientist I	Animal Breeding and Reproduction	February 21, 2023
MUDJEKEEWIS D. SANTOS, Ph.D.	Career Scientist V	Fisheries Science	May 4, 2011
MILLCENT I. SECRETARIA, MSc †	Career Scientist I	Crop Agronomy	February 1, 2002
ERLINDA D. SEVILLA	Career Scientist IV	-	April 21, 1992
FELINO R. SIRIBON, MSc †	Career Scientist I	Wood preservation	August 10, 1995
MARIA LUZ J. SISON, Ph.D. †	Career Scientist I	Entomology and Plant Breeding	August 17, 2020
AIDA D. SOLSOLOY, Ph.D.	Career Scientist II	Entomology and Insecticide Toxicology	December 18, 1995
TEODOR S. SOLSOLOY	Career Scientist I	-	December 18, 1995
ROEL R. SURALTA, Ph.D.	Career Scientist III	Agronomy and Root Biology	December 4, 2012
NAOMI G. TANGONAN, Ph.D.	Career Scientist I	Plant Pathology and Crop Protection	June 23, 2005
LOURDES D. TAYLO, Ph.D.	Career Scientist I	Entomology and Host Plant Resistance, Genetics	May 20, 2022
FLORENTINO O. TESORO, Ph.D.	Career Scientist I	Wood Science	June 6, 1905
CRESENCIANA R. TIMBOL, Ph.D.	Career Scientist I	-	July 24, 1996
JULITA R. UNGSON, Ph.D.	Career Scientist I	-	August 22, 2003
ILUMINADO G. VALENCIA	Career Scientist I	-	-
LOLITA D. VALENCIA, MSc	Career Scientist I	Plant Pathology and Plant Breeding	March 13, 2013
RAMON V. VALMAYOR †	Career Scientist III	-	-
MARVIN A. VILLANUEVA, Ph.D.	Career Scientist I	Zoonotic Bacterial Diseases and Livestock Biotechnology	May 20, 2022
LINA G. VILLEGAS	Career Scientist II	-	December 18, 1995
BELEN A. ZARAGOZA	Career Scientist II	-	December 18, 1995
BIOLOGICAL SCIENCES DIVISION (BSD)			
ADORACION L. ALEJANDRINO †	Career Scientist I	Environmental Science and Animal Science	December 19, 1991
VICTOR B. AMOROSO, Ph.D.	Career Scientist III	Plant Morphology and Taxonomy	December 19, 1991
IMELDA ANGELES-AGDEPPA, Ph.D.	Career Scientist IV	Community Nutrition	May 3, 2018
PILAR G. ANGLO	Career Scientist I	-	-
VIOLERA P. ARIDA, MSc †	Career Scientist IV	-	June 16, 1992
AIDA C. BAJA-LAPIS, Ph.D.	Career Scientist I	Biodiversity conservation	December 4, 2012
LOLITA J. BULALACAO †	Career Scientist II	-	October 18, 1991
GAYVELLINE C. CALACAL, MSc	Career Scientist I	Forensic DNA Analysis Technology and Population Genetics	March 13, 2013
CATHERINE Q. CASTAÑEDA, Ph.D. †	Career Scientist II	-	December 18, 1995
VICTORIA B. COSICO, Ph.D. †	Career Scientist I	-	May 14, 1999
MA. PATROCINIO E. DE GUZMAN, MSc	Career Scientist III	Community Nutrition and Dietetics	July 24, 1996
MARIA CORAZON A. DE UNGRIA, Ph.D.	Career Scientist IV	DNA Forensics and Molecular Biology	March 13, 2013
ROMUALDO M. DEL ROSARIO	Career Scientist IV	Ethnobotany	October 18, 1991

SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
CUSTER C. DEOCARIS, Ph.D.	Career Scientist I	Molecular Biology and Biotechnology	May 21, 2021
ARVIN C. DIESMOS, Ph.D.	Career Scientist III	Taxonomy and Biodiversity Research Conservation	March 21, 2011
EUSEBIO Z. DIZON, Ph.D.	Career Scientist III	Archaeology	November 29, 2002
CHITHO P. FELICIANO, Ph.D.	Career Scientist I	Radiation Research	April 22, 2022
RODOLFO FLORENTINO	Career Scientist IV	Nutrition	-
OLYMPIA N. GONZALES	Career Scientist IV	-	-
LYDIA M. JOSON, Ph.D. †	Career Scientist IV	Food Technology and Fermentation Technology	October 18, 1991
PAZ A. KAPUAN †	Career Scientist II	-	-
MIRRIAM D. KUIZON	Career Scientist IV	Nutrition	December 19, 1991
MA. ETHEL D. LLANA	Career Scientist II	-	December 18, 1995
DOMINGO A. MADULID, Ph.D.	Career Scientist IV	Taxonomy and Medicinal and Economic uses of Philippine plants	October 18, 1991
GUILLERMA MAÑALAC †	Career Scientist III	-	-
EUGENIA C. MANOTO, Ph.D. †	Career Scientist IV	-	June 16, 1992
FLORENCIO ISAGANI S. MEDINA III, Ph.D. †	Career Scientist III	Cytogenetics and Mutation Breeding	December 19, 1991
QUIRINO O. NAVARRO †	Career Scientist IV	-	-
ESTELITA M. PAYUMO, MSc	Career Scientist IV	Nutritional Sciences and Dietetics	-
RODNEY H. PEREZ, Ph.D.	Career Scientist I	Microbial Technology and Microbial Biotechnology	May 18, 2023
WILFREDO P. RONQUILLO, MSc	Career Scientist II	Anthropology, Archeology	November 29, 2002
JAZELYN M. SALVADOR, MSc	Career Scientist I	Molecular Biology and Forensic Genetics	May 18, 2023
JOY ANN P. SANTOS, MSc	Career Scientist I	Microbiology and Molecular Biology	August 2, 2023
IBARRA SANTOS †	Career Scientist I	-	-
CARMEN C. SINGSON	Career Scientist I	-	-
FIDES MARCIANA Z. TAMBALO, MSc	Career Scientist I	Microbiology	April 29, 2024
TRINIDAD P. TRINIDAD, Ph.D. †	Career Scientist II	-	May 14, 1999
MINERVA FATIMAE H. VENTOLERO, Ph.D.	Career Scientist I	Genetic Fingerprinting or Barcoding and Metagenomics	September 10, 2023
PIERANGELI G. VITAL, Ph.D.	Career Scientist II	Environmental Microbiology	October 16, 2020
MA. TERESA YULO-NAZAREA, MSc	Career Scientist I	-	December 19, 1991
ENGINEERING SCIENCES AND TECHNOLOGY DIVISION (ESTD)			
ELMER G. BAUTISTA, Ph.D.	Career Scientist I	Agricultural Engineering	October 16, 2020
EULITO U. BAUTISTA, Ph.D.	Career Scientist III	Farm Machinery and Post Harvest Equipment Design	July 24, 1996
PANCRASIO BAWAGAN †	Career Scientist I	-	-
BENITO C. BERNARDO	Career Scientist III	Sanitary Engineering	-
ANABELLE V. BRIONES, Ph.D.	Career Scientist I	-	February 27, 2017
ESTELITA G. CABALFIN	Career Scientist III	-	December 19, 1991
OFERO A. CAPARIÑO, Ph.D.	Career Scientist I	Food Engineering and Agri-waste Utilization Agricultural Engineering	May 3, 2018
RENITA SM. DELA CRUZ, Ph.D.	Career Scientist I	Postharvest Technology of durables and perishables	May 3, 2018

SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
DOMINGO B. DOMONDON	Career Scientist III	-	December 19, 1991
SAMUEL S. FRANCO, MSc	Career Scientist II	Agricultural Process Engineering	August 22, 2003
MICHAEL A. GRAGASIN, Ph.D.	Career Scientist I	Agricultural Machinery	May 3, 2018
RICARDO F. ORGE, Ph.D.	Career Scientist III	Agricultural and Biosystems Engineering	June 17, 2009
MARISSA A. PAGLICAWAN, Ph.D.	Career Scientist I	Polymers and Biodegradable Polymers	February 27, 2017
MANUEL JOSE C. REGALADO, Ph.D.	Career Scientist II	Agricultural Engineering	June 17, 2009
JOAQUIN O. SIOPONGCO †	Career Scientist III	-	-
ANDRES M. TUATES JR., Ph.D.	Career Scientist I	Agricultural Engineering and Bioprocess Engineering	May 18, 2023
FILEMON A. URIARTE, JR., Ph.D.	Career Scientist IV	Chemical Engineering	-
FELIPE D. VINLUAN, Ph.D.	Career Scientist II	-	June 25, 1997
HEALTH SCIENCES DIVISION (HSD)			
FELICIDAD E. ANZALDO	Career Scientist III	Pharmacy, Obstetrics and Gynecology	-
MARIA ROSARIO Z. CAPEDING, Ph.D.	Career Scientist II	Pediatric Infectious Disease and General Pediatrics	September 7, 2015
BENJAMIN L. DE LA CRUZ †	Career Scientist II	-	-
	Career Scientist I	Pediatric Infectious Diseases	August 4, 2020
QUINTIN L. KINTANAR, Ph.D.	Career Scientist III	Environmental Medicine and Pharmacology	-
MARILLA G. LUCERO, Ph.D.	Career Scientist I	Epidemiology and Infectious Diseases	November 3, 2014
JOSEFINA MAGBITANG	Career Scientist I	Food and Nutrition	April 21, 1992
ALBERTO G. ROMUALDEZ †	Career Scientist IV	-	-
CELESTE C. TANCHOCO, MSc	Career Scientist III	Clinical Nutrition	July 24, 1996
GRACIA VILLAVIEJA	Career Scientist I	-	April 21, 1992
FERDINAND V. SALAZAR, Ph.D.	Career Scientist I	Mosquito Vectors and Insecticide Resistance	February 26, 2024
SOCIAL SCIENCES DIVISION (SSD)			
MA. CECILIA R. ANTOLIN, Ph.D.	Career Scientist I	Rural Development	January 18, 2023
JESUSA C. BELTRAN, Ph.D.	Career Scientist I	Agricultural Economics	October 18, 2019
GIGI B. CALICA, Ph.D.	Career Scientist I	Rural-Based Enterprise Development	February 19, 2021
JAIME A. MANALO IV, Ph.D.	Career Scientist II	Development Communication and Social Change	October 23, 2023
MATHEMATICAL AND PHYSICAL SCIENCES DIVISION (MPSD)			
LUCILLE V. ABAD, Ph.D.	Career Scientist III	Radiation Processing	March 21, 2011
ALVIE J. ASUNCION-ASTRONOMO, Ph.D.	Career Scientist I	Physics Nuclear Science and Neutron Physics	October 21, 2022
EMERENCIANA E. BALLELOS-DURAN, Ph.D.	Career Scientist II	Biophysics	December 19, 1991
ANGEL T. BAUTISTA VII, Ph.D.	Career Scientist I	Earth and Environmental Science	April 22, 2022
ALUMANDA M. DELA ROSA, Ph.D.	Career Scientist IV	Radiation Chemistry and Applied Physics	December 19, 1991
RAQUEL V. FRANCISCO, Ph.D.	Career Scientist I	Numerical Weather Prediction and, Meteorology	April 10, 2003

SCS DIRECTORY

NAME	RANK	FIELD OF SPECIALIZATION	CONFERMENT DATE
AIDA M. JOSE, Ph.D.	Career Scientist I	Climatology and Agrometeorology	December 19, 1991
CHARITA S. KWAN, Ph.D.	Career Scientist I	Analytical and Environmental Chemistry	October 16, 2020
LINDA L. LEOPANDO, MSc	Career Scientist I	Isotope Techniques Research and Radiotracer Technology	December 18, 1995
AUREA V. LONTOC	Career Scientist II	Chemistry	December 19, 1991
JORDAN F. MADRID, Ph.D.	Career Scientist II	Radiation chemistry and Polymer Chemistry	May 18, 2023
MANOLITO D. NATERA, Ph.D.	Career Scientist II	Physics	-
VALLERIE ANN I. SAMSON, Ph.D.	Career Scientist I	Materials Science and Engineering	May 21, 2021
EVANGELINE C. SANTIAGO, Ph.D.	Career Scientist I	Environmental Analytical Chemistry	March 13, 2013
ROSALINDA C. TORRES, Ph.D.	Career Scientist I	Natural Products Chemistry	February 27, 2017
CHARITO TRANQUILAN-ARANILLA, Ph.D.	Career Scientist I	Radiation Processing and Materials Engineering	May 17, 2019
MARCELINO Q. VILLAFUERTE II, Ph.D.	Career Scientist I	Climatology	May 21, 2021

2024 PRESIDENT'S REPORT

The PACS started the new fiscal year on 1 January 2024 with term ending on 31 December 2025. Below are the activities done from January to November 2024, personalities involved, and plans.

A. Regular meetings

Regular meetings were held by the PACS Board to plan, execute, and update activities for the fiscal year. Below are the list of PACS Board members as well as the SCS Secretariat in support of each meeting, the photos, and schedule of meetings.

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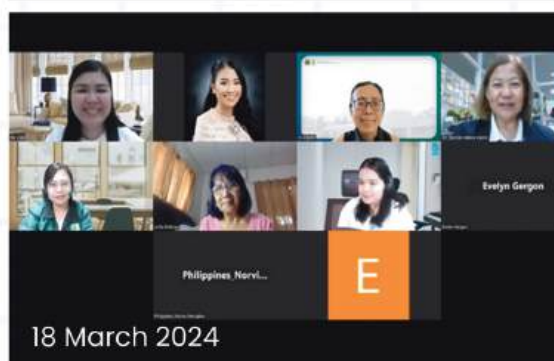
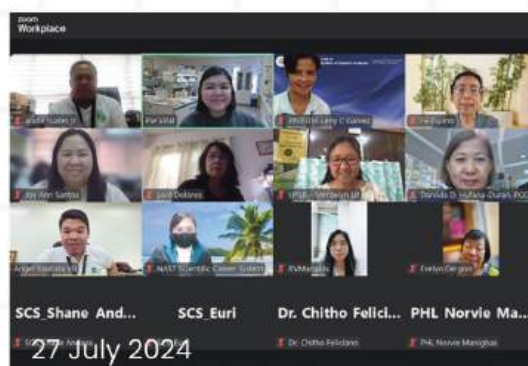
Dr. Merdelyn T. Caasi-Lit
Board Member

Dr. Fe Esperanza Caridad J. Espino
Board Member

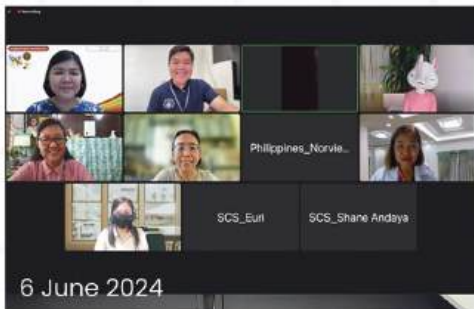
Dr. Norvie L. Manigbas
Immediate Past President

Dir. Luningning E. Samarita-Domingo
SCC Executive Secretary and NAST Director

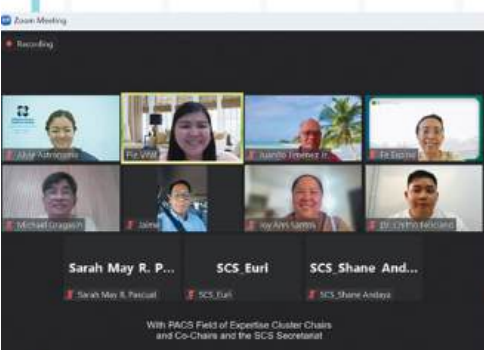
Ms. Sarah May R. Pascual
Ms. Ma. Ronna R. Arcillas (up to 28 June 2024)
Ms. Eurica Faith T. Canonce
Ms. Shane Andaya
Ms. Virginia Francia O. Gavica
SCS Secretariat



2024 PRESIDENT'S REPORT



The following are special committee meetings:



Special meetings were held to plan for the semi-annual and annual meetings. Below is a list of committee memberships, photos, and schedule of meetings.

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2024 PRESIDENT'S REPORT

C. Semi-annual meeting

The semi-annual meeting was held last 10 June 2024 via Zoom. It was done for the first time to update career scientist members of the plans and activities of the PACS. The meeting started with the talk on predatory journals and conferences by Acd. Roel R. Suralta and discussion on career scientists' benefits. It was then followed by the business meeting, with highlights on the President's report, Treasurer's report, Amendment to PACS constitution and by-laws, and the Annual meeting and scientific forum.

D. 18th Annual Meeting and Scientific Forum

The 18th Annual Meeting and Scientific Forum is 21-22 November 24 at the Vivere Hotel & Resorts, Alabang, with the theme "Career Scientists: Shaping the future globally through science and technology." The first day includes the 2024 Planing Workshop and Annual Meeting. The second day is the Scientific Forum with invited speakers: Keynote: Dr. Renato U. Solidium, Jr.; Plenary: Dr. Peregrino G. Duran (Livestock Biotechnology), Dr. Casiano H. Choresca, Jr. (Aquatic and Natural Resources), Dr. Lourdes D. Taylo (Plant Biotechnology), Dr. Leodivico L. Ilag (Vaccine Self Sufficiency), and Acd. Christopher P. Monterola (Artificial Intelligence). Newly conferred NAST Academicians are also invited to share their experiences: Acd. Cleofas R. Cervancia and Acd. Fortunato T. De La Peña. Innovations to the annual meeting and scientific forum include poster pitch for competing posters and addition of institutional award. Revised guidelines of the SCS-PACS awards and membership to the committee were crafted, headed by Acd. Mudjikeewis D. Santos. Further, this year's souvenir program is being guided by Dr. Jaime A. Manalo IV, with the help of Mr. Mark Joseph Zuñiga. Different agencies, agency heads, career scientists, and companies also provided sponsorship to this activity.

E. Amendments to the PACS Constitution

Since the foundation of PACS, the constitution and by-laws were never amended. For this fiscal year, amendments were proposed through a committee headed by Dr. Danilda D. Hufana-Duran, which comprehensively reviewed and suggested the revisions to the constitution and by-laws.

F. PACS Exemplar book version 2 and PACS ID

Headed by Dr. Fe Esperanza Caridad J. Espino (PACS Exemplar book v2) and Dr. Evelyn B. Gergon (PACS ID), these projects were carried out from planning, preparation, communication with career scientists, up to production. The plan of publishing the book was continued from the last fiscal year, with a copy edit team (Zoe Beatrice P. Cruzada and Andrei Joshua R. Yu) hired by PACS to English edit and layout said book.

G. Mentoring Program

With support from the SCS and NAST, the mentoring program headed by Dr. Merdelyn T. Caasi-List is being continued, with plans of conferring higher number of career scientists each year. In 2026, it is envisioned that each scientist will mentor at least a budding researcher from the region.

2024 PRESIDENT'S REPORT

H. Drafting of the SCS IRR for EO 17

With the release of Executive Order No. 17 (Revising the Implementing Rules and Regulations of the Scientific Career System under Executive Order No. 901, s. 1983), SCC Executive Secretary and NAST Director Luningning E. Samarita-Domingo instructed the PACS to draft suggested IRR. This was led by NAST Acd. Roel R. Suralta, Acd. Mudjikeewis D. Santos, Acd. Ma. Corazon A. De Ungria and Acd. Arvin C. Diesmos, Immediate Past President Dr. Norvie L. Manigbas and current President Dr. Pierangeli G. Vital, together with other career scientists, Dr. Claro L. Mingala and Dr. Angel T. Bautista VII.

I. Field of expertise clusters

For this fiscal year, another innovation is the establishment of the field of expertise clusters (FOEC), with responsibilities:

1. To create and execute programs and activities based on field of expertise involving career scientist members;
2. To help increase career scientists in the field;
3. To discuss among cluster laws/issuances/policies needing field of expertise;
4. To forward information related to cluster and update progress of the cluster and members

J. PACS memo

For this fiscal year, PACS released a memorandum to provide updates regarding plans and activities of PACS. Regular emails and messages in the Messenger Group Chat were also sent to members. Likewise, appointments to committee memberships were also provided.

K. Other matters

Career scientists were invited as participants, resource persons, and stakeholders to different SCS Orientation and Mentoring Programs, NAST Focus Group Discussions, and other NAST events and activities.

With all these, I sincerely thank Director Luningning E. Samarita-Domingo for her unending support and guidance to the PACS, as well as the SCS Secretariat: Ms. Sarah May R. Pascual, Ms. Eurica Faith T. Canonice, Ms. Shane Andaya, and Ms. Virginia Francia O. Gavica. I would also like to thank the PACS Board, committee chairs, co-chairs and members, all career scientists, agency heads, SCEC, STC, and SCC for making all our activities possible. Hoping for increased number of active and productive career scientists in the years to come!

Pierangeli G. Vital

PACS President, FY 2024-2025

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COMMITTEES	MEMBERS
Overall Chair	DR. PIERANGELI G. VITAL
Overall Co-Chair	DIR. LUNINGNING E. SAMARITA-DOMINGO
Souvenir Program	DR. ANGEL T. BAUTISTA VII (Chair) DR. JAIME A. MANALO IV MR. MARK JOSEPH ZUÑIGA MS. EURICA FAITH T. CANONCE MS. SARAH MAY R. PASCUAL
Finance and Solicitation	MS. LOLITA M. DOLORES (Chair) MS. EURICA FAITH T. CANONCE
Convention Program and Speakers	DR. DANILDA D. HUFANA-DURAN (Chair) MS. SARAH MAY R. PASCUAL
Poster	DR. ANDRES M. TUATES (Chair) DR. LENY C. GALVEZ (Co-Chair) MS. ROSALY V. MANAOIS DR. VALLERIE ANN I. SAMSON
Registration and Secretariat	DR. ANGEL T. BAUTISTA VII MS. LOLITA M. DOLORES MS. SHANE ANDAYA
Invitation, Announcement, and Logistics	DR. DANILDA D. HUFANA-DURAN DR. PIERANGELI G. VITAL
Physical Arrangement	DR. EVELYN B. GERGON MS. VIRGINIA FRANCIA O. GAVICA MS. SHANE ANDAYA
Socials and Fellowship Night	MS. JOY ANN P. SANTOS (Chair) DR. CHITHO P. FELICIANO (Co-Chair)
SCS Awards and Recognition	DR. MUDJEKEEWIS D. SANTOS (Chair) DR. ROEL R. SURALTA DR. NORVIE L. MANIGBAS DR. ARVIN C. DIESMOS DR. CLARO N. MINGALA DR. PIERANGELI G. VITAL
Mentoring and Monitoring Program Committee	DR. ANGEL T. BAUTISTA VII DR. MERDELYN T. CAASI-LIT (Chair) DR. EVELYN B. GERGON DR. ERLINDA G. MARI DR. JAIME A. MANALO IV

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PACS (FOEC) Field of Expertise Cluster	Position
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DR. JUANITO P. JIMENEZ JR.	CHAIR
DR. CASIANO CHORESCA, JR.	CO-CHAIR
Mathematical & Physical Sciences Division (MPSD)	
DR. VALLERIE ANN I. SAMSON	CHAIR
DR. ALVIE J. ASUNCION-ASTRONOMO	CO-CHAIR
Engineering Sciences and Technology Division (ESTD)	
DR. MICHAEL A. GRAGASIN	CHAIR
DR. ELMER G. BAUTISTA	CO-CHAIR
Health Sciences Division (HSD)	
DR. FE ESPERANZA CARIDAD J. ESPINO	CHAIR
Social Sciences Division (SSD)	
DR. JAIME A. MANALO IV	CHAIR
DR. JESUSA C. BELTRAN	CO-CHAIR
Biological Sciences Division (BSD)	
MS. JOY ANN P. SANTOS	CHAIR
DR. CHITHO P. FELICIANO	CO-CHAIR

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- Department of Science and Technology - Philippine Nuclear Research Institute
- Medical Test Systems, Inc.
- Department of Agriculture - Philippine Carabao Center
- Department of Agriculture - Crop Biotechnology Center
- PACS Los Baños Cluster
- Department of Agriculture - Bureau of Fisheries and Aquatic Resources Region 2
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- Department of Agriculture - Philippine Fiber Industry Development Authority
- Philippine Phytopathological Society, Inc



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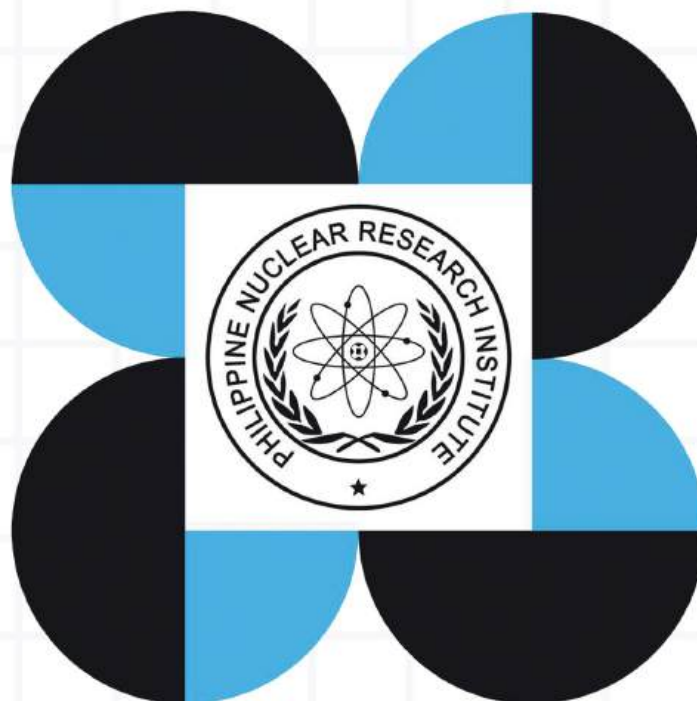
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Greetings from Los Baños Career Scientists!

18th PACS-SCS Annual Meeting and Scientific Forum



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31 May 2025

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