

Establishing the Philippine Space Program: From Technology Development to Policy Legislation



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The Philippines in a Nutshell...



of islands: 7,641

Population: 105 million (~75% of Russia)

Land Area: 300,000 km² (~2% of Russia)

Languages: Filipino, English

Major Religion: Christianity (90%)

Weather: Tropical Maritime Climate

GDP by PPP: \$873 billion (29th)

Located along the Pacific Ring of Fire

Average of 20 typhoons per year

#3 country most exposed to natural risks/hazards



Space Activities in the Philippines (pre-2013)

Optical and Radio Astronomy since 1897

Rocket Development Program in the 1970s

Member of UN COPUOS since 1977

AGILA-2 Telecommunications Satellite in 1990s

Philippine Space Science Education Program

Participation in SENTINEL-ASIA

Proposed Philippine Space Act of 2012

International Space Treaties

Signatory: Outer Space Treaty
Rescue Agreement
Liability Convention

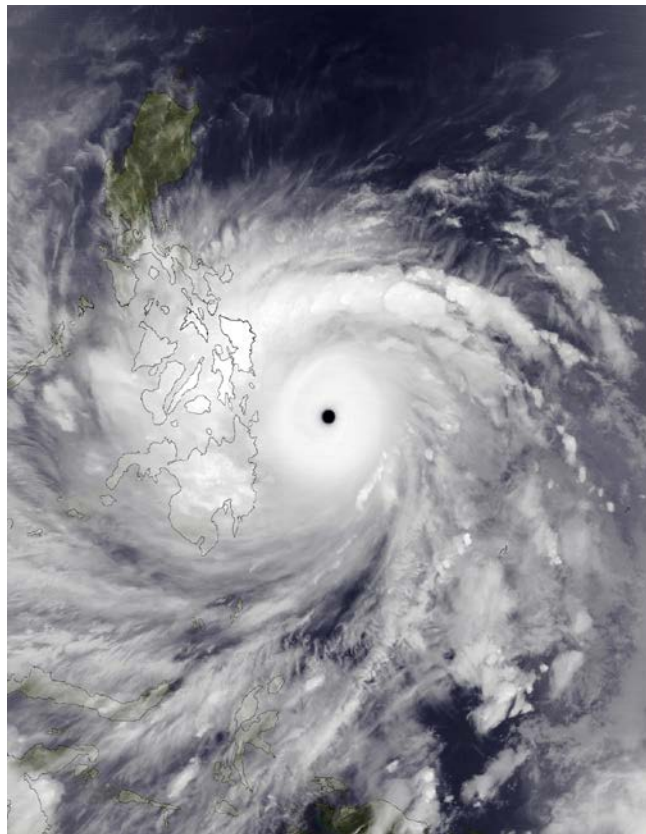
Ratified: Moon Treaty



The Turning Points

POINT 1:

Scarborough Shoal Standoff (2012)



POINT 2:

Typhoon
Haiyan/Yolanda
(2013)

Towards the Creation of a Philippine Space Agency

Baseline Research for Space Activities and Infrastructure (2013)

- Survey of infrastructure and human assets currently available in the country;

Crafting the National Space Development and Utilization Policy (2014)

- Analysis of foreign space programs and policies;
- multi-sectoral stakeholder consultation on the proposed space policy;

Development and DIWATA Microsatellites and National Ground Receiving Station (2014~)

- first technical cooperation with Japan for the development and launch of two (2) micro satellites;

National SPACE Development Program (2015-2016)

- develop a cost-benefit analysis and establish key space roadmaps and agenda
- foster international cooperation and partnerships

Legislation of the Philippine Space Agency and Policy (2016~)

- lobbying and proposing to politicians and decision-makers;

Outcomes of the SSTA Baseline Research

Functions of a space agency is **distributed to various government agencies and units.**

There is a need for a National Space Policy that would create a cohesive and unified strategy for short, medium and long term space development.

There is also a **need for a National Space Agency** that would all issues related to space that would affect the nation.

Identify key areas for space development that would serve as its niche in the global space community and develop the necessary tangible and intangible assets.

Education and industry funding support should be provided to **create a strong space R&D and robust space industry.**

Enhance national and international cooperation through joint projects that would be beneficial to all parties involved.

Institutions Engaged During Consultations

ACADEME

Ateneo de Davao University
Ateneo de Manila University (ADMU)
FEATI University
Mapua Institute of Technology (MIT)
Mindanao State University - Iligan Institute of Technology (MSU-IIT)
Philippine State College of Aeronautics (PHILSCA)
Silliman University
UP Mindanao
UP Diliman OVCRD, DGE/TCAGP, EEEI, IESM, MSI, NIP
UP Los Banos, CAS, CFNR, CHE
University of San Carlos
PHL-Microsat Program

GOVERNMENT

Civil Aviation Authority of the Philippines (CAAP)
Climate Change Commission (CCC)
Commission on Higher Education (CHED)
Department of Agriculture (DA), BSWM, Region XI, PhilRice
DENR FMB, MGB, NAMRIA
Department of Education (DEPED)
DOST ASTI, ICTO, PCIEERD, MIRDC, PAGASA, PHIVOLCS, PCAARD, PCHRD, Region X, Region, XI
DTI BOI, PITC
Environmental Science for Social Change
National Economic Development Authority (NEDA)
Intellectual Property Office
Open Data Philippines
DOTC NTC, CAAP

DEFENSE

Air Force Research & Development Center (AFRDC)
Armed Forces of the Philippines (AFP)
Department of National Defense (DND)
DND Management Information System Service (MISS)
National Security Council (NSC)
Office of Civil Defense (OCD)/NDRRMC
Philippine Air Force - Office of Special Studies (PAF-OSS)
Philippine Army (PA), PA Research and Development Center
Philippine Coast Guard (PCG)
Philippine Marine Corps (PMC)
Naval Research and Technology Development Center (NRTDC)
Government Arsenal

INDUSTRY

AIRBUS Defence & Space (France)
Asia Broadcasting Station (ABS)
Certeza Infosys, Corp.
Federation of Aviation Organizations (FEDAVOR)
Geo-Survey & Mapping, Inc. (GSMI)
Geodata Systems Technologies, Inc.
Integrated Micro-electronics, Inc.
PASCO Philippines
Philippines Aerospace Development Corp. (PADC)
PHILCOMSAT
Surrey Satellite Technology Ltd. (UK)
ClydeSpace (UK)

National Space Development and Utilization Policy

The NSDUP serves as the primary strategic roadmap for national space development in the next decade focusing on areas of space science and technology applications that would address national issues and concerns.

The Policy focuses on six (6) **Key Development Areas** namely:

National Security and Development

Hazard Management & Climate Studies

Space Research and Development

Space Industry Capacity Building

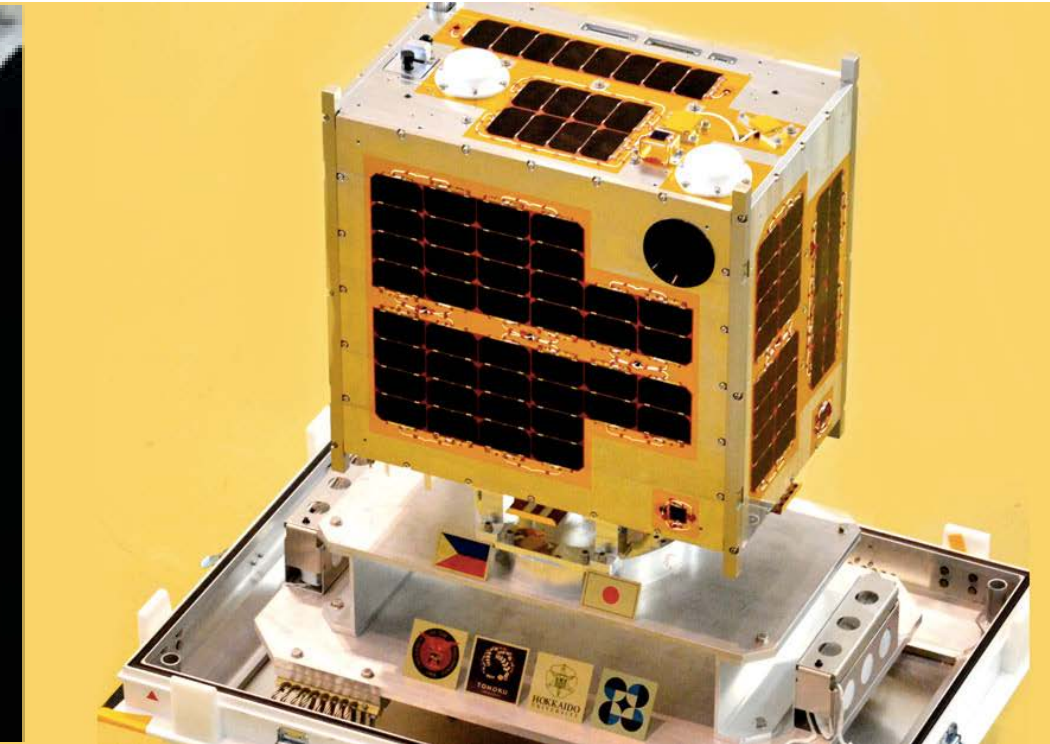
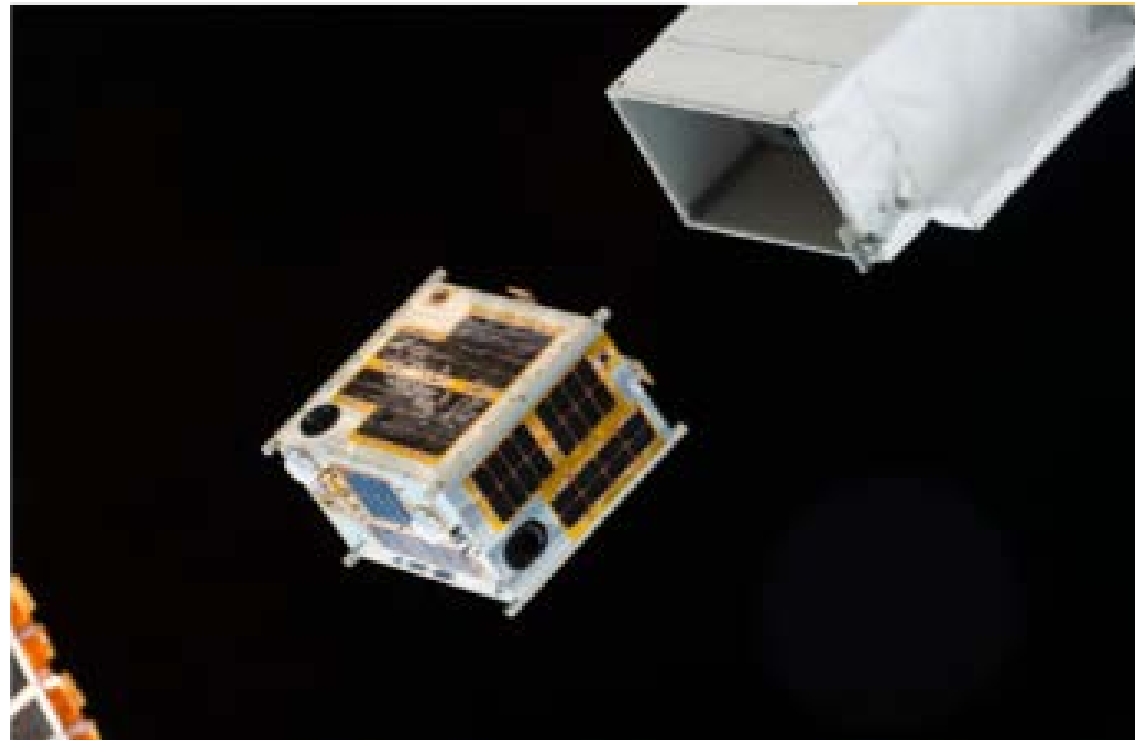
Space Education and Awareness

International Cooperation

LAUNCH OF DIWATA-1 MICROSATELLITE

Diwata-1 release from ISS

Diwata-1 was successfully deployed into low-earth orbit from the Japanese Experiment Module 'Kibo', April 27, 2016



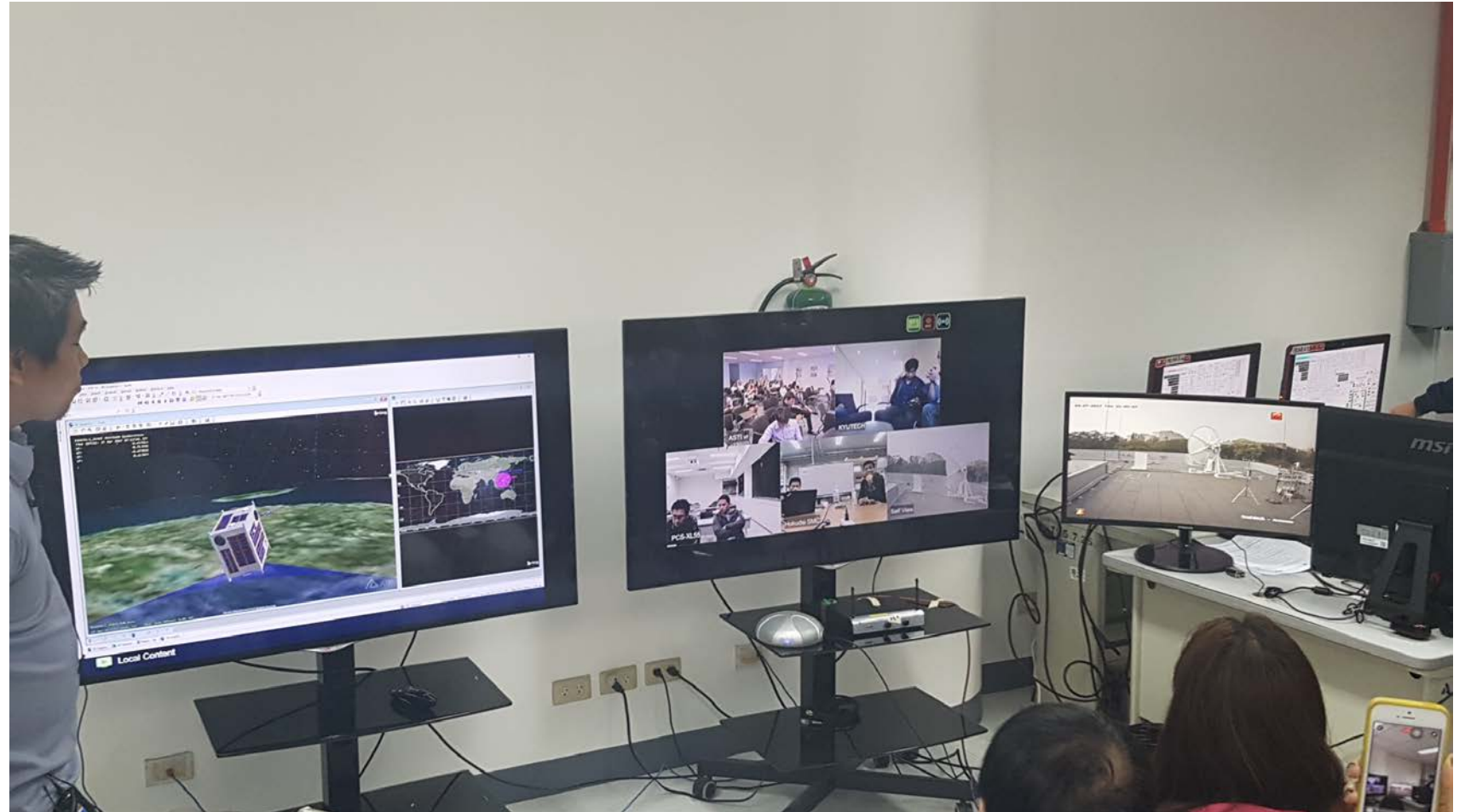
DIWATA-1 was launched on March 23, 2016 from Cape Canaveral via Cygnus CRS-OA6;

It was deployed from the Kibo Module of the International Space Station on April 27, 2016;

DIWATA-2 is undergoing mission planning and scheduled for launch in 2018;



Philippine Earth Data Resources Observatory



The **Philippine Earth Data Resources Observatory (PEDRO)** serves as the main ground receiving station of DIWATA-1 and other satellites. Currently, it is located at the Advanced Science and Technology Institute (ASTI) at C.P. Garcia, Quezon City.

Receives communication from DIWATA-1, KOMPSAT-3 and KOMPSAT-5

National SPACE Development Program



The **National SPACE Development Program** is a DOST-PCIEERD funded program tasked to lay the groundwork and necessary infrastructure necessary prior for the creation of the **Philippine Space Agency**. The NSDP also conducted a cost-benefit study of a long-term Philippine space program and establish the potential ROI and benefits created.

National Space Research and Development Agenda

- identifies the priority research areas for space science and technology development;

Satellite Development Roadmap

- statea the various satellite that the Philippines will develop over the next 10 years based on the needs of stakeholders from government, academe, industry and defines sectors;
- initial proposal to launch five (5) satellites within the next 10 years;

Satellite Data Sharing and Management Policy

- establishes the satellite data sharing protocol among key stakeholders;
- identifies the Philippine Space Agency as the primary government agency for satellite data acquisition and distribution;

Space Industry Development Roadmap

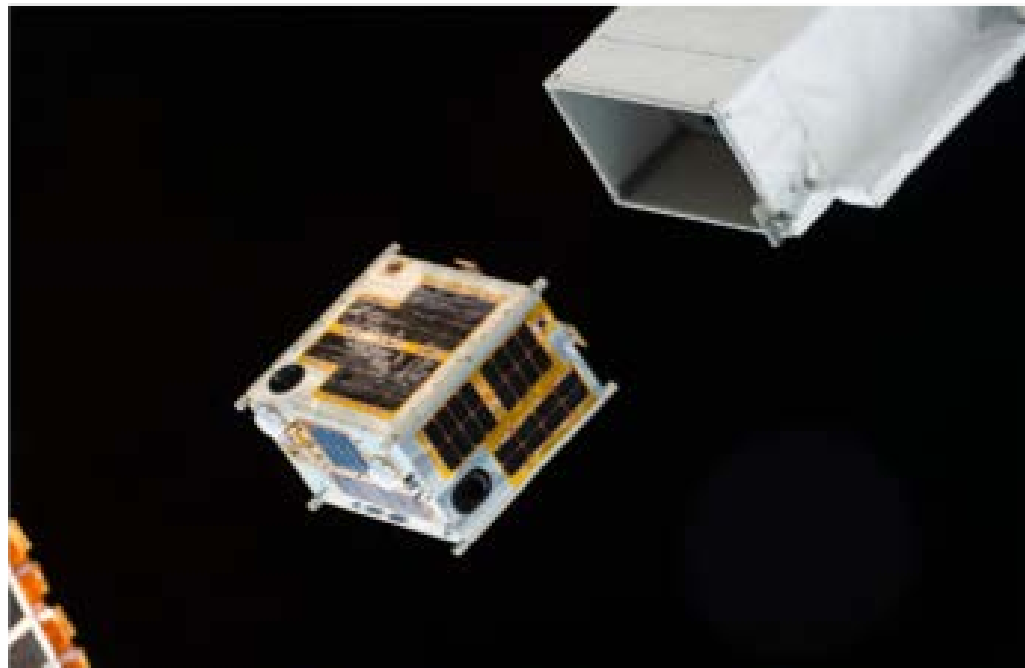
- identifes the four niche areas for Philippine space development, namely **space sub-systems production, satellite AIT, space applications and services** and, **launch vehicle services**;

The Philippines as an Emerging Space Nation

Launch of DIWATA-1 Microsatellite

Diwata-1 release from ISS

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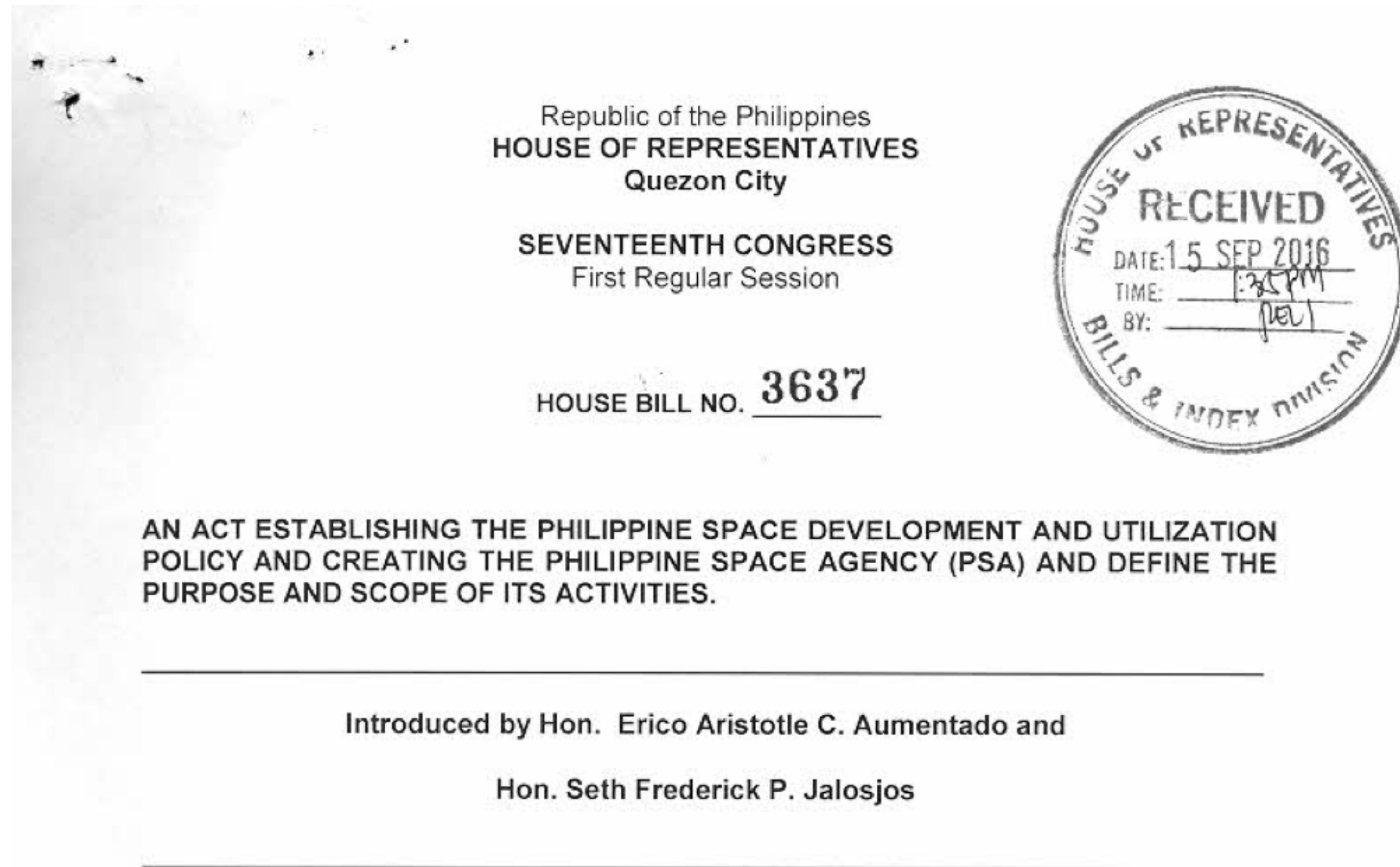


Legislation of Philippine Space Agency



23rd Asia Pacific Regional Space Agency Forum in Manila

Space Agency and Policy Legislation



Sept. 15, 2016

HB 3637 was filed by Cong. Erico Aristotle Aumentado (Bohol 2nd) and Cong. Seth Frederick P. Jalosjos (Zamboanga 1st)

Nov. 7, 2016

HB 4275 was filed by Cong. John Marvin "Yul Servo" Nieto (Manila 3rd) and Cong. Edward Vera Perez Maceda (Manila 4th)

Nov. 14, 2016

HB 4367 was filed by Cong. Joey Sarte Salceda (Albay 2nd)

Dec. 6, 2016

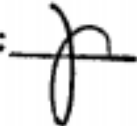
HB 4623 was filed by Cong. Maximo Rodriguez Jr. (CDO 2nd)

Space Agency and Policy Legislation

SEVENTEENTH CONGRESS OF THE REPUBLIC
OF THE PHILIPPINES
First Regular Session



16 OCT 18 P5:13

RECEIVED BY: 

SENATE
S.B. No. 1211

Introduced by: Senator Paolo Benigno "Bam" A. Aquino IV

AN ACT
ESTABLISHING THE PHILIPPINE SPACE DEVELOPMENT AND UTILIZATION POLICY AND
CREATING THE PHILIPPINE SPACE AGENCY, AND FOR OTHER PURPOSES

EXPLANATORY NOTE

Rocket ships, astronauts, and scenes from outer space are what often come to mind at the mention of Space Science, but there are much more practical technological applications to this discipline that can benefit countries like the Philippines.

In fact, both developed and developing countries alike, including our ASEAN neighbors, have respective aeronautics and space agencies to build their own spaceships and join the ranks of space-faring nations.

Oct. 18, 2016

SB 1211 was filed by Sen. Paolo Benigno "Bam" Aquino IV

Dec. 16, 2016

SB 1259 was filed by Sen. Loren Legarda

Space Agency and Policy Legislation Timeline

- Jan. 9, 2017 The **National Space Program** and proposal to create a **National Space Development Office** was presented to President Rodrigo Duterte and was approved. Budget of ~\$500 Million for the next 10 years.
- Jan. 31, 2017 The four HBs were approved on the **1st reading by the House Committee on Government Reorganization and Science and Technology**
- March 15, 2017 The 1st Technical Working Group (TWG) for the four HBs was done **by the House Committee on Government Reorganization and Science and Technology**
- May 30, 2017 The 2nd Technical Working Group (TWG) for the four HBs was done **by the House Committee on Government Reorganization and Science and Technology**
- June 7, 2017 Ocular visit to the future site of the Philippine Space Agency (30 hectares) was done **by the House Committees**
- August 1, 2017 First Hearing of the **Senate Committee on Science and Technology** for PhilSA
- August 2, 2017 The 3rd Technical Working Group (TWG) for the four HBs was done **by the House Committee on Government Reorganization and Science and Technology**
- August 24 - 26, 2017 Benchmarking with JAXA was done **by the House Committee on Government Reorganization and Science and Technology**
- October 10, 2017 Final approval of the TWG Bill version was done by the **House Committee on Science and Technology** and was transmitted for Congress Plenary deliberations

Space Development in the National Agenda



Philippine
Development Plan
2017-2022



2017-2022

NATIONAL SECURITY POLICY
FOR
CHANGE AND WELL-BEING OF
THE FILIPINO PEOPLE

The Philippine Space Agency is also being discussed to be included in the
Legislative Development Advisory Council (LEDAC).

Mainstreaming Space to the Public



SCITECH Filtered By: Scitech

Why the Philippines needs a national space agency

Published October 9, 2016 3:58pm

By MIKAEL ANGELO FRANCISCO



SCITECH Filtered By: Scitech

Lawmakers file bills creating PHL Space Agency

Published October 27, 2016 10:27am

By JESSICA BARTOLOME, GMA News



SCITECH Filtered By: Scitech

PHL to host international space agency forum

Published November 10, 2016 4:55pm

By JOHN PATRICK ALLANEGUI



SCITECH Filtered By: Scitech

Rizal teens win int'l satellite design competition

Published November 15, 2016 6:40pm

By STEPHANIE TUMAMPOS



Other Space-Related Activities

Space Science Program for pre-school to high school students in selected schools in the country

Participation of the Philippines in the **BIRDS-2 Program of Kyushu Institute of Technology**

Conduct of **National Can Satellite Competition** and participation in the **Asian Try-Zero-G Experiment, World Space Week and National Astronomy Week**

Acquisition of partial share to the **NovaSAR satellite** of UK

Establishing MOUs with JAXA, UKSA and Roscosmos

Cooperation of the Department of Social Welfare and Development with InMarsat under the IPP of the UK Space Agency

Future Developments

Institution of scholarship programs, course programs and research projects in various universities

New opportunities for foreign researchers, scientists and space professionals

Development and launch of DIWATA-2 and other small satellites

Development of applications of space technology in environment, agriculture and security

Detailed studies to finalise locations of various ground infrastructure

Commence the development of a local space industry

Increasing public awareness on the value and benefit of space

Lobbying for the passing of the Philippine Space Act and ratification of international space treaties

Recommendations for Emerging Space Nations

Conduct a baseline study/assessment of the existing space assets, infrastructure and capabilities within the country.

Analyze the space policies and programs of other countries and **assess which ones are suitable to your own country.**

Involve various agencies and sectors that can benefit from space technology and applications in crafting the space policy.

Have a small but dedicated team to do most of the legwork (e.g. consultations, meetings, lobbying etc.) in crafting the policy and roadmaps.

Have a long-term perspective on space development but take into account the short-term political situation.

Recommendations for Emerging Space Nations

Educate politicians and decision-makers on the value and benefit of having a national space program by considering what are the pressing national issues.

Have minimal public exposure initially (fly under the radar) until most of the plans are already laid down, then ramp it up to gain public support.

Cooperate with other space-faring and space-emerging nations for technology exchanges and human resources capacity building (north-south, south-south cooperation).

Include space law and policy in developing a national space program (not just space technology).

BE PREPARED FOR THE LONG AND BUMPY RIDE!!!

“If you want to go fast, go alone.

If you want to go far, go together”

-African Proverb

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