Harnessing space technology in Southeast Asia

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Carving a regional space economy through environmental domestic needs, FDI, and remote sensing data sharing

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Space exploration was once exclusively reserved for superpowers. As commercial space activities are gaining popularity worldwide, Southeast Asian states harness the momentum and invest in their space capabilities. Emerging space policy among the region's states has led to an increased

satellite deployment to address national needs. They additionally embrace international collaboration and foreign direct investment (FDI) to bolster competitive progress. As for the Association of Southeast Asian Nations (ASEAN), member states' space programs are still nascent but active in developing a new regional space economy. Their space applications emphasize regional sustainable growth, including disaster preparedness and digital connectivity through space-based remote sensing data collaboration.

What is markedly different in the Southeast Asian space strategy is its capacity to apply regional collaboration and national interests. These states specify their space research to their economic and geographical needs. Indeed, a brief look at a choice of three states, Indonesia, Vietnam, and Singapore, will indicate overall Southeast Asian space strategy. Firstly, Indonesia has set forth a unique satellite program, LAPAN, which monitors its archipelago, collecting remote sensing data on resource management and disaster preparedness. Its satellite program supervises local deforestation and marine vessel movement through careful terrain mapping. Indonesia is at the forefront of Southeast Asian space technology development, pioneering the use of space to address regional and economic challenges. Secondly, Vietnam's rejuvenation of its space policy in 2011 led to the creation of the Vietnam National Space Center (VNSC). Utilizing space technology to address sustainable development challenges, the VNSC employs Earth observation (EO) satellites with high-resolution imaging to facilitate urban planning and environmental monitoring. Lastly, Singapore has carved an ecosystem for space startups, serving as a hub for private and entrepreneurial outer space initiatives. As such, the Singaporean government has offered infrastructure, regulatory, and financial support to its space industry. Altogether, these states are emblematic of Southeast Asian space strategy, showcasing a space sector that has welcomed international and regional collaboration to address national needs.

Essential to the region's space economy is ASEAN. Member states have effectively pushed for partnerships with other space agencies: USA's NASA, Japan's JAXA, France's CNES, and the European Space Agency, to name a few. International partners and FDI have allowed for increased satellite research and the development of environment-focused space technology, bolstering ASEAN through expertise, funding, and infrastructure. ASEAN member states also demonstrate an interest in peaceful progress. Southeast Asian states emphasize the use of space to benefit humankind, highlighting data-sharing and sustainable space exploration. Further, most ASEAN states are members of the United Nations Committee on the Peaceful Uses of Outer Space. Focusing instead on governance, economic growth, and sustainability, ASEAN states balance international cooperation with domestic needs.

Overall, Southeast Asia presents a strong future for its space sector. Studies predict as much for ASEAN space development and encourage further transnational funding and regulation-setting. Challenges, however, persist

in funding, technical know-how, and infrastructure constraints. With a burgeoning entrepreneurial population, ASEAN and foreign cooperation can provide the next step to bridging current constraints and lasting space development.