

# The Globalization of Space



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**SUMMIT FOR  
SPACE SUSTAINABILITY**

# The Democratization of Space

The number of countries owning satellites has greatly increased in the past 50 years.

Currently, there are more than 2000 active satellites in orbit.

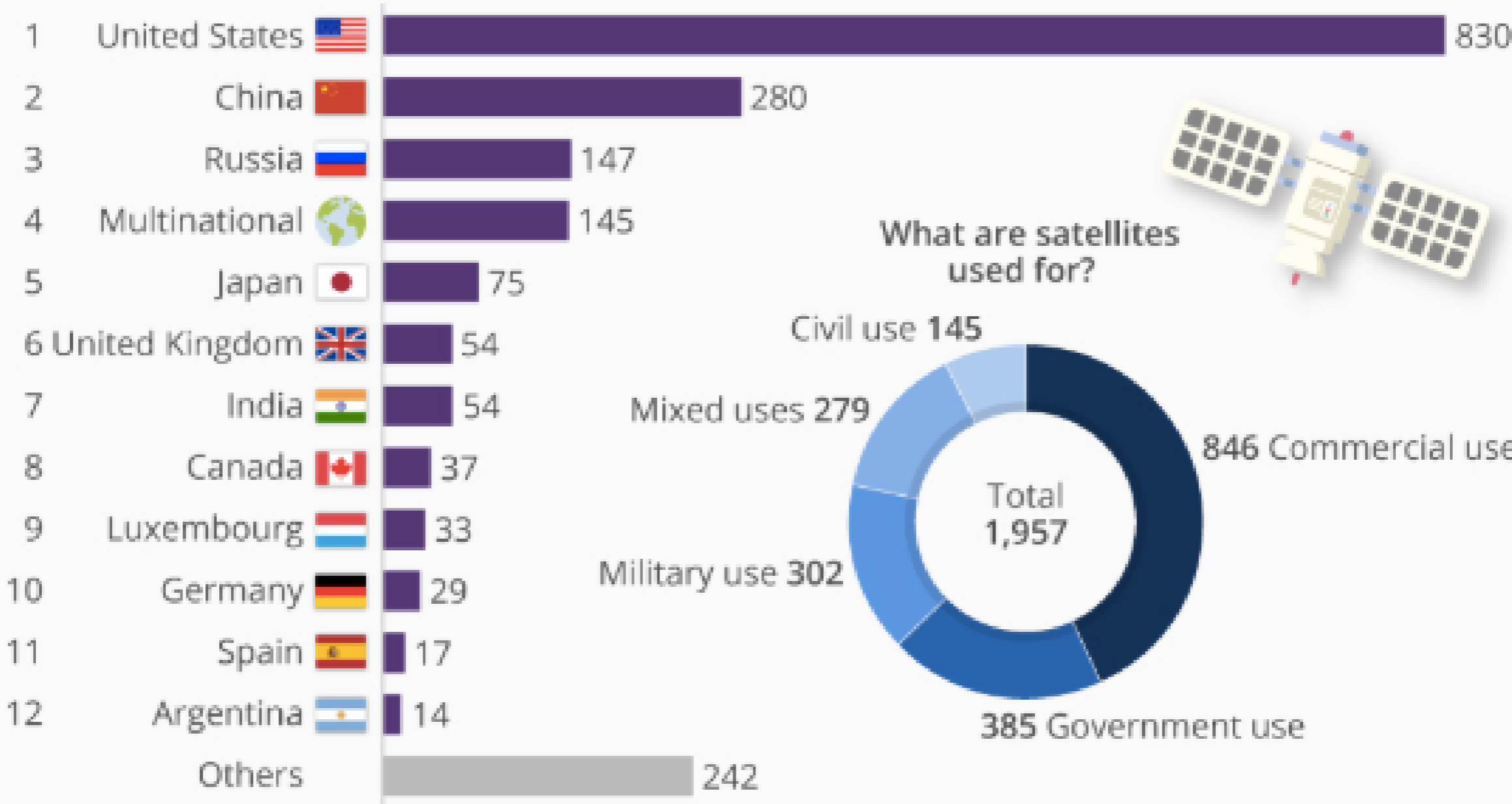
UNOOSA Index of Space Objects Launched Into Outer Space shows 4,857 satellites in 2018, a 4.79% increase from 2017.



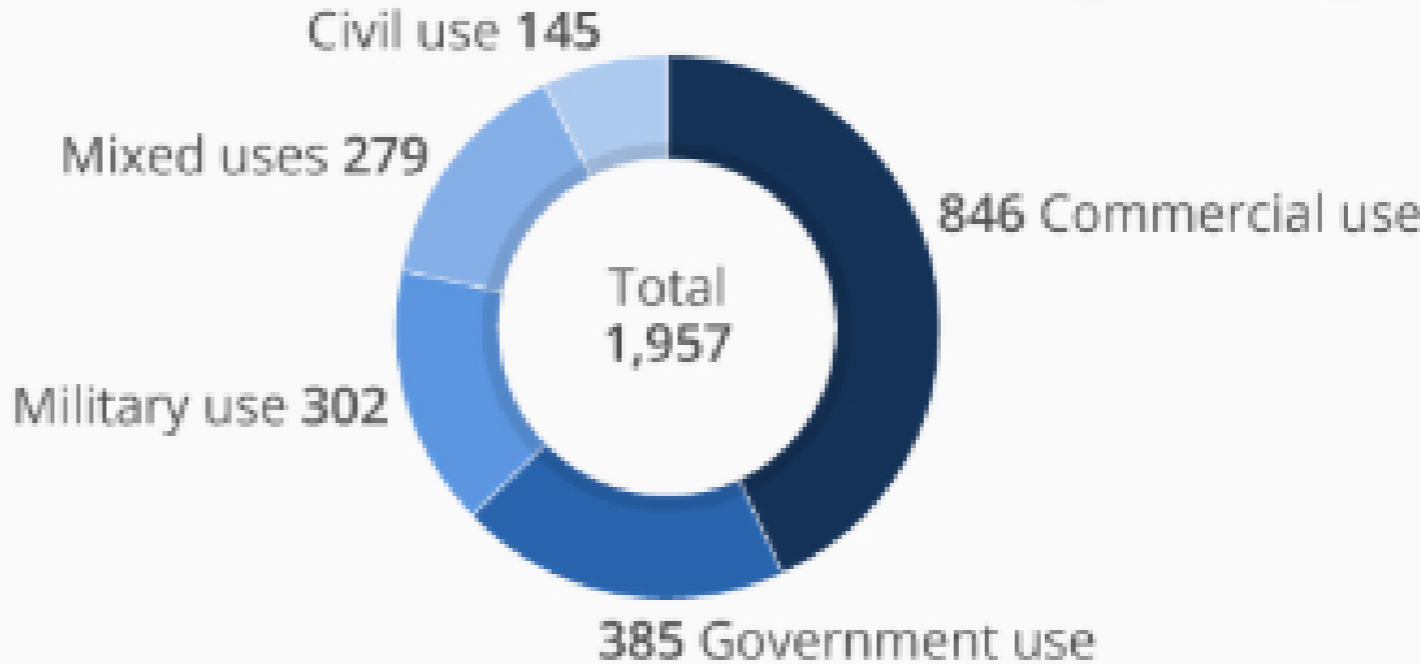
# Global Satellite List Per Country (2019)

## The Countries With the Most Satellites in Space

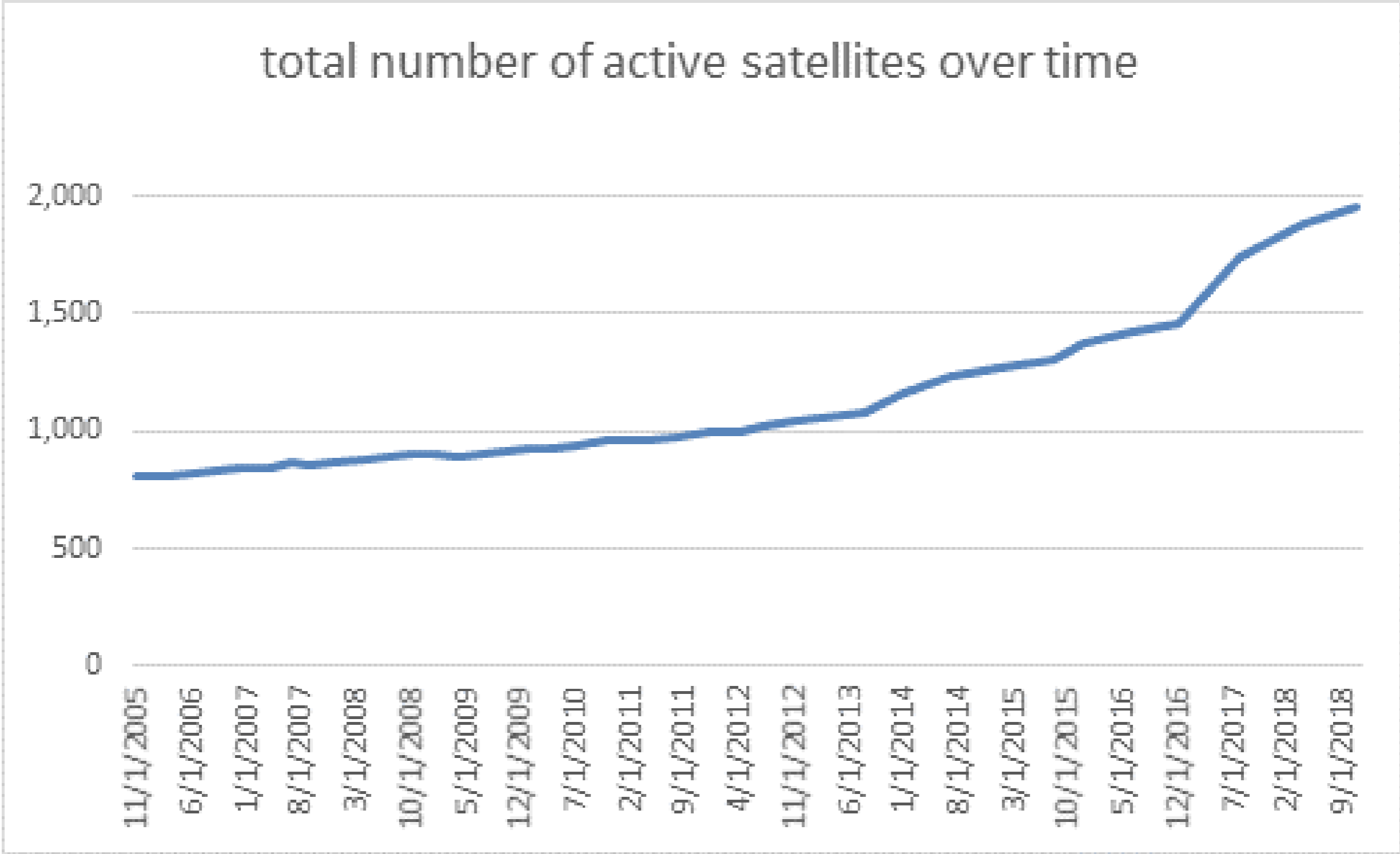
Satellites currently orbiting Earth by country\* (as of Nov 2018)



What are satellites used for?

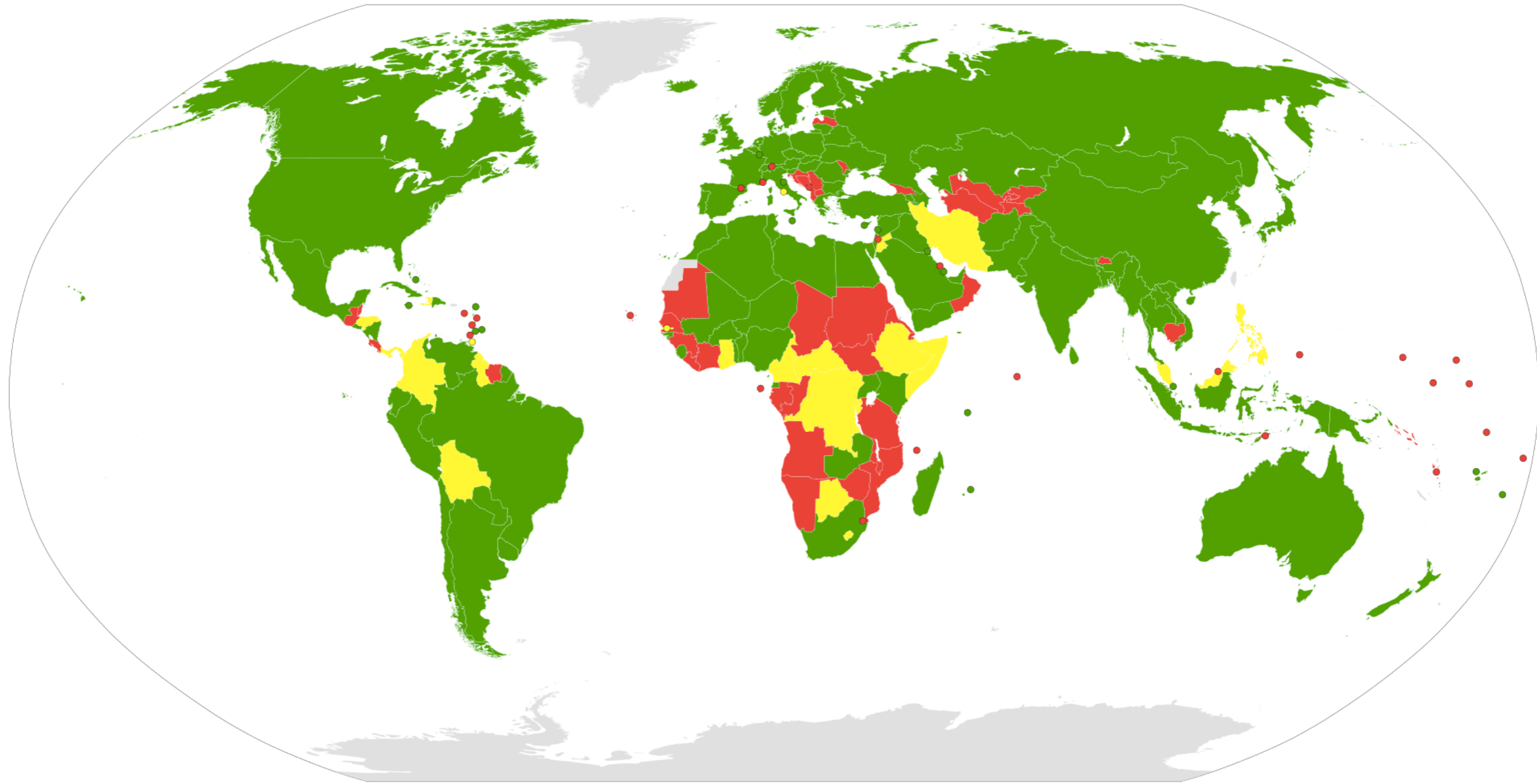


# Growth in the Number of Active Satellites



The past five years showed a significant increase in the number of active satellites from <1500 to almost 2000 satellites.

# Global Status of the Outer Space Treaty



As of 2019, 109 countries have ratified the OST, with another 23 being signatories. Most of the latter status are emerging space nations.

# New Space Agencies in the Last Five Years



POLISH  
SPACE  
AGENCY



Australian  
Space Agency



PORTUGAL  
SPACE  
AGENCY

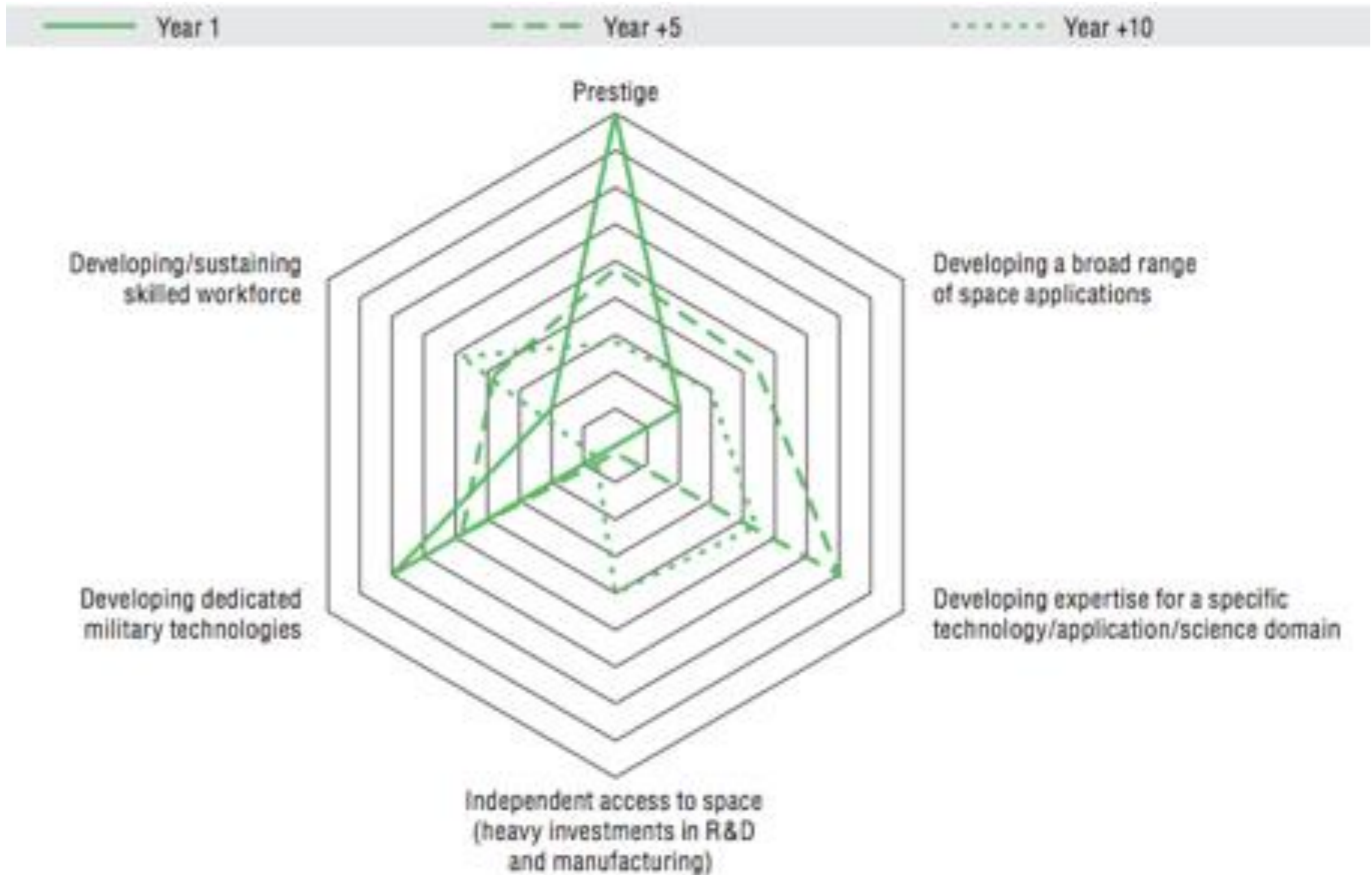
**UPCOMING (July 2019)**

وكالة الإمارات للفضاء  
UAE SPACE AGENCY



Philippine  
Space  
Agency

# Why Developing Countries Have a Space Program

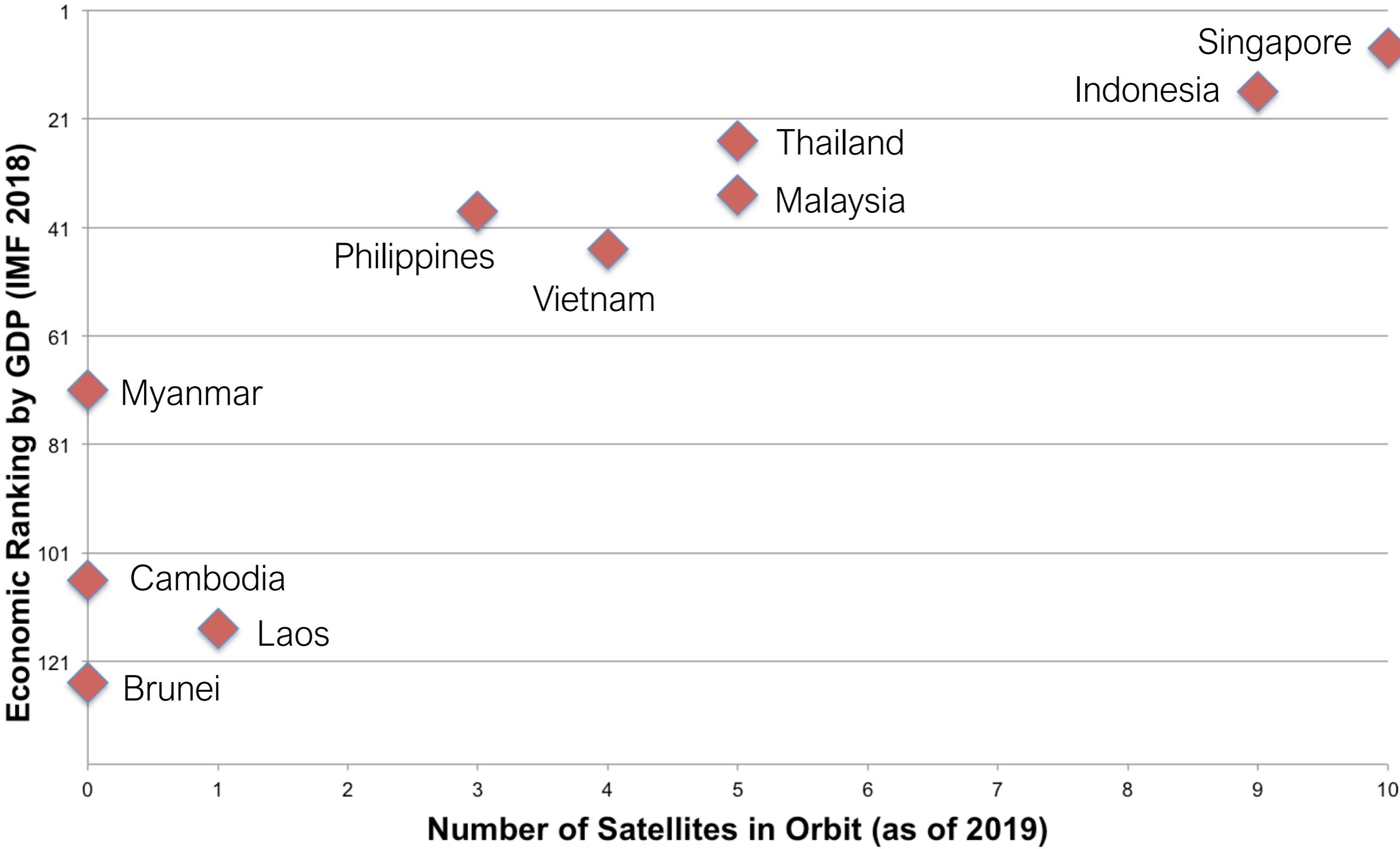


# ASEAN Regional Space Development



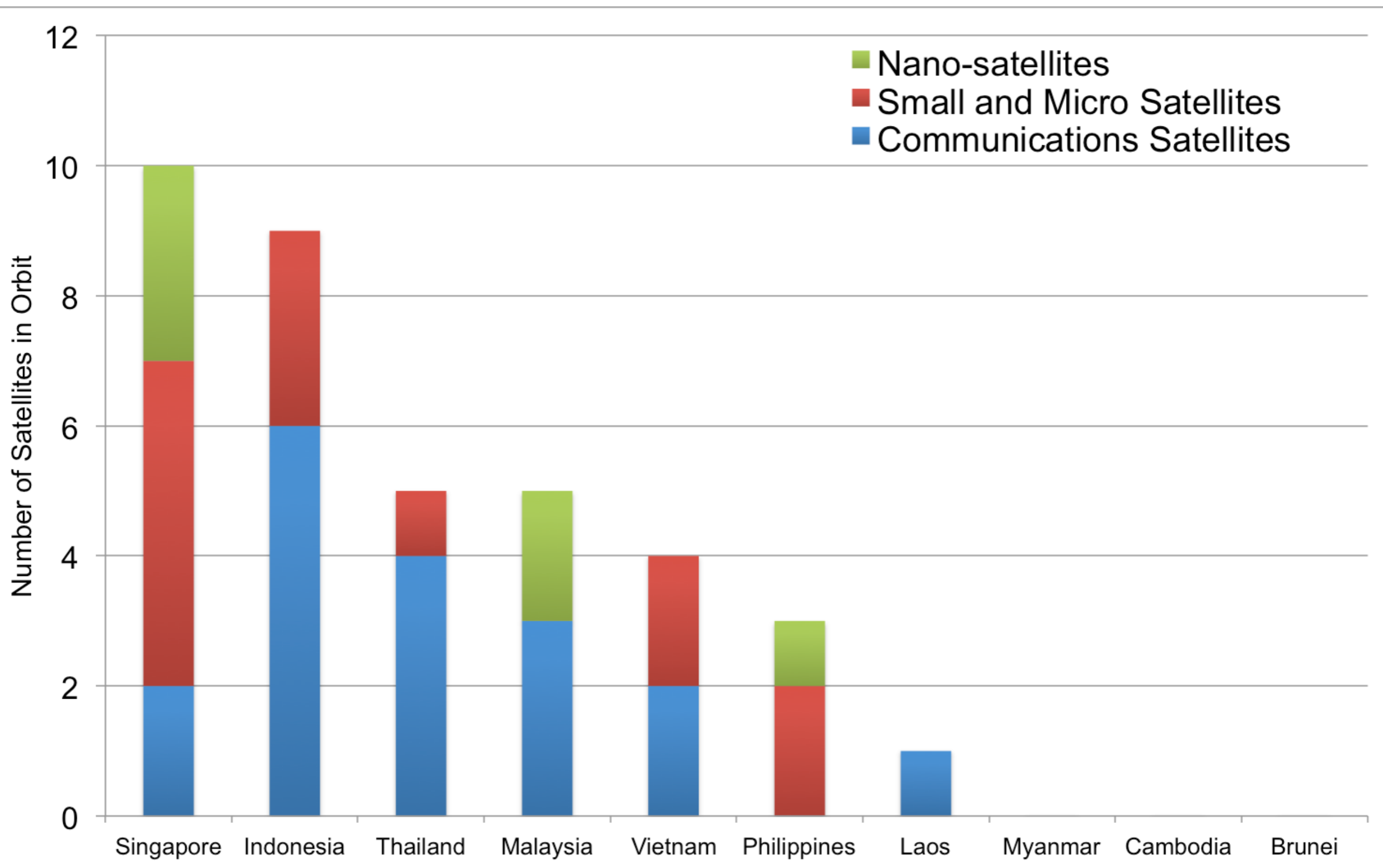


# Impact of Number of Satellites on Economic Ranking in ASEAN Countries



Data Sources: UCS Satellite Database 2019, UN Registry of Space Objects, IMF World Economic Outlook 2018

# Distribution of ASEAN Satellites



# Key Concerns of Emerging Space Nations

## **LACK OF RESOURCES AND TECHNICAL CAPABILITY**

Most emerging space nations starts as users of space data/services with minimal capability for satellite development and operations. University-based collaboration with established space nations is the common starting point for emerging space nations.

## **LACK OF AWARENESS ON SPACE SUSTAINABILITY**

Most emerging space nations aims to develop local capability for building small satellites. There is no immediate concern about policy, space debris, weaponization of space, space situational awareness and securing the space environment.

## **SPACE AS A POLITICAL AND DIPLOMATIC TOOL**

Due to low funding amount, emerging space nations would want space projects to have a high-impact or high publicity value. Due to perception of space being a luxury, it is an uphill battle to start a space program in light of other socio-economic issues being faced by a nation.

## **NO SPACE POLICY OR AGENCY**

Most emerging space nations have no space policy in the initial stages of the program since the concern is more on technology transfer and capacity-building.

# The Role of Emerging Space Nations

## **INDEPENDENTLY ASSESS NATIONAL SPACE NEEDS**

Emerging space nations should **independently** identify, assess and establish their national priorities/needs when it comes to space capabilities. This would reduce the incidence of cooperation activities that are ineffective/detrimental to emerging space nations.

## **COMMIT TO SPACE COOPERATION & SUSTAINABILITY**

Commitment to space cooperation and sustainability should be in place even at the early stages of a national space program. This includes adherence to space treaties to demonstrate that the country aims to become a responsible space actor.

## **CAPACITY BUILDING AND CAPABILITY DEVELOPMENT**

While assistance can be provided by established space nations, emerging space nations should commit to developing independent space capabilities in key niche areas where it can excel, including creating a space industry ecosystem.

## **COOPERATE WITH RESPONSIBLE SPACE ACTORS**

Emerging space nations should carefully select the nation partners appropriate to their national goals and capabilities. It should be cautious of lucrative offers that seems too good to be true to avoid economic exploitation and reduce political influence.

## **BE MORE ACTIVE AND DYNAMIC**

Emerging space nations should be more active in participating in discussions in the international space community. Being a new space actor provides a unique opportunity to being more capable of adjusting to the rapid technological developments and changing geopolitical landscapes.

# The Role of Established Space Nations

## **SERVE AS A ROLE MODEL**

Established space nations should set an example in promoting responsible actions in space and demonstrate its commitment to space security and sustainability that emerging space nations can emulate.

## **SHARE TECHNICAL AND LEGAL BEST PRACTICES**

Having undergone the era of space development at an earlier time, sharing best practices can significantly assist emerging space nations become responsible actors. Agreements should not be “sales and marketing” in the guise of cooperation and not limited to technical capacity but also on legal aspects.

## **COOPERATE WITH RESPONSIBLE PARTNERS**

Select capable and responsible nations that are committed to promoting space sustainability. This would ensure that the interests of both parties is protected and eventually beneficial to the space community.

## **ENCOURAGE DEVELOPMENT AND INNOVATION**

Established space nations should encourage technology transfer but should not stifle the growth, hinder development and impose restrictions on emerging space nations. Emerging space nations should be provided with similar development opportunities as with established space nations.

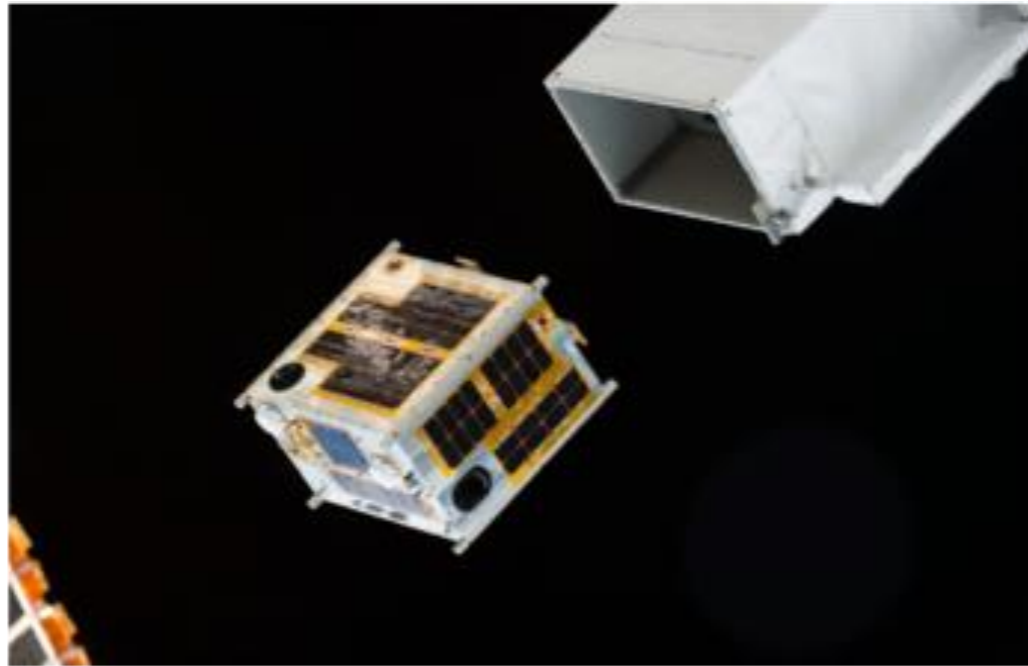
## **FROM “TEACHER-STUDENT” TO “COLLEAGUES”**

While the initial period of cooperation would be like a teach-student arrangement, this should eventually evolve into a more co-equal treatment, wherein both established and emerging space nations see each others as colleagues or partners in space.

# The Philippines as an Emerging Space Nation

## Launch of DIWATA-1 and 2 Microsatellites

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



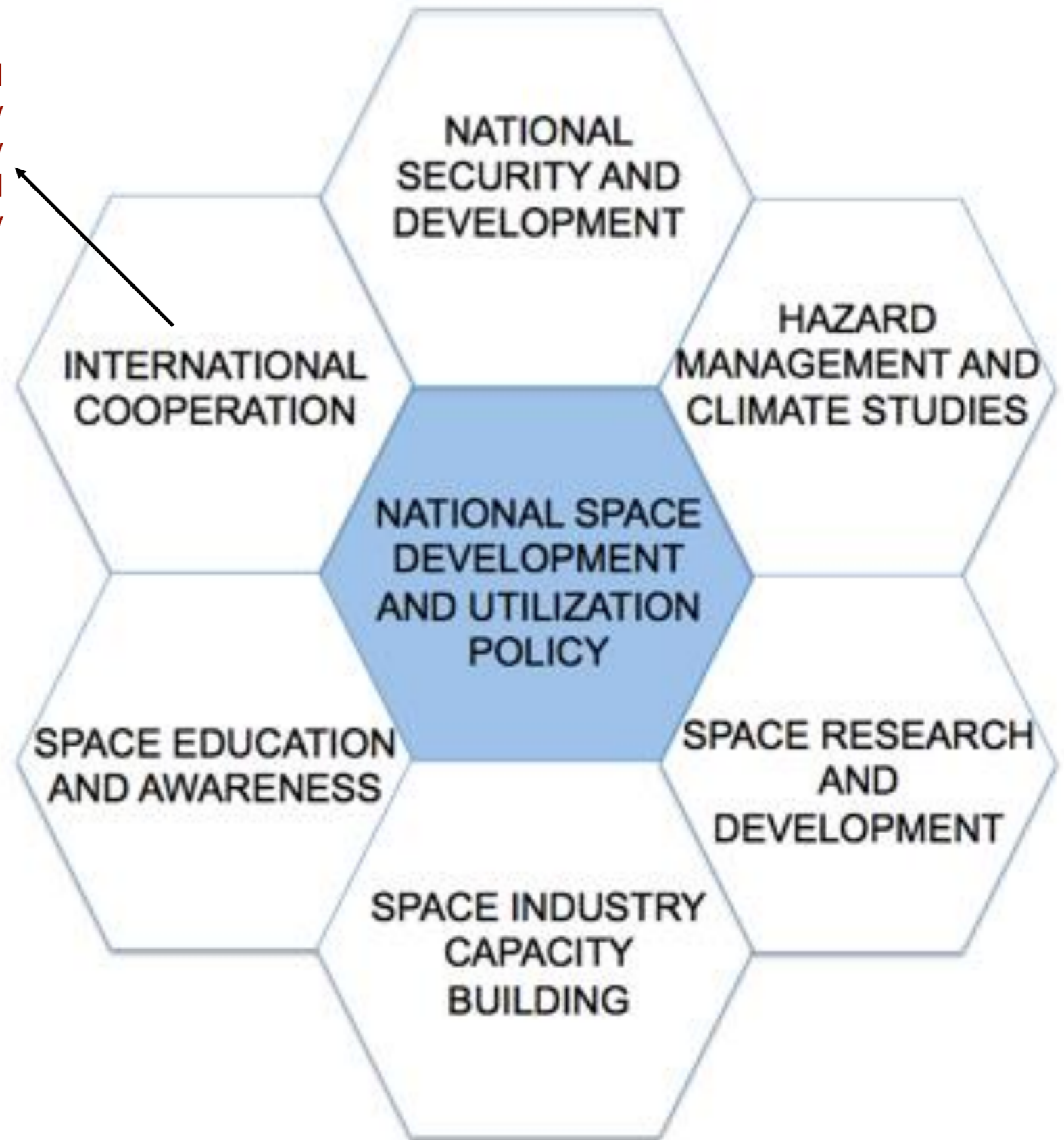
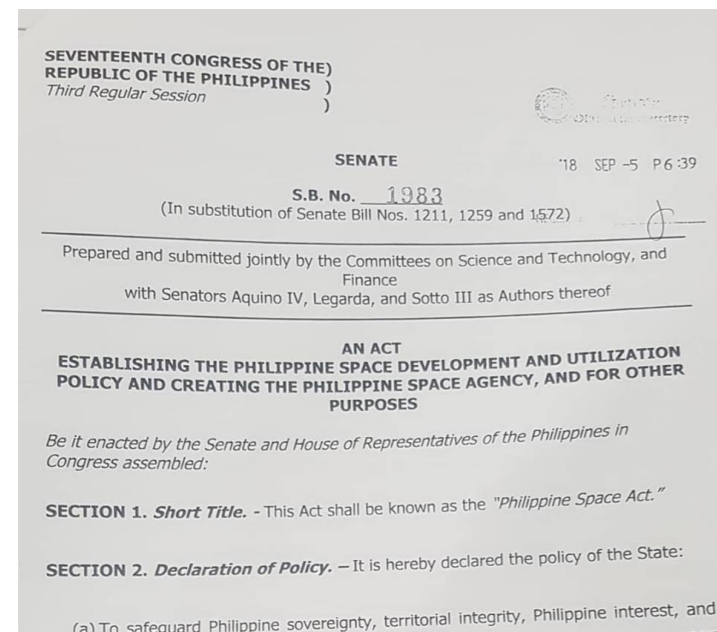
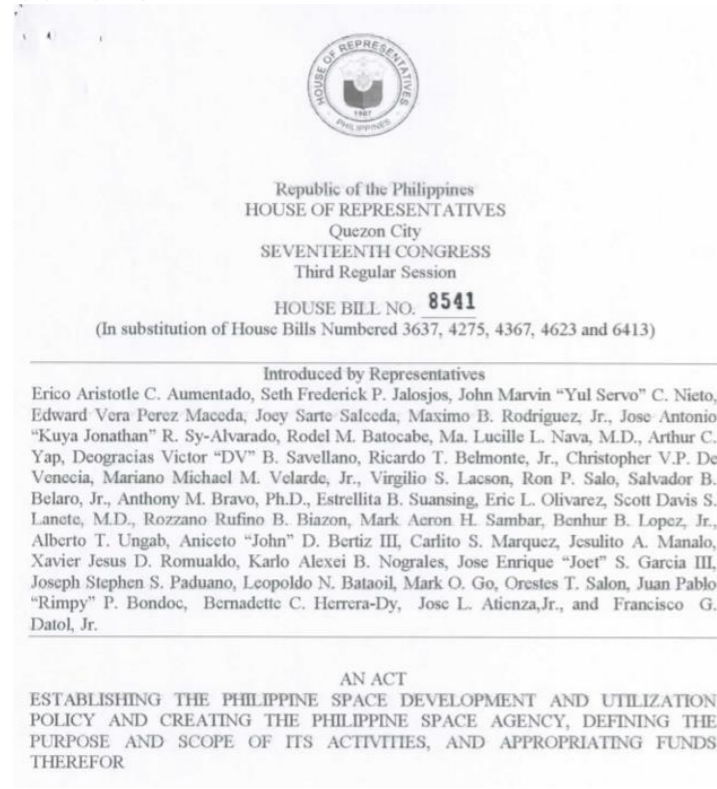
Legislation of Philippine Space Agency



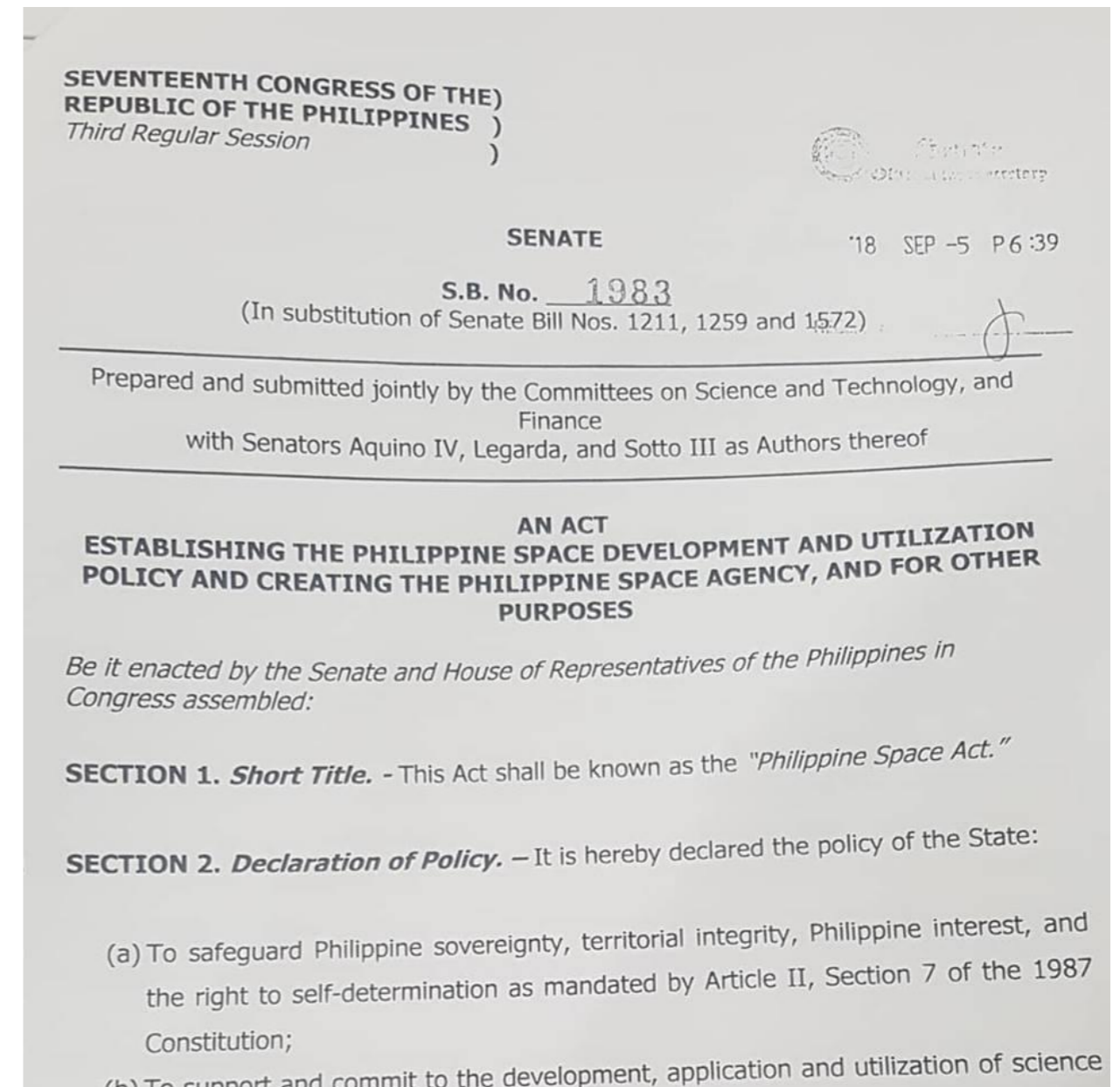
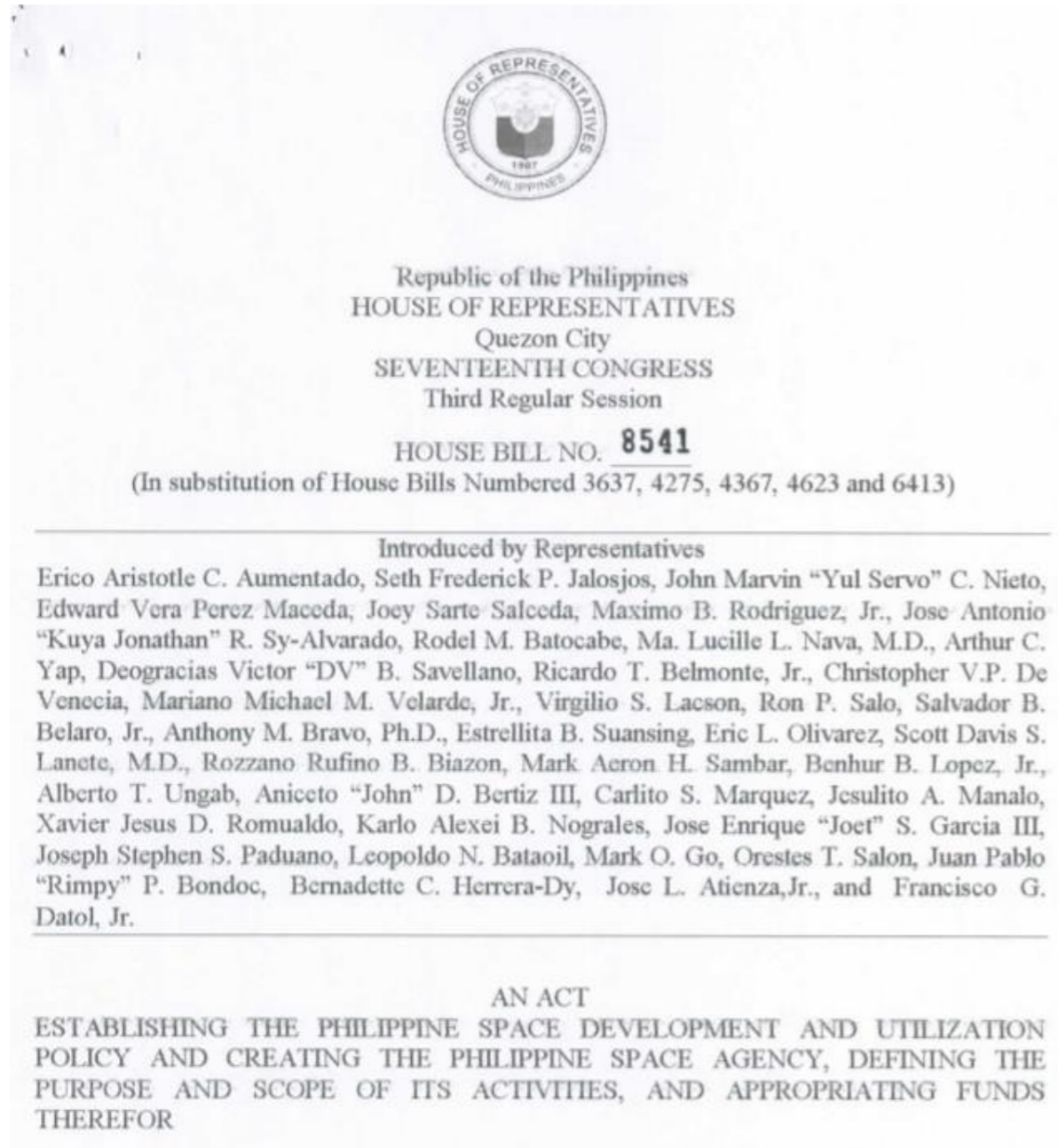
23rd Asia Pacific Regional Space Agency Forum in Manila

# Philippine Space Development and Utilization Policy

“Through international partnerships and collaborations, the Philippines will become a key player in the ASEAN and global space community by providing significant contributions and capabilities on space science and technology applications.”



# Space Agency and Policy Legislation



Dec. 4, 2018

**HB 8541** was passed by Congress on its Third and Final Reading. A total of 39 congressmen authored the bill and voting results was 207-0-0.

May 20, 2019

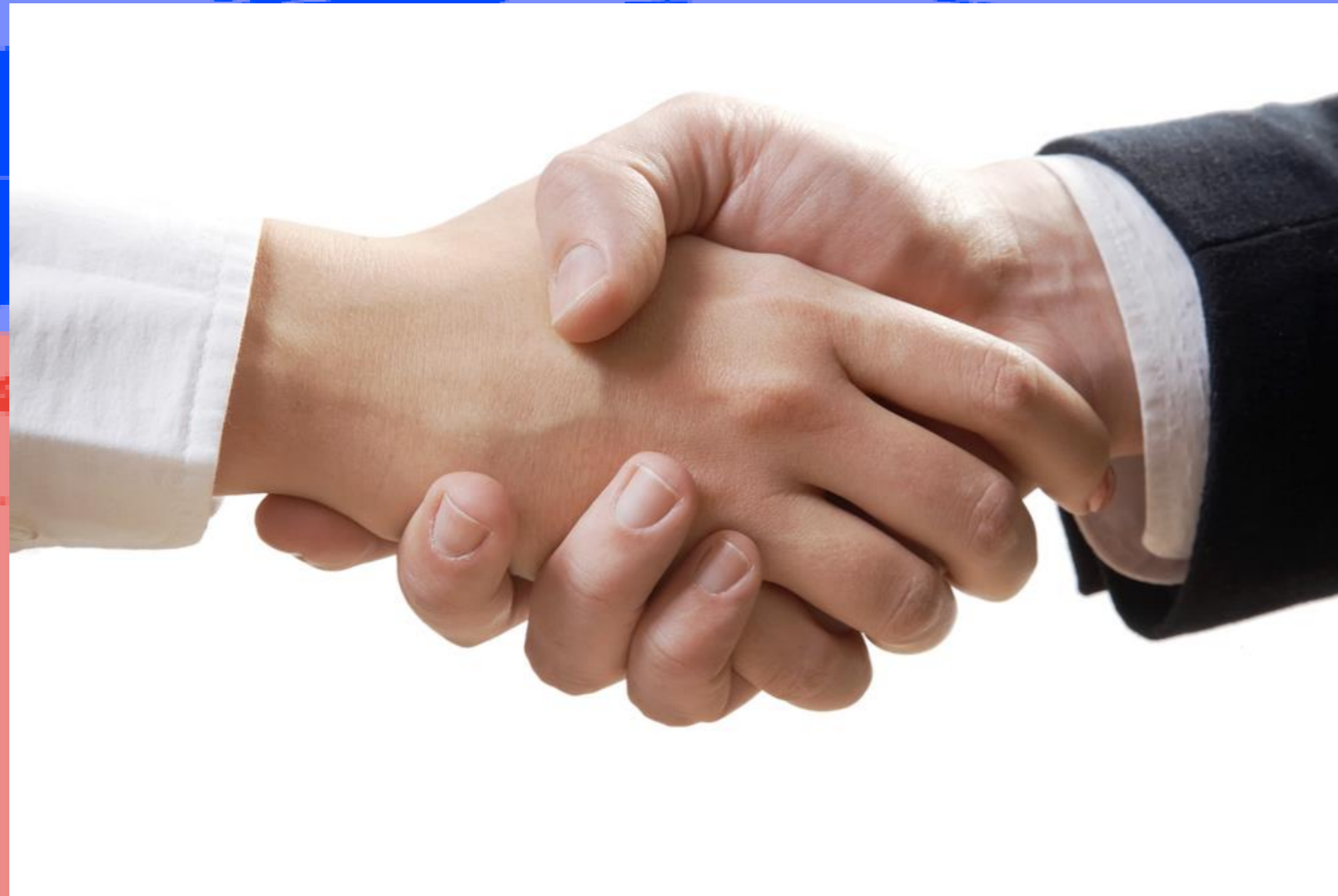
**SB 1983** was passed by Senate on its Third and Final Reading. A total of 3 senators authored the bill and voting results was 18-0-0.

June 4, 2019

The **Bicameral Committee Report for HB 8541 and SB 1983** were both ratified by the House Representatives and Senate.



# Moving Towards Space Sustainability



The responsibility to ensure long-term space sustainability rests on cooperation between established and emerging space nations.

Each party should be aware of their roles and responsibilities, combined with proper communication and dialogue.