OPINION ● ACADEMIA

A spaceport in Indonesia’s new capital?

Latest schedule: The Artemis I unmanned lunar rocket sits on launch pad 39B at NASA's Kennedy Space Center in Cape Canaveral, Florida, on Sept. 6. (AFP/Chandan Khanna)

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Sitting under the equator, Indonesia reaps a number of benefits, including with regard to space activities, particularly because the Geostationary Orbit (GSO) path is located right above the equator.

The GSO is the trajectory along which telecommunications and weather satellites operate. Another unique aspect of the GSO, located 35,871 kilometers above the sea level, is that satellites placed along this orbit seem to be stationary because one rotation of Earth is precisely equal to the period of the GSO orbit.

Equatorial countries that plan to launch space vehicles to the GSO must be aware of the geographical advantages. Launching space vehicles from an equatorial country will reduce the time needed to reach the GSO, effectively cutting the spending on fuel and the total costs Therefore, the construction of spaceports in equatorial countries may be strategic. Indonesia is no exception.

In fact, since 1985, the government, through the National Institute of Aeronautics and Space (LAPAN), has been conducting preliminary studies for the construction of a spaceport on a 100-hectare plot in Saukobye village, Biak Numfor, Papua. Biak was considered the most suitable place, besides the islands of Enggano, Morotai and Nias, to host the space facility.

Biak, located near the equator and directly facing the Pacific Ocean, is an ideal site. The construction of a spaceport is mandated by Article 44 paragraph (1) of Law No. 21/2013 on space, which stipulates the state's responsibility to "construct and operate a spaceport within the territory of the Republic of Indonesia". The Law mandates that the country independently manages its space affairs through its own spaceport in its own jurisdiction.

However, the project has been put on hold due to enormous costs and political jockeying over the construction plan. According to the master plan for the Implementation of Space Activities for 2016-2040, LAPAN was supposed to have designated a location for the spaceport project by 2017. However, the mandate was not fulfilled until LAPAN was merged into the National Research and Innovation Institute (BRIN) in April 2021.

Even during House of Representatives hearing on Sept. 14, 2021, the BRIN remained unable name a definitive site for the spaceport. The government, however, proposed that the facility be built in Biak or Morotai in Maluku.

While the issue remains unsettled, in January of this year, during deliberations on the state capital bill, the government announced plans to develop a spaceport in the prospective new capital city of Nusantara.

Questions arose as to whether the spaceport in Nusantara would serve the same purpose as the spaceport to be built in Biak or Morotai. National Development Planning Minister Suharso Monoarfa said the spaceport in Nusantara would act as a port for "super-speed aircraft" capable of reaching the United States from Indonesia in one and a half to two hours. In other words, the spaceport in the new capital city is to serve suborbital flights.

Suharso claimed that Elon Musk, the founder and CEO of SpaceX, had expressed interests in building the spaceport for suborbital flights in IKN Nusantara.

However, will this futuristic plan materialize or is it simply a daydream?

Pursuant to the master plan for 2016-2040, there is no need, let alone urgency, for Indonesia to build a port for suborbital flights either in the new capital city or elsewhere. Considering the long overdue plan to construct a spaceport in Biak or Morotai, the resources must be devoted to the initial goal.

The master plan envisions the launch of large-scale space vehicles as well as satellite launching services into low Earth orbit in 2036-2040, which means a focus on orbital flights instead of suborbital flights.

Furthermore, Law No. 3/2022 on the state capital does not mention anything about spaceport construction. Even though Nusantara itself is to be developed into a smart city with cutting-edge technology, there is no specific mention of a spaceport in the law. In addition, the sky over Nusantara will be buzzing with conventional aircraft. For safety reasons, a spaceport must be built somewhere outside of flight paths.

Considering the lack of urgency, the plan to build a spaceport in IKN Nusantara must be reconsidered. Even if building a spaceport in Biak or Morotai remains far-fetched, the government should give top priority to winning the competition to achieve low Earth orbit.

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