



PCI EERD

Making Innovations
Work for the People

**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 PCIEERD?



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
Research and
Development



Human Resource
and Institution
Development



S&T Information
Dissemination
and Promotion



Support for
Technology
Transfer and
Commercialization



Policy
Development
and Advocacy

OUR SECTORAL COVERAGE

INDUSTRY



Electronic &
Semiconductor
Industries



Mining &
Minerals



Metals &
Engineering



Food
Processing



Process



Energy
efficiency



Transportation

EMERGING TECHNOLOGY



Materials
Science/
Nanotechnology



Genomics/
Biotechnology



Information &
Communications
Technology



Space
Technology
Applications



Photonics



Artificial
Intelligence



Data
Science



Creative
Industries

SPECIAL CONCERNS



Climate
Change
Adaptation



Disaster Risk
Reduction &
Management



Environment



Human
Security

INNOVATION COUNCIL

FOR INDUSTRY, ENERGY AND EMERGING TECHNOLOGIES (DOST-PCIEERD)

Department of Science and Technology

DOST OFFICE OF THE SECRETARY

SECTORAL PLANNING COUNCILS (3)



PCAARRD

Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development



PCHRD

Philippine Council for Health Research and Development



PCIEERD

Philippine Council for Industry, Energy and Emerging Technology Research and Development

COLLEGIAL AND SCIENTIFIC BODIES (2)



NRCP

National Research Council of the Philippines



NAST

National Academy of Science and Technology

R&D INSTITUTES (7)



ASTI

Advanced Science and Technology Institute



FNRI

Food and Nutrition Research Institute



FPRDI

Forest Products Research and Development Institute



ITDI

Industrial Technology Development Institute



MIRDC

Metals Industry Research and Development Center



PNRI

Philippine Nuclear Research Institute



PTRI

Philippine Textile Research Institute

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



SEI

Science Education Institute



STII

Science and Technology Information Institute



TAPI

Technology Application and Promotion Institute

REGIONAL OFFICES (16)

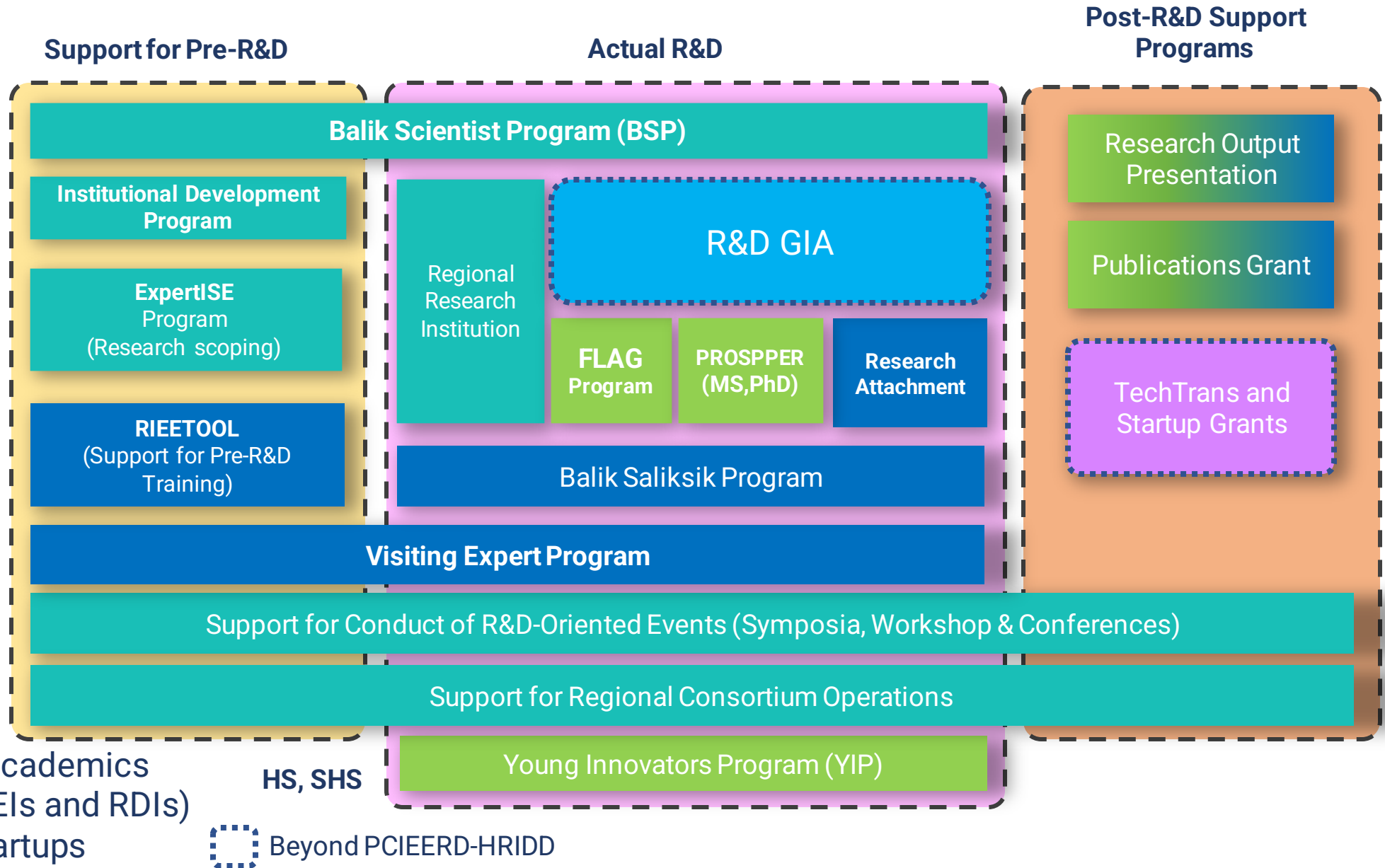
PROVINCIAL S&T CENTERS (80)



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

INNOVATION COUNCIL
FOR INDUSTRY, ENERGY AND EMERGING TECHNOLOGIES (DOST-PCIEERD)

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



- Undergraduate
- Graduate
- Postgraduate
- University & RDI-based Researches

Key actors:

- Students
- Researchers/Academics
- Institutions (HEIs and RDIs)
- Enterprises/Startups

HS, SHS

⋯ Beyond PCIEERD-HRIDD



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)**

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



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.

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

Grantee: Mr. Najeeb S. Abdulla II

Specialization: Materials Science

Host Researcher: Dr. Mannix Balanay

Host Institution: Nazarbayev University, Kazakhstan

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.

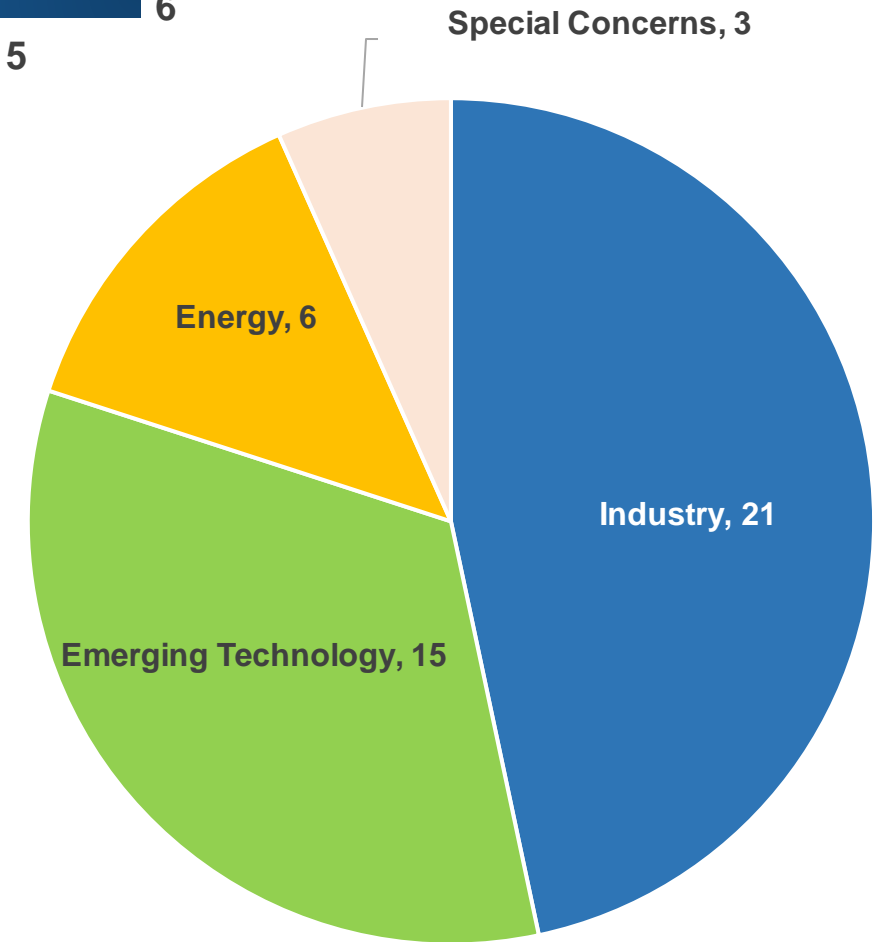
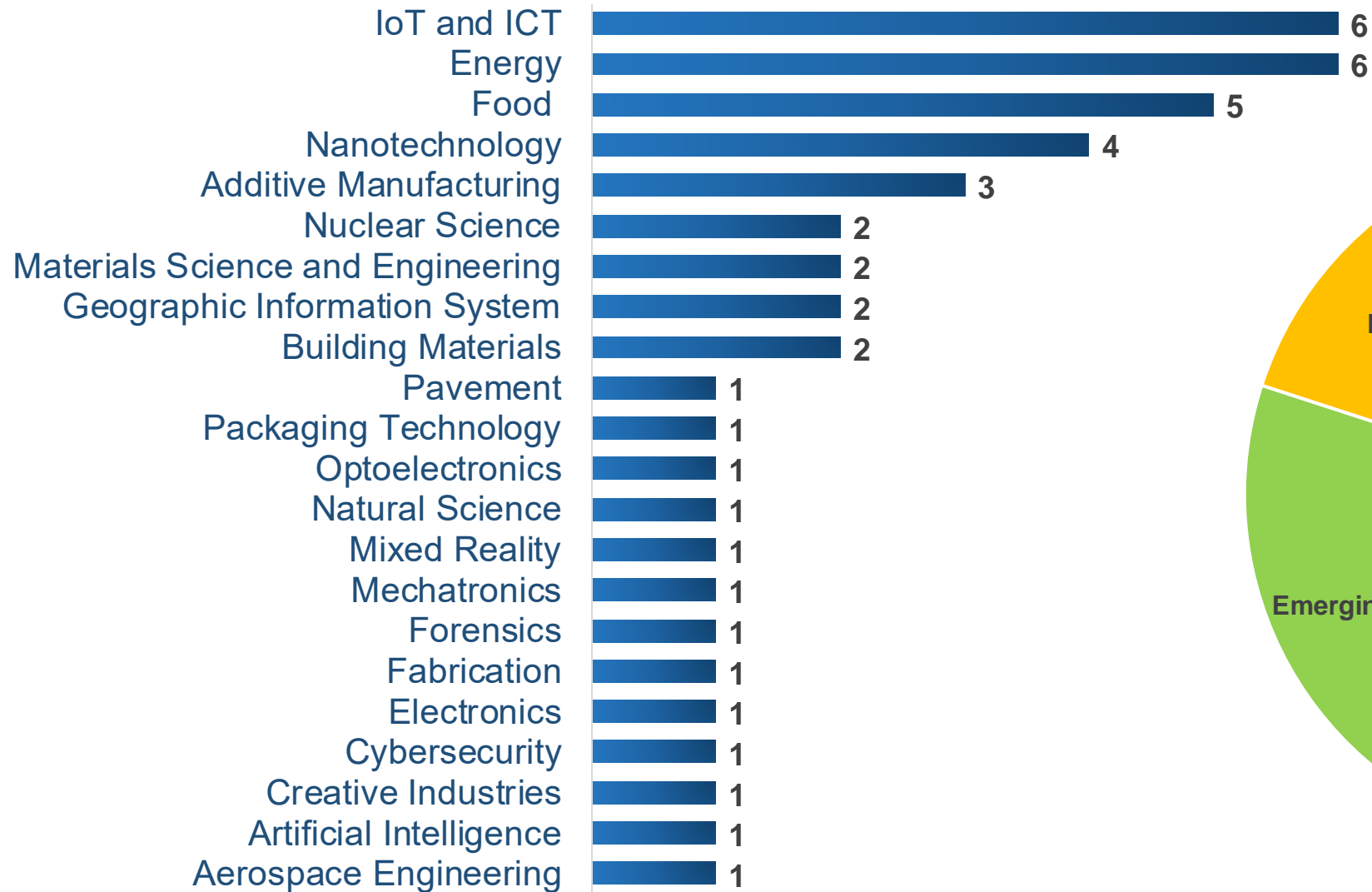
<http://pcieerd.dost.gov.ph/supported-programs-projects/strategic-thrusts-and-programs/240-institution-development>



DEPARTMENT OF SCIENCE AND TECHNOLOGY
PHILIPPINE COUNCIL
FOR INDUSTRY, ENERGY,
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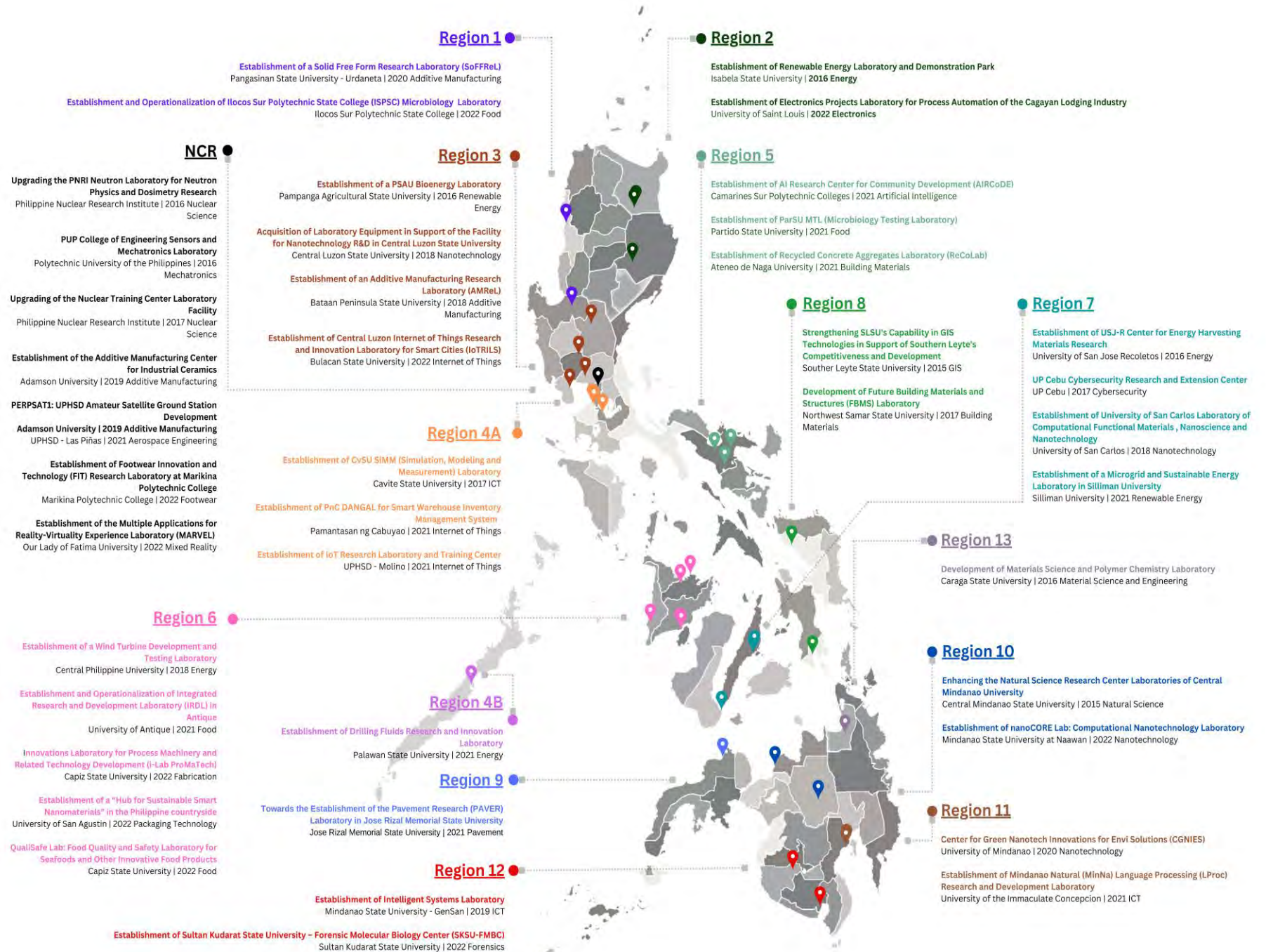
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Priority Sectors Funded



45

IDP Facilities/ Laboratories Across the Country





DEPARTMENT OF SCIENCE AND TECHNOLOGY
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INNOVATION COUNCIL
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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 industry to increase their productivity and competitiveness.

Target outputs/ accomplishments:

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



Incubator



Bag Mixer



Colony Counter



Laminar Airflow Cabinet



Autoclave



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 genome-based studies related to forensic science, data analytics, and value-adding 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.



Gel Documenting System



Digital Binocular Microscope



UV-Vis Spectrophotometer



Biosafety Cabinet Level 2



Biomedical Freezer



Center for Green Nanotechnology Innovations for Environmental Solutions (CGNIES)

Duration: December 3, 2020 to December 2, 2022

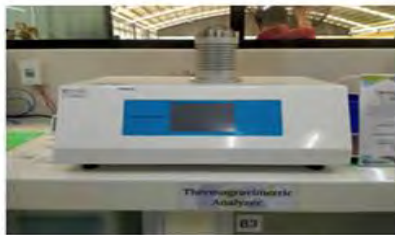
Amount of Grant: P5,000,000.00

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



Tubular Furnace



UV-Vis



Deionized Water Purifier



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



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 Non-aqueous 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

Solution

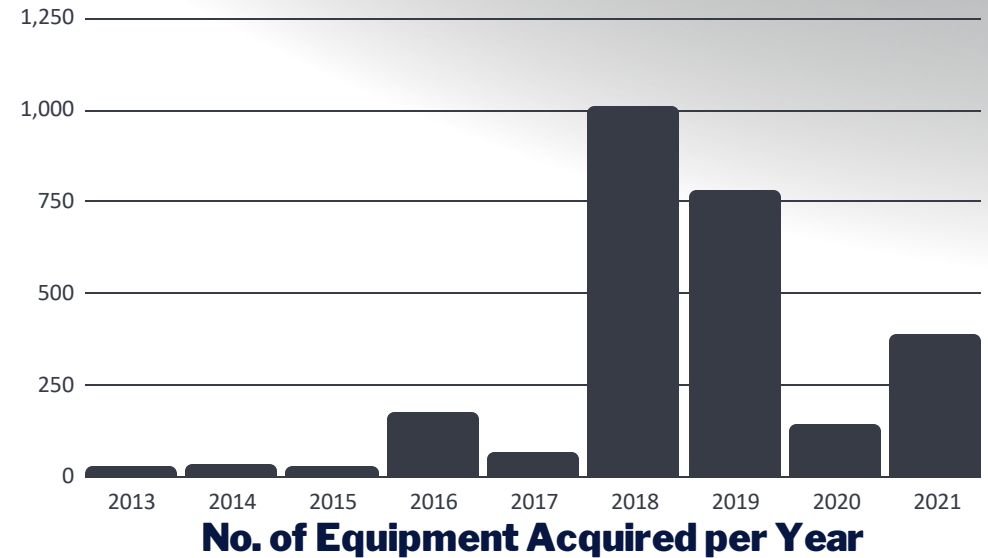
Establish a web-based system to serve as a database for information dissemination on equipment and facilities

Differentiation

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

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

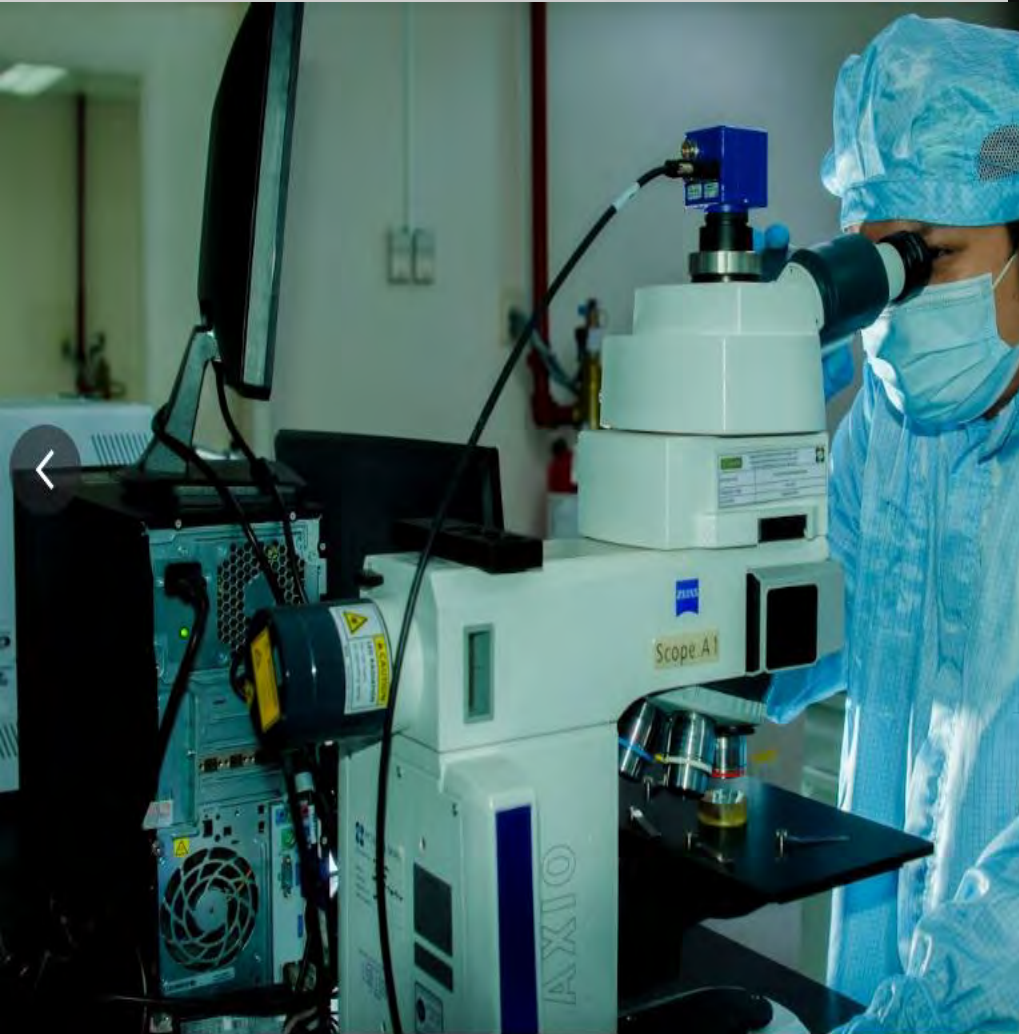
No. of Equipment Based on Funding Source and Amount

3,388
Total Equipment



*Source: PCIEERD Inventory Equipment System (PIS) as of October 2021

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**

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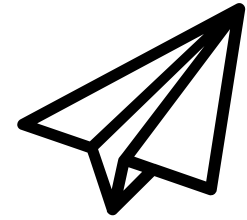
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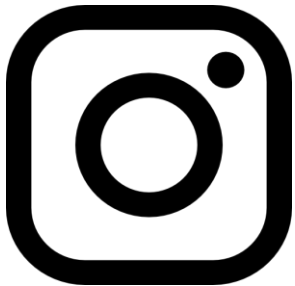
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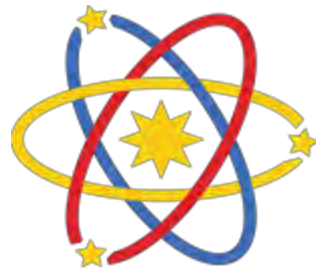
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THANK YOU!!



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