

Workshop of the Working Group on the
Long-term Sustainability of Outer Space Activities



Views and Experience Sharing from Thailand

Panel 2 : On Safety of space operations

6th February 2023

Sittiporn Channumsin

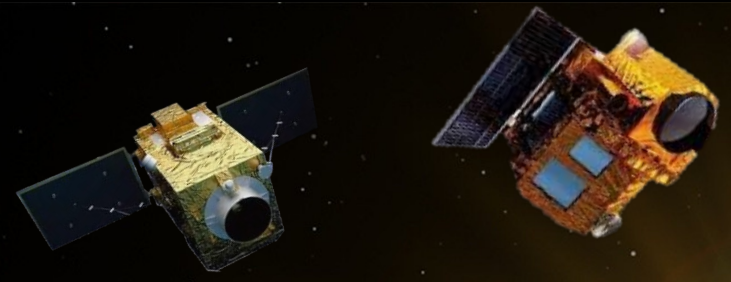
Acting Director of Space Technology Development Office



Geo-Informatics and Space Technology Development Agency (Public Organization)

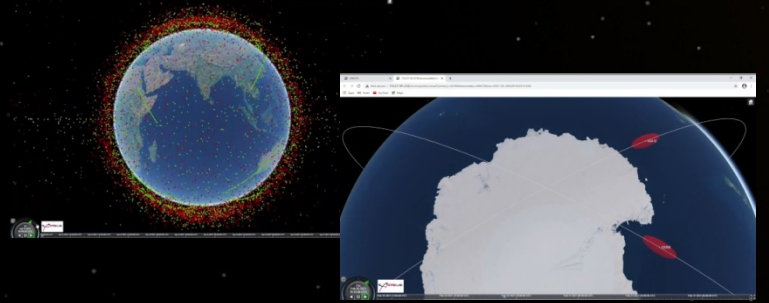
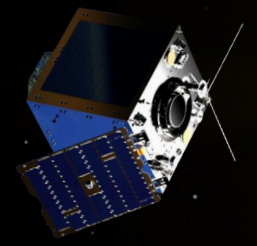
3. Thai Satellites

- 8 for telecommunication
- 4 for Earth Observation
- 4 for Education purpose
- 3+ ready to be launched/ under development



4. SSA & STM program

- National SSA& STM platform



5. Space weather forecast and Space data center

SPACE ACTIVITIES IN THAILAND

1.POLICY & LAW

INTERNATIONAL

- Ratified the Outer Space Treaties
- Ratified the Rescue Agreement

NATIONAL

- National Space Master Plan
- National Space Act
- Procedure for space object registration

Supporting Policies

- Insurance for space activities
- Tax Incentives Packages for Space Business

2. INFRASTRUCTURE FOR R&D

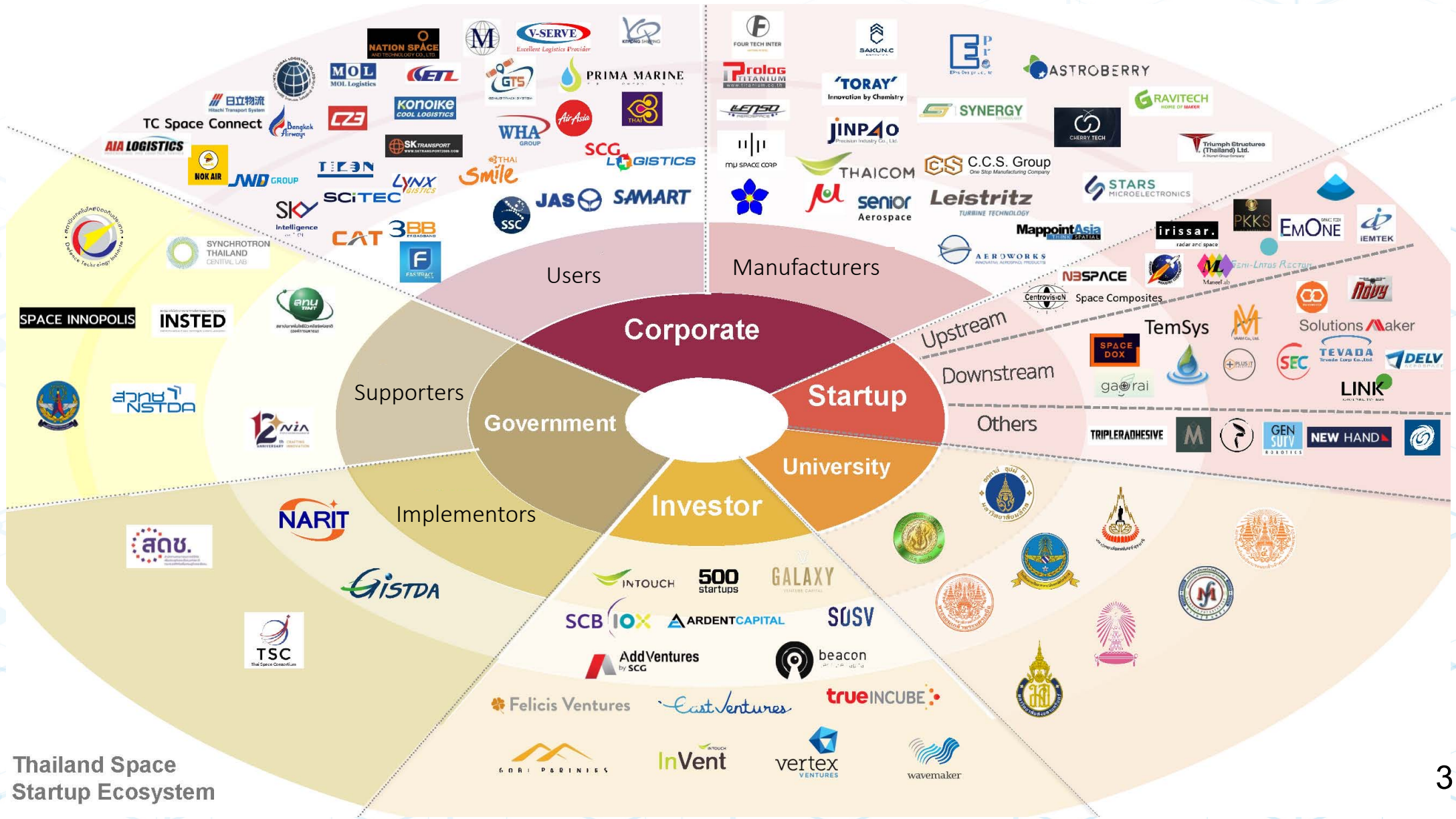
- Satellite Assembly Integration and Testing Facilities
- Ground station & satellite control
- Aerospace Structures and Materials testing
- Satellite Software



Feasibility Study on Spaceport

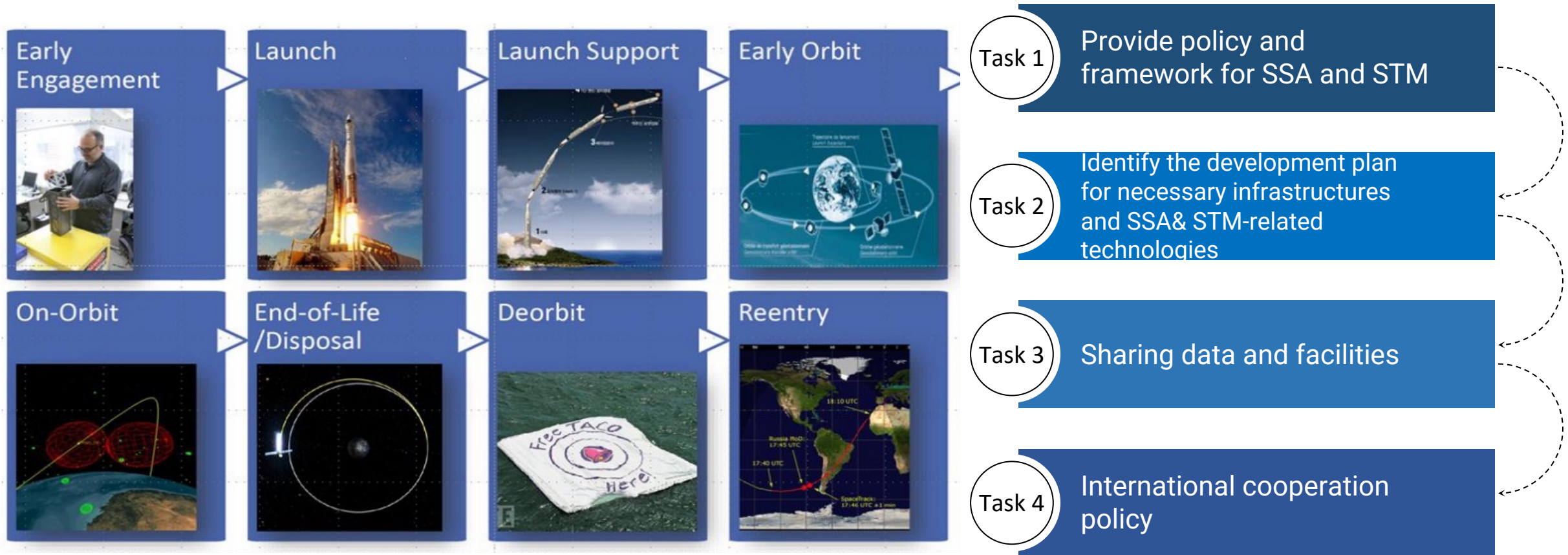


SPACE ACTORS IN THAILAND



Policy for Safety of Space Operations

Space situation Awareness and space traffic management policy committees



Policy on Safety of Space Operations



Developing

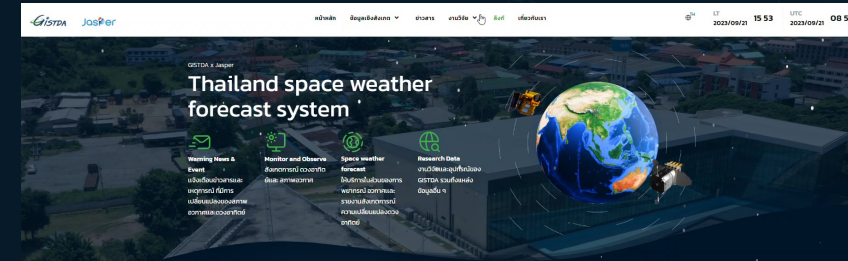


- Under development and plan to full operation in 2025

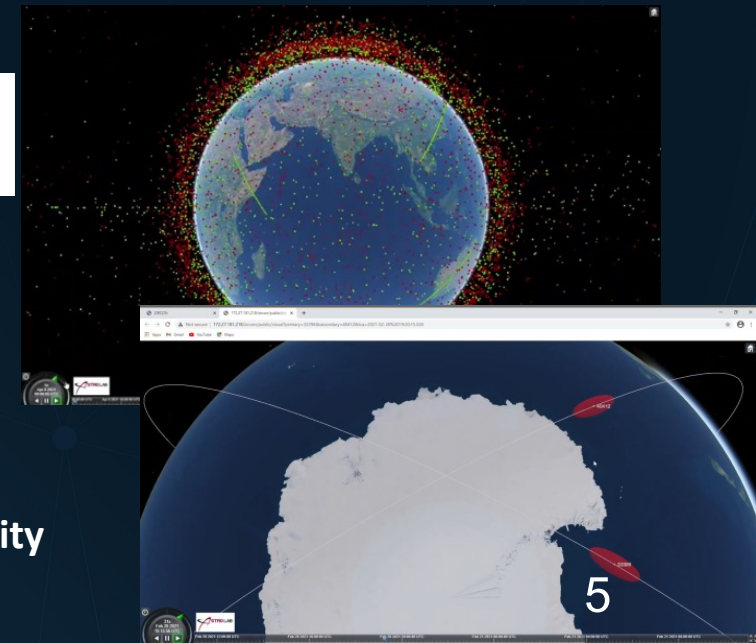


Developing and plan to implement in 2024

SW



Space Traffic Management System



GISTDA

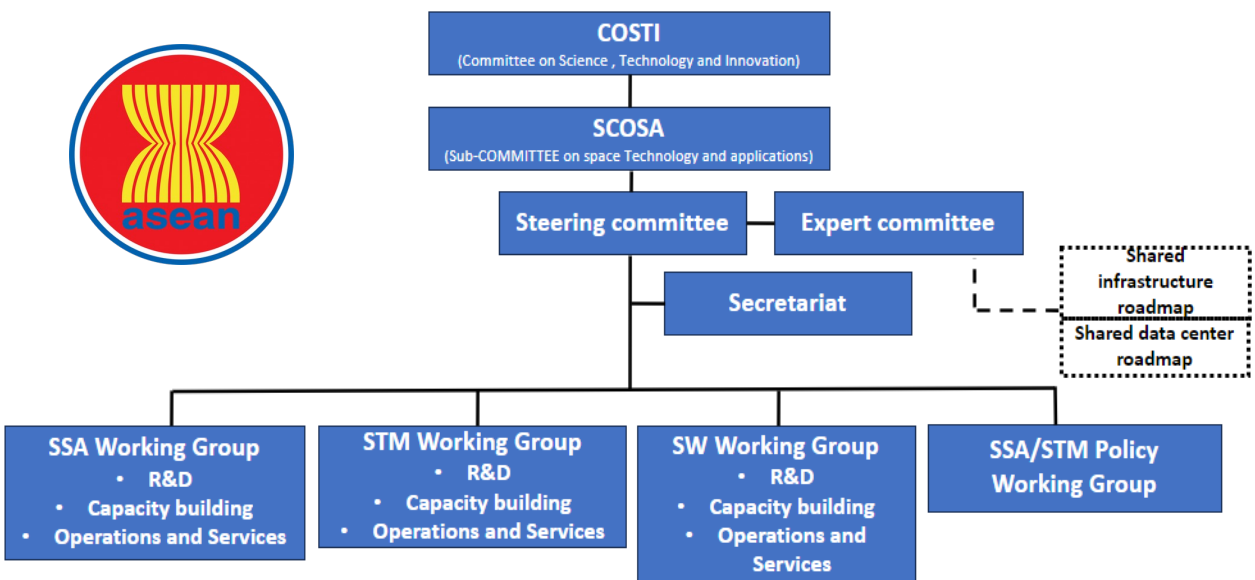


STM

- Implementation 2020
- Plan to expand the capacity to serve all Thai satellites

SSA

ASEAN SSA & STM concept note



6



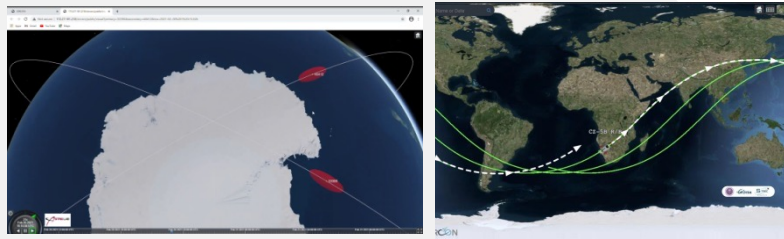
ASEAN Space Situational Awareness and Space Traffic Management

Concept Note

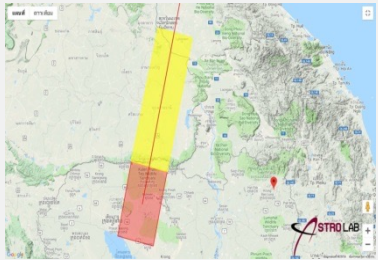
Introduction

The increasing human activity in low earth orbit demands up-to-date information about the state and conditions of outer space. Current technologies mostly detect objects in Low Earth orbit greater than 10 cm, while in Geosynchronous orbit, objects greater than 0.3m can be detected. The US SPACE COMMAND (USPACECOM) catalogues more than 25,000 space objects at present. This catalogue includes debris and functional spacecraft in Earth's Orbits. Most debris are too small to track but estimated to be around a few millions. With the increase in commercial presence in space, it is expected that by 2030, there will be about 60,000 space objects bigger than 10 cm, surpassing the number of space debris detectable [1]. This ever increasing state of debris in space requires an accurate understanding of debris orbiting the earth, space environment and threats that could result in damage to assets, disruption of critical services and risks to human life both in space and on ground. This understanding of space is described as Space Situational Awareness (SSA). This field is an important field to ASEAN Member States (AMS) as a rapidly growing economy in the field of space technology. India has established their own space object observational facility through their Multi Object Tracking Radar at SHAR and some optical telescopes. They highlighted that for accurate and on-time estimation of threats, it is essential to have a network of observation facilities spread out across the globe [1]. With the ASEAN region ramping up in launching satellites, it is more important now AMS to understand and contribute to SSA.

Thai Activities and the Guidelines for LTS



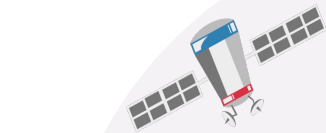
[B.4] Perform conjunction assessment



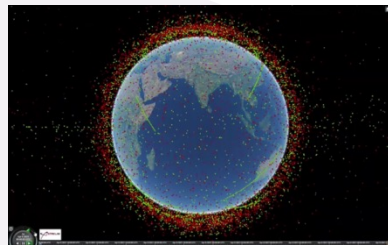
[B.9] address risks on uncontrolled re-entering



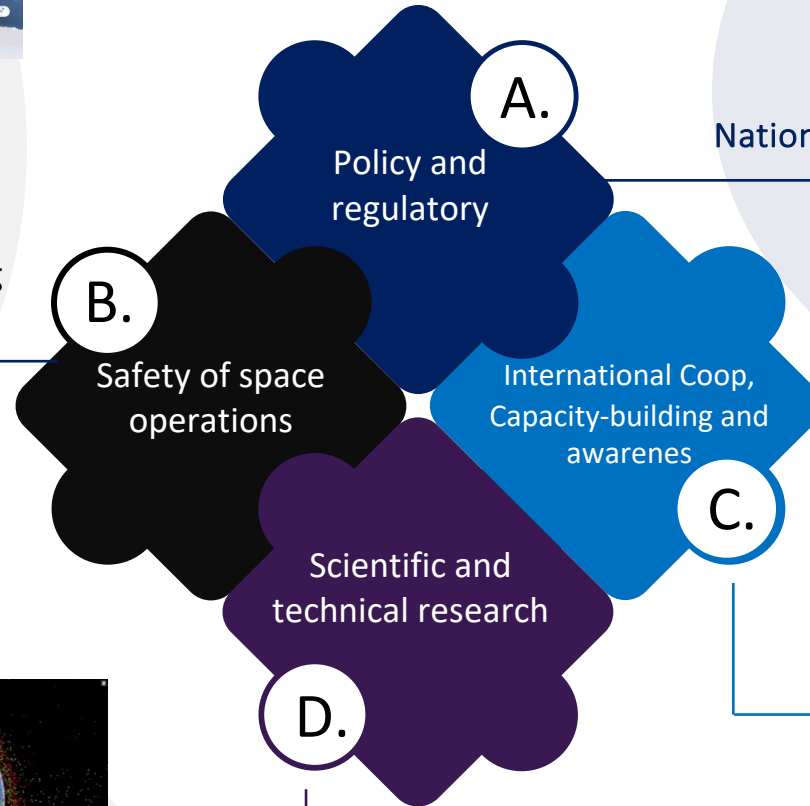
[B.6 & B.7] Space Weather



[D.1] Promote and support research for sustainable exploration (planning)



[D.2] Manage space debris (planning)



[A.1 & A.2] National regulatory frameworks

NATIONAL SPACE MASTER PLAN

NATIONAL SPACE ACT.

- To promote space affairs
- To establish Thai National Space Agency
(administration, plan, policy, and international relations on space)
- To develop space innovation & activities

[A.3] Establishing supervisory authority



[A.4] Act on Organization to Assign Radio Frequency



[A.5] Procedure for registration of space objects



[C.1 & C.2] Promote and Facilitate inter. Coop. And share experience



space law for new space actors project

TAM in Thailand in 2022

[C.3 & C.4] Capacity building and raise awareness

Conclusion

- Safety of space operation is the priority that Thailand has committed to compiling the space treaties and Guidelines for LTS.
- The proactive pursuit of international cooperation by Thailand highlights its commitment to the responsible and sustainable use of outer space, aiming to safeguard the space environment for future generations. Thailand welcomes to collaborate with all nations across various aspects, emphasizing the importance of joint efforts in achieving these goals.



THANK YOU



Geo-Informatics and Space Technology Development Agency (Public Organization)