

# **DOST Funding Mechanism: Grants-In-Aid (GIA) Program**

40<sup>th</sup> NAST Annual Scientific Meeting

“Science and Technology-Enhanced Transformation for Sustainability and Resiliency (2018-2030)”

*July 12, 2018; Manila Hotel*







**ROWENA CRISTINA L. GUEVARA, Ph.D.**

Undersecretary for Research and Development  
Department of Science and Technology

# **OUTLINE:**

1. Competitiveness and Innovation Index
2. National Plans and Policies
3. DOST's support to STI
4. Grants-in-Aid (GIA) Program
5. Examples of R&D Programs funded by GIA

# 2017-2018 WEF Global Competitiveness Index (GCI) & Global Innovation Index (GII)

		<u>Innovation Capacity</u>	<u>Research Quality</u>	<u>Overall</u>
Indonesia		31 <sup>st</sup>	40 <sup>th</sup>	36 <sup>th</sup>
Malaysia		14 <sup>th</sup>	24 <sup>th</sup>	23 <sup>rd</sup>
Thailand		69 <sup>th</sup>	56 <sup>th</sup>	32 <sup>nd</sup>
Philippines		45 <sup>th</sup>	75 <sup>th</sup>	56 <sup>th</sup>

**137 Countries**

The low rank of the Philippines in the Global Innovation Index Report 2017 at **73<sup>rd</sup>** among the 127 economies is partly due to the weakness in human capital and research and development (R&D).

### GII Ranking in 2017:

- Thailand = 51
- Malaysia = 37
- Indonesia = 87

Source: <https://www.globalinnovationindex.org/analysis-indicator>



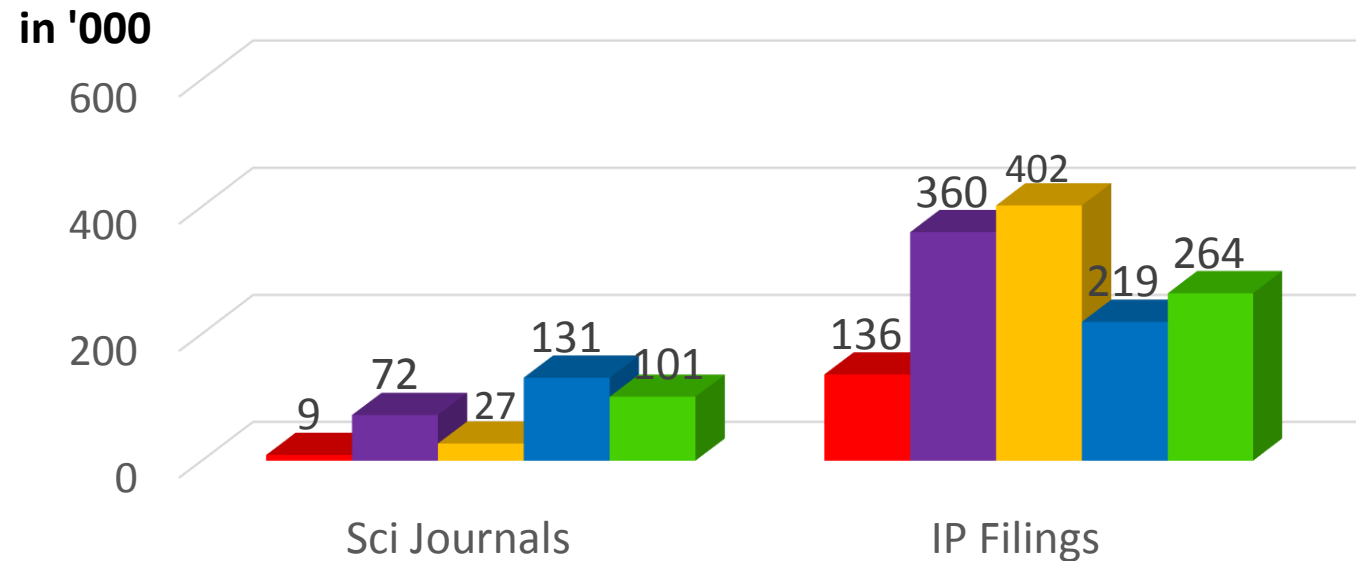
United Nations  
Educational, Scientific and  
Cultural Organization



**380** researchers, scientists and engineers (RSE)  
per million

**270 RSEs per million in 2013**

### Scientific Journals and IP Filings, 2007- 2016



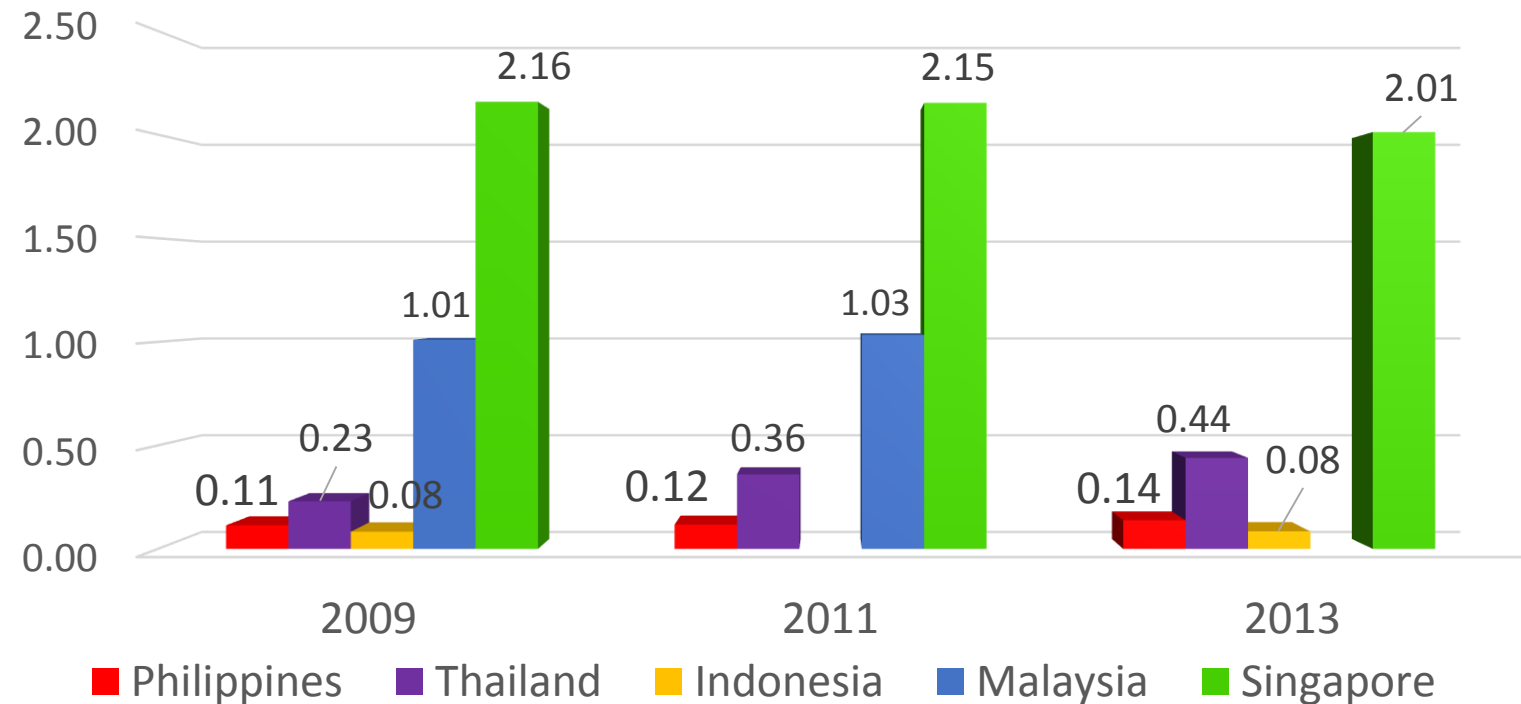
■ Philippines ■ Thailand ■ Indonesia ■ Malaysia ■ Singapore



United Nations  
Educational, Scientific and  
Cultural Organization

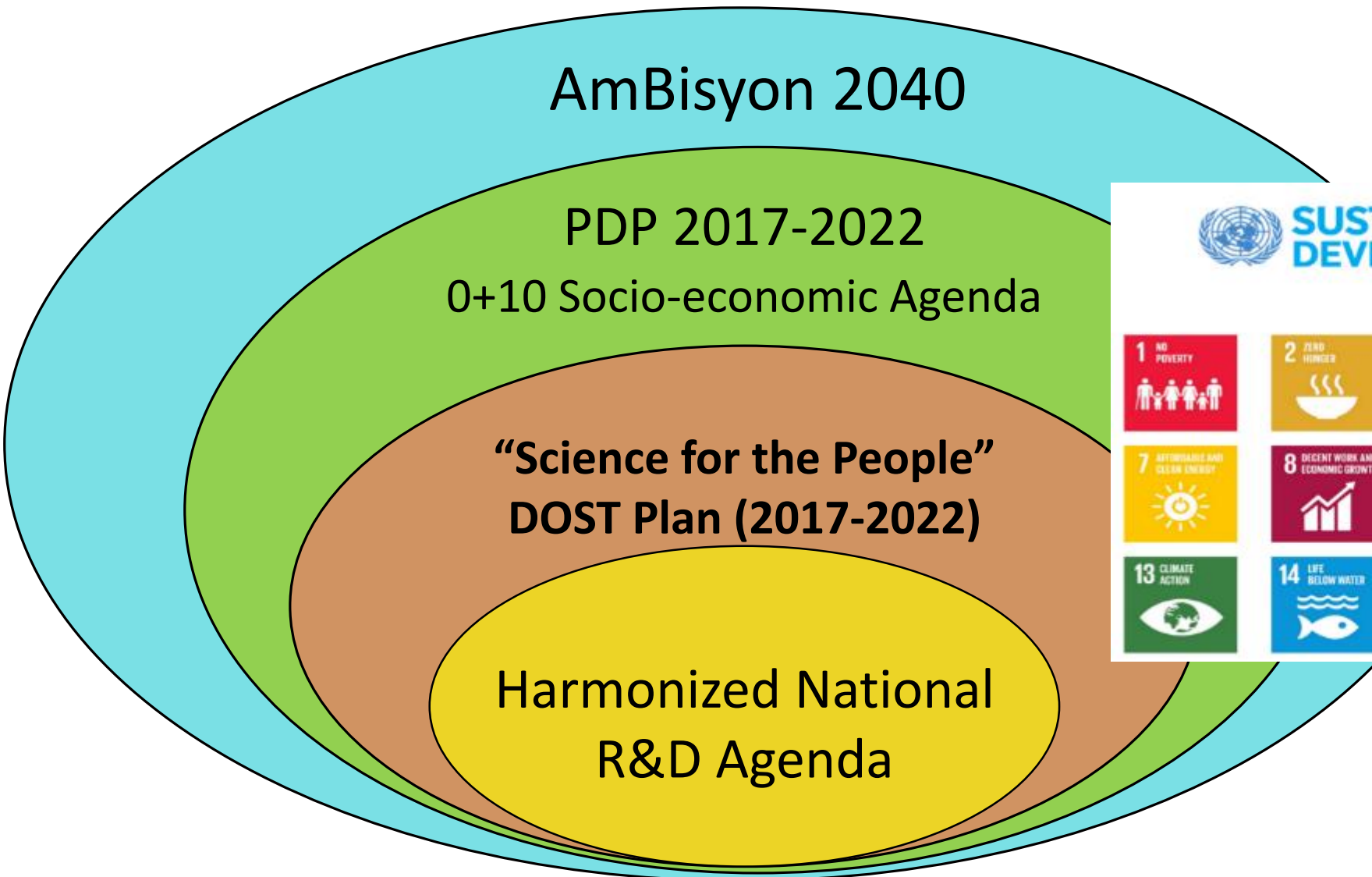
# Gross Expenditure on R&D (GERD)

UNESCO recommends at least **1% of GDP** should be invested on R&D.



**0.14%** Philippine GERD as of 2013

# ALIGNMENT OF DOST PLAN with NATIONAL PLANS AND PRIORITIES





# SCIENCE FOR THE PEOPLE

To ensure that **SCIENCE**, technology and innovation work **FOR THE PEOPLE** towards more inclusive socio-economic development for the country

## Long-term Vision

The DOST shall be “the reservoir of scientific and technological know-how providing world-class solutions that empower Filipinos to attain higher productivity and better quality of life”.

## DOST PLAN 2017-2022

### Intermediate Vision

By **2022**, the DOST shall be the Science, Technology and Innovation Hub for service, excellence and equity for a smarter and more prosperous society.

**Outcome 1:**  
Investments in research and development increased.

**Outcome 2:**  
Utilization of results of STI research and activities increased.

**Outcome 3:**  
STI competence and excellence developed and enhanced.

**Outcome 4:**  
Collaboration between and among industry, academe, government and communities strengthened.

**Outcome 5:** STI governance improved.

# DOST ORGANIZATION STRUCTURE

## Office of the Secretary

Undersecretary for Science  
and Technological Services

Undersecretary for  
Research & Development

Undersecretary for Disaster Risk  
Reduction and Climate Change

Undersecretary for  
Regional Operations

Assistant Secretary for  
Finance, and Legal Affairs

Assistant Secretary for  
Administration

Assistant Secretary for  
International Relations

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

2 Collegial Bodies  
(NAST & NRCP)

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

6 S&T Service Institutes  
(PSHS, PAGASA, PHIVOLCS, SEI, STII, TAPI)

16 Regional Offices

80 Provincial S&T Centers



# **DOST's Support to STI**

- ✓ Research and Development
- ✓ S&T Human Resource Development
- ✓ Technology Transfer and Commercialization
- ✓ S&T Policy
- ✓ S&T Promotion
- ✓ S&T Facilities
- ✓ Support to MSMEs & Communities

# Summary of DOST 2017 Accomplishments

## RESEARCH AND DEVELOPMENT

Harmonized National R&D Agenda (HNRDA), 2017-2022, approved by NEDA on August 30, 2017

R&D areas: health, agriculture, aquatic and natural resources, industry, energy, and emerging technology, disaster risk reduction, climate change adaptation, and basic research

**1,154** R&D projects managed by DOST Sectoral Councils

**147** R&D projects completed and disseminated by DOST R&D Institutes

Ongoing establishment of R&D Centers in the regions

## S&T HUMAN RESOURCE DEVELOPMENT

**30,665**

*scholars supported*

**7,882** scholars in 16 Regional PSHS Campuses

**19,058** BS scholars

**2,832** MS scholars

**893** PhD scholars

Implementation of Filipino Patriot Scholar Project in five regions to 1,258 undergraduate scholars

**426** researchers/ scientists given awards and incentives

## TECHNOLOGY TRANSFER AND COMMERCIALIZATION

**12** TBIs and **2** Innovation Hubs supported

**670** IP assistance completed

**34** patents and utility model certificates obtained

**5** Technology Transfer Days

**167** Direct Licensing Term Sheets generated and evaluated

**60** Fairness Opinion Reports (FOR) issued

**12** TECHNICOM projects with Php49M funding support

## S&T PROMOTION

**1,342** promotion services rendered

**1,556,262**

clients served

**2,100**

units of STARBOOKS deployed

**240**

episodes for online streaming via DOSTv.ph

# Summary of DOST 2017 Accomplishments

## S&T POLICY

Inclusion of the STI Chapter "Vigorously Advancing Science, Technology and Innovation" in the Philippine Development Plan (PDP) (2017-2022)

Issued AO 003 s. 2017 for the DOST Strategic Plan "Science for the People" 2017-2022

Crafted the Regional Offices Strategy Map

Supported 6 proposed S&T legislations

## S&T FACILITIES

**16**  
FICs maintained  
**30,246**  
firms provided with lab testing services  
**PhP16M**  
income generated by ADMATEL  
**1,256** testing jobs received by Auto-Parts Testing Lab  
**48** electro magnetic compatibility and other test services rendered through EPDC  
**3** Irradiation Facilities maintained

## SUPPORT TO MSMEs

**769** firms received innovation system support  
**5,600** technology interventions rendered  
**38,074** jobs created

## SUPPORT TO COMMUNITIES

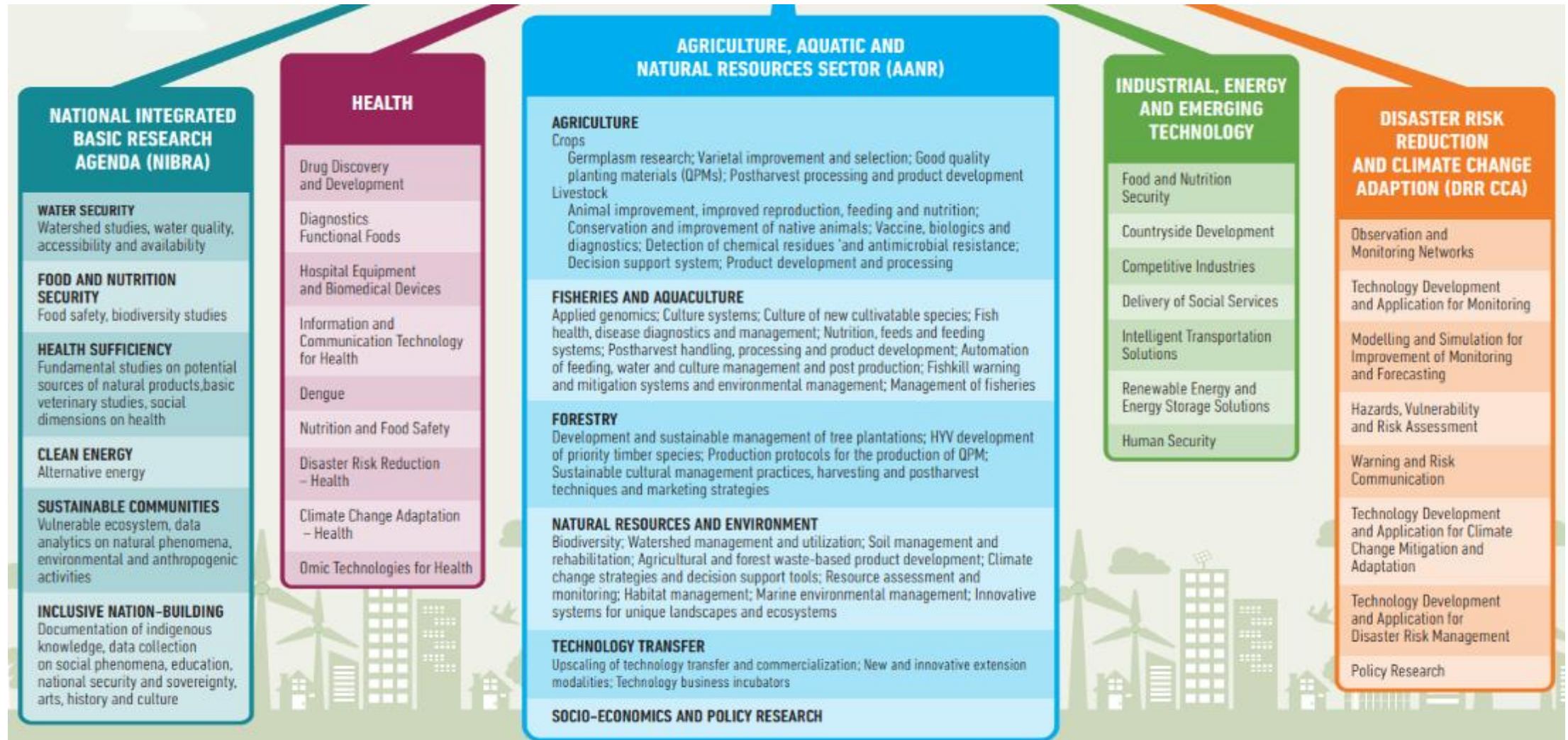
**553** communities assisted through five entry points:  
1) Water and sanitation  
2) Basic Literacy and education  
3) Livelihood enterprise development  
4) Health and nutrition  
5) Disaster risk reduction and climate change adaptation

## DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION

**12** Doppler radars and **3** X-band radars  
**11,285** weather and flood warnings issued  
**94** km average forecast track error  
**98%** of weather and flood warnings were issued within 5 minutes variance of scheduled time  
**391** disaster risk reduction activities conducted  
Hazard and Risk Assessment, Warning and Risk Communication, Capability Building, R&D Projects on Disaster Risk Management and Climate Adaptation and Mitigation, Policies, Plans and Partnerships

# HARMONIZED NATIONAL R&D AGENDA (2017-2022)

## R&D PRIORITY AREAS AND PROGRAMS



# DOST Grants-in-Aid Program

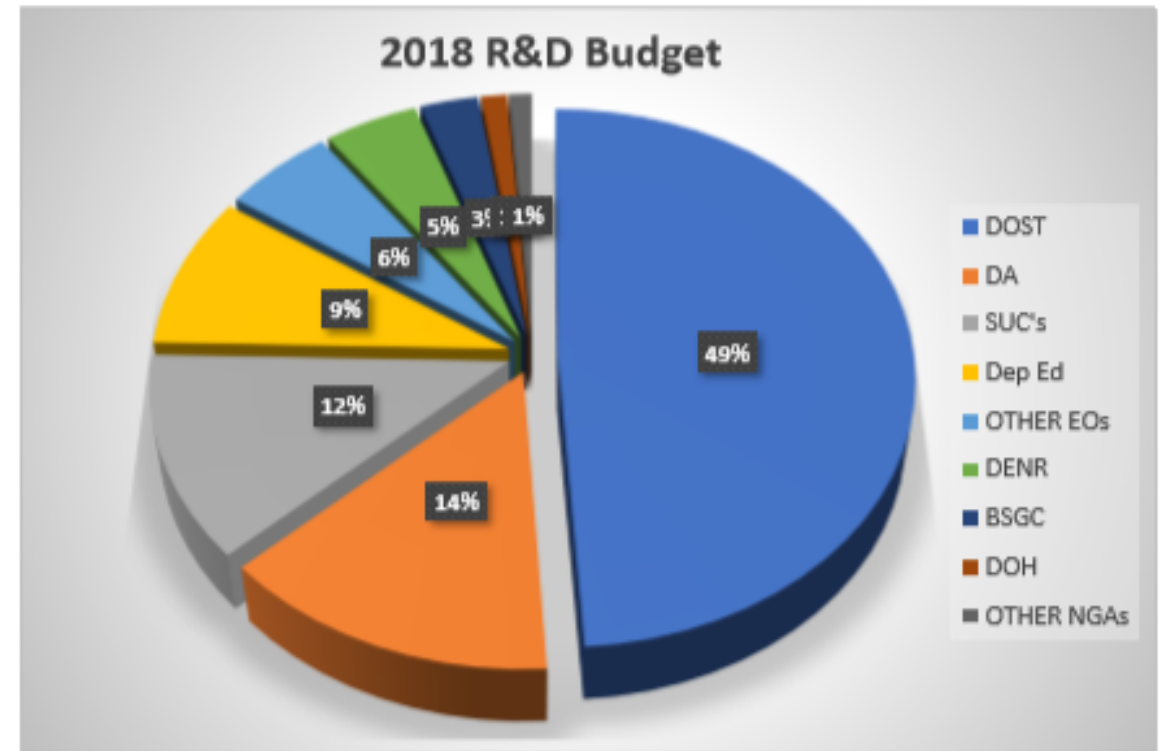
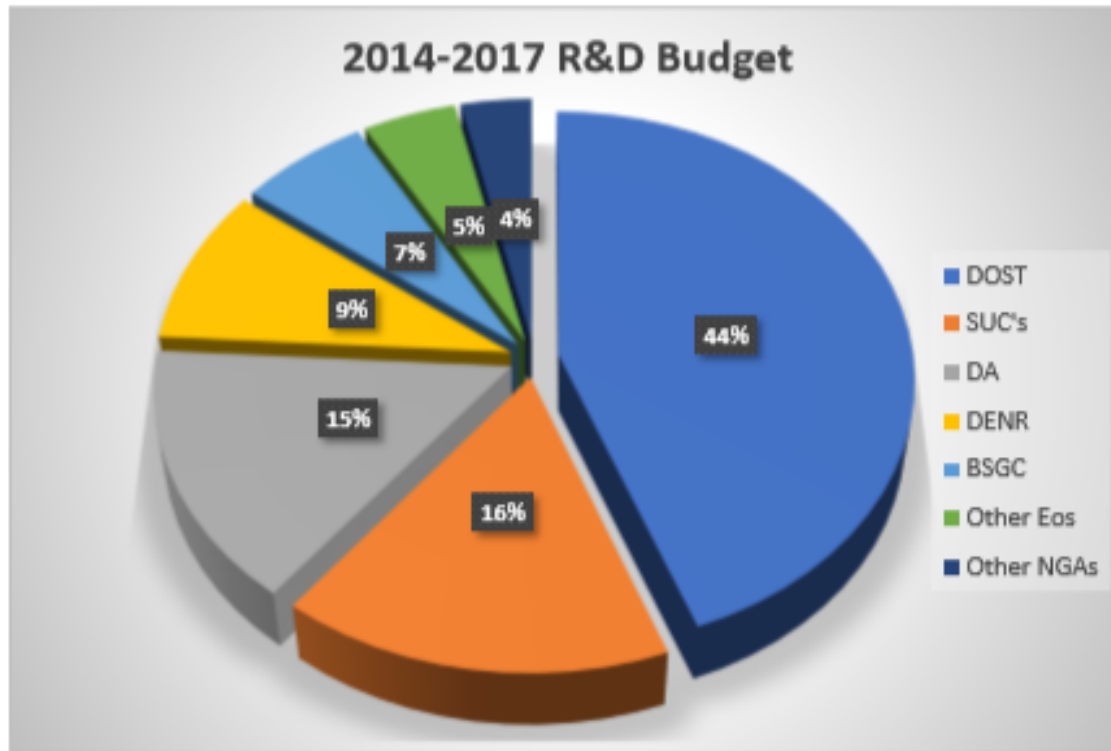
The GIA Program of the Department of Science and Technology (DOST-GIA) **aims to harness the country's scientific and technological capabilities** by providing **financial grants** to S&T programs/projects to spur a sustainable economic growth for the country.



# Coverage of DOST-GIA Funding Assistance

- ❑ **Research and Development**
  - ✓ Fundamental/Basic R&D
  - ✓ Applied Research
  - ✓ Experimental Development
  - ✓ Pilot Testing
- ❑ **Research and Development Results Utilization (RDRU) – Diffusion of Knowledge and Technologies**
  - ✓ Technology Transfer
  - ✓ Technology Receptor Capability Building
  - ✓ Innovation Capacity Building
- ❑ **Development of Human Resources and R&D Institutions for the S&T Sector**
- ❑ **Provision of Quality S&T Services**

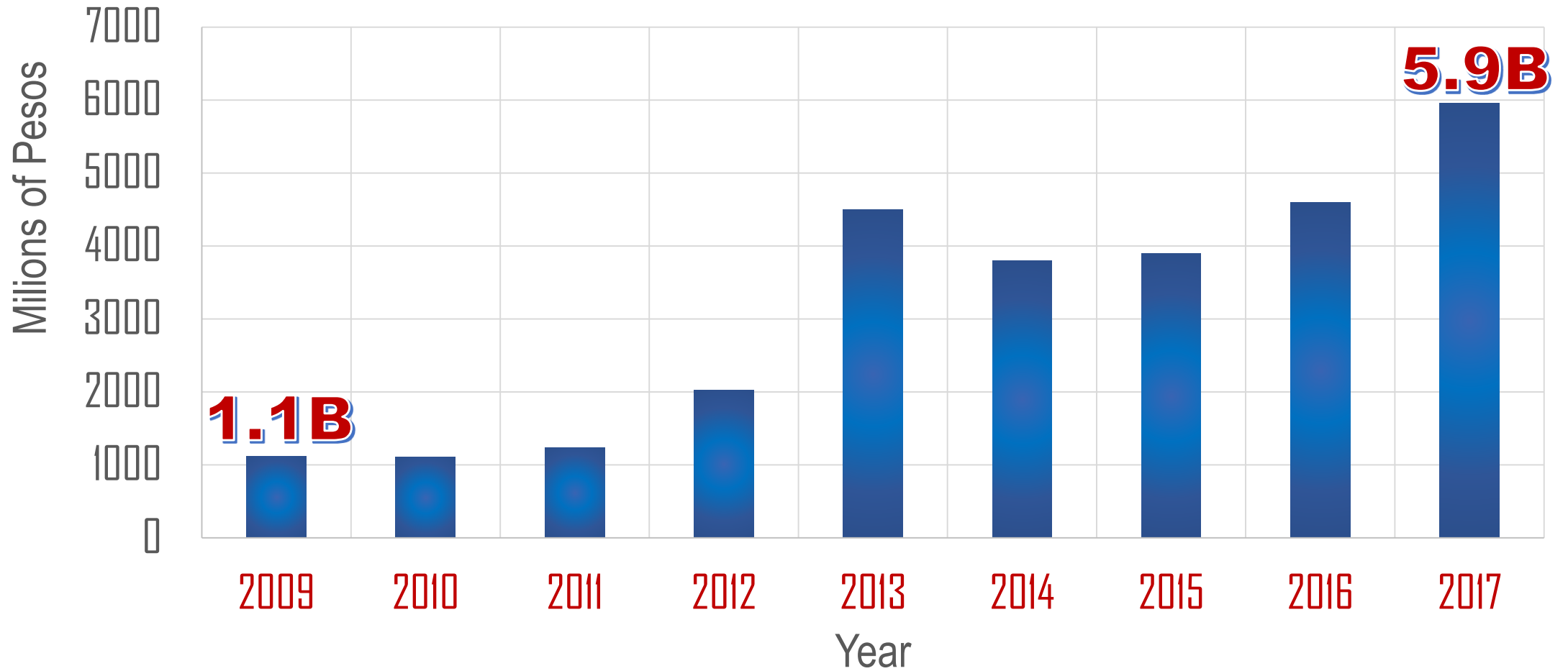
# R&D Budget of Government Departments\* 2014 - 2018



	2014	2015	2016	2017	2018
TOTAL National R&D Budget	10,084,009	9,491,484	13,015,050	13,667,462	16,705,661
Total GAA (National Budget)	1,608,503,084	1,862,824,653	2,138,604,596	2,499,486,952	2,861,527,550
Ratio of National R&D Budget against National Budget (GAA)	0.63%	0.51%	0.61%	0.5%	0.6%

\*Based on Unified Accounts Code Structure (UACS)

# DOST R&D Grant-in-Aid Funding





# Delineation of DOST-GIA and Council GIA

## DOST-GIA

- a. Funding Level  $\geq$  PhP50M
- b. New programs
  - Science For Change (S4C)
    - Human security
    - Creative industry
    - Artificial Intelligence
    - Space technology and satellite
    - Data Science
    - Oceans
- c. Proposal that cuts across sectors  
(ex. CCA-DRR programs/projects)

## Councils GIA

- a. Funding Level  $<$  PhP50M
- b. Continuing programs

# Delineation of DOST-GIA and Council GIA

## DOST-GIA

d. Directed research of OSec

e. Policy

-Make it a requirement that researchers/proponents for GIA funding should be an NRCP member.

f. International linkages  $\geq$  PhP3M

## Councils GIA

f. International linkages  $<$  PhP3M

# 6Ps Metrics: Evaluation of R&D Proposals

- ✓ **P**ublications
- ✓ **P**atents
- ✓ **P**roducts
- ✓ **P**eople Services
- ✓ **P**laces and Partnerships
- ✓ **P**olicies

# PCIEERD Infrastructure Development Program (IDP)

*The program is intended to upgrade and/or develop the research capabilities of the academic and research institutions and relevant DOST-attached agencies, through the development and/or upgrading of its research laboratories and facilities.*

## Components:

- Setting up of research laboratories
- Purchase of laboratory equipment (including highly specialized software)
- Small research grants aimed at developing research capabilities



PHILIPPINE COUNCIL FOR INDUSTRY, ENERGY  
AND EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT

# PCIEERD Infrastructure Development Program (IDP)

## Eligibility Requirements:

- Five-year research agenda
- Basic research facility
- Potential capability in research
  - PhD/MS researchers
  - Course offering



PHILIPPINE COUNCIL FOR INDUSTRY, ENERGY  
AND EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT

# Financial Assistance for Spinoff and Translation of Research in Advancing Commercialization (FASTRAC)

## Funding TRACS:

### I. **Translation Trac:** Translation of research output into products

- **Stages:** S1-S3
- **Scope:** Customer discovery, quicklook assessment, market trials, market validation, IP protection, product certification
- **Metrics/Output:** improved prototype, information or requirements necessary for certification and/or certified products, market ready product

### II. **Spin Off or Startup Trac:** Spin-off/ start up simulation

- **Stages:** S1-S4/5
- **Scope:** market and product validation, business model validation, product development (as necessary), startup simulation
- **Metrics/ Output:** registered startup, paying customer or a PO, validated BM, income or contracts

### III. **Diffusion Trac:** Educating the users, transferring the skills

- **Stages:** S2-S3
- **Scope:** IEC, consumer education, purely market trials, workshops
- **Metric/Output:** market reach, letters of intent

# IP Management Program for Academic Institutions Commercializing Technologies (IMPACT)

## Funding TRACS:

### I. IP Track 1: Institutional Assistance for Commercializing Technologies

- **Scope:** Establishment of IP mmgt or tech transfer processes, technology audit, technology roadmapping, IP disclosure generation, technology promotion, industry consultations, capability building, negotiation and licensing
- **Metrics/Output:** processes established, technologies audited, technologies assessed, invention disclosures, IPs protected, licensed technologies

### II. IP Track 2: Bulk Assessment prior to commercialization

- **Scope:** market assessment for a program (minimum of 5 technologies)
- **Metrics/ Output:** individual assessments or recommendations for technologies, Go or No Go decision for each technologies



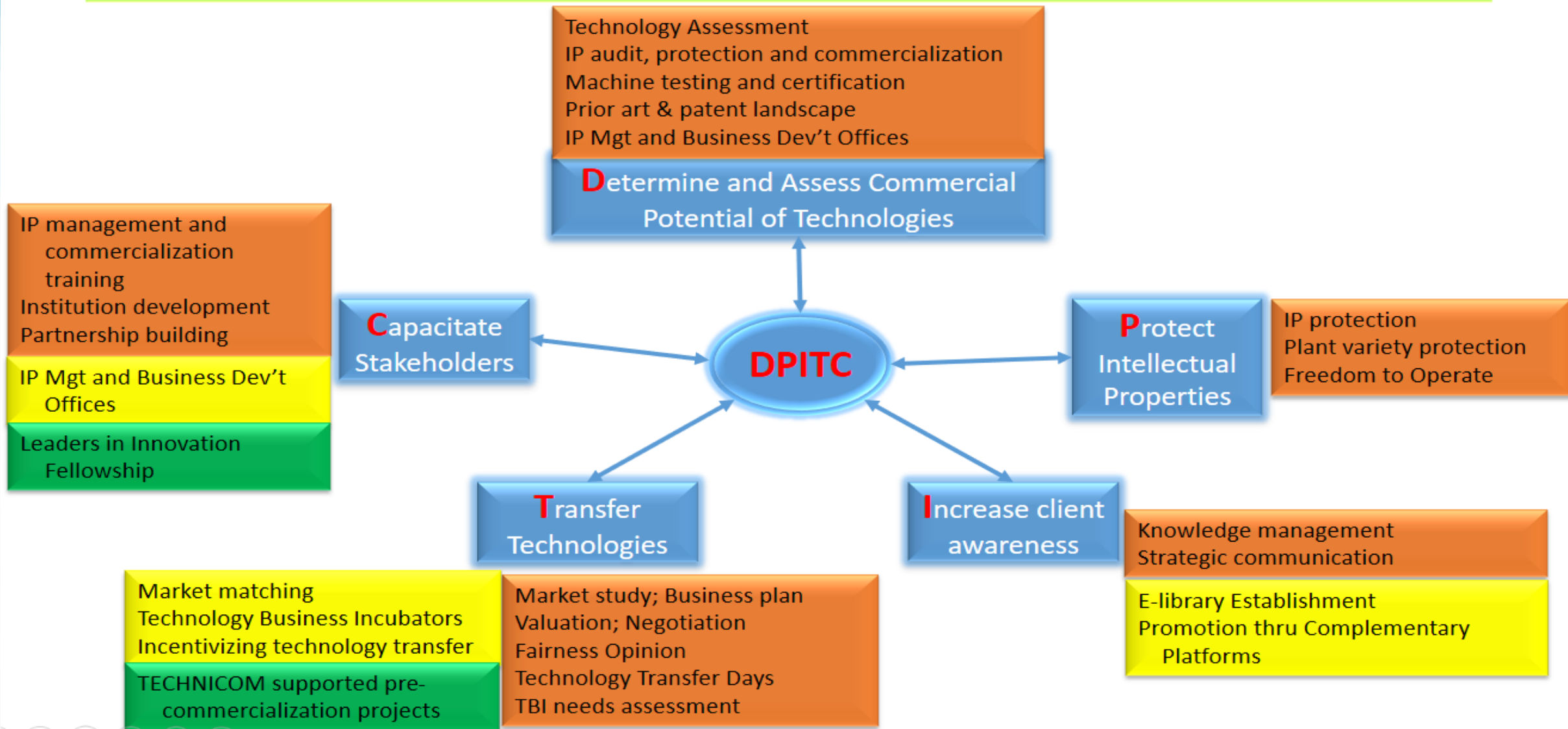
# DOST-PCAARRD INNOVATION & TECHNOLOGY CENTER **DPITC**

*a one-stop hub for stakeholders to  
facilitate the commercialization of  
technologies in the AANR sector*





# Enhancing Technology Transfer and Commercialization in the AANR Sector



# Technologies for Deployment



Examples:  
Crab hatchery;  
common service  
facility



# Technologies for Extension

Examples:

Bamboo Popeye; Integrated Pest Management; Production technologies for crops



# Technologies for Commercialization

Examples: Biogroe; Impeller; Corn hybrid; PECM; Pelletizing machine; LAMP Kit for Swine disease



Rice transplanter attachment



Impeller rice mill



Goat Feeds Pelletizer



# TECHNiCOM

Technology Innovation for Commercialization

✓ Developed by DOST with the aim to create a mechanism to fast track the market-readiness of innovations and technologies developed by the local and supported S&T communities.



UPM's BIOTEK-M Aqua Kit (Liquid Format)  
(Prototype Development, Field Testing)



FNRI Iron Fortified Rice  
(Scaling-Up Rice Fortification Program:  
Techno-Transfer to Private Mills)



PTRI's Neo-ethnic Philippine Tropical Fabrics  
(Nationwide Field-Testing and Technology Validation of Natural Fiber Blended Yarns and Eco-friendly Treatment and Dyeing Technologies)



Botanical Dewormer for Free Range Native Chickens, CSU-Dumarao



VSU's processing of dried grates and flour made from fresh cassava roots is scaled up to produce food products such as espasol, cassava sticks, cassava cupcakes and cookies



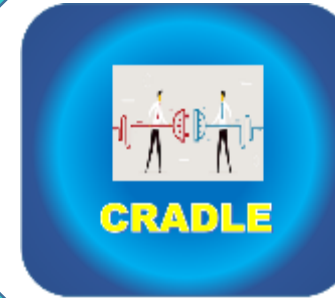
Shelf-life expansion of fortified ready-to-drink tropical fruit and vegetable juice blends of UP Diliman prepared by Aseptic Processing and Packaging



Neo-ethnic Philippine textile products of the DOST-PTRI (the convergence of science, art and tradition)

# Accelerated R&D Program

For Capacity Building of Research and Development  
Institutions and Industrial Competitiveness



Accelerate industrial competitiveness by **capacitating HEIs in the Regions** to undertake quality research that will promote regional development

**Engage experts** with strong leadership, management and innovative policy-making proficiencies to strengthen the research capabilities of the HEIs

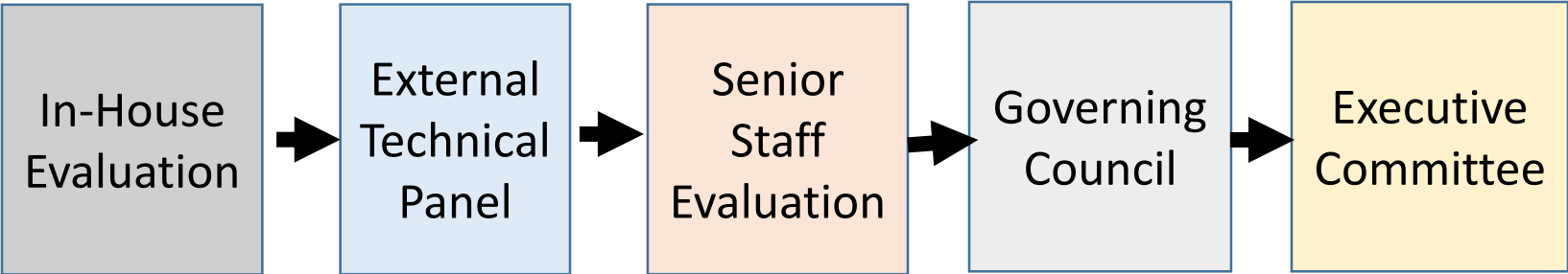
Create a synergistic **relationship between the academe and the industry** with the goal of invigorating R&D

**Level-up the PH Industrial Sector** through the industry R&D, and acquisition of strategic and relevant technologies

# Innovation Drivers in the Investment Priority Plan 2017-2019

- Research and development activities
- Clinical trials (including drug trials)
- Centers of Excellence (e.g., academic and medical facilities)
- Innovation centers
- Business incubation hubs
- Fablabs/co-working spaces
- Shared Service Facility for MSMEs
- **Commercialization of new and emerging technologies and products of DOST or government-funded R&D**

# Proposal Evaluation Process



Priority Alignment

Technical Feasibility



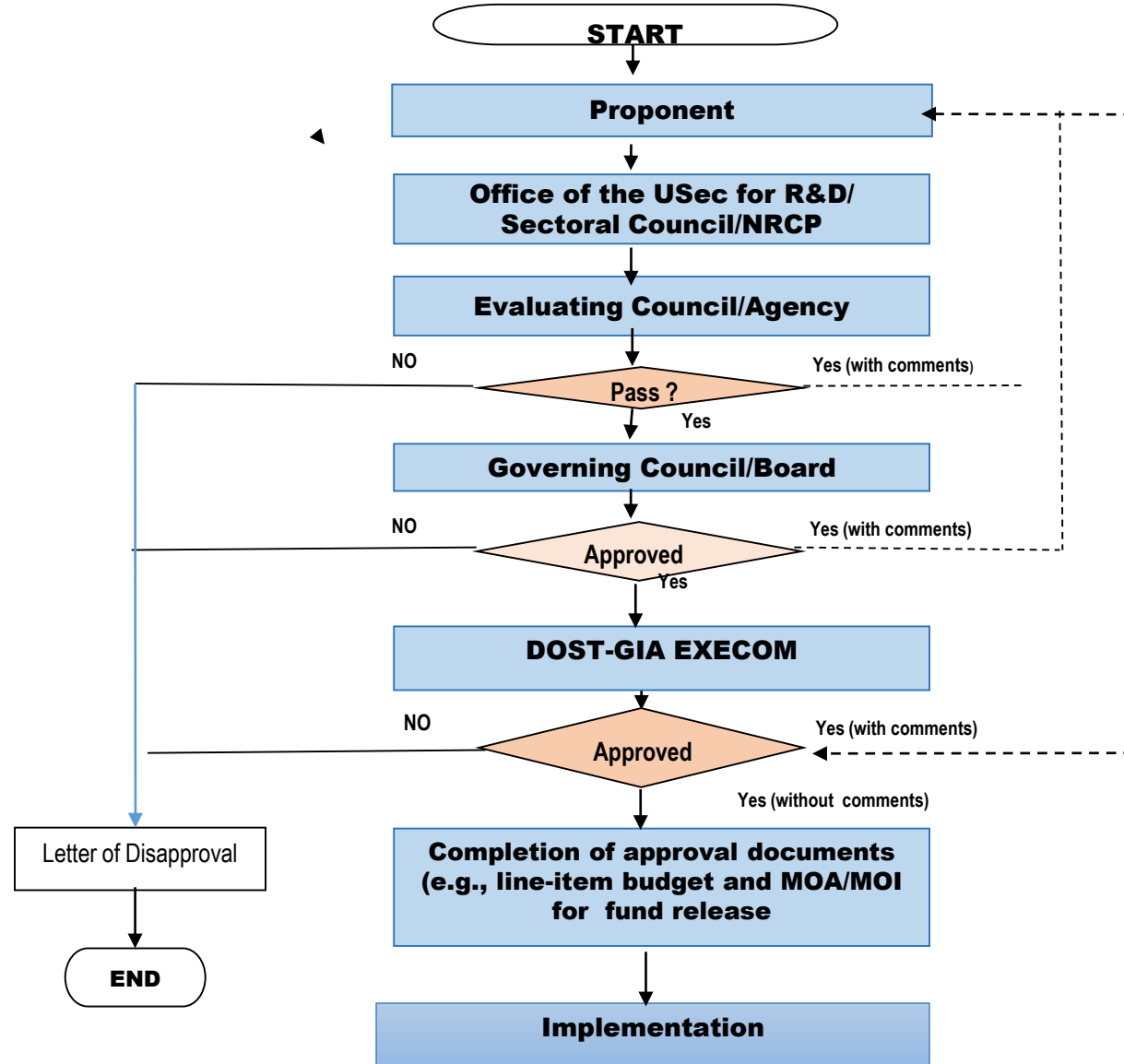
Needs,  
Solution,  
Differentiation,  
Benefits

Overall Direction Planning





# EVALUATION AND APPROVAL PROCESS FLOW



For further queries & info:

**Special Projects Division**

Department of Science and Technology  
General Santos Avenue, Bicutan, Taguig City

Tel No. **02-837-2071 Ext 2031**

Email: **[gia.help@gmail.com](mailto:gia.help@gmail.com)**

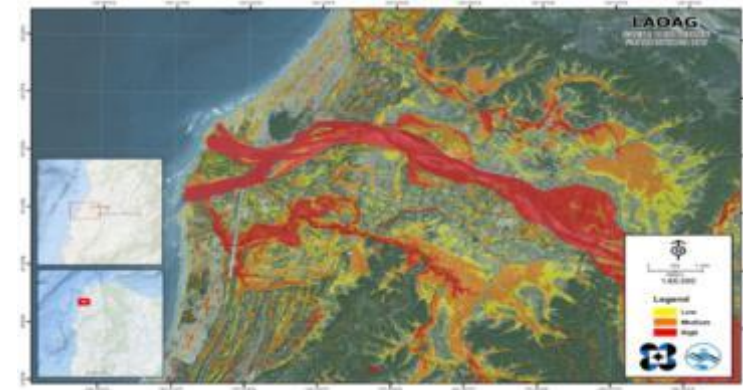
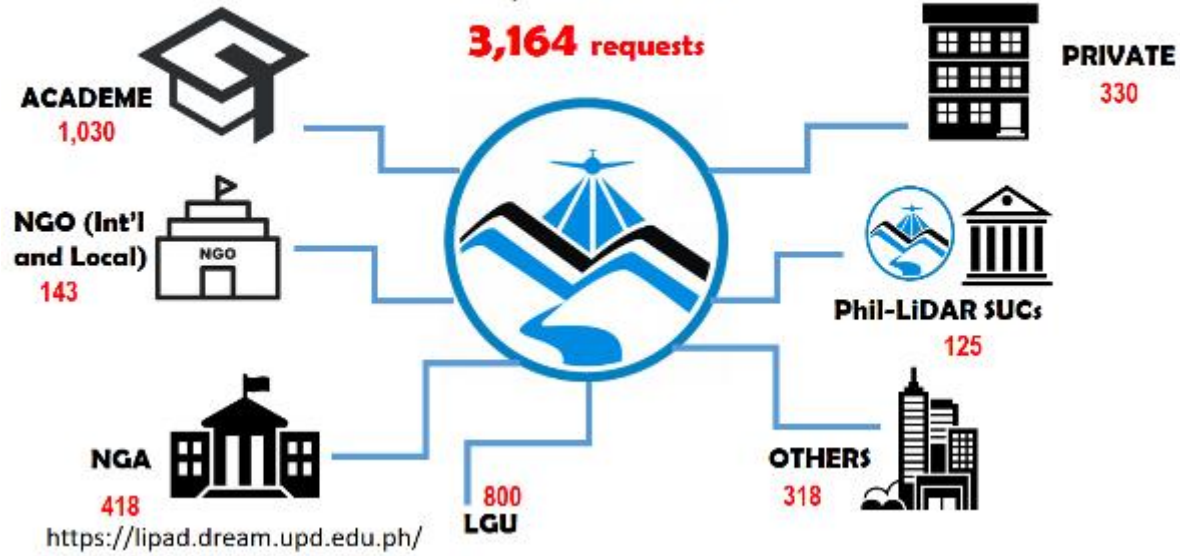


# Phil-LiDAR Program

Total data downloaded:

**25,584 maps**

**3,164 requests**



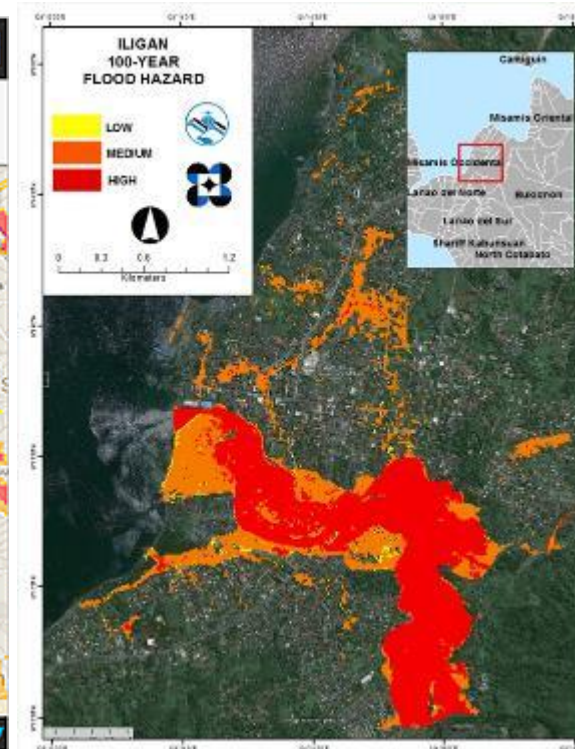
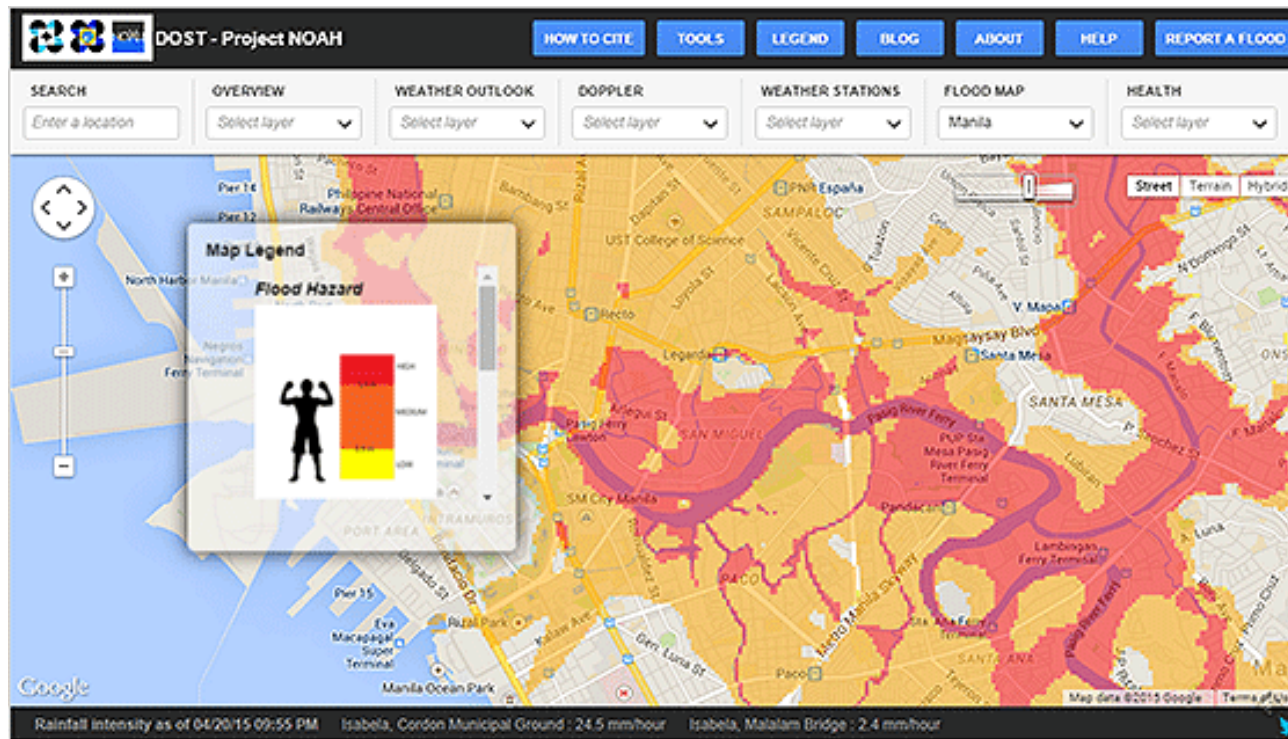
# Member Universities



# Flood Hazard Maps

Philippine Light Detection and Ranging (Phil-LiDaR) Program

Disaster Risk and Exposure Assessment for Mitigation (DREAM) Program



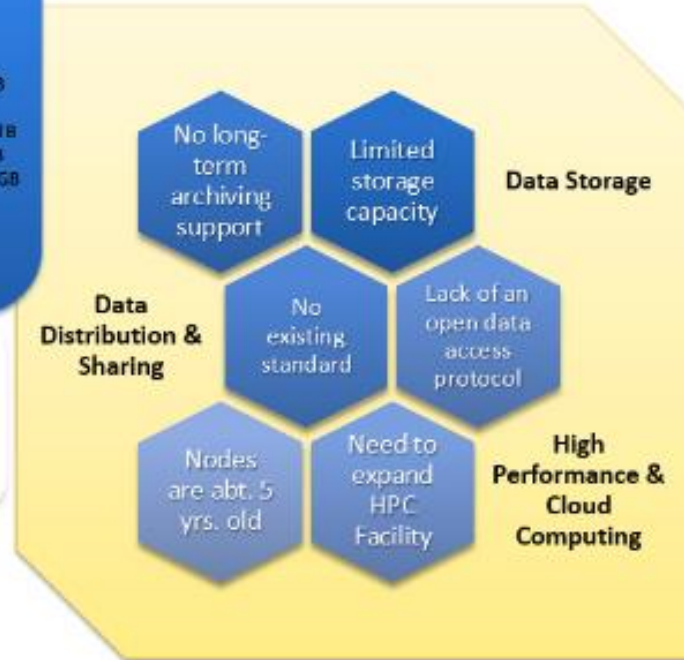
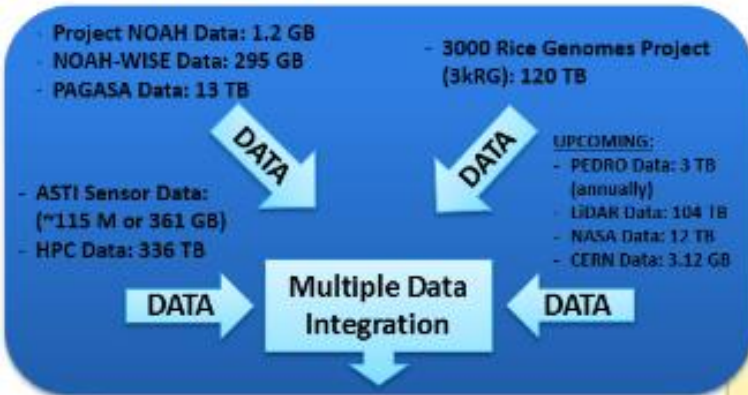
✓ *flood hazard maps were distributed to LGUs all over the country*



# COARE

COMPUTING AND ARCHIVING RESEARCH ENVIRONMENT

**A platform for easy storage, analysis and sharing of environmental and geospatial data, as well as provide better access to high performance computing resources.**



# VISSER

## VERSATILE INSTRUMENTATION SYSTEM FOR SCIENCE EDUCATION RESEARCH

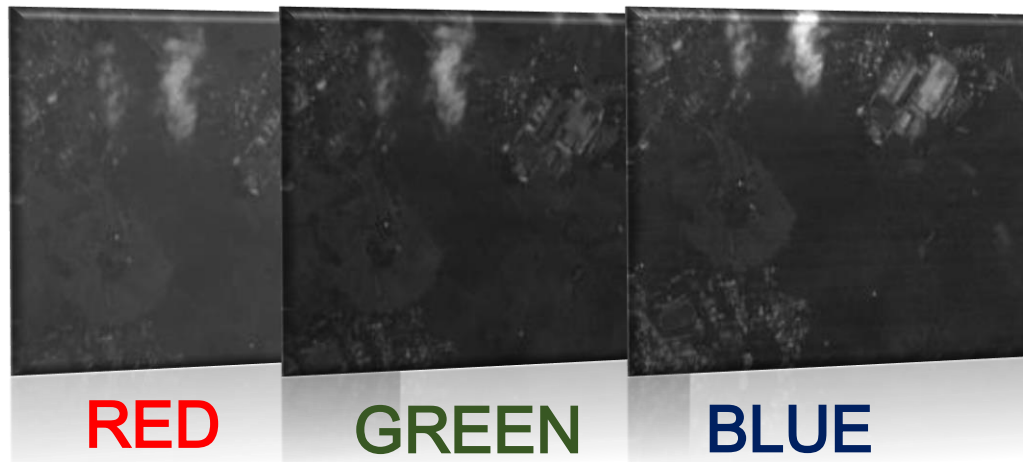
- ✓ is a single, handheld device that can assist its users in conducting various scientific experiments





**Diwata-1** was launched to the International Space Station (ISS) in March 23, 2016 and was deployed into orbit from the ISS in April 27, 2016. This 50 kg satellite which can fly 400 km above the earth was designed, developed and assembled by a team of Filipino engineers.

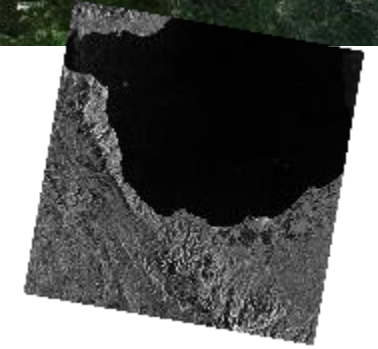
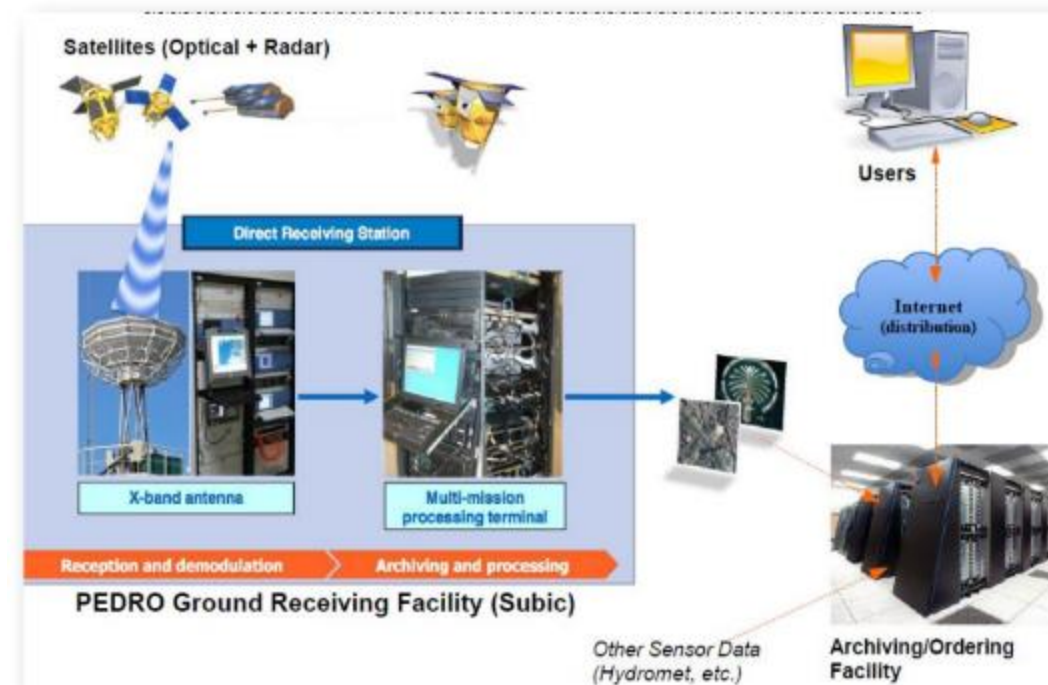
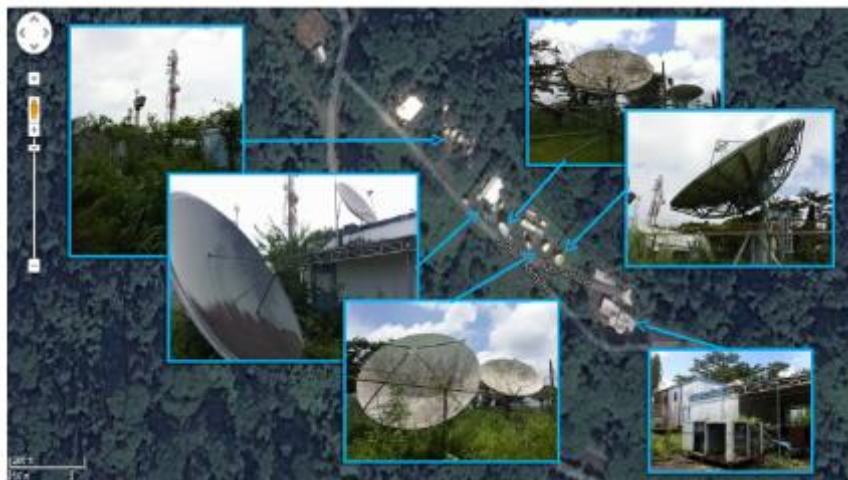
*Bringing color to DIWATA-1's images*



Captured Area: Bulacan  
Capture time: 15 August  
2017 09:02:00

# Philippine Earth Data Resource Observation (PEDRO) Center

A Multi-Mission Ground Receiving Station (MMGRS) that can receive, process, and distribute space-borne imagery with high resolution optical and radar data to help in the country's resource utilization and mobilization.



Satellite image of Leyte taken by KOMPSAT 5 satellite  
Location: Capoocan & Carigara, Leyte  
Image Date: December 27, 2016



Satellite image taken by Worldview-3,  
June 16, 2016 Subi Reef

The program generated the necessary geospatial information, mainly through the use of high resolution optical and SAR satellite technology



# VIGORMIN

A mixture of **organo minerals** proven to be effective in **neutralizing strong wastewater** or septic odor. The solution can also neutralize strong, decomposing or rotten odor from organic waste in landfill or material recovery facilities.



[://boracaysun.com/organic-mineral-aids-boracay-in-waste-management/](http://boracaysun.com/organic-mineral-aids-boracay-in-waste-management/)



Organo minerals Pilot Production Plant at Tanauan, Batangas



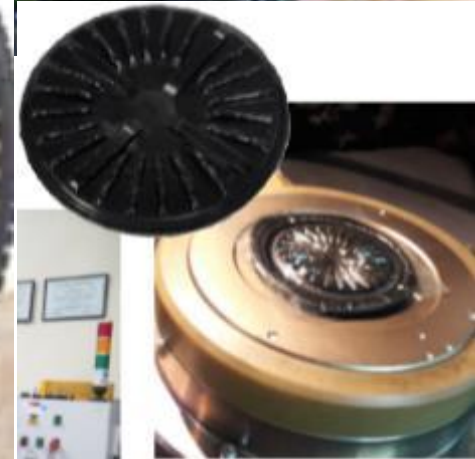
Inauguration of the Pilot Plant last May 2, 2017

# RUBBER R&D Program

*Flexing its Capabilities*

The program comprises projects on the:

- ✓ Establishment of testing laboratories
- ✓ R&D on process optimization in the production of Specified Philippine Rubber (SPR)
- ✓ Rubber products processing



# Ready-to-Eat Emergency Food Products

- ✓ Lightweight and very handy packaging; shelf stable for at least one (1) year
- ✓ Can withstand aerial distribution of about 800 to 1000 ft.



## CHICKEN ARROZ CALDO

- 180 calories per 200g pouch
- First stage emergency food
  - can be consumed immediately after emergency when water and utilities are not available



## RICE MEALS

- 260 calories per 200g pouch
- Second stage emergency food
  - can be consumed when water and utilities are already restored



Technology Generator: Industrial Technology Development Institute

# Iron Fortified Rice and Iron Rice Premix



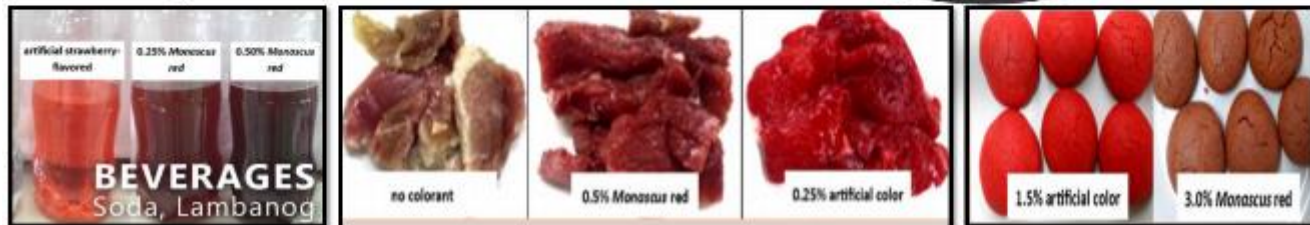
Technology Generator: Food and Nutrition Research Institute

# Monascus Red Colorant

- Natural colorant to substitute synthetic red dyes
- Tested and validated safe for consumption
- Soluble in water and alcohol
  - ▶ 2 years shelf-life
  - ▶ For beverage, meat, and bakery applications



Technology Generator: UP Los Baños - Biotech



# Complementary Food

## Rice-Mongo-Sesame Baby Food Blend

Prepared into porridge by boiling for 8-10mins with continuous stirring

- 140 kcal energy and 4 g protein per 30g pack
- Recommended serving: 2 sachets per day



Technology Generator: Food and Nutrition Research Institute

# Sustainable Mass Transport

## Automated Guideway Transport (AGT)



DOST's 60-passenger AGT  
Test track in UP Diliman



DOST's 120-passenger AGT  
Test track in Bicutan

- ✓ Fully automated
- ✓ Employs rubber tires running on concrete track
- ✓ Powered through a built-in conductor rail along the guideway
- ✓ Locally designed and manufactured rapid mass transit system

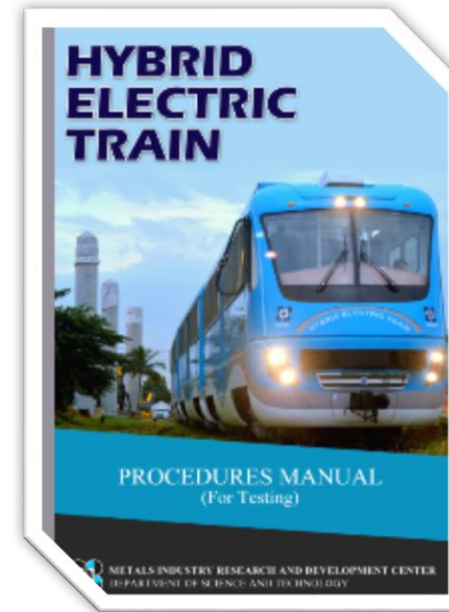
## Hybrid Electric RoadTrain



- ✓ Diesel-electric powered (Generator and Battery)
- ✓ Regenerative Braking
- ✓ Rubber Tires
- ✓ Fully Air-conditioned Cabins
- ✓ Wide Automatic Sliding Doors
- ✓ Smaller Turning Radius
- ✓ Speed at 60kph

# Hybrid Electric Train

*An efficient, reliable and cost-effective rail-based commuter train*



Test Protocol Manual

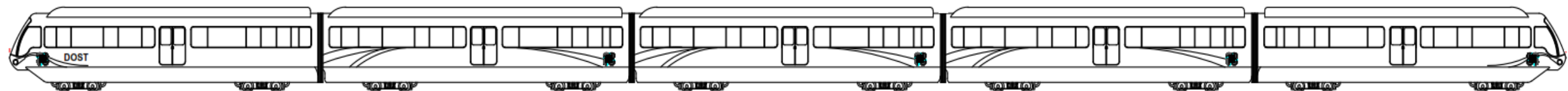


Sand Loading for Design Load and Crush Load

It has a 870 passenger capacity and it is powered by a hybrid-diesel and electric engine

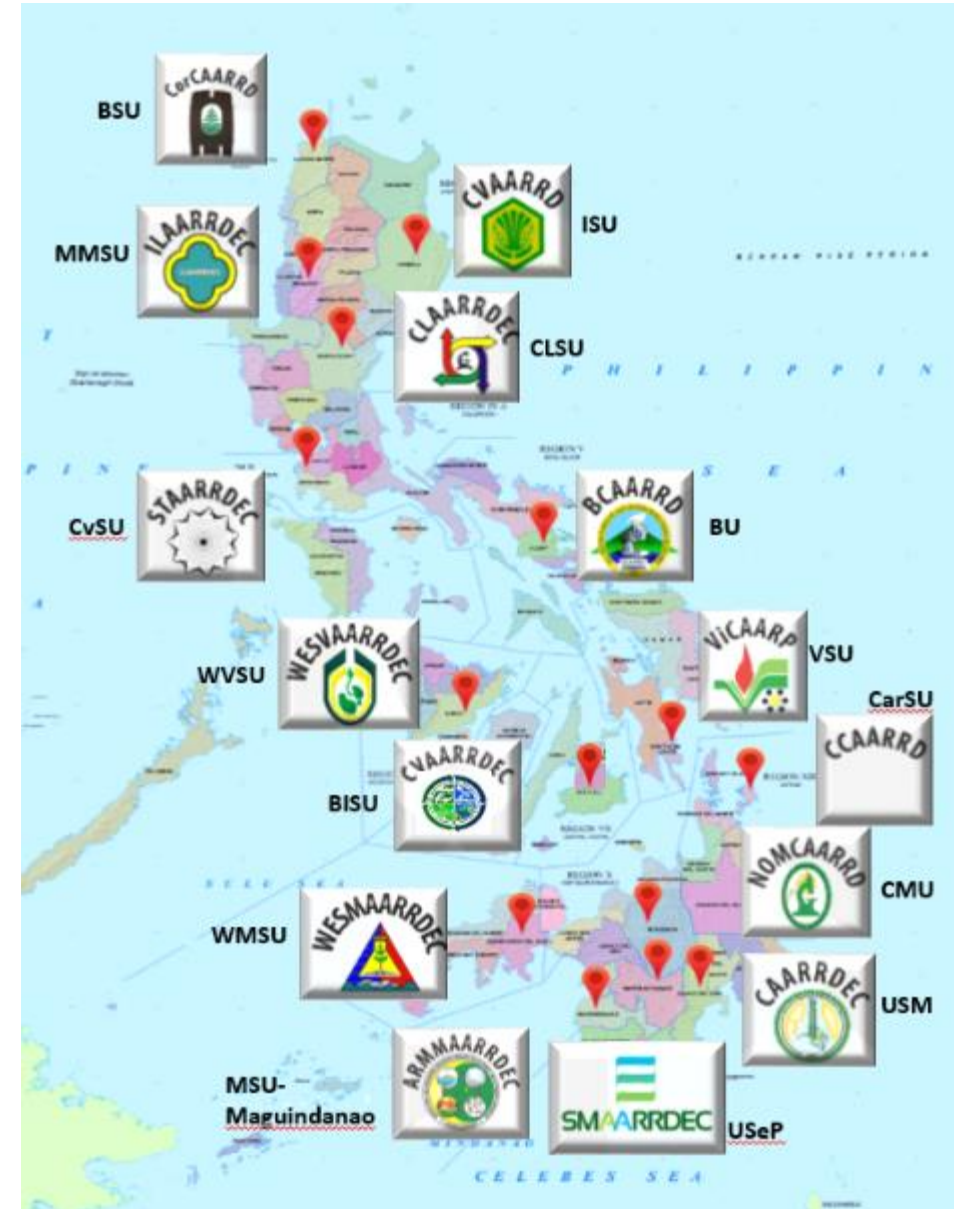
## Main Technology:

- ✓ Locally assembled parts and components
- ✓ Diesel-electric powered
- ✓ Regenerative braking

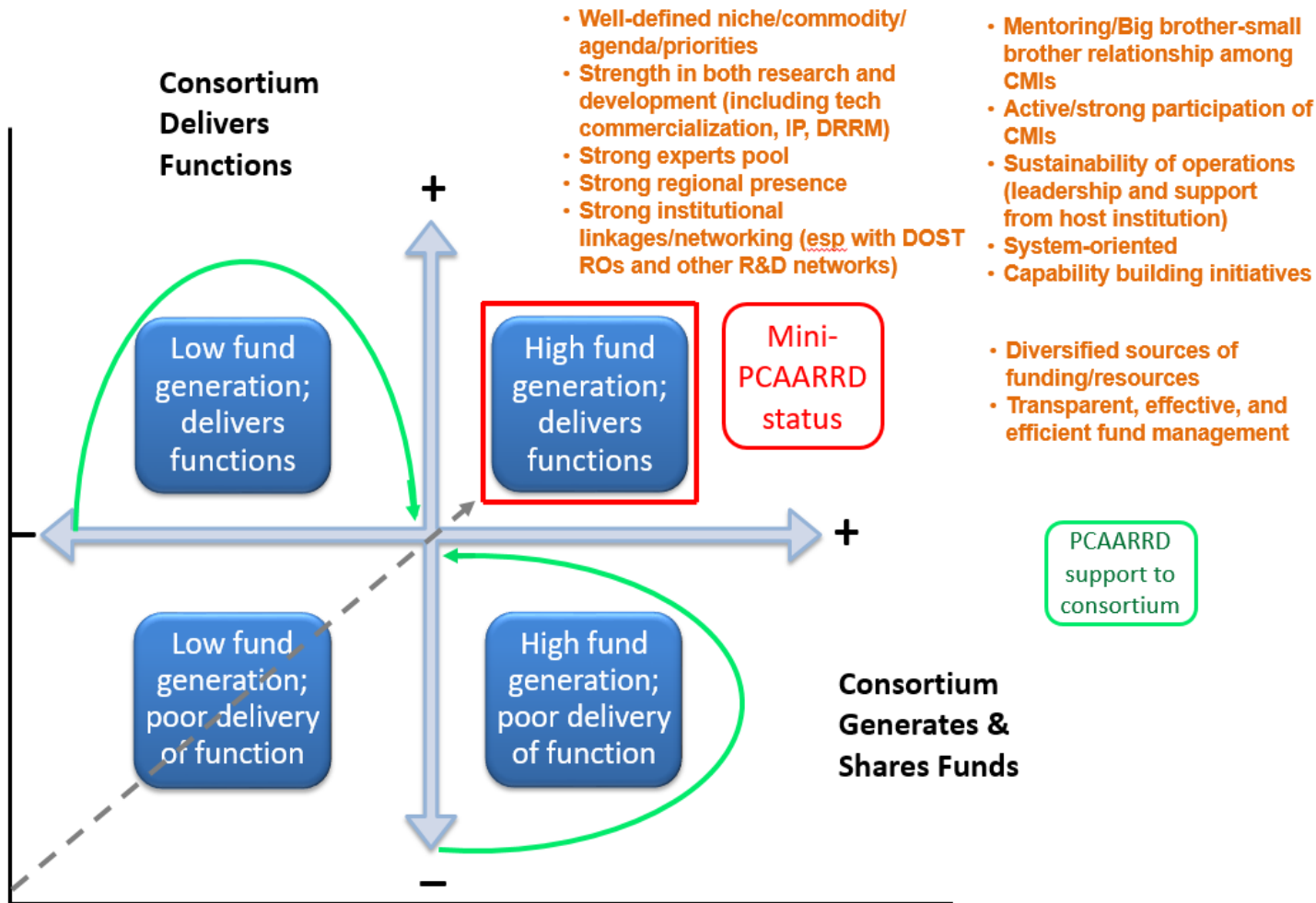


# PCAARRD R&D Regional Consortia

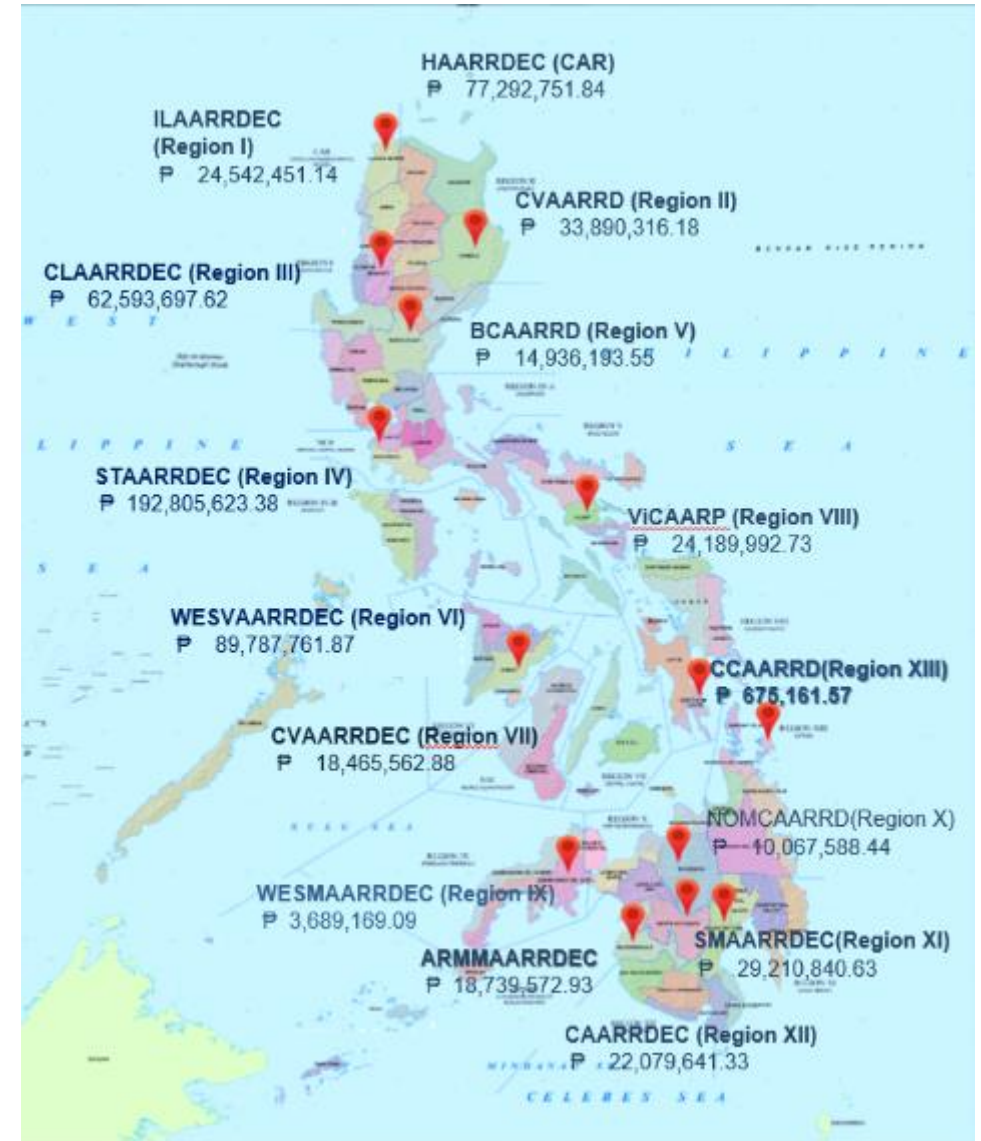
- Present in **15 regions** across the country
- **Membership** varies per consortium: SUCs, RDIs, agencies from other executive departments (DA, DENR, DOST, DAR, DTI), LGUs & NGOs
- **200 R&D** implementing agencies (SUCs, HEIs, RDIs)
- **84 Non-R&D** implementing agencies (NEDA, DTI, DAR, DBM, DOST, LGUs, NGOs, etc.)



# PCAARRD Consortia

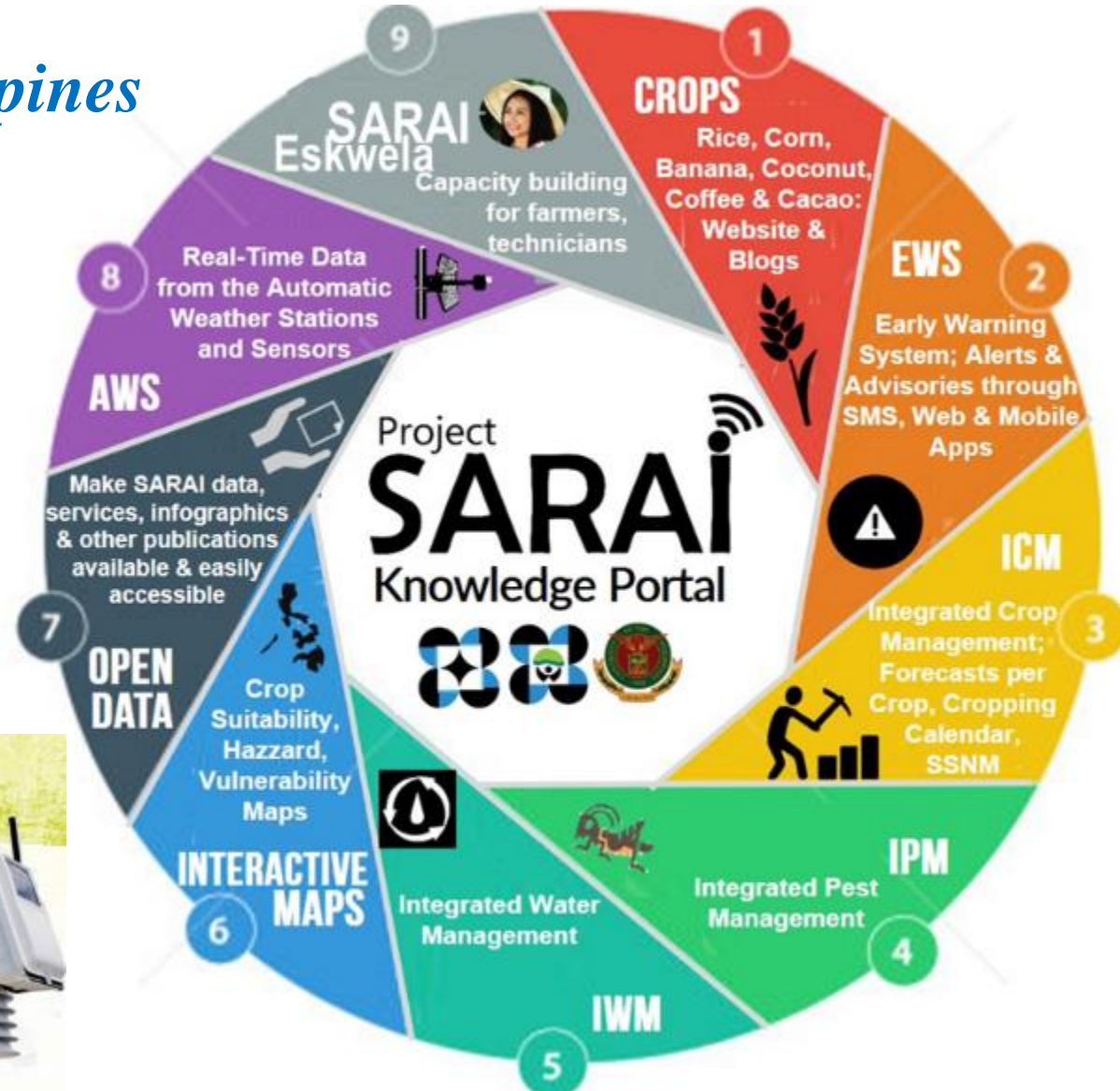


# 2015-2017 PCAARRD Investment in the Consortia



# SARAI Program

*Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines*





# Irradiated CARAGEENAN Plant Growth Promoter

INCREASED CROP YIELD  
IN RICE AND MUNGBEAN

*Formulated from radiation-processed carrageenan — an extract from seaweed processed into powder.*

## Uses:

- ✓ promotion of plant growth
- ✓ seed germination
- ✓ shoot elongation
- ✓ root growth
- ✓ flower production
- ✓ suppression of heavy metals
- ✓ improvement of the plant's immune system



PNRI accepts  
the 2017 FNCA  
Excellent  
Research Team  
of the Year  
Award during  
the Forum  
for Nuclear  
Cooperation in  
Asia.



YIELD ADVANTAGE ON RICE

**15-40%**

YIELD ADVANTAGE  
ON VEGETABLES-MUNGBEAN

**33%**

ADDITIONAL INCOME PER HECTARE PER  
CROPPING CYCLE OF AT LEAST

**PHP 22,185**

# Philippine NATIVE PIGS

*Industry Strategic Science and Technology (S&T) Program (ISP) for Swine*

- ✓ Improve productivity and production efficiency
- ✓ Create new opportunities to increase the overall competitiveness of the Philippine swine industry



LAMP-based test kit for Porcine Epidemic Diarrhea (PED) that **can detect the gastrointestinal microorganism which causes disease in pigs**



Development and application of gene marker technology for **increasing number of pigs weaned and liveweight produced** per sow per year

# Philippine NATIVE CHICKEN

*Industry Strategic Science and Technology (S&T) Program (ISP) for Native Chicken*

Breeding  
technology for  
native chicken



uniform physical  
features



predictable  
performance



consistent  
product quality

Improve and profitably utilize native chickens by rural farmers in Regions 5, 6, 7 and 9



# Long-line CULTURE SYSTEM

*Industry Strategic Science and Technology (S&T) Program (ISP) for OYSTER*

- ✓ Mussels grown using the longline method have higher growth than those produced using the raft method.
- ✓ More environment-friendly as they significantly reduce sedimentation by 30% compared to the traditional stake method.

RETURN ON INVESTMENT

**168%**

PAYBACK PERIOD

**8 MONTHS**



Harvesting of mussels from longlines

# ITIK PINAS

*Breeding greater wealth for the Philippine Duck Industry*

- ✓ Significant improvement in the annual egg production from **201 to 256 eggs/duck/year** with an **average egg weight of 65 grams**.



Itim ITIK PINAS pureline

X

Khaki ITIK PINAS pureline

=

**KAYUMANGGI ITIK PINAS**  
Commercial Hybrid



IP-Kayumanggi is developed for balut and salted egg production.

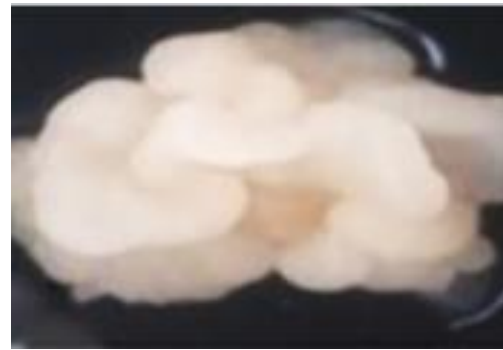
Benefitted duck breeders by saving time and labor cost of vent-sexing of day-old ducklings.

# Coconut Somatic Embryogenesis (CSet)

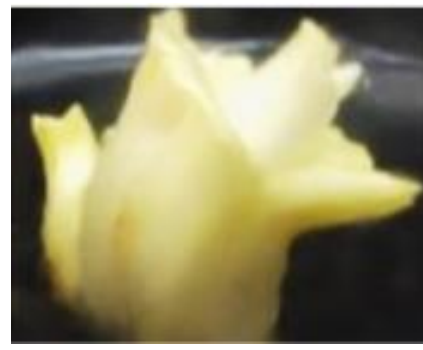
## *Invigorating the Coconut Industry*

- ✓ helps in the mass propagation of genetically superior high value coconut varieties
- ✓ resistant to pests and diseases
- ✓ produce high value products.

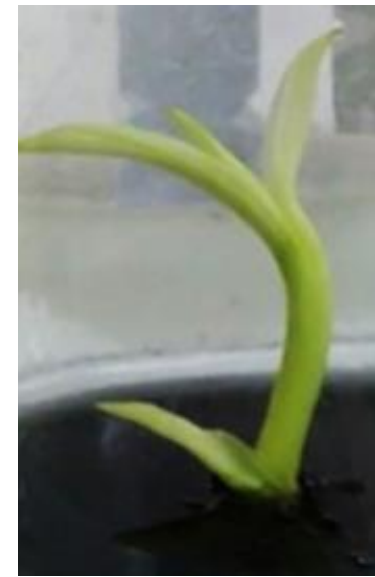
*The technology was tested and evaluated by a group of researchers from the Philippine Coconut Authority (PCA), University of the Philippines (UP), Bicol University (BU), and Visayas State University (VSU).*



**Calloid**



**Somatic embryo**



**shootlet**



**plantlet**

# Malnutrition Reduction Program (MRP)

*Expanding the reach of its benefits*

- ✓ Rolling out of complementary food technologies to the countryside
- ✓ Providing basic equipment
- ✓ Setting-up of production for small-medium and large-scale facilities
- ✓ Conducting IECs for health practitioners, parents, and teachers about nutrition

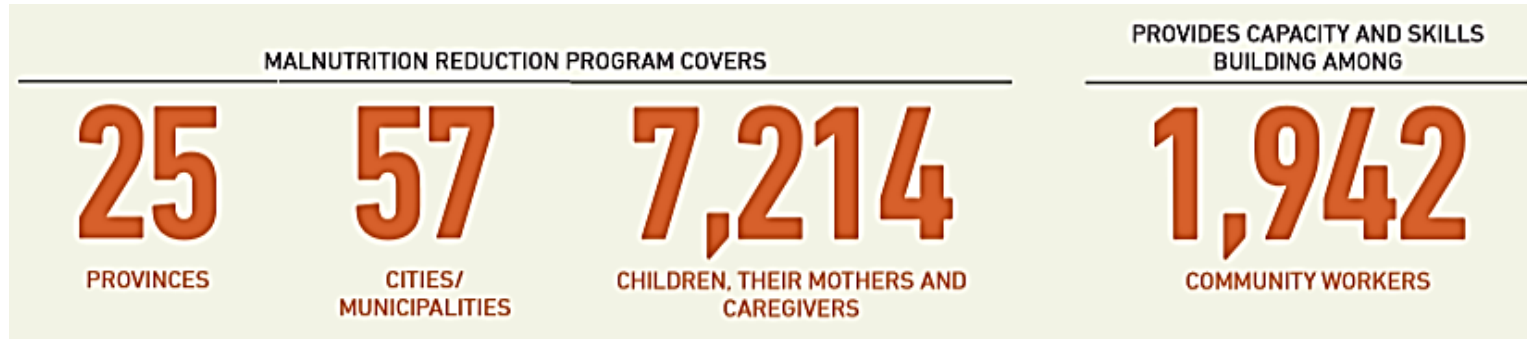


Image source: savethechildren.org

Rice-mongo blends as complementary food developed by DOST-FNRI

# BIOTEK-M Aqua Kit



- ✓ **Affordable** rapid test kit for accurate detection of dengue infection within an hour
- ✓ Has high sensitivity, high specificity, robust, and is less expensive than current diagnostic tests in the market

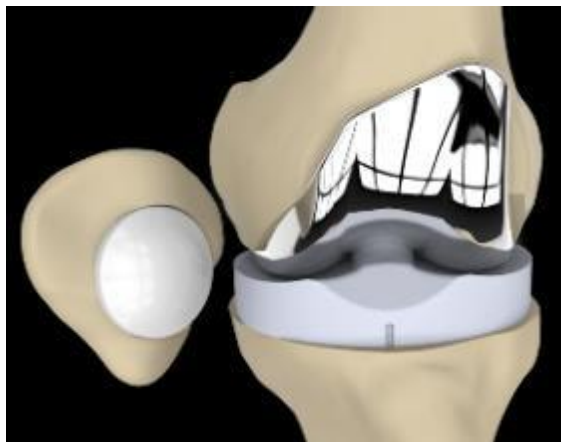
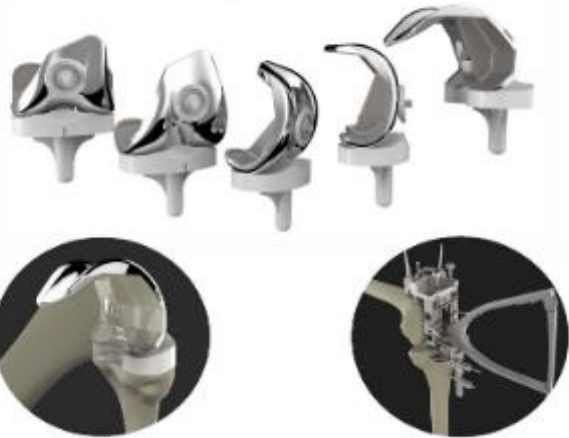
100% Filipino designed and locally-developed technology



Gold Awardee during the 46th International Exhibition of Inventions Geneva held on 11-15 April 2018 at Palexpo, Geneva



# Axis KNEE SYSTEM



A total knee replacement system that is specifically designed for the Asian population

This world-class, FDA-approved product was conceptualized and developed by Filipino doctors and engineers, together with some consultants from Japan, China, and US, and is being manufactured locally in Orthopaedic International Inc's ISO 13485-certified plant in Cabuyao, Laguna.

Its patent-pending instrumentation and surgical technique allows the surgeon to perform the procedure accurately without the use of x-ray, thus eliminating the possibility of implant failure.

✓ *Very affordable, as it costs 50% less than other knee implants in the market*

# Tuklas Lunas Program

*(Drug Discovery and Development) PROGRAM*  
*based on Philippine Biodiversity*



formulated and standardized as potential herbal drugs for inflammation, diabetes, hypertension and gout, following completion of bioactivity screening and preliminary toxicity studies.



**3,000 terrestrial (plants and fungi) and marine (microbial organisms, sponges, Conoideans) species**

have been screened for several priority disease indications such as diabetes, hypertension, inflammation, gout, infection and cancer



# TUKLAS LUNAS CENTERS



Mariano Marcos State University (MMSU)

Central Luzon State University (CLSU)

Ateneo de Manila University (AdMU)

University of the Philippines Los Baños (UPLB)

Mindanao State University-Iligan Institute of Technology (MSU-IIT)

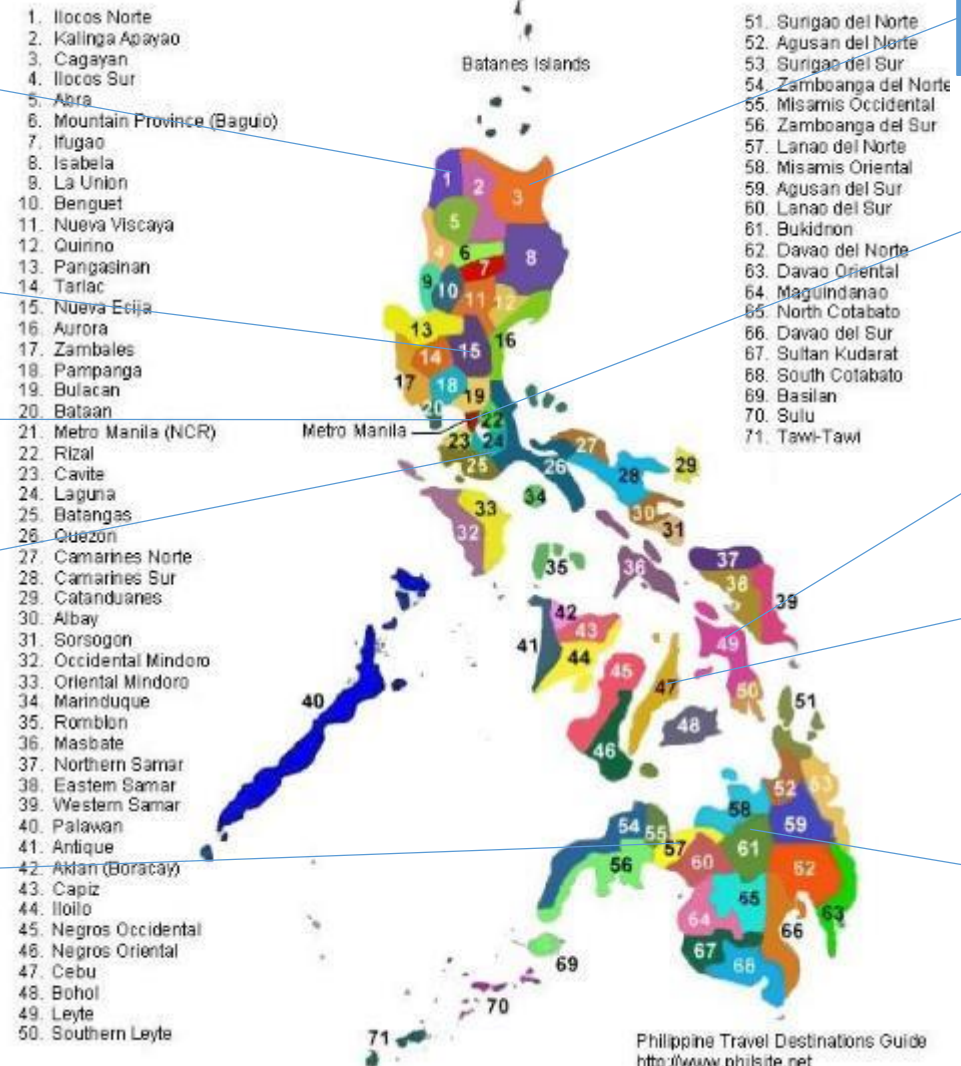
Cagayan State University (CSU)

University of Santo Tomas (UST)

Visayas State University (VSU)

University of San Carlos (USC)

Central Mindanao University (CMU)



# Bioactivity and Toxicity Facility

- Medium throughput facility for screening for:
  - Inflammation
  - Diabetes
  - Hypertension
  - Pain
  - Gout
  - Cancer
  - Cholesterol-lowering
  - Immunomodulation
  - In vitro hepatotoxicity and nephrotoxicity
- Established in UP Diliman (Institute of Chemistry, Institute of Biology, and National Institute of Molecular Biology and Biotechnology)



DRUG DISCOVERY  
AND DEVELOPMENT PROGRAM





**EPDC**  
ELECTRONICS PRODUCT  
DEVELOPMENT CENTER

# Equipment

## Signal Vector Generator



## Handheld XRF Analyzer



## PCB Prototyping System



## High Definition Imaging (HDI) 3D Scanner



## Parametric Testers

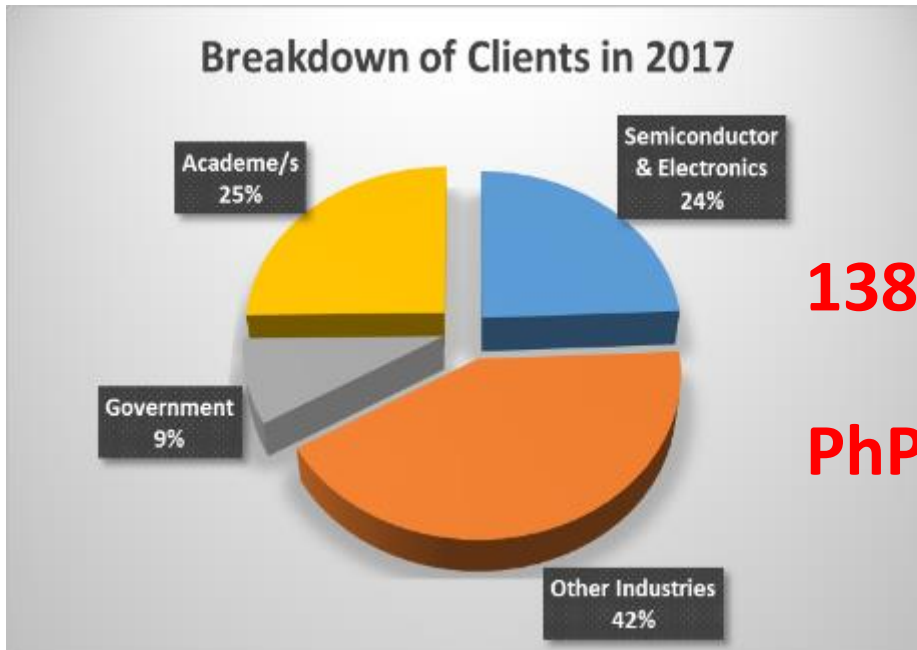




# ADVANCED DEVICE AND MATERIALS TESTING LABORATORY

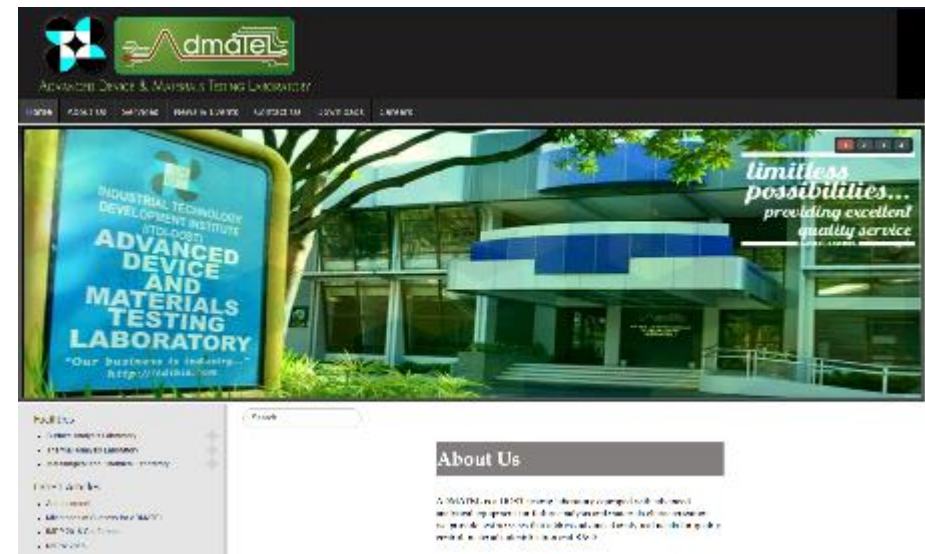
<http://www.admatel.com/base/>

- DOST lab equipped with state-of-the-art equipment for failure analysis (FA) and materials testing
- ISO 17025 accredited since 2015
- Serving more than 270 clients from many industries



**138 customers**

**PhP 15.694 million  
Income**



# MIRDC's Die and Mold Solution Center and 5-axis CNC

New Equipment (5-axis, high speed machining)



**Mazak Integrex, I-200**

Sample Products:



Sample Product:



**Okuma 5-Axis**



**DMG MORI  
DMU 50 5-Axis**



**Mazak Variaxis, J-600/50X**

# Food Innovation Center (FIC)

*Securing Capacity and Competitiveness of Food Production*



**R&D for 2 industries (2011 – present)**

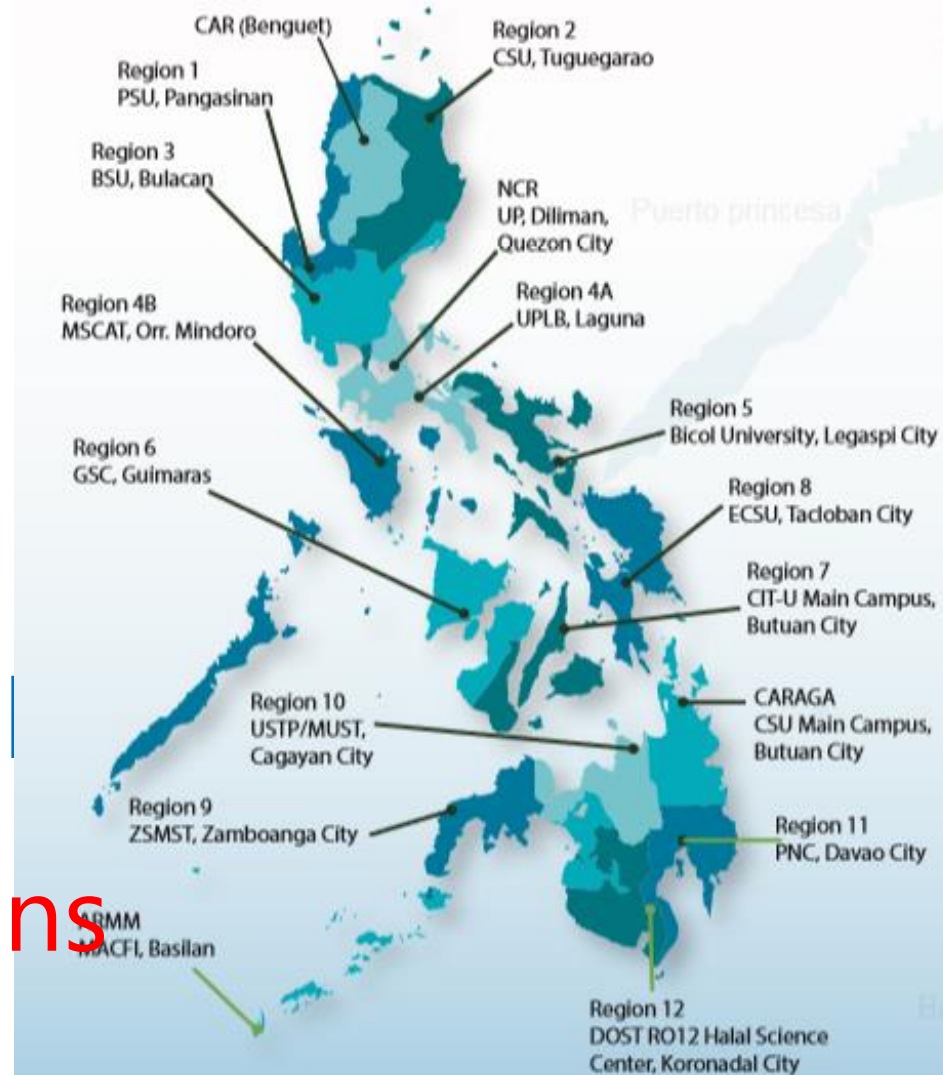
✓ **Food**

✓ **Food Processing Equipment**

*Local food processors cannot produce new innovative food products due to high acquisition cost of equipment*

Setting up of several

**16 FICs in the Regions**



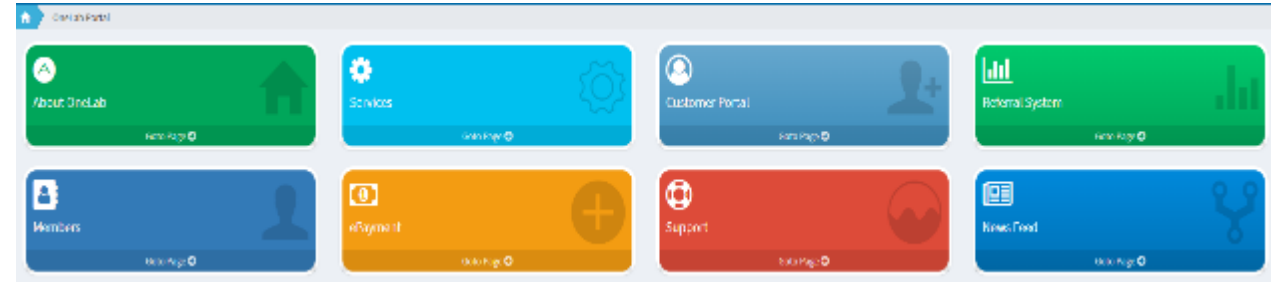


# Product prototypes from the FIC





<https://web.onelab.ph/>



A network of laboratories anchored on an IT platform which broadens public access to testing and calibration services at a single touch point

**WE are 35 at the moment**

**6** DOST Research and Development Institutes

**15** DOST Regional Standards and Testing Laboratories

**13** Non-DOST Laboratories

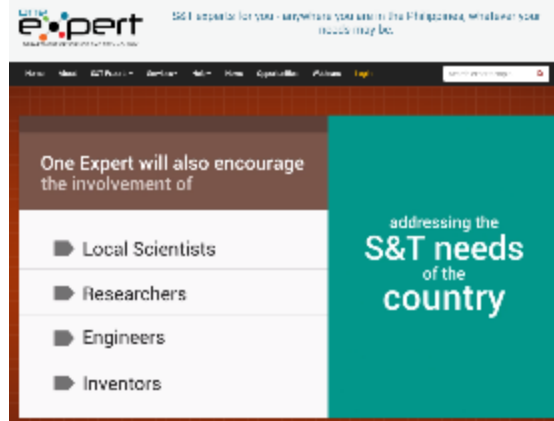


DEPARTMENT OF SCIENCE AND TECHNOLOGY

<https://oneexpert.gov.ph/>



an interactive web-based nationwide pool of S&T experts intended to provide technical advice and consultancy services to Filipinos anywhere they are in the Philippines, including private enterprises.



### Features:

- ✓ Database of experts
- ✓ Interaction with S&T experts
- ✓ Link to a searchable technology database
- ✓ Information about various DOST Consultancy Programs
- ✓ Forum where users can post questions and/or answers to existing threads

Science & Technology Experts Volunteer Program (STEVPP)  
(now under OneExpert)