



Building and Sustaining Capacities of Researchers, Scientist, Engineers (RSEs) in Industry, Energy and Emerging Technology Sectors

DR. RUBY RATERTA

Chief Science Research Specialist Human Resource and Institution Development Division (HRIDD)

24 February 2023, 12:00-14:20 p.m. (JST)/10:00-12:20 (ICT), Zoom Online Meeting

Who is **PCIERD?**



The Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD) is one of the three sectoral planning councils of the Department of Science and Technology (DOST). It is the consolidation of PCIERD and PCASTRD in June 2010.

OUR MANDATE











Support for Hu Research and an Development D

Human Resource and Institution Development

S&T Information Dissemination and Promotion

Support for Technology Transfer and Commercialization

肥

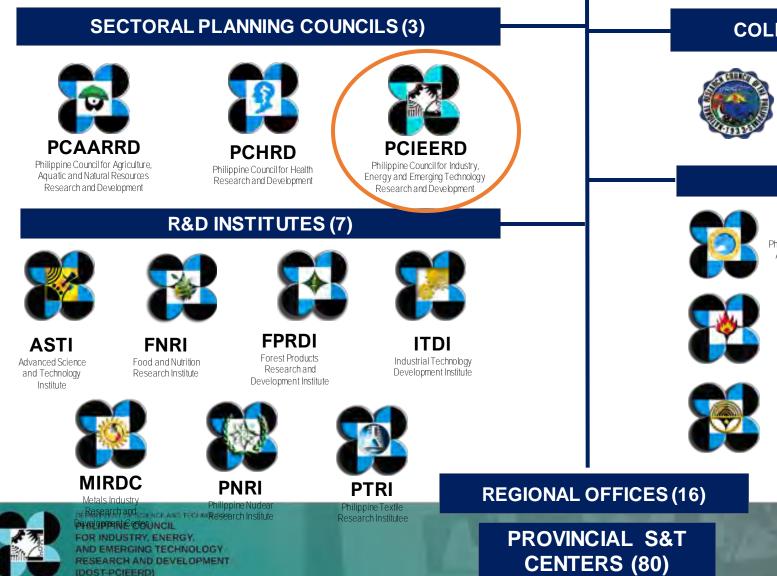
Policy Development and Advocacy

OUR SECTORAL COVERAGE



Department of Science and Technology

DOST OFFICE OF THE SECRETARY



COLLEGIAL AND SCIENTIFIC BODIES (2)



NRCP National Research Council of the Philippines



NAST National Academy of Science and Technology

S&T SERVICES (6)

PAGASA Philippine Atmospheric, Geophysical and Astronomical Services Administration

PHIVOLCS Philippine Institute of Volcanology and Seismology

PSHSS Philippine Science High School System

STI

Science and

Technology

Information Institute



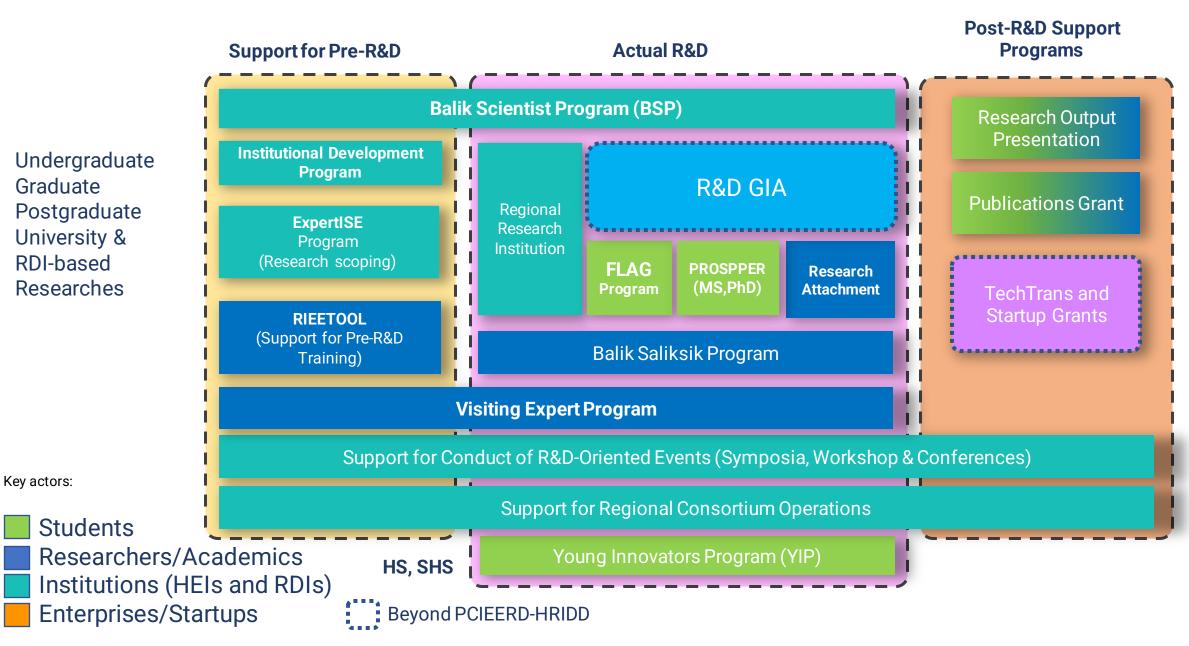
SEI Science Education Institute



TAPI Technology Application and Promotion Institute



Pre-, con- and post-R&D HRI Support Programs





Visiting Expert: Dr. Roberto Bedogni Specialization: Nuclear Science and Technology Institution: Laboratori Nazionali di Frascati Roma Host Institution: Philippine Nuclear Research Institute

Visiting Expert Program

Open to institutions needing faculty members or experts from another institution who possesses the required expertise not available in the requesting institution.

Grant: Php 300,000.00 (US\$ 5,400.00)



Research Attachment or Fellowship

Open to MS and PhD students, degree holders, and project staff of a DOST-PCIEERD or DOST-funded project, in the science and engineering sectors, who need to conduct their research in a host institution, including foreign universities and research institutions to avail of the host institution's facilities and research expertise.

Grantee: Mr. Najeeb S. Abdulla II Specialization: Materials Science Host Researcher: Dr. Mannix Balanay Host Institution: Nazarbayev University, Kazakhstan

Grant: Php 300,000.00 (US\$ 5,400.00)

Institution Development Program (IDP)

IDP covers provision of support for upgrading of research laboratories and facilities of academic and research institutions in areas within the PCIEERD sectoral priority areas.

Grant: Php 5,000,000.00 (US\$ 9,000.00)



The IDP includes the upgrading and/or setting up of research laboratories, purchase of laboratory equipment including highly specialized software aimed at developing research capabilities.

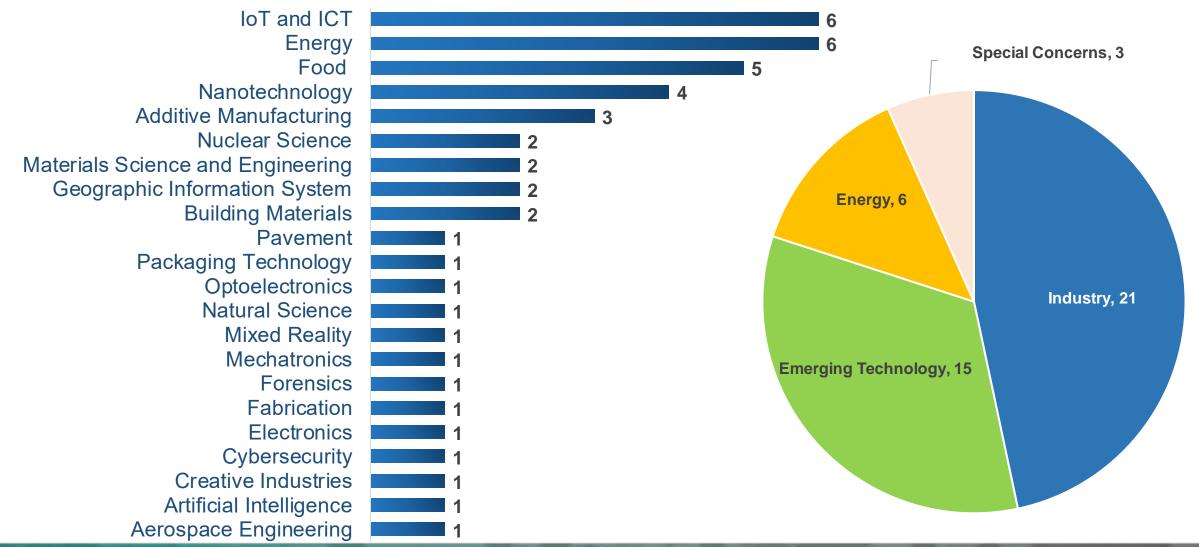
http://pcieerd.dost.gov.ph/supported-programs-projects/strategic-thrusts-and-programs/240-institution-development



EPARTY AT DESCRACE AND TECHNOLOGY HILIPPINE COUNCIL SOR INDUSTRY, ENERGY, NND EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT DOST-PCIEERD)



Priority Sectors Funded





DEMENDED SCIECT AND EXCHOLORY PHILIPPINE COUNCIL FOR INDUSTRY, ENERGY, AND EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT (DOST-PCIEERD)

INNOVATION COUNCIL

Region 1

Energy

Establishment of a Solid Free Form Research Laboratory (SoFFReL) Pangasinan State University - Urdaneta | 2020 Additive Manufacturing

Establishment and Operationalization of Ilocos Sur Polytechnic State College (ISPSC) Microbiology Laboratory Ilocos Sur Polytechnic State College | 2022 Food

NCR

Upgrading the PNRI Neutron Laboratory for Neutron Physics and Dosimetry Research Philippine Nuclear Research Institute | 2016 Nuclear Science

PUP College of Engineering Sensors and Mechatronics Laboratory Polytechnic University of the Philippines | 2016 Mechatronics

Upgrading of the Nuclear Training Center Laboratory Facility Philippine Nuclear Research Institute | 2017 Nuclear Science

Establishment of the Additive Manufacturing Center for Industrial Ceramics Adamson University | 2019 Additive Manufacturing

PERPSAT1: UPHSD Amateur Satellite Ground Station Development Adamson University | 2019 Additive Manufacturing UPHSD - Las Piñas | 2021 Aerospace Engineering

Establishment of Footwear Innovation and Technology (FIT) Research Laboratory at Marikina Polytechnic College Marikina Polytechnic College | 2022 Footwear

Establishment of the Multiple Applications for Reality-Virtuality Experience Laboratory (MARVEL) Our Lady of Fatima University | 2022 Mixed Reality

Region 6

Establishment of a Wind Turbine Development and Testing Laboratory Central Philippine University | 2018 Energy

Research and Development Laboratory (IRDL) in Antique

Innovations Laboratory for Process Machinery and Related Technology Development (I-Lab ProMaTech)

Establishment of a "Hub for Sustainable Smart University of San Agustin | 2022 Packaging Technology

Region 3 Establishment of a PSAU Bioenergy Laboratory Pampanga Agricultural State University | 2016 Renewable

Acquisition of Laboratory Equipment in Support of the Facility for Nanotechnology R&D in Central Luzon State University Central Luzon State University | 2018 Nanotechnology

> Establishment of an Additive Manufacturing Research Laboratory (AMReL) Bataan Peninsula State University | 2018 Additive Manufacturing

Establishment of Central Luzon Internet of Things Research and Innovation Laboratory for Smart Cities (IoTRILS) Bulacan State University | 2022 Internet of Things

Region 4A

Establishment of CvSU SiMM (Simulation, Modeling and Measurement) Laboratory Cavite State University | 2017 ICT

Establishment of PnC DANGAL for Smart Warehouse Inventory Management System Pamantasan ng Cabuyao | 2021 Internet of Things

Establishment of IoT Research Laboratory and Training Center UPHSD - Molino | 2021 Internet of Things

Establishment of Drilling Fluids Research and Innovation

Towards the Establishment of the Pavement Research (PAVER)

Palawan State University | 2021 Energy

Establishment and Operationalization of Integrated University of Antique | 2021 Food

Capiz State University | 2022 Fabrication

Nanomaterials" in the Philippine countryside

QualiSafe Lab: Food Quality and Safety Laboratory for Seafoods and Other Innovative Food Products Capiz State University | 2022 Food Jose Rizal Memorial State University | 2021 Pavement

Region 4B

Laboratory

Region 9

Region 12

Establishment of Intelligent Systems Laboratory Mindanao State University - GenSan | 2019 ICT

Laboratory in Jose Rizal Memorial State University

Establishment of Sultan Kudarat State University - Forensic Molecular Biology Center (SKSU-FMBC) Sultan Kudarat State University | 2022 Forensics

Region 2

Establishment of Renewable Energy Laboratory and Demonstration Park Isabela State University | 2016 Energy

Establishment of Electronics Projects Laboratory for Process Automation of the Cagayan Lodging Industry University of Saint Louis | 2022 Electronics

Region 5

Establishment of AI Research Center for Community Development (AIRCoDE) Camarines Sur Polytechnic Colleges | 2021 Artificial Intelligence

Establishment of ParSU MTL (Microbiology Testing Laboratory) Partido State University | 2021 Food

Establishment of Recycled Concrete Aggregates Laboratory (ReCoLab) Ateneo de Naga University | 2021 Building Materials

Region 8

Region 7

Strengthening SLSU's Capability in GIS Technologies in Support of Southern Leyte's Materials Research **Competitiveness and Development** Souther Leyte State University | 2015 GIS

Development of Future Building Materials and Structures (FBMS) Laboratory Northwest Samar State University | 2017 Building Materials

Establishment of USJ-R Center for Energy Harvesting University of San Jose Recoletos | 2016 Energy

UP Cebu Cybersecurity Research and Extension Center UP Cebu | 2017 Cybersecurity

Establishment of University of San Carlos Laboratory of Computational Functional Materials, Nanoscience and Nanotechnology University of San Carlos | 2018 Nanotechnology

Establishment of a Microgrid and Sustainable Energy Laboratory in Silliman University Silliman University | 2021 Renewable Energy

Region 13

Development of Materials Science and Polymer Chemistry Laboratory Caraga State University | 2016 Material Science and Engineering

Region 10

Enhancing the Natural Science Research Center Laboratories of Central Mindanao University Central Mindanao State University | 2015 Natural Science

Establishment of nanoCORE Lab: Computational Nanotechnology Laboratory Mindanao State University at Naawan | 2022 Nanotechnology

Region 11

Center for Green Nanotech Innovations for Envi Solutions (CGNIES) University of Mindanao J 2020 Nanotechnology

Establishment of Mindanao Natural (MinNa) Language Processing (LProc) Research and Development Laboratory University of the Immaculate Concepcion | 2021 ICT

45

IDP Facilities Laboratories Across the Country





PHILIPPINE COUNCIL FOR INDUSTRY, ENERGY, AND EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT (DOST-PCIEERD)





Establishment of Food Safety and Quality Food Products Microbiology **R&D** Laboratory

Duration: January 1, 2023 to December 31, 2024 Amount of Grant: **P4,973,000.00** Project Leader: Dr. Juvy D. Naungayan Implementing Agency: Ilocos Sur Polytechnic State College Region: Region 1 – Ilocos Sur

This laboratory will ensure food safety, sanitation, and quality of products developed by various stakeholders of ISPSC. This will serve as a research laboratory and facility that will help the institution's partners in food their productivity industry to increase and competitiveness.

Target outputs/ accomplishments:

- Trained researchers to conduct R&D
- Mentored students
- Developed at least 1 product





Incubator



Bag Mixer



Laminar Airflow Cabinet



Autoclave



Colony Counter

Vortex Mixer





Establishment of Sultan Kudarat State University –Forensic Molecular Biology Center (SKSU-FMBC)

Duration: July 4, 2022 to July 3, 2024 Amount of Grant: P4,960,000.00 Project Leader: Dr. Vincent Louie Domingo Cabelin Implementing Agency: Sultan Kudarat State University Region: Mindanao Region

The center will ensure that biological samples from local academic and research communities in need of forensic molecular biology analyses can now be processed on-site. SKSU-FMBC will strengthen the capability of SKSU's RD&E department by providing the avenue to pursue genomebased studies related to forensic science, data analytics, and valueadding and adulterant detection in the food processing industry, to name a few. These activities will be critical in times of epidemics, pandemics, calamities, and disasters with regards to our response and resilience as a society.

Target outputs/ accomplishments:

- Produce at least one (1) publication and one (1) paper presentation
- Train at least five (5) faculty researchers and 5 students/groups
- Forge partnership with at least one Government Agency
- Provide inputs to the formulation of at least 1 policy on genome-based studies for adoption in the university.







Center for Green Nanotechnology Innovations for Environmental Solutions (CGNIES)



Duration: December 3, 2020 to December 2, 2022 Amount of Grant: P5,000,000.00 Project Leader: Chosel P. Lawagon, Ph.D. Implementing Agency: University of Mindanao Region: Mindanao Region

The CGNIES is a timely and necessary project to increase research outputs that are beneficial to the society and environmentally sustainable. A research center that will involve collaborations between industries, government and academia. This new nano-products will be incorporated in technological innovations that address environmental concerns in the region.



Thermogravimetric Analyzer



UV-Vis



Tubular Furnace



Significant outputs/ accomplishments:

- Published 3 papers
- Applied 2 patents under SciTech Superhighway DOST Program
- 1 Heavy Metal Detection Kit and 1 Self-healing Material developed
- 8 MS and 29 BS students trained

Deionized Water Purifier





Establishment of a "Hub for Sustainable Smart Nanomaterials" in the Philippine countryside

Duration: January 18, 2023 to January 17, 2025 Amount of Grant: P4,499,488.00 Project Leader: Dr. Noel Peter Tan Implementing Agency: University of San Agustin (USA) Region: Region VI – Western VISAYAS Region

This laboratory is intended to develop active and intelligent packaging systems through nanoparticles and composite polymeric functional films suited for smart packaging technologies and by using **state-of-the-art instruments** as tools. When successful, this laboratory shall be equipped for **innovative smart packaging**, **strengthening of R&D infrastructure**, and **human resource capacitation** in the countryside.

Target Outputs / Accomplishments:

- Develop nano-enabled bioplastics for packaging.
- Develop at least 3 SOP manuals
- Submit at least 1 patent or utility model application to IPOPHL
- Submit at least 1 manuscript in ISI- or Scopus indexed journal
- Forge partnerships with other institutions
- Train students from USA/ other institutions





High-Pressure Homogenizing System



Analytical Cell Kit



Water Contact Angle Instrument



Standard and Nonaqueous Electrodes

FUNDING MECHANISMS/INTERNATIONAL COLLABORATIONS

International Linkages

MECO–TECO S&T Cooperation

Modes of Cooperation

- □ Joint research/study
- Exchange of scientists/ experts/information
- Capacity building
- Scientific and technical access to facilities
- Professional S&T services
- Joint scientific conferences, courses and exhibits

Multilateral Linkages

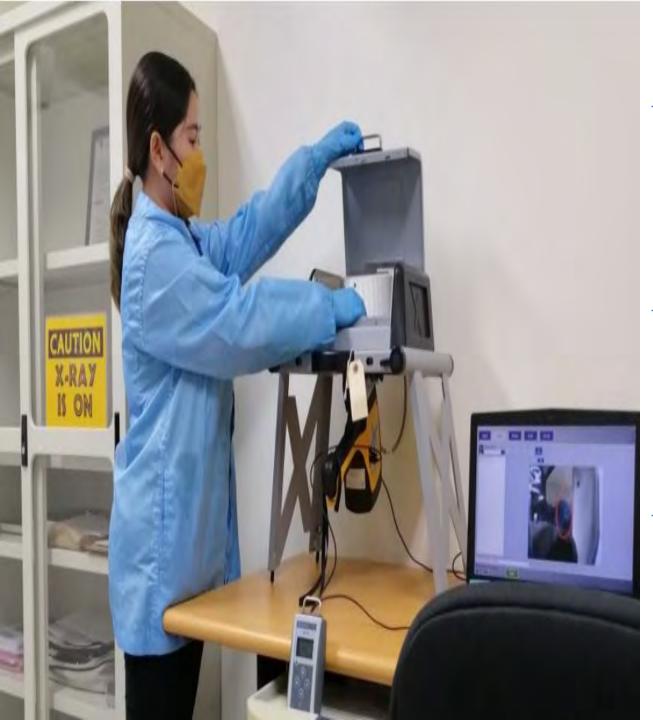
ASEAN - COST

APEC - IST





ASEAN S&T officials agreed to Leverage Science, Technology and Innovation for a globally competitive ASEAN



FUTURE PLAN

Established the "DOST Equipment and Research Facilities Database System"

Establish a web-based database system to provide information on research equipment and facilities funded by the DOST and its attached agencies

Expected Outputs:

- * Web-based system for equipment and facilities database
- *1 personnel per adopter agency trained on the use of the system
- * Policy recommendation for the use of equipment and facilities database system

FUTURE PLAN

Need

Monitor, increase utilization, avoid duplication, and regulate the use and distribution of equipment funded by the DOST and its attached agencies

Differentiation

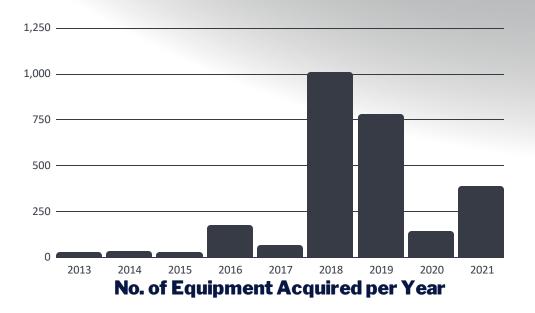
Consolidated equipment and facilities database of the DOST through integration of individual, internal systems

Solution

Establish a web-based system to serve as a database for information dissemination on equipment and facilities

Benefit

Increase utilization of research equipment and facilities and enable strategic investment in new R&D areas, and country's regions



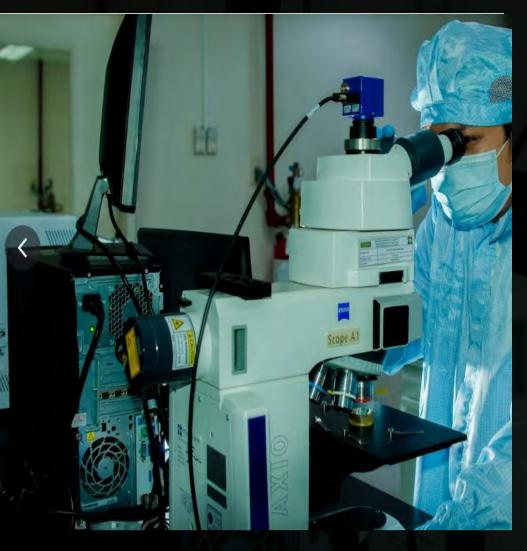
Funding Source	Value							
	<100K	100K - 500K	500K - 1M	1M - 3M	3M - 5M	5M - 10M	10M - 20M	>20M
PCIEERD-GIA	1,789	512	107	84	16	7	2	3
DOST-GIA & Disaggregated	492	240	46	56	21	7	3	3
Total	2,281	752	153	140	37	14	5	6



No. of Equipment Based on Funding Source and Amount

 \rightarrow

CONCLUSION/RECOMMENDATIONS



- Mobility of researchers, scientists and engineers through Human Resource Development (i.e. Visiting Expert and Research Attachment)
- Grants and support: with foreign Counterpart funding
- Open laboratory policy
- Joint laboratory establishment
- Data gathering/collection, collation, sharing and management policy
- Technology transfer and acquisition protocol
- Deployment of advanced research equipment
- Promotion of shared use of advanced research equipment

Connect with us!

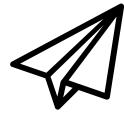


/dostpcieerd



@dostpcieerd



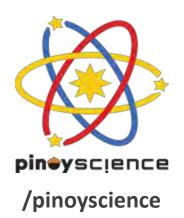


@dostpcieerd

pcieerd@pcieerd.dost.gov.ph



@dostpcieerd





@pinoyscience



pcieerd.dost.gov.ph



THANK YOU!!



pcieerd.dost.gov.ph/