



# The Neglected Security Aspect of Outer Space Capacity Building in Southeast Asia

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### **KEY TAKEAWAYS**

- *Southeast Asian states are increasingly relying on space capabilities for economic development, disaster management and national security.*
- *Current capacity-building efforts mostly focus on legal and technical issues, while neglecting the security aspect of outer space governance.*
- *A more balanced approach across the legal, technical and security dimensions is necessary to protect the region's growing space assets, manage potential conflicts in orbit, and ensure regional stability and prosperity.*

### **COMMENTARY**

Seven out of eleven members of ASEAN [possess](#) at least one active satellite as of March 2026, demonstrating growing interest in outer space capabilities. While a considerable number of initiatives have emerged to assist these states in building their capacity, the majority of these are concentrated on the technical and legal aspects, with comparatively few addressing security issues. This is a result of the region's focus on the economic benefits rather than the strategic implications of outer space. As the region's reliance on space-based infrastructure continues to deepen and the strategic importance of these assets becomes increasingly apparent, a more balanced approach spread across the legal, technical and security dimensions is urgently needed.

### **Space Applications in Southeast Asia**

Space capabilities have become enablers of economic development in the region. Precision agriculture and the provision of internet connectivity to remote archipelagic

areas [depend](#) heavily on satellite constellations for their viability. Additionally, increased adoption of Earth observation data has the potential to unlock approximately [US\\$100 billion](#) in economic value across Southeast Asia between 2023 and 2030.

As the region ranks among the most [disaster-prone](#) globally, space capabilities are critical for disaster management. Satellites are essential for [early warning systems](#) to support evacuation and disaster preparedness measures. Recent experiences with extreme weather events, including [Typhoon Kalmaegi](#) and [Cyclone Senyar](#), have underscored the critical role that satellite-based monitoring plays in protecting vulnerable populations across the region's extensive coastlines and mountainous terrain.

States in the region are also increasingly employing space technologies for national security purposes. In Southeast Asia, [Singapore and Vietnam](#) possess satellites with intelligence, surveillance and reconnaissance capabilities. While these satellites primarily support [maritime domain awareness](#), such as monitoring oil spills, illegal fishing, piracy and contested maritime boundaries in the South China Sea, they could be deployed for anti-access/area denial operations.

Although there have been no reports of incidents involving the space-based assets of Southeast Asian states, should such incidents occur – whether through technical failures, collisions or hostile actions – states would face severely degraded situational awareness. This creates escalatory risks as a state experiencing a satellite disruption might misattribute it to an adversary's doing and feel compelled to respond. The potential for miscalculation is particularly acute given the dual-use nature of many space systems.

Moreover, there is a substantial regulatory gap relative to the proliferation of space assets across Southeast Asia that could complicate future cooperation efforts and increase escalatory risks. Singapore leads with 15 [operational satellites](#), followed by Indonesia with 10, Thailand with eight, Malaysia with six, Vietnam with three, the Philippines with two and Laos with one. Yet only three states – [Indonesia](#) (2013), [Malaysia](#) (2022), and the [Philippines](#) (2019) – have enacted national space legislation.

### **Capacity-Building Efforts**

Current capacity-building initiatives in the region are focused on legal and technical dimensions. Since 2020, the United Nations Office for Outer Space Affairs (UNOOSA) has conducted [technical advisory missions](#) to several Southeast Asian states to raise awareness of international space law and to assist them in drafting national space legislation. Malaysia received missions in 2022 and 2024, supported by Japan and France respectively. The Philippines (2022, 2024) and Thailand (2022, 2025) have similarly benefited from Japanese-funded missions. Singapore self-financed a UNOOSA mission in 2025. These missions address common elements such as licensing, registration and insurance requirements, providing essential foundations for responsible space activities.

At the regional level, the ASEAN Committee on Science, Technology and Innovation established its [Sub-Committee on Space Technology and Applications](#) (SCOSA) in 1999. Since then, 34 SCOSA meetings have been held to deepen regional

collaboration and promote capacity building in space technology and applications. At the [33rd meeting of SCOSA](#) hosted by Singapore in October 2024, Timor-Leste participated for the first time as an observer. The 34th and [final SCOSA meeting](#), before it merged with the Sub-Committee on Marine Science and Technology and the Sub-Committee on Meteorology and Geophysics, took place in October 2025 in Thailand.

## The Security Gap

Although legal and technical capacity is undeniably important, the security dimension of outer space carries profound implications for regional stability and warrants greater attention. The ASEAN Regional Forum (ARF) [Workshop](#) on Peace and Security in Outer Space, held from 26 to 28 November 2025, sought to fill this gap. It was aimed at enhancing regional dialogue on outer space security, contextualising global discussions within the Asia-Pacific framework, and building capacity among ARF participants on critical space security issues, including debris mitigation, responsible behaviour in space, and crisis communication mechanisms.



The security dimension of outer space carries profound implications for regional stability and warrants greater attention. *Image source: Unsplash.*

While this series of workshops has helped to advance regional understanding, its [frequency](#) remains insufficient to address the rapidly evolving nature of space security challenges. The ARF first held a workshop on space security in Vietnam in 2012, followed by Japan in 2014, and China in 2015. The most recent workshop was held in the Philippines in 2015 after a 10-year gap. The acceleration of space activities, including the deployment of mega satellite constellations, the increasing reliance on space-based infrastructure for both civilian and military applications, and the emergence of counter-space capabilities, demand more sustained engagement.

Notably, outer space security has remained conspicuously absent from the agendas of key regional defence platforms. The ASEAN Defence Ministers' Meeting ([ADMM](#)) and [ADMM Plus](#) have never made any reference to space security in their joint statements. This omission is particularly striking given the integration of space-based assets into command and control, surveillance, reconnaissance and communications systems across regional militaries. It represents a significant gap in regional defence cooperation frameworks for ASEAN and its dialogue partners.

## **A Path Forward**

While Southeast Asian states have made commendable progress in developing space capabilities, they should prioritise three key actions. First, Indonesia, Laos and Vietnam – which have active satellites but have yet to receive UNOOSA technical advisory missions – could benefit significantly from tailored assistance on developing or revising their national space legislation. Such missions would also ensure that their space activities align with international best practices and legal standards.

Second, given the accelerating pace of space activities, more regular dialogue mechanisms are essential. Annual or biennial workshops would better enable ARF stakeholders to keep pace with technological developments, share emerging best practices, and develop coordinated approaches to common security concerns in the space domain.

Third, incorporating outer space security as a standing agenda item within ADMM and ADMM Plus discussions would ensure sustained attention to this critical domain. While it might be challenging to create Experts' Working Groups on outer space security under these two defence platforms due to political tensions among the major powers that are part of ADMM Plus, such engagements would enable regional defence ministers to establish protocols for managing potential crises involving space assets.

Only through such comprehensive and sustained engagement can Southeast Asia develop the coordinated approaches necessary to protect its growing space assets, manage potential conflicts in orbit, and ensure that space remains a domain that enhances rather than undermines regional stability and prosperity.

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