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Indonesia's Space Defence Programme: Opportunities and Challenges

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SYNOPSIS

Taufik R Nugraha and Arfin Sudirman argue that Indonesia's seemingly benign space environment should not prevent the country from enhancing its space technology. Mastery of space technology can boost the Indonesian military's efficacy in safeguarding the nation. However, some challenges in mastering space technology linger.

COMMENTARY

In a speech on 25 January 1960, Indonesia's founding president Sukarno spoke about his grand idea for Indonesia to acquire space technology. Speaking in Bandung at the national conference for peace, he said:

Dear brothers, exactly two years ago, I spoke about four [categories of] revolutions — Religious Revolution, Commercial Revolution, Industrial Revolution, Atomic Revolution — and after two years, I have to revise what I stated before. It now is no longer four revolutions to support human life in this world. Today, we begin the Space Revolution, which, among the nations, has already begun to race for the stars, the moon, Venus and the sun ... Indonesian is not a *kintel* nation! [By *kintel*, Sukarno meant a frog that is not significant and is often stepped on by humans or, in this case, other nations.] We will work hard to achieve the atomic and space revolution to support peace and contentment in this world

In 1964, Indonesia became the fourth country in Asia, after Japan, China, and Pakistan, to successfully make and launch a rocket from its territory. Yet, the space development programme faced an uncertain situation after the fall of Sukarno in 1967.

President Soeharto's decision to seek investments from the West in 1969 opened a window of opportunity for space technology development, notably with the start of Hughes Aircraft Company's Palapa-A1 satellite development in 1974 and the satellite's launch in 1976. Also, two Indonesian astronauts were scheduled to join NASA's space shuttle mission in mid-June 1986, which would have marked a milestone in Indonesian achievement in the space programme. However, the mission was cancelled following the Challenger space shuttle accident earlier that year.

Indonesia has launched some efforts to enhance its space capability in the past few years. Although Indonesia's space environment is relatively benign, recent technological developments require the country to respond accordingly.

Indonesia's Existing Space Environment

Unlike other [middle powers](#), such as [South Korea or Australia](#), which face direct threats from North Korea or China, Indonesia's space domain is relatively benign. However, Indonesia's geographical location presents a challenging environment, notably its proximity to the South China Sea, a regional security flashpoint.

Indonesia's space security could be challenged if conflicts in the South China Sea intensify. China's deployment of the [Shijian-21 \(SJ-21\) satellite-retrieval mechanism](#) carries a potential threat in this regard. The satellite, intended for clearing non-functional satellites, can be repurposed for strategic missions, such as [targeting and removing satellites of rival nations](#). Such a dire scenario calls for Indonesia to develop a contingency plan to safeguard its own space assets.

Enhancing Indonesia's Space Technology

Mastery of space technology can enhance the Indonesian military's capability to cover the country's vast maritime and secluded land areas. Such a capability can also help Indonesia to tackle potential threats from "dark shipping", i.e., the practice of switching off a vessel's automatic identification systems (AIS) so that it can evade attention and engage in illegal activity. For instance, [two oil tankers, Arman and S Tinos](#), were caught turning off their AIS in Indonesian waters in 2023. Indonesia's vast maritime expanse complicates efforts to tackle dark shipping. However, outer space surveillance using [low Earth orbit \(LEO\) satellites](#) can help to overcome this [shortcoming and help coastal states prevent illegal activities by ships in dark mode](#).

In late September 2024, the [Indonesian air force \(TNI AU\) explored the possibility of setting up a space command](#) similar to those established by the PRC and Australia. This new command would be aimed at enhancing reconnaissance and surveillance capabilities across Indonesian territory. Such a plan could have supported joint military operations across the Indonesian armed services, but the idea seems to have been shelved for now.

Challenges in Enhancing Indonesia's Space Technology

The first challenge in enhancing Indonesia's space technology is the question of the authority for developing such technology. In 1982, under Law No. 20/1982 on the state's Defence and Security Principle, TNI AU was tasked with securing Indonesia's

air and space domains. However, *Law No.34/2004 on the Indonesian National Armed Forces*, promulgated in 2004, narrowly confined TNI AU's role to safeguarding only the air domain.

The dissolution in 2014 of Indonesia's Aeronautics and Space Council (DEPANRI), which had formulated policies on airspace and space usage as well as provided relevant advice to the president, created a gap in role and authority in the space domain. The Ministry of Defence's release in 2019 of [MOD Regulation No. 14/2019 on Organisational and Work Procedures](#) establishes the Airspace Sub-Directorate's authority over space defence management. By the powers vested in it through this regulation, the sub-directorate appears to be somewhat of a substitute for DEPANRI. However, DEPANRI's past role and authority have not been fully reinstated. Meanwhile, the merger of the National Institute of Aeronautics and Space (LAPAN), a state institution that handled research on aeronautics and space, into the Indonesian National Research and Innovation Agency (BRIN) in 2021 has raised questions about the lead institution for research on space technology.

Indonesia is currently pursuing its plan to develop rockets capable of reaching an altitude of 300 kilometres and beyond, eventually enabling independent launches of LEO microsatellites from the country's territory. In reality, following the merging of LAPAN into BRIN and the disbandment of DEPANRI, Indonesia has lost its momentum in developing space technology. This is notwithstanding the full implementation of [Presidential Regulation No. 45 of 2017](#), which outlines the country's long-term space programme development for 2016–2040.

Another issue is that of inadequate budgetary support for space technology development. It is no secret that the lion's share of Indonesia's defence budget goes to non-research purposes and defence equipment. Of the defence budget for 2025, [IDR 80.843 trillion \(S\\$6.6 billion\) has been allocated for management support programmes, while defence equipment receives IDR 68.968 trillion \(S\\$5.7 billion\)](#). In contrast, the allocation for defence research is only IDR 1.603 trillion (S\$132 million). Such an allocation reflects low priority for research and technology development, let alone space technology development.



The integration of the National Institute of Aeronautics and Space (LAPAN) into the Indonesian National Research and Innovation Agency (BRIN) in 2021 has raised questions about the lead institution for research on space technology. *Image from Wikimedia Commons.*

Policy Rethink Needed

Space technology can greatly enhance the capabilities of the Indonesian military. However, in the absence of strong political commitment and an institutional basis, there is little incentive for space technology development. To bolster the Indonesian space programme and, particularly space defence, Indonesia needs to reactivate DEPANRI to provide comprehensive policy and strategic advice to the Indonesian president directly. Furthermore, LAPAN needs to be revived and strengthened into an agency focused on space technology development. Finally, Indonesia needs a policy rethink, shifting its military strategy from focusing solely on terrestrial combat development to also develop space defence technology to support its terrestrial forces.

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