Mr. Atipat Wattanuntachai, GISTDA

28 October 2022

Option 2 Fostering regional cooperation in space technology development and utilization

Space is hard. Space technologies are sophisticated and tailored to specific missions. This requires resources of skilled technicians, high-precision machines, space-grade materials, and extensive environmental test which also comes with a premium cost. This is the reason the previous space missions were only viable from government agencies. In the present, the table has turned. “New Space” is the new concept of having a space industry driven by non-governmental companies. The missions related “New Space” concept aims for profitability and answering commercial user pain points. At the time of writing, the largest owner of artificial satellites is not a government agency, but a private space technology startup from the USA founded just 20 years ago.

We have seen many private space technology startups on the playing field. However, most of the successful companies are concentrated in only a few leading nations that have abundant human resources and a big pile of investment money. The US government is the biggest spender investing in its space program. The US spending figure is even larger than the rest of the top ten nations combined. In contrast, none of the ten ASEAN member states are included in the list. (EC 2022)

Fortunately, in an Asia-Pacific region, we have spacefaring nations which are Japan, China, India, and not until recently, South Korea. If we could have technology know-how sharing and training support from leading nations in this region, ASEAN member states would greatly quicken the space development timeline and could better allocate their limited resources to build their space eco-system. Some initiatives have been implementing already in the region such as the CSSTEAP which has been contributing significantly to capacity building in the Asia Pacific, the ASEAN SCOSA which serves as a platform to formulate and coordinate collaborative and cooperative programs and projects on space science and technology, and the continuous support from Japan's National Space Legislation Initiative (NSLI) to set an international legal framework governing the space-related activity.

Nowadays, the data gathered from remote sensing, navigation system, and communication satellites are integrated with everyone's daily life. These freely available data improves our quality of life by providing better data to assist our decision. However, there is still a limitation of use in many cases, for example, during the monsoon season there is too much rain causing floods in many cities. Near real-time satellite imageries are needed for excess water management and planning. However, most of the current Earth Observation satellites owns by ASEAN member states have a passive sensor that cannot clearly see through clouds that are often present in the monsoon season. Thus, ASEAN member states must purchase SAR imagery from the external body instead. In this situation, it could be the common interest to have a regional SAR satellite system to share with other nations in the region. Similarly, for the navigation satellite system, there are several systems currently active that provide navigation data for free. In the Asia Pacific region, we have one global navigation system from China and two regional navigation systems from India and Japan.

However, there is still no regional navigation system in the ASEAN region. This is another potential technology development project which would assist the sustainable growth of the region.

Since the ASEAN member states have limited resources compared to leading nations especially in the space technology perspective, setting a common goal for every member state and supporting each other would be a good idea to get an achievement and a huge impact. This is not limited to only government agencies but also the public-private partnership. Three main steps are proposed in this article which it could be done individually or in parallel depending on the readiness, progress, and resource availability.

The first part is to raise awareness of the space technology benefit to the public. This aims to convince people to understand how the importance of space technology in their life. For example, one of the most downloaded travel applications on the mobile phone is Google Maps which heavily relies on satellite data. The base map incorporates satellite imageries, and the step-by-step navigation utilizes satellite navigation system data. People have been using this navigation application without realizing that it comes from satellites. If the public realized the urgent need and necessity of space technologies, then regional space cooperation would face less resistance.

The second part is to establish a regional data-sharing platform that is not only the satellite remote sensing analysis-ready data, but it would also include the lesson learned from experienced agencies and top companies in space technology development. All shared information should be available for public benefit as well as value-added implementation, but it should exclude any sensitive materials such as regional security-related data. Moreover, the platform should be extendable to cover future trends that link to space technology development and utilization.

The third part is to organize the task team led by representatives from experienced nations and successful space companies to draft the regional space roadmap. This roadmap could be the better alternative for small nations with limited resources. The task team could start from the regional Earth Observation satellite roadmap and if proved to be successful could continue studying for the spaceport roadmap or even go further to the deep space exploration roadmap.

It is a truth that every nation must preserve the best interest of its own country. The geo-politic caveat and foreign trade barrier are complex and sensitive. However, the benefit from space is real and for all humankind. Thus, public and government authorities should see an urgent need for cooperation and encourage them to work together to have sustainable benefits for the region.

Bibliography

EC, Euroconsult -. 2022. *Government expenditure on space programs in 2020 and 2021, by major country.* March 27. Accessed October 28, 2022. https://www.statista.com/statistics/745717/global-governmental-spending-on-space-programs-leading-countries/.