Philippines’ Landscape on Funding and Collaboration

Dr. Maribel G. Nonato
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</thead>
<tbody>
<tr>
<td>Global Competitiveness Rank</td>
<td>85</td>
<td>75</td>
<td>65</td>
<td>59</td>
<td>52</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td>1. Basic Requirements</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>a) Institutions</td>
<td>125</td>
<td>117</td>
<td>94</td>
<td>79</td>
<td>67</td>
<td>77</td>
<td>91</td>
</tr>
<tr>
<td>b) Infrastructures</td>
<td>104</td>
<td>105</td>
<td>98</td>
<td>96</td>
<td>91</td>
<td>90</td>
<td>95</td>
</tr>
<tr>
<td>c) Macroeconomic Environment</td>
<td>68</td>
<td>54</td>
<td>36</td>
<td>40</td>
<td>26</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>d) Health &amp; Primary Education</td>
<td>90</td>
<td>92</td>
<td>98</td>
<td>96</td>
<td>92</td>
<td>86</td>
<td>81</td>
</tr>
<tr>
<td>2. Efficiency Enhancers</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>a) Higher Education &amp; Training</td>
<td>73</td>
<td>71</td>
<td>64</td>
<td>67</td>
<td>64</td>
<td>63</td>
<td>58</td>
</tr>
<tr>
<td>b) Goods Market Efficiency</td>
<td>97</td>
<td>88</td>
<td>86</td>
<td>82</td>
<td>70</td>
<td>80</td>
<td>99</td>
</tr>
<tr>
<td>c) Labor Market Efficiency</td>
<td>111</td>
<td>11</td>
<td>103</td>
<td>100</td>
<td>91</td>
<td>82</td>
<td>86</td>
</tr>
<tr>
<td>d) Financial Market Development</td>
<td>75</td>
<td>71</td>
<td>58</td>
<td>48</td>
<td>49</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>e) Technological Readiness</td>
<td>95</td>
<td>83</td>
<td>79</td>
<td>77</td>
<td>69</td>
<td>68</td>
<td>83</td>
</tr>
<tr>
<td>f) Market Size</td>
<td>37</td>
<td>36</td>
<td>35</td>
<td>33</td>
<td>35</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>3. Innovation Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Business Sophistication</td>
<td>60</td>
<td>57</td>
<td>49</td>
<td>49</td>
<td>46</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td>b) Innovation</td>
<td>111</td>
<td>108</td>
<td>94</td>
<td>69</td>
<td>52</td>
<td>48</td>
<td>62</td>
</tr>
</tbody>
</table>
12TH PILLAR OF GCI: INNOVATION

- Innovation Ranking
- Capacity for Innovation
- Company Spending on R & D
- Quality of Scientific Research Institutes
- University-Industry Collaboration
- Availability of Scientists & Engineers
- Government Procurement of Advanced Technology Product
- PCT Application per Million Population

Axes:
- Y-axis: Innovation Ranking
Sources of Fundings in the Philippines

NATIONAL

Department of Science & Technology (DOST)

Commission on Higher Education (CHED)

Department of Agriculture (DA)

Department of Environment & Natural Resources (DENR)

Department of Health (DoH)
Sources of Fundings in the Philippines

INTERNATIONAL

USAID-STRIDE
BRITISH COUNCIL
NEWTON FUNDS
AUSTRALIAN
AWARDS
JAPAN SOCIETY
FOR THE
PROMOTION OF
SCIENCE (JSPS)
GERMAN
ACADEMIC
EXCHANGE
SERVICE (DAAD)
MECO-TECO
FULBRIGHT
JAPAN
INTERNATIONAL
COOPERATION
AGENCY (JICA)
DOST Organizational Chart

Office of the Secretary

Undersecretary for Science and Technological Services
Assistant Secretary for Finance, Administrative and Legal Affairs

Undersecretary for Research & Development
Assistant Secretary for Countryside Development

Undersecretary for Regional Operations
Assistant Secretary for International Relations

3 Sectoral Planning Councils
(PCAARRD, PCIEERD, & PCHRD)

7 R&D Institutes (PNRI, ASTI, FPRDI, MIRDC, PTRI, FNRI, & ITDI)

2 Collegial Bodies
(NAST & NRCP)

8 S&T Service Institutes (PSHS, PAGASA, PHIVOLCS, SEI, STII, TAPI, ICTO, TRC)

17 Regional Offices

80 Provincial S&T Centers

Excerpt from the lecture of U/Sec Dr. R. C. Guevara, NRDC, 21 October 2016
**SECTORAL PLANNING COUNCILS**

- Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD)
- Philippine Council for Health Research and Development (PCHRD)
- Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)

**Functions:**

- Formulation of policies, plans, programs, projects and strategies for S&T development
- Programming and allocation of Grants-in-Aid (GIA) funds for R&D
- Monitoring of research and development projects
- Generation of external funds

**COLLEGIAL BODIES**

- National Research Council of the Philippines (NRCP)

**Functions:**

- Promotion of basic research and cooperation among scientists and researchers
- S&T advisory body

Excerpt from the lecture of U/Sec Dr. R. C. Guevara, NRDC, 21 October 2016
ENTERPRISE DEVELOPMENT
• Small Enterprise Technology Upgrading Program
• Community Empowerment through Science and Technology (CEST)
• Technology Business Incubation

FACILITIES
• One Stop Laboratory Services for Global Competitiveness (ONE LAB)
• Food Innovation Centers (FICs)
• Complementary Food Production Plants in the Regions

Excerpt from the lecture of U/Sec Dr. R. C. Guevara, NRDC, 21 October 2016
The DOST-GIA aims to harness the country’s scientific and technological capabilities by providing financial grants to S&T programs/projects to spur a sustainable economic growth for the country.

**Funding Assistance Coverage:**

- **Generation of Knowledge and Technologies**
  - Fundamental/Basic R&D
  - Applied Research
  - Experimental Development
  - Pilot Testing

- **Diffusion of Knowledge and Technologies**
  - Technology Transfer
  - Technology Receptor Capability Building
  - Innovation Capacity Building

- **Development of S&T Human Resources**

- **Provision of Quality S&T Services**

Excerpt from the lecture of U/Sec Dr. R. C. Guevara, NRDC, 21 October 2016
6Ps Metrics: Evaluation of R&D Proposals

- Publications
- Patents
- Products
- People Services
- Places and Partnerships
- Policies

Excerpt from the lecture of U/Sec Dr. R. C. Guevara, NRDC, 21 October 2016
Collegial Body of Scholars and Experts; 3,962 Regular and Associate Members

13 Scientific Divisions

- Division 1: Governmental, Educational and International Policies
- Division 2: Mathematical Sciences
- Division 3: Medical Sciences
- Division 4: Pharmaceutical Sciences
- Division 5: Biological Sciences
- Division 6: Agriculture and Forestry
- Division 7: Engineering and Industrial Research
- Division 8: Social Sciences
- Division 9: Physics
- Division 10: Chemical Sciences
- Division 11: Humanities
- Division 12: Earth & Space Sciences
- Division 13: Veterinary Medicine
Comprehensive Studies on Vulnerable Ecosystems for Sustainable Development
Scientific Knowledge Managements
Re-engineering the Philippine Society towards Inclusive Nation Building
Data Collection, Generation and Modelling for Natural and Social Phenomena
The Environment, Natural Resources, Alternative Energy, and Anthropogenic Activities
Climate change Mitigation, Adaptation and Disaster Risk Reduction and Management for Sustainable Development
Policy for Healthful Lifestyle
Cell and Tissue Regeneration Studies
Natural Products Development
Food Safety and Security
Biodiversity Research Program for Sustainable Agriculture, Forestry and Fisheries
Innovative Scientific Devices, Diagnostic Kits and Vaccines
Holistic Approaches in the Diagnosis, Prevention, Control and Treatment of Animal Pests and Diseases
Biological Transformations and Green Technology for Environmental and Industrial Processed

Excerpt from the lecture of Dr. Marieta Sumagaysay, Exec. Director NRCP, NRDC, 21 October 2016
A. Food and Nutrition Security

Quality, safe and affordable food for all, at all times
Food safety & quality, Food product innovation and development, Food packaging

B. Countryside Development

More farmers, fisherfolks and MSMEs developing and producing competitive and world class products and services
Technology transfer and commercialization, promoting and popularizing S & T

C. Competitive Industry

More industries enabled by state-of-the-art R & D facilities, technologies and science-based policies, moving up the value chain and attracting foreign direct investments.
Semiconductors & Electronics, Mining and Minerals, Processing, Metals and Engineering, Transportation, Manufacturing

D. Delivery of Social Services

Innovative, accessible, affordable and efficient social services for all
Energy, Environment & Pollution Control, Traffic, Mobility

Excerpt from the lecture of Dr. Raul Sabularse, Exec. Director PCIEERD, NRDC, 21 October 2016
Diagnostics
Genomics/Molecular Technology
Drug Discovery & Development
Functional Foods
Hospital Equipment and Biomedical Devices
Information and Communication Technology for Health
Nutrition and Food Safety
Disaster Risk Reduction
NHRDA for HEALTH 2017-2022
PCAARRD PRIORITY AREAS

Agriculture Sector – Crops and Livestock

Aquatic Sector
  Inland
  Marine

Forestry and Natural Resources Sector
### Excerpt from the lecture of Dr. Reynaldo Ebora, Exec. Director PCAARRD, NRDC, 21 October 2016

**Commodity Focus**

<table>
<thead>
<tr>
<th>Agriculture</th>
<th>Livestock</th>
<th>Aquatic</th>
<th>Forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crops</strong></td>
<td><strong>Livestock</strong></td>
<td><strong>Aquatic</strong></td>
<td><strong>Forestry</strong></td>
</tr>
<tr>
<td>Abaca</td>
<td>Carabao (dairy, meat, and draft)</td>
<td>Inland</td>
<td>Timber</td>
</tr>
<tr>
<td>Biofuel Crops</td>
<td>Cattle (dairy and meat)</td>
<td>Mangrove crab</td>
<td>Industrial tree</td>
</tr>
<tr>
<td>Corn</td>
<td>Native Chicken</td>
<td>Milkfish</td>
<td>Plantations (e.g. yemane, falcata)</td>
</tr>
<tr>
<td>Fruit Crops</td>
<td>Duck</td>
<td>Mussel</td>
<td>Non-timber</td>
</tr>
<tr>
<td>- Mango</td>
<td>Small ruminants</td>
<td>Tilapia</td>
<td>Bamboo</td>
</tr>
<tr>
<td>- Banana</td>
<td>Swine/Native pig</td>
<td>Shrimp</td>
<td>Rattan</td>
</tr>
<tr>
<td>- Other Tropical fruits</td>
<td></td>
<td></td>
<td>Sago</td>
</tr>
<tr>
<td>Legumes</td>
<td>Agriculture</td>
<td></td>
<td>Tiger grass</td>
</tr>
<tr>
<td>Ornamental/Medicinal Crops</td>
<td></td>
<td></td>
<td>Vines and others</td>
</tr>
<tr>
<td>Plantation Crops</td>
<td></td>
<td>Marine</td>
<td></td>
</tr>
<tr>
<td>- coconut</td>
<td></td>
<td>Abalone</td>
<td></td>
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<tr>
<td>- Cacao</td>
<td></td>
<td>Blue Swimming crab</td>
<td></td>
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<tr>
<td>- Coffee</td>
<td></td>
<td>Oyster</td>
<td></td>
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<tr>
<td>- Rubber</td>
<td></td>
<td>Sardines</td>
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<tr>
<td>- Sugarcane</td>
<td></td>
<td>Sea cucumber</td>
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<tr>
<td>Rice</td>
<td></td>
<td>Seaweeds</td>
<td></td>
</tr>
<tr>
<td>Rootcrops</td>
<td></td>
<td>Tuna</td>
<td></td>
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<tr>
<td>Vegetables</td>
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</tbody>
</table>

- Inland: Mangrove crab, Milkfish, Mussel, Tilapia, Shrimp
- Marine: Abalone, Blue Swimming crab, Oyster, Sardines, Sea cucumber, Seaweeds, Tuna
- Timber: Industrial tree, Plantations (e.g. yemane, falcata)
- Non-timber: Bamboo, Rattan, Sago, Tiger grass, Vines and others
Mandates as per Executive Order 128

- Undertake science education and training;
- Administer scholarships, awards and grants;
- Undertake science and technology manpower development; and
- Formulate plans and establish programs and projects for the promotion and development of science and technology education and training in coordination with DepEd, CHED and other institutions of learning.

Mission

1. to accelerate the development of S&T human resources of the country by administering undergraduate and graduate scholarships and advanced specialized trainings;
2. promote S&T culture and develop innovative science education programs.
Science Education Institute Key Programs

SEI

S & T Promotions & Other Mentoring Programs

Researches/ Studies/Surveys in Sci Education & S & T HRD

Scholarships Programs

Trainings on Special Topics in Science & Math

Programs on Innovative Approaches in Science Education

Accelerated S & T Human Resource Development (ASTHRDP)

Engineering Research and Development for Technology Program (ERDT)

National Science Consortium
A consortium of 8 universities in the country

Program components
- Human Resource Development (HRD),
- Research & Development, and
- Infrastructure Development.

Opportunities under ERDT
1. Scholarships to potential and qualified applicants who are interested to pursue engineering graduate program.
2. ERDT - HRD: Visiting Professor Program, Visiting Researcher Program, PhD Sandwich Program, Faculty Research Dissemination Grant and Post-Doctoral Studies.
3. ERDT – R & D: Research focus on 1) Energy Track, 2) Environment and Infrastructure Track, 3) Information and Communications Technology Track and 4) Semiconductor and Electronics Track.
4. ERDT – Infrastructure: organizing workshops, conferences, congress and summits

ERDT recognised that for researches to be translated to usable products or processes scholars need skill on technoentrepreneurship, thus course on technoentrepreneurship was offered to the scholars since 2008.
A consortium of 11 colleges and schools from 8 Philippine Universities

Organized in 2009 to enhance the capability of the Philippine higher education system to produce technically competent Science PhD and MS graduates

Opportunities:
- University-based Scholarships
- Research grants (thesis/dissertation grants)
- Sharing of resources (faculty and equipment) and information exchange through collaborative academic and research activities among Philippine universities
CHED Programs & Projects

CHED

Quality Assurance Projects

COEs & CODs

Faculty Dev. Programs

Student Financial Assistance

Expanded Tertiary Education Equivalency and Accreditation

Horizontal & Vertical Typology

Foreign Scholarship & Training Programs

International Collaboration

Research Development & Extension

Natl Agriculture & Fisheries Education System

ASEAN Initiatives for Higher Education Academic Exchange Program
General Principles on Higher Education Research

Higher education research shall be guided by the following general principles:

1. Research is the ultimate expression of an individual’s innovative and creative powers. The higher education sector shall ensure that the academic environment nurtures and supports Filipino research talents.

2. Research thrives in an environment characterized by free flow of information, honest and analytical exchange of ideas, and supportive policy and administrative structures. Higher education policies shall enhance the institution’s and the individual’s capacity to conduct independent, collaborative and productive research.

3. Research is one of the main functions of the higher education sector. Universities in particular, are expected to lead in the conduct of discipline-based, policy-oriented, technology-directed and innovative/creative researches that are locally responsive and globally competitive.
Objectives shall be pursued under NHERA-2:

1. Improve research capability of HEIs, particularly the Philippine universities whose main business is to generate knowledge towards international competitiveness;

2. Enhance research productivity of HEIs in distinctive areas of competence;

3. Generate knowledge/technologies needed for
   a. International, national and regional higher education development,
   b. policy/plan formulation, particularly for higher education
   c. developing innovative programs in cutting edge higher education fields (e.g. nanotechnology, biotechnology, information and communications technology, and materials science); and
   d. advancing the frontiers of knowledge in the disciplines

4. Promote and facilitate dissemination and utilization of research outputs
CHED Philippine Higher Education Research Network (PHERNNet)

- Composed on 9 HEIs
- The network is aimed at encouraging and facilitating collaborative, interdisciplinary / multisectoral approaches to the generation and dissemination of new knowledge and technologies.

Mission:
- Identify areas of collaboration between and among members and with counterparts within and outside the country;
- Establish a system of collaboration and resource sharing in planning and undertaking HE research;
- Initiate collaborative research projects and exchange programs; and
- Provide fora and venues for exchange / sharing of information, research experiencing, technologies and methods.

Privileges
- P10M per year for 3 years
- Support for subscription of SCOPUS

Expectations:
- Publications in TR/SCOPUS indexed journals
- Joint research partnerships
The program aims to mitigate the effects of the implementation of K to 12 on the higher education sector from 2016 to 2021, and to provide a safety net for faculty, staff and higher education institutions affected by low student enrolment.

Grants-in-Aid: Discovery-Applied Research and Extension for Trans/Inter-disciplinary Opportunities (DARE TO)
- Promotes collaboration with non-COE/COD HEIs
- Provides training of young faculty affected by the K to 12 transition.
Founded in 2013, PCARI seeks to address the low research and innovation productivity of the Philippines in comparison with neighboring countries, based on the World Economic Forum’s Global Competitiveness Index.

It was conceived by the science and academic community and approved by Philippine Congress in 2013 as a leap frogging strategy to build the country’s capacity for research that translates to technological innovations, strategic policies and concrete solutions to address development problems in the country.

The PCARI R&D Projects involve 15 Philippine HEIs with collaborators in the University of California.
The current PCARI R&D portfolio:

1. Extension of cell phone sites for remote areas using the technology in a Village Base Station;
2. Design hardware and software to manage the collection and analysis of big data gathered through the deployment of sensors in the power grid, water system, and the environment;
3. Design an algorithm for managing traffic in urban areas;
4. Develop affordable and efficient printable solar collectors and power storage systems that could be deployed in rural areas;
5. Create an early warning system for plant diseases affecting our banana plantations;
6. Design precise water management systems for agriculture;
7. Invent accurate diagnostic kits for dengue that could be used by rural health workers;
8. Discover new anti-malarial drugs; and
9. Enhance local capacity to design and assemble medical devices.
University of Santo Tomas

- Founded in 1611
- Private Sectarian Comprehensive HEI
- QS Four Stars (2015)
- 20 Faculties and Colleges
- CHED Autonomous Status
- PACUCOA Highest Number of Accredited Programs in NCR and the Philippines (2015)
- ISO 9001:2008 Certification
- Home of Four National Cultural Treasures, the first within educational institutions to be declared as such (2010)
Faculty Development Program
- Acquisition of Higher Degrees from Foreign Universities
- Fellowships (Alexander Von Humboldt Foundation, Australian Awards, DAAD, Fulbright, JSPS)
- Faculty Exchanges

Aggressive Bilateral Engagements with Foreign Universities and Research Institutes
- 125 partner universities and research units and 11 networks of institutions

Student (UG & G) Mobility
- sandwich program
- research attachments
- Internships
- language, culture and civilization courses
- summer programs
- study tours
- discipline specific exchanges
University of Santo Tomas Strategies for International Collaboration

窘  Innovative Degree Programs
  o  Engagement in Joint and Dual Degree programs
    •  Dual degree program for a Master’s Degree in Metallurgical Engineering with Curtin University supported by Australia Award

窘  Multicenters Research Program/Projects
  o  National or International with External Funding

窘  Creation of Office of International Relations & Programs
Fields of International Collaborative Researches with cross border funding

- Natural Products Research: Drug Discovery & Development
- Biodiversity
- Climate Change
- Sensors and Biosensors
- Materials Science & Energy
- Nanotechnology
- Immunology
- Health and Nutrition
- Youth and Geriatrics
- Migration
- Faith-based Peace Studies
Thank you
STRIDE program is a 5-yr PhP1.3B initiative of USAID intended to spur inclusive economic growth by boosting science and technology research.

USAID-STRIDE works closely with Philippine HEIs and industries to transform their capacity to produce research, graduates, and innovation partnerships to accelerate development in the country.

STRIDE is the flagship science, technology and innovation program of the US-Philippines Partnership for Growth which promotes inclusive economic growth. STRIDE is managed by USAID/Philippines Office of Education.
Improved qualifications of faculty and staff in higher education institutions engages in relevant science, technology and innovation (STI) disciplines

Improved research capacity in critical STI disciplines

Strengthened linkages between universities and industry in high growth economic sectors

Strengthened policy and management capacity of higher education institutions in improving the STI ecosystem.
Opportunities offered by USAID-STRIDE

- Grants
  - collaborative industry-university research projects
  - research exchanges between Philippine and U.S. universities
- Award of scholarships for advanced studies and research in the U.S.
- Establishment of a Philippine Government-University-Industry Research Roundtable
- Participatory institutional diagnostics to help Philippine universities to manage research that impacts on national development
- Visiting U.S. faculty scheme
Establishment of Professional Science Masters degrees

Improved career centers for sustained industry-university linkages
  - University of Santo Tomas is one of the identified career centers.

Advanced technical training of research professionals

Placement of faculty externs in industries

Curriculum review

Innovation workshops with industries and academe to foster common understanding and collaborative problem solving
The BCNF promotes the economic development and welfare in partnering countries, through science and innovation partnerships.

It aims to strengthen science and innovation capacity and unlock further funding to support poverty alleviation.

It is managed by UK’s Department of Business, Energy and Industrial Strategy, and delivered through 15 UK delivery partners in collaboration with 16 partner countries.

The Newton Fund was launched in 2014 and originally consisted of £75 million each year for 5 years.

In the 2015 the Newton Fund was extended from 2019 to 2021 and expanded by doubling the £75 million investment to £150 million by 2021, leading to a £735 million UK investment to 2021, with partner countries providing matched resources within the Fund.

The funding covers activities in three broad categories:

- **People**: increasing capacity for science and innovation in partner countries.
- **Research**: research collaborations on development topics.
- **Translation**: creating collaborative solutions to development challenges and strengthening innovation systems.
British Council Newton Funds Programs

- **Researcher Links** (Researcher Mobility programme)
  Workshops and travel grants for research visits, with a focus on early career researchers.

- **Institutional Links**
  Grants for establishing links between higher education, research institutions and businesses with the aim of translating research to drive economic development and social welfare in partner countries.

- **PhD programme**
  Facilitating the capacity building of individuals, and the building of sustainable, long-lasting links between UK and overseas institutions, through PhD scholarships, placements, and partnerships.

- **Professional development and engagement**
  Building the skills of researchers in areas such as communication and research management, as well as supporting good research governance, community and policymaker engagement.

- **Science, Technology, Engineering and Mathematics (STEM) education**
  Supporting STEM education through a variety of mechanisms such as the development of teaching resources or piloting new initiatives.

- **Technical training and employability**
  Workforce planning and development for technical and vocational training in the research and innovation sector.
Australia Awards are prestigious international scholarships and fellowships funded by the Australian Government offering the next generation of global leaders an opportunity to undertake study, research and professional development.

Opportunities
- AA Scholarships
- AA Fellowships