PROMOTING SPACE SCIENCE IN BASIC EDUCATION

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Science Education Institute (DOST-SEI) goals:

To produce a critical mass of Science and Technology (S & T) human resources in support of national development programs.

To strengthen Science, Technology & Innovation (STI) enculturation in the country.



DOST-SEI PROGRAMS:

- 1. Administers scholarships in S & T from the undergraduate to graduate levels.
- 2. Conducts science promotion activities (e.g. science camps, science fairs, robotics competitions, etc.) to encourage young people to love science and pursue STEM careers; conducts researches on S&T Human Resources in th country.
- 3. Develops learning resources and conducts capacity-building programs for STEM teachers .





SOUTHEAST ASIA

IS IN



PHILIPPINES

- □ Population 100 Million
- Comprising 7,100 islands equivalent to 300,000 square kilometers (115,831 sq mi)
- Tropical country visited by almost
 20 typhoons per year



CURRENT STATUS OF SPACE AND TECHNOLOGY APPLICATIONS IN THE PHILIPPINES:

- Philippines is one of the five countries in Southeast Asia without a Space Agency.
- Lack of critical mass of trained local experts in astrophysics, aerospace engineering and related fields
- Small space industry sector in the country, composed mainly of aerospace
- · Highly reliant on foreign satellites for data and communications
- Limited access to space



The Department of Science and Technology (DOST) through its various agencies is doing Research and Development work on Space Science and Technology to help address concerns about climate change, security, weather forecasting, internet connectivity, agriculture, etc...



Philippine Earth Data Resource and Observation (PEDRO) Center

A system and infrastructure that securely receive, process, use and distribute space-borne imagery and information from the derive supported remote sensing satellites for various applications such as disaster mitigation, natural resource environmental management, monitoring, pollution control, energy exploration, intelligence, and emergency response management.

Addressing national issues







PHil-LIDAR 1

Produces 3-D flood and hazard maps for the 2/3 of the Philippine river systems



PHIL-LIDAR 2

- Assists local government units in mapping the Philippines' natural resources. State-of-the-art technologies such as LiDAR and other remote-sensing and GIS technologies are used to generate high-resolution resource maps and resource vulnerability maps.

-Provides detailed assessment of the country's natural resources such as highvalue agricultural crops, coastal resources, forest, hydrological and renewable energy resources.

-Helps formulate recommendations and address future local supply and demand in agriculture, coastal, forest, and renewable resources through the collaboration of State Universities and Colleges (SUCs) and private higher education institutions (HEIs) in processing and validating LiDAR data and development of resource valuation models.

- Phil-LiDAR 2 is one of the biggest collaboration of a multi-disciplinary pool of researchers coming from different universities and provinces of the Philippines.

Science-based Weather Information and Climate Change Scenarios for a Disaster and Climate Change Resilient Philippines







Currently, House Bill No. 3637 in Congress seeks for the creation of the:

- Philippine Space Agency

Central Government Agency which will address national issues and activities related to space science and technology applications

-Philippine Space Development and Utilization Policy

will serve as the country's primary strategic roadmap for space development



NATIONAL SPACE DEVELOPMENT POLICY OF THE PHILIPPINES

Focus on 6 Key Development Areas (KDAs):

- **1.** National Security and Development
- 2. Space Research and Development
- 3. Hazard Management and Climate Studies
- 4. Space Industry Capacity Building
- 5. Space Education and Awareness
- 6. International Cooperation





DOST-SEI PHILIPPINE SPACE EDUCATION PROGRAM (2008, in response to UNESCO invitation))

- 1. Promote knowledge on astronomy, space science and technology and applications and benefits to society.
- 2. Implements Space Science education activities for students and the general public.
- 3. Enhance school teachers' understanding of space science technology application; expand science subjects by including astronomy and space science in lessons.
- 4. Establish linkages and partnerships with institutions and space organizations, both local and international.



SPACE SCIENCE PROMOTION ACTIVITIES IN BASIC EDUCATION



1. WORLD SPACE SCIENCE WEEK CELEBRATION

A. POSTER-MAKING COMPETITION FOR ELEMENTARY CHILDREN





POSTERS ON SPACE SCIENCE CREATED BY CHILDREN











B. WATER-ROCKET EVENT FOR HIGH SCHOOL STUDENTS







C. CAN SATELLITE COMPETITION















SEPTEMBER 11-15, 2017: 5-Day intensive technical training for CanSat development

Arduino Programming
 Basic Meteorology
 Systems Engineering
 Instrumentation (GPS, Temperature and Pressure Sensors)
 Data Analysis

Participants: Grades 9-12 students from 15 high schools schools

Launching of CanSats:

October 2017 during the World Space Week Celebration

2. TEACHER TRAINING ON SPACE SCIENCE AND APPLICATIONS











3. POPULARIZING SPACE SCIENCE AND ITS APPLICATION TO CHILDREN AND THE GENERAL PUBLIC



SPACE SCIENCE ACTIVITIES FOR STUDENTS CONDUCTED IN SCHOOLS





SPACE SCIENCE ACTIVITIES IN PUBLIC SCHOOLS





POPULARIZING SPACE SCIENCE IN THE COUNTRYSIDE THORUGH SEI's MOBILE LABORATORY: EXPLORER BUS



SPACE SCIENCE MODULES IN THE EXPLORER BUS









POPULARIZATION OF SPACE SCIENCE AND TECHNOLOGY PROGRAMS TO THE GENERAL PUBLIC DURING THE NATIONAL SCIENCE AND TECHNOLOGY WEEK CELEBRATION





PCIEERD's Projected No. of Scholars by Degree Program for Foreign Scholarships: 2017-2022 (PHILIPPINE COUNCIL FOR INDUSTRY, ENERGY AND EMERGING TECHNOLOGY RESEARCH & DEVELOPMENT)

COURSE		2017		2018		2019		2020		2021		2022		TOTAL	
	MS	PHD	MS	PHD											
New and Emerging Technologies															
Space Studies	25	12	25	13	25		25						100	25	
Data Analytics	25	12	25	13	25		25						100	25	
Artificial Intelligence	25	12	25	13	25		25						100	25	
Software Engineering	25	12	25	13	25		25						100	25	
Energy Engineering	25	12	25	13	25		25						100	25	
Microelectronics	25	12	25	13	25		25						100	25	
Nuclear Science and Engineering	12	12	12	13	13		13						50	25	

TAKE HOME:

Best practices of other countries for promoting STEM to young people

Connections/linkages for capacity-building on Space applications and policies/insights from experts

Strategies/models for capacity-building for targeted programs/ Curriculum

Friendships Beautiful memories





THANKYOU!

