PCIEERD R&D PROGRAMS/PROJECTS

Department of Science and Technology
PHILIPPINE COUNCIL FOR INDUSTRY, ENERGY AND
EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT

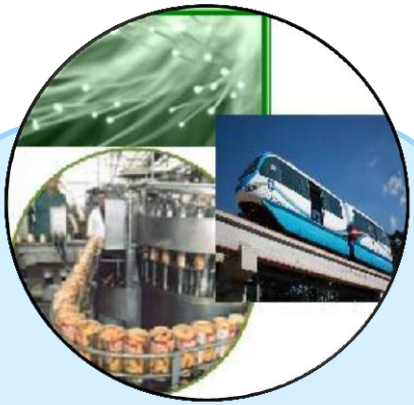
Mandate/Function

VISION

The PCIEERD envisions to be recognized for the quality of its people, leadership and performance and contribute to the nation's productivity and competitiveness.

MISSION

To lead and partner with public and private institutions in generating S&T policies, strategies and technologies that will contribute significantly to national development.

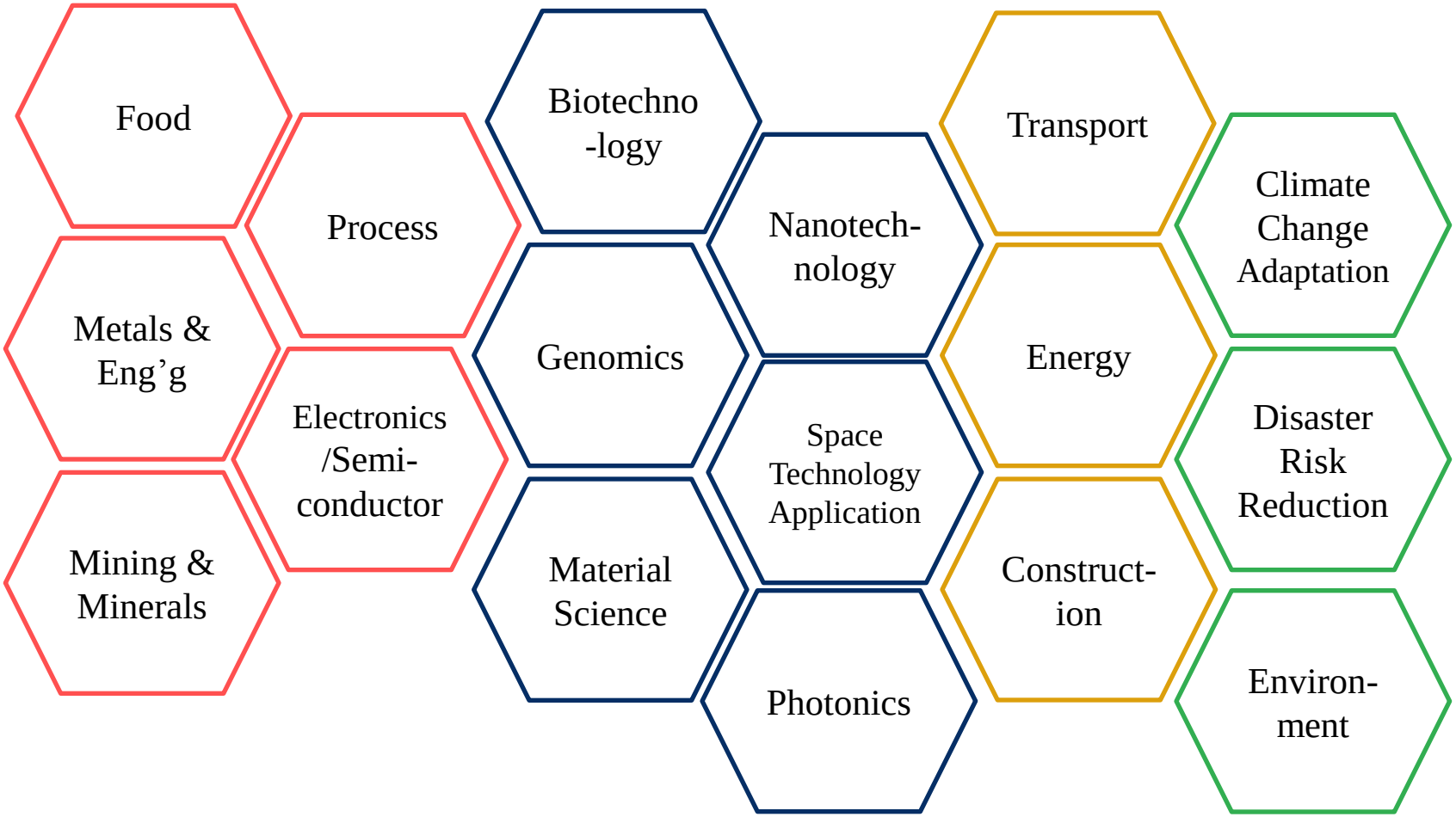


Program and allocate government & other external funds for industry, energy, and emerging technologies

Support for Institution Development, R&D and S&T human resource pool

Transfer and commercialization of technologies and other research outputs for optimal utilization

SECTORAL COVERAGE



PCIEERD and the Aquino Social Contract

Poverty Reduction and Empowerment of the Poor and Vulnerable

Rapid, Inclusive and Sustained Economic Growth

Integrity of the Environment and Climate Change Adaptation and Mitigation

Key Result Areas

DOST OUTCOMES

- Innovative, Cost-effective and Appropriate Technologies
- State-of-the-art Facilities to Move up the Value Chain and Attain Global Competitiveness
- Highly Skilled and Globally Competitive S&T Human Resources
- Science-based Weather Information and Climate Change Scenarios for a Disaster and Climate Change Resilient Philippines

PROJECT ACCOMPLISHMENTS FY 2013

Competitive Industry and Manufacturing

Advanced Device Materials Testing Laboratory (ADMATEL)

Budget: Php385.19M (Phase I&II)

- ADMATEL has been fully operational since January 8, 2013
- The new testing facility was established to reinforce and upgrade the failure analysis and materials testing of products of our local semiconductor and electronics industry.

Beneficiaries:

Philippines Semiconductor & Electronics Industry

Outcome:

- Improving the competitiveness of our local companies, as well as, attract potential investors in the Semiconductor and Electronics Industry.

Competitive Industry and Manufacturing

Establishment and Operation of the Philippine Electronics Product Development Hub

Budget: Php 268.41M

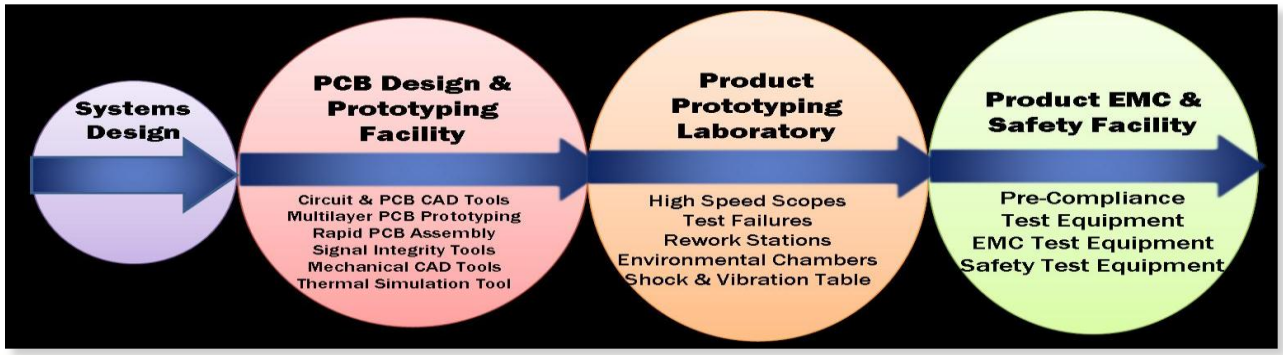
The list of tools for the EMC facility is 100% complete while the list of PDC equipment is 50% complete.

Outcome:

- Serve as a catalyst for more R&D efforts from R&D institutions and schools research entities in the field of electronics.

Beneficiaries:

Philippines Semiconductor & Electronics Industry



Sustainable Energy

The Smart Wire Program

Budget: Php 27.65M

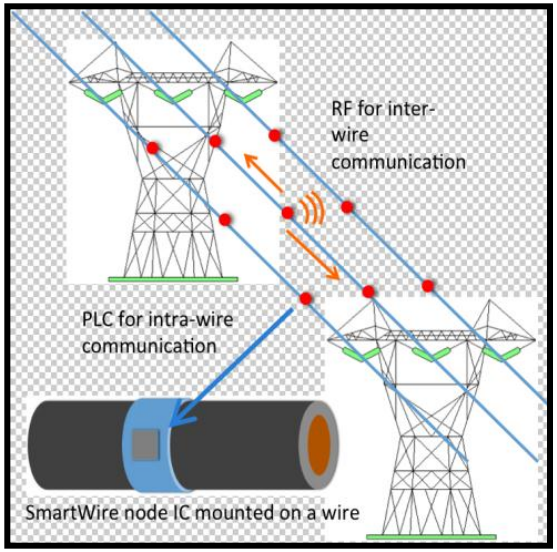
- Designed a 2-channel Data Acquisition (DAQ) verified at the schematic and layout level/modelling
- Integrated design for fabrication/ simulation/layout
- Specified the target specifications for the sub-blocks
- Identified the different blocks to be used for the computation and communication subsystem
- Specified the target specifications for the sub-blocks

Beneficiaries:

Energy Sector,
Semiconductor Industry,
Academe

Outcome:

- Enabling the Philippine Energy Sector to better adopt Smart Grid solutions



Efficient Transport

Rapid Electric Vehicle Charging (CharM)

Budget: Php 25.91M

- E-trikes drive cycle acquisition completed
- 6 units of a single brand of Li-ion battery were characterized for slow charging mode
- Slow discharge profiling of 6 units of Li-ion

Outcome:

- Low carbon emitting technologies for public transport

Beneficiaries:

Public and Transport Sectors

Efficient Transport

Development of a Prototype Automated Guide-way Transit (AGT) System

Budget: Php 65.65M

- Constructed three (3) temporary maintenance & loading platforms
- Four (4) guide wheel frames were subjected to Magnetic Particle testing to check quality of welding (in accordance to ASTM E709-08)
- Conducted demonstration run for the President, MMDA Chairman, DPWH Secretary & DOTC Undersecretary

Beneficiaries:

Public Transport & LGU

Outcome:

- Contribute to the stabilization of GHG concentrations in the atmosphere by reducing the amount of GHGs generated by the public transport utility sub-sector.

Climate Change Adaptation and Disaster Risk Reduction

Beneficiaries:
PHIVOLCS, FMB, DPWH, Bureau of Agricultural Statistics, PAGASA, NAMRIA, MGB, PhilRice, Renewable Energy Bureau

Outcome:

- The project will produce high-resolution flood hazard maps and install integrated flood early warning systems (iFEWS).

Nationwide Disaster Risk Exposure Assessment for Mitigation (DREAM) Program

Budget:Php 1.6B

- Acquired over 22,000km^2, finishing 17 major river basins out of the 18 target areas.
- Ground surveys and databasing for Mandulog, Iponan, Angat-Pampanga, Agno, Iligan and Bicol river
- LIDAR data for Agno, Pampanga, Davao, Bicol, and Portion of Bulacan Flood Plain
- Processed LIDAR digital models of Pampanga, Bicol Cagayan de Oro, Tacloban, Iponan, Iligan and Mandulog

Climate Change Adaptation and Disaster Risk Reduction

Regional Disaster Science and Management S&T Capacity Development for SUCs

Budget: Php 18.78M

Conducted Rapid Earthquake Damage Assessment System (REDAS) training in 14 SUCs for the creation of database regarding hazard prone areas

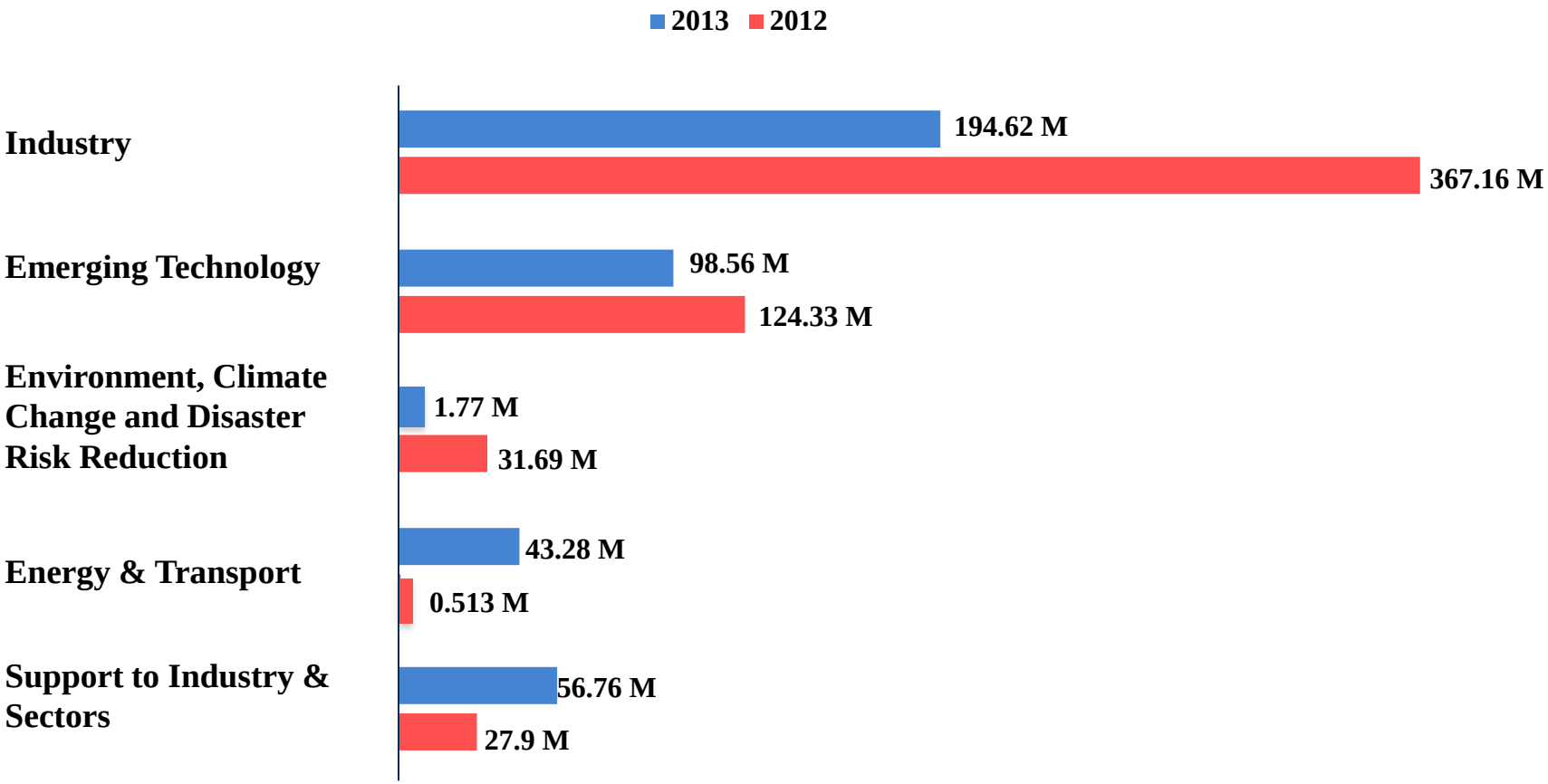
Outcome:

- Enhanced disaster risk management capability of the LGUs through the SUCs in drafting appropriate CCA-DRR streamlined plans, programs and projects

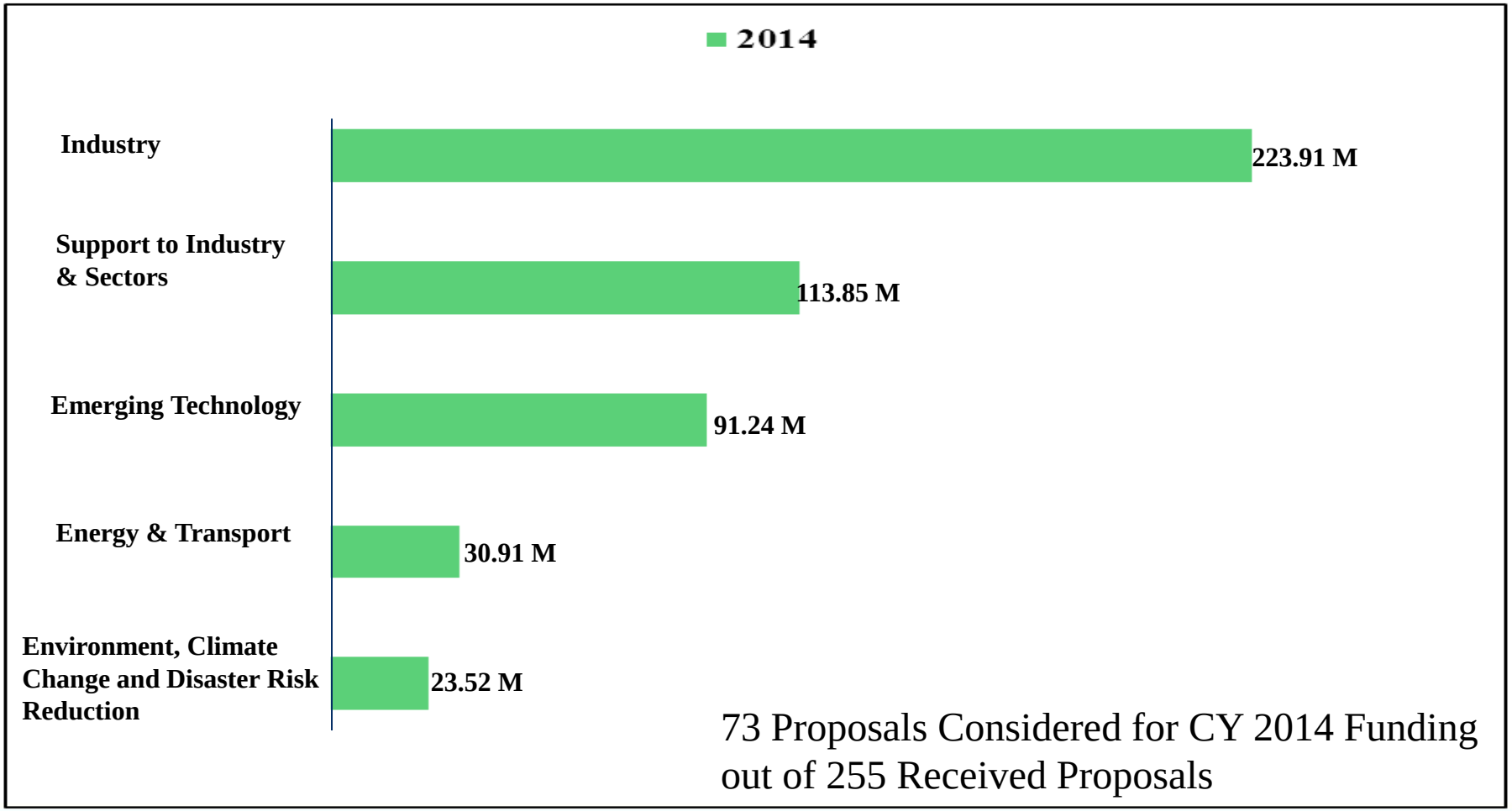
Beneficiaries:

SUCs (Region II, III, XI)

PCIEERD- GIA Investment per Sector



PCIEERD-GIA Allocation for 2014

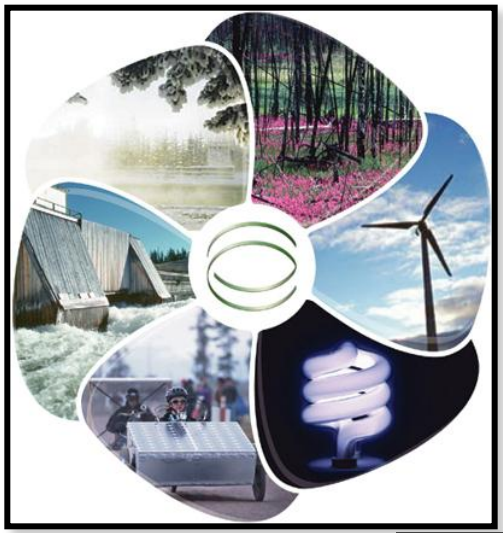


73 Proposals Considered for CY 2014 Funding out of 255 Received Proposals

R&D Priorities for 2015

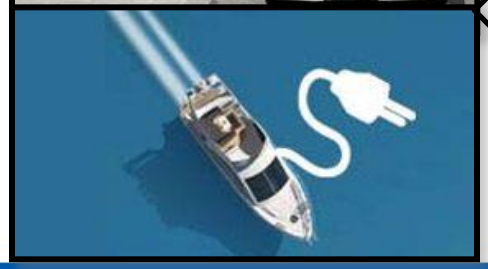
PCIEERD PRIORITY THRUST

Appropriate Technologies for Industry Competitiveness



Sustainable Energy

Sustainable Mass Transport

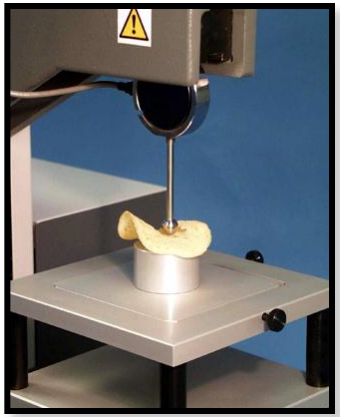


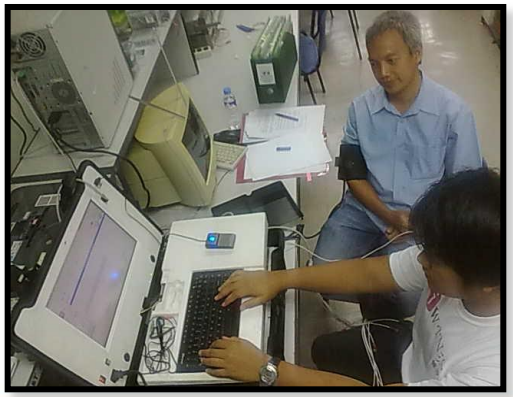
Environment, Climate Change & Disaster Risk Reduction

Appropriate Technologies for Industry Competitiveness

Electronics, Semiconductor and ICT Industry

- Sensors and Transducers Materials Development for Food Quality Monitoring, Detection of Chemical, and Industrial Process Controls, Health and Medical Diagnostic Kits
- IC Sensors for Water Level, Chemical Detection and Proximity Detection
- Cost-effective and environmentally-friendly Process for Refining of Copper from Electronics and Semiconductor Wastes to 99.9999% Purity
- Client-Based Educational and Gaming Application Software for K to 12 Using Thin Client Platform

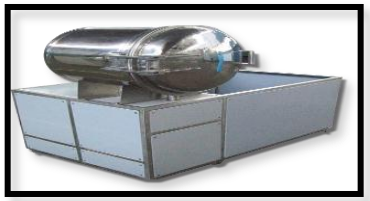




Appropriate Technologies for Industry Competitiveness

Food Industry

- Development of Intermediate Food Ingredients From Local Materials Sources
- Bench –Scale Verification of the Production and Testing of:
  1. Nano Sensors for Food, Virus Detection for Banana, Detection for Bisphenol A
  2. Nano-Biodegradable Packaging Materials for Food Application
  3. Food Grade Nano-Precipitated Calcium Carbonate from Limestone
  4. Nano-Encapsulated Plant Growth Promoter for High Value Crops
- Discovery of Gene/Molecular Markers Associated with:
  1. Improvement of High-Value Staple Crops: Mango, Banana and Tropical Fruits (Jackfruit, Papaya, Durian)
  2. Increased Production, and Diagnostics for Rapid Screening of Diseases of Selected Livestock (e.g. Broilers/Endemic Wild Chicken and Buffalo)



Appropriate Technologies for Industry Competitiveness

Process Industry

- Utilization of Abaca as Natural Fiber Reinforced Composites for the Automotive and Other Allied Industries
  1. Development and Upgrading of Treatment Technologies for Abaca Fiber Reinforced Polymer Composites
  2. Application of Abaca Fiber Reinforced Matrix Composites as Alternative Materials for Automotive and Allied Industries
- Diversification of the Nonwoven Applications of Philippine Fibers for Industrial and Manufacturing Sector
- Production of Manila Elemi Oil and other High Value Products from Pili
  1. Development of extraction process and equipment for elemi oil including raw material preparation, testing and packaging
  2. Development of high value products from by-products of elemi oil processing
  3. Nano-based Preservatives from Pili Resin (*Canarium luzonicum)*
- Nano-based Preservatives from Essential Oils of Plantation Grown Lemon-Scented Gum (*Corymbia citiodora*)

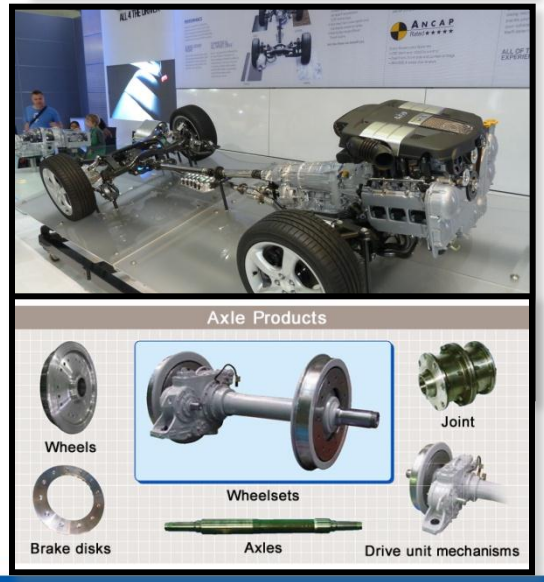
Manila Elemi

Appropriate Technologies for Industry Competitiveness

Process Industry

- Technology Development for the Upgrading of the Local Cacao and Cocoa Industry
  1. Pilot scale production and multi-location field testing for the starter culture formulation for cacao fermentation
  2. Design and Fabrication of processing line for bitter chocolate
  3. Development of test kits for quality determination e.g. aroma and flavor
- Natural Rubber Processing and Manufacturing
  1. Development of field- test kits for dry rubber content/moisture and dirt content in cup lumps
  2. Fabrication of dies, molds machineries for rubber manufacturing
  3. Development of specialty rubber and modified rubber products for eco-friendly applications
  4. Development of new formulations using nanomaterials for rubber tires, rubber products and industrial rubber products
  5. Innovations in process engineering and localization of equipment and parts for rubber manufacturing
- Optimization and Bench Scale Production of Fire Retardant from Nanostructured Inorganic Materials

Appropriate Technologies for Industry Competitiveness



Minerals Industry

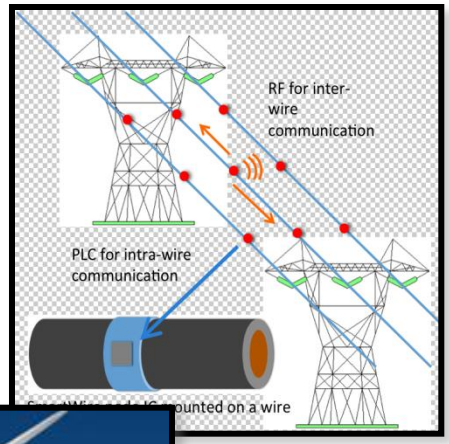
- Development of Value-Adding Technologies for Copper, Iron, Chromite, Nickel, Chromium and Gold Minerals for Industrial Application
- Bench Scale Verification of the Production and Testing of Nano Silica as Material for Fertilizers, Coolant, Food Packaging and Arsenic Removal

Metals & Fabrication Industry

- Cost Efficient Manufacturing Processes and Equipment to Increase Local Content of Automotive and/or Train Parts and Components
- Development of Processes for Cupola and Value Added Products
- Design, Development and Prototyping of Food Processing Equipment for Micro, Small and Medium Enterprises (MSMEs)

Sustainable Energy

- Smart Energy Efficient Systems for Low Carbon Economy
  - Localized energy efficient smart and green system technologies for:
    1. MSMEs ≥ 20%
    2. Residential to Commercial buildings ≥ 10%
- Renewable Energy Systems
  - Local development of micro-hydro (up to 100kWe) high-efficiency turbines ≥ 75%
  - Bench Scale Fabrication of Polymer Electrolytes from Carrageenan. Carbon nanotubes Heterojunctions, Conjugated Di-block Heterojunctions and Graphene for Solar Cells and Solar Panel ≥ 24% Efficiency
- Indigenous Bioenergy Systems
  - Biofuel handling testing, engine performance & durability testing of higher blends
    1. 10% & 20% biodiesel
    2. 20% bioethanol

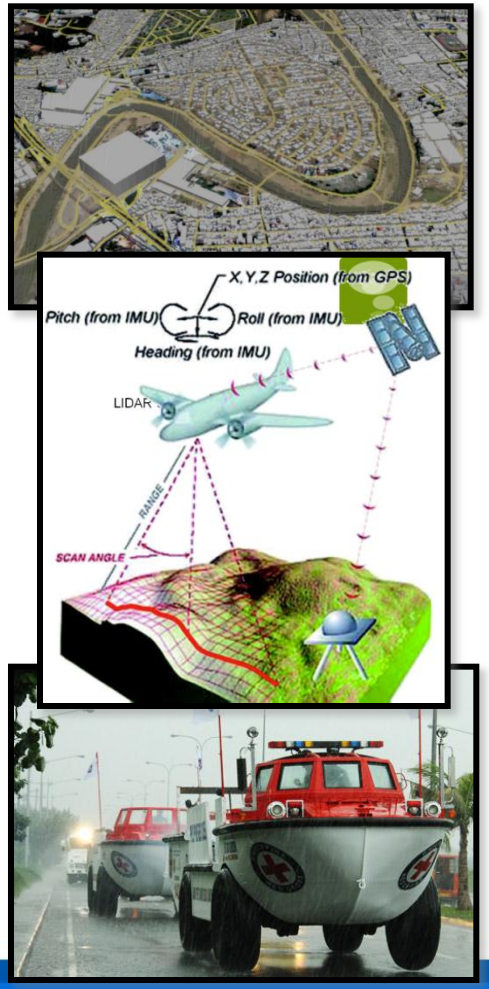


Sustainable Mass Transport

- Public Utility Vehicle (PUV) Sustainable Road Transport
  - PUJ weight & fuel consumption reduction ≥20%
  - Localized low carbon power driven PUVs
- Intelligent Transport System
  - Improve mobility by 20%
  - Reduction in travel time ≥ 20%
  - PUV on-board monitoring system with console data processor
- Water Transport
  - Cost-effective sea-worthy hull design for bancas
  - Cost-effective power-to-hull size-to-weight ratio improvement for small to large size capacity motorized bancas

Environment, Climate Change Adaptation and Disaster Risk Reduction

- Bench –Scale Verification of the Production and Testing of Nano Sensors for Gas Detection and Environmental Application and Arsenic Detection
- Use of Multispectral Data from Microsatellite Data for Various Applications
- Use of LIDAR Data for Various Applications
- Development of a community-managed risk assessment system for multi-hazard observation and monitoring for an integrated end-to-end early warning, alarm and decision support systems
- Development of an integrated urban flood inundation model for highly urbanized communities
- Development of Compact Systems for Pre- and Post-Treatment of Industrial Wastewater (to meet at least Class C Water Quality)
- Design and prototype of a cost-effective motorized amphibious light vehicle for 8-10 people capacity for urban flood rescue with estimated unit cost of P1.0M or less



EXPECTED OUTPUTS & OUTCOMES

OUTPUT – an activity, effort, and/or associated work product related to project goals and objectives that will be produced over a period of time

- May be qualitative or quantitative but must be measurable

- Innovative & novel technologies and scientific methods developed
- Technology transfer, training/deployment of technology
- Techno-economic feasibility and pre-feasibility studies
- Databases & other tools that facilitate projects or provide access to information
- Training/capacity building

OUTCOME - the result, effect or consequence that will occur from carrying out a project or activity that is related to programmatic goal or objective

- May be environmental, behavioral, health-related, or programmatic in nature, but must be quantitative

- Contribution to DOST Outcomes

DOST OUTCOMES

1. Science-based know-how and tools that enable the agriculture sector raise productivity to world class standards;
2. Innovative, cost-effective and appropriate technologies that enable micro-, small- and medium-scale enterprises (MSMEs) to develop and produce competitive products that meet the world class standards;
3. State-of-the art facilities and capabilities that enable local industries to move up the value chain and attain global competitiveness;
4. Philippines as a global leader in Information Technology-Business Process Management Services generating direct employment of 1.3 million (520,000 of which in the countryside);
5. ICT-based transformation of governance broadening access to government services (i.e. health and education) for those in the countryside;
6. Improve quality healthcare and quality of life thru science, technology and innovation;
7. Highly skilled and globally competitive S&T human resources in support of the National S&T programs;
8. Science-based weather information and climate change scenarios with associated impact assessments that enable concerned agencies to develop appropriate mitigation strategies for a disaster and climate change-resilient Philippines.

BACK

FUNDING AWARD INFORMATION

Fund Information

Total Estimated Funding ≈ Php 500,000,000

R&D Award ≈ Php 500,000 to Php 10,000,000
(subject to availability of funds and the quality of proposals received)

Deadline of e-Proposal Submission

Before the Closing Date on **January 31, 2014** to PCIEERD-DOST **e-Proposal Submission Facility**

Partial Funding

Funding discrete portions or phases of Proposed Projects

PROPOSAL AND SUBMISSION INFORMATION

A. Content of e-Proposal

1. Letter of Intent & Endorsement
2. Narrative Proposal

B. **e-Proposals Submission**

- Before the Closing Date on January 31, 2014

C. **Pre-Proposal Assistance and Communication**

LETTER OF INTENT & ENDORSEMENT

ROWENA CRISTINA L. GUEVARA, Ph.D.
Executive Director
Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)
Department of Science and Technology (DOST)
5th Level, Science Heritage Building, DOST Compound,
Gen. Santos Ave., Bicutan, Taguig City

PSI

NARRATIVE PROPOSAL

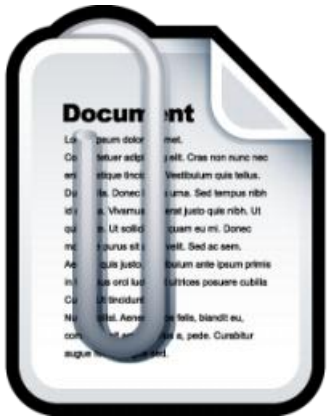
Describe the following downloaded forms:

A. Project Rationale and Description
B. Project Objectives
C. Review of Literature
D. Methodology
E. Work Plan
F. Project Outputs, Deliverables and Expected Outcome
G. Financial Budget Requirement Work Plan
H. Line Item Budget
I. Attachments

Forms can be Downloaded from www.pcieerd.dost.gov.ph or http://apps.pcieerd.dost.gov.ph/eProposals/

ATTACHMENTS

A. Roles of the Applicant and Partners, if there's any
B. Institution's Track Record
C. Project Team Information
D. Past Performance



PSI

CONTACTS

Energy, Transportation and Disaster Risk Reduction Sector:

Nonilo A. Peña, +632 8372935
napena@dost.gov.ph

Industry and Environment Sector:

Niñaliza Escorial, +632 8372926
nina020566@yahoo.com

Emerging Technologies Sector:

Nelson Beniabon, +632 8372071 to 82 local 2106
nobainob@gmail.com

FAI

FUNDING AWARD INFORMATION

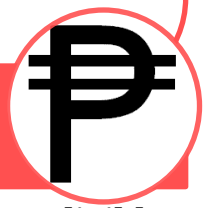
Anticipated Number of Projects	Approximately **40 Research Agreements** (PCIEERD-DOST **reserves the right to make additional project grants** under this announcement **if additional funding becomes available after the original selection**)
Commencement Period for Approved Project	**January 2015**
Funding Type	Research agreement under the PCIEERD Grants-In-Aid (GIA) Program

ELIGIBILITY INFORMATION

Eligible Entities

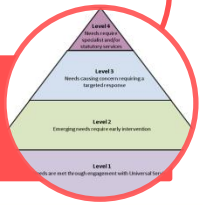
1. Any Filipino, public or private entity with proven competence.
2. Public & Private Universities & Colleges
3. RDIs, R&D Consortia
4. Non-profit laboratories
5. Other Public/Private non-profit S&T institutions in the Philippines

Cost Sharing & Matching



- Applicants should provide at least 20% counterpart funding
- Only eligible & allowable costs may be used for counterpart fund/in-kind contribution

Threshold Criteria



Proposals must:

1. Be from Eligible Entities
2. Demonstrate S&T Advancement
3. Be written in English
4. Substantially comply with the Proposal submission, instructions, & requirements
5. Be received by PCIEERD on or before the submission deadline

Note: Non-profit organizations engaged in lobbying activities are not eligible to apply.

EVALUATION CRITERIA

A. <u>Evaluation Criteria</u>

- ✓ Met the threshold criteria
- ✓ Directly and Explicitly addressed the criteria as part of their Proposal submission
- ✓ Rated using points system, with a total of 100 points possible

B. Review and Selection Process

- A review team will evaluate each proposal using the evaluation criteria

C. Other Factors

- The Approving Authorities of PCIEERD will make final funding decisions.

EVALUATION CRITERIA

CRITERIA	POINTS
Project Approach	30
Outputs and Outcomes	30
Track Record of Applicant	15
Staff Expertise/Qualifications	15
Budget/Resources	10
TOTAL	**100**

EC

AWARD ADMINISTRATION

A. Award Notices

1. Successful applicant will be notified via telephone, fax, electronic or postal mail by September 15, 2014.
2. The Award Notice signed by the PCIEERD Executive Director is the authorizing document and will be used for the execution of project through MOA.
3. Unsuccessful applicant(s) will also be notified via electronic or postal mail by September 15, 2014.

B. Administrative and DOST-GIA Policy Requirement

- The Grants-In-Aid award shall be governed by the DOST GIA Guidelines.

C. Reporting Requirement

1. Quarterly Progress Reports
   a. Summary of Technical Progress
   b. Planned Activities for next quarter
   c. Summary of Expenditures
2. Final Report
   - Shall be completed within 90 calendar days upon completion

PCIEERD CONTACT

For further inquiries the applicant may contact:

Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)

ATTN: ALBERT G. MARIÑO
5th Level Science Heritage Building
DOST Complex, Gen. Santos Ave.
Bicutan, Taguig City
agmarino@dost.gov.ph
+632 8372071 Local 2107
Fax: +632 8376154

All questions or comments must be communicated in writing via postal mail, facsimile, or electronic mail to the contact person listed above.

THANK YOU.