

Indonesian Space Diplomacy: Towards an Era of Space Commercialization

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I. INTRODUCTION

As the largest archipelagic country, consisting of over 17,000 islands across roughly 16% of Earth's equator, Indonesia enjoys benefits from space technological achievements and advancements. Since the 70s, it has proven itself a crucial tool to connect Indonesian citizens and provide them with equal access to information.¹

The modern understanding of "space" is multidimensional. The latest generation of both policymakers and the public see it as an opportunity to create wealth, trade, discover new technology, and expand jobs.² Space technology is considered an industry that has evolved from the Cold War's space race, playing an important role in daily life from weather prediction, navigation, banking, and agriculture.

During the current pandemic, space technology has allowed people better access for basic needs.³ Facing the challenges of Covid-19, private investment in the space sector broke records with a total figure of around USD 10 trillion in 2020 and still trending upward. In the first quarter of 2021, at least USD 4.5 trillion was invested in 77 companies engaged in the space sector. The total equity investment was recorded at USD 186.7 trillion, which was distributed across 1,480 companies.⁴

A majority of the funds were invested companies engaged in rocket and satellite technology, especially navigation and communications satellites such as SpaceX, Blue Origin, Relativity Space Rocket Lab, Planet Labs, and Spire Global, all of

¹ Ida Bagus Rahmadi Supancana, "Development of Space Law in Indonesia," *Indonesian Law Journal* 1, no. 1 (2006): 40–45.

² Kai-Uwe Schrogl and Christophe Venet, "The Impact of the European Space Policy on Space Commerce," in *Contracting for Space: Contract Practice in the European Space Sector*, ed. Lesley Jane Smith and Ingo Bauman (Farnham: Ashgate, 2011).

³ Trupti Bhattacharjee and Indranil Bhattacharjee, "A Review: How Space Technology Can Help in COVID-19 Pandemic (with Reference to Remote Sensing and GIS)," *Journal of Remote Sensing & GIS* 10, no. 3 (2021): 1–3.

⁴ Michael Sheetz, "Investment in Space Companies Put at Record \$8.9 Billion in 2020 despite Covid," CNBC, 2021.

which are engaged in extensive space activities.⁵ For example, SpaceX, to develop its mega constellation (Starlink) and send personnel and cargo to the International Space Station (ISS), launches several rockets each month—an impressive and costly endeavor. To facilitate their activities, these companies maintain businesses and require infrastructure in various parts of the world, including Indonesia.

Despite boasting the largest economy in Southeast Asia and impressive economic growth since the 1997 financial crisis, Indonesia is still faced with developmental challenges. Therefore, the Indonesian Government has invested very limited resources in risky and expensive investments such as space activities.⁶ However, the Indonesian government sees the opportunities in cooperating with the private sector and supporting investment in space activities across Indonesia. The policymakers believe that Indonesia possesses several inherent advantages, including its geographical location on the equator, and considered as a large market as the fourth most populous country in the world.

In terms of Space Diplomacy, Indonesia has traditionally played the role of a developing country and equatorial country in most international space related discussions. Indonesia is actively engaged in discourse on several topics that are considered important for humankind and the greater good. Indonesia also encourages closer international cooperation to explore outer space for peaceful purposes.

This paper discusses how space diplomacy has formed an important part of Indonesian diplomacy not long after Indonesian Independence. The significant role of issues surrounding space is changing from a security perspective to a multidimensional perspective, such as creating wealth, trade, technology, and jobs. This paper also discusses how the five UN Treaties allow such growth and how Indonesia's national law is likewise growing.

II. THE OUTER SPACE TREATY OF 1967 (OST)

The most important achievement defining the legal status of outer space was UNGA Resolution No. 1962 (XVIII): The Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, dated 13 December 1963, which was also used as a ground principle in OST that is considered as Magna Charta of space law.⁷ Those principles are:

1. The exploration and use of outer space shall be carried out for the benefit and in the interest of all mankind;

⁵ *Ibid.*

⁶ World Bank, "Indonesian Overview (per 6 April 2021)," World Bank, 2021.

⁷ Fabio Tronchetti, *The Exploitation of Natural Resources of the Moon and Other Celestial Bodies: A Proposal for A Legal Regime* (Boston: Martinus Nijhoff Publishers, 2009).

2. Space exploration and use are to be free for all States on the basis of equality and in accordance with international law;
3. Outer space and celestial bodies are not subject to national appropriation by claim of sovereignty, use, occupation, or any other means;
4. States are responsible for national space activities, whether conducted by governmental agencies or by non-governmental entities; and
5. States retain jurisdiction and control over space objects under their register and are accordingly internationally liable for damages related thereto.

The above principles of exploration and use of outer space are often referred to as rights to free access, exploration, and use of outer space. As the principles are limited by responsibility and liability, there is no limitation on the actor whether they are states, private entities, organizations, or any other actors. Therefore, most scholars agree that commercial use is permitted, even for private entities.⁸

Responsibility and liability are regulated in Articles VI, VII, and VIII of the OST and the Liability Convention. The states who are parties to the OST have an obligation to authorize and continuously supervise all such activities of non-governmental entities, as liability is still imposed on states, even if the space activity is conducted by private parties. Within this framework, national legislation enables states to meet the above international obligations.⁹

III. THE HISTORY OF INDONESIAN SPACE ACTIVITIES

Indonesia has been active in international space discussions and space activities, which can be traced back to not long after its Independence. Indonesia has been a member of the ITU (International Telecommunication Union) since 1949. The ITU is the oldest dedicated international organization, founded in Paris in 1865 under the name of the International Telegraph Union, later changing its name in 1934, and becoming a specialized agency of the UN in 1947. Based on its constitution, one of the main tasks of the ITU, is coordinating the registration of radio spectrum.¹⁰

In 1962, the First Minister of the Republic of Indonesia, Ir. Juanda (the Chairman of the Indonesian Aviation Council then), and R.J. Salatun (as Secretary of the then Indonesian Aviation Council) formed the Astronautics Committee. In the same year, the Bandung Technology Institute (ITB) and the Indonesian Air Force also started the Early Military and Scientific Rocket Project (PRIMA) and successfully built and launched two Kartika-series rockets, including their telemetry system.¹¹

⁸ Bin Cheng, *Studies in International Space Law* (Oxford Scholarly Authorities of international Law, 1997), <https://doi.org/10.1093/acprof:Eoso/9780198257301.001.0001>.

⁹ ITU, "List of Member States," International Telecommunication Union, 2021.

¹⁰ ITU, "About International Telecommunication Union (ITU)," International Telecommunication Union, 2021.

¹¹ Koran Tempo, "Meroket Kembali: Indonesia Menghidupkan Kembali Proyek Pengembangan Roket, Belajar Ke Negeri

On 27 November 1963, the National Institute of Aeronautics and Space (*Lapan*), also known as the Indonesian Space Agency, was formed by Presidential Decree No. 236, concerning *Lapan*.¹² *Lapan* also took on the role as the face of Indonesia's space efforts when it joined the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) in 1973.¹³

On 8 July 1976, Indonesia's first communication satellite called Palapa A1 was launched by a United States rocket over the Indian Ocean (type HS -333). Palapa A1, was names as such from Patih Gajah Mada, who swore to unite the Indonesian archipelago in 1334.¹⁴ This launch was considered an important milestone in providing unified information technology for Indonesian people, who live in many different islands of the archipelago, as well as in neighboring countries.

IV. INDONESIA'S TRADITIONAL ROLE IN SPACE DIPLOMACY

As one of the earlier countries active in space activities, Indonesia has developed a traditional role and firm position on several space issues. These positions have been consistent among almost every multilateral, regional and bilateral meetings on space issues, some of the most important being that:¹⁵

1. Indonesia believes in the legal certainty, pushing for the delimitation of an outer space agenda and the importance of legally binding legal instruments, and non-legally binding instruments that can be used as a guide in formulating national law;
2. Indonesia has been active in Geostationary Orbit Issues and suffered from the first come first serve basis of a satellite slot registration system in the International Telecommunication Union (ITU), which has not always successfully fulfilled the equal access principle, and considered that GSO is a limited natural resource and must be governed by *sui generis* principles;
3. Indonesia also focuses its attention on space sustainability and environmental issues;
4. For the issue of space security and safety measures, Indonesia stands against any use of weaponry in space, and encourages transparency and confidence-building measures (TCBM)¹⁶ and any discussion of internationally regulated space traffic management (STM).

Cina (Skyrocketing Again: Indonesia Revives Rocket Development Projects, Learns from China)," Koran Tempo, 2005.

¹² Lapan, "Sejarah Lapan (Lapan History)," lapan.go.id, 2021.

¹³ UNCOPUOS, "Committee on the Peaceful Uses of Outer Space: Membership Evolution," unoosa.org, 2021.

¹⁴ Nur Fitriatus Shalihah, "Hari Ini Dalam Sejarah: Satelit Pertama Indonesia Palapa A1 Diluncurkan (Today in History: Indonesia's First Satellite Palapa A1 Launched)," Kompas.com, 2020.

¹⁵ UNCOPUOS, "Report of the Legal Subcommittee on Its Fifty-Sixth Session from 27 March - 7 April 2017" (Vienna, 2017).

¹⁶ United Nations General Assembly, "Resolution Adopted by the General Assembly on 7 December 2015" (Vienna, 2015), http://www.unoosa.org/res/oosadoc/data/resolutions/2015/general_assembly_70th_session/ares7053_html/A_RES_70_053E.pdf.

5. Indonesia encourages closer international cooperation to use and explore outer space for peaceful purposes, including in the areas of space science, space technology, disaster management, and the achievement of Sustainable Development Goals (SDGs).¹⁷

The success of private space companies such as the SpaceX and Blue Origin has shifted the conversation surrounding space issues among countries. Indonesia feels the need to participate and at the same time make sure its interests are protected. More than that, actors that are active in the multilateral talks such as in the UNCOUOS and the ITU, in regional for a such as the Asia Pacific Cooperation Organization (APSCO) and Asia Pacific Regional Space Agency Forum (APARSAF) and its bilateral between friendly countries need to be expanded to other actors including companies, and non-governmental organizations. There is also a need for Indonesia to engage influential contributors to space technology in order to understand recent developments and find its niche.

Furthermore, Indonesia's future position in space policy and space diplomacy will need to include the consideration that it is the largest spender on Information Technology in Southeast Asia. Indonesia is currently improving technology infrastructure, presenting many opportunities, especially in e-commerce and e-services including fintech and telehealth.¹⁸ These businesses have also flourished during the pandemic, helping local industries and providing more jobs. Indonesia also needs to do its homework (i) in identifying its niche in potential space industries that may support and benefit its economy and people, and (ii) to ensure protection of private space activities through regulation.

Discussion on an international legally binding instrument on private space activities has been difficult due to strong political differences among countries. For that matter, most countries or groups of countries are considering strengthening national laws and having a non-legally binding instruments with the hope that best practice will emerge.¹⁹

V. RECENT DEVELOPMENT OF INDONESIAN NATIONAL LEGISLATION AND POLICIES

Indonesia has ratified four out of five International Space Treaties, including the OST, and is currently in the process of promulgating a regulatory framework that will encourage investment in the space sector. Additionally, Indonesia enacted Law No. 21 Year 2013 on the Outer Space. To implement those laws, the Government

¹⁷ Ministry of Foreign Affairs Republic of Indonesia, "Indonesia Encourages Closer Outer Space Cooperation for Peaceful Purposes," kemlu.go.id, 2019.

¹⁸ Cekindo, "Information Technology Sector in Indonesia," cekindo.com, 2018.

¹⁹ *To ensure the protection of the investors, some countries such as the United States, Japan, UAE and Luxembourg issued laws regarding private space activities, including controversial regulation on space recourses.*

also has issued the Government Regulation No.11 Year 2018 on Remote Sensing and is planning to issue other regulations on Outer Space Activities and Space Ports.²⁰

The latest Government Regulations were issued with the mindset of increasing private participation in Indonesian space activities and encouraging investment. Indonesia has also launched a pilot project on satellite TT & C in Biak, and its satellite constellation. In addition, the Government has also formed a space forum that consists of national stakeholders, tasked with formulating space-related policies.

A focal point is a pilot project for the satellite control station and space airport, *Lapan* has been approved to receive a multi-year State Sharia Securities (SBSN) budget, amounting to Rp. IDR 90 billion in 2021 and 60 billion in 2022. Of course, this investment cannot succeed alone and requires cooperation with the private sector for tailor-made investments. It is hoped that in its operation, it will collaborate with the private sector to serve international satellite owners who need control over the Eastern part of Indonesia. Meanwhile, the satellite constellation pilot project is planning to get seed investment from research and technology, and national private partners.²¹

On 11 December 2020, President Joko Widodo also offered an investment opportunity related to a space airport in Biak-Papua, via telephone with SpaceX leader Elon Musk. From a geographical point of view, Biak's position, especially Soukoby Village in the North Biak District, Biak Numfor Regency, is about one-degree south latitude and directly faces the Pacific Ocean. It is considered an ideal and safe location for a satellite launches. Biak's position near the equator, essentially renders it efficient for launching satellites. Elon Musk planned to send an envoy to evaluate Biak Papua's proposal to become a spaceport, in January 2021. However, this plan has not been implemented due to restrictions on traffic between countries due to the Covid-19 pandemic.²²

Apart from rockets and satellites, both the government and the private sector have also developed businesses and applications utilising space technology, including for disaster mitigation, healthcare, agriculture, education, banking, and creative industries. This is in line with Indonesia's vision, which has already introduced the largest digital economic hub in Southeast Asia 2020. and encourages space technology companies to cooperate and invest in Indonesia by creating an investment friendly environment by facilitating and ensuring legal protections for technology. This effort was first introduced to existing Indonesian state-owned companies, followed by private companies such as startups and foreign companies.

²⁰ Runggu Prilia Ardes et al., "Regulasi Sistem Pembiayaan Bandar Antariksa Di Indonesia (Regulation of Spaceport Financing System in Indonesia)," *Jurnal Pusat Kajian Kebijakan Penerbangan Dan Antariksa* 1, no. 2 (2020).

²¹ Anisa Indrainsi, "Pengembangan Pesawat BJ Habibie Dibiayai Surat Utang Syariah (Development of BJ Habibie's Aircraft Funded by Sharia Debt)," *finance.detik.com*, 2021.

²² Rini Kustiani, "Sejarah Biak Papua Jadi Bandara Jauh Sebelum Ditawarkan Ke Elon Musk Buat SpaceX (The History of Biak, Papua Becoming A Port Before Being Offered to Elon Musk for SpaceX)," *TEMPO.CO*, 2021.

VI. CONCLUSION

Private investment in the space sector has broken records amidst the global challenge of Covid-19. The Indonesian Government recognizes this opportunity and is expanding its focus from merely performing its “traditional role” as one of the developing countries to encouraging state-owned and private entities to conduct space activities and invest in the space sector in Indonesia. This has been done by issuing sets of national space policies and regulations and being active in international, regional, and bilateral fora. Furthermore, space diplomacy today is also not limited to Government-to-Government discussions. Rather, it explores the possibility of Government to Business and Business to Business actions. Furthermore, this effort shall benefit Indonesian people and the world by creating a greater job market including in the field of higher education and high technology positions.

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