

The Status of National Space Legislation in the Asia-Pacific: Introduction Based on the NSLI 2nd Report

Ikuko Kuriyama^{*} and *Koichi Kikuchi*^{**}

Abstract

This paper analyzes the 12 countries' national space legislation with an emphasis on space debris mitigation and within the framework of the National Space Legislation Initiative (NSLI) launched under the Asia Pacific Regional Space Agency Forum (APRSAF) in 2019. NSLI commenced its second phase in 2021 and successfully compiled its second report for submission to the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) in 2023. This paper introduces the status of national space legislation in the Asia-Pacific countries based on the submitted NSLI second report while providing the authors' insight into the trends. The issues related to authorization and supervision are given particular focus in the introduction. The paper also provides policy implications in terms of the region's further development of national space laws and regulations.

1. Introduction

This paper analyzes the 12 countries' national space legislation with an emphasis on space debris mitigation and within the framework of the National Space Legislation Initiative (NSLI).¹ NSLI is a regional space law

* General Affairs Department, Japan Aerospace Exploration Agency.

** International Relations and Research Department, Japan Aerospace Exploration Agency. This is the edited version of authors' paper, IAC- IAC-23-E7.7.1, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2-6 October 2023. Information in this paper is as of the submission to IAC.

1 For information on NSLI, *see generally*, NSLI website, https://www.aprsaf.org/initiatives/national_space_legislation/ (accessed 08.08.23); *see also*, I. Kuriyama, K. Kikuchi, T. Iwai, & Y. Kagiwada, A Regional Initiative for Studying the Status of National Space Laws, IAC-20-E7.5.10, 71st International Astronautical Congress (IAC) - The CyberSpace Edition, 2020, 12-14 October; I. Kuriyama, K. Kikuchi, Y. Ishizu & H. Kojima, An Analysis on the Regional Characteristics of National Space Law-making: A Case Study Based on the Findings of the National Space Legislation

initiative established under the Asia-Pacific Space Agency Forum (APRSAF)² in 2019 in response to the increasing interest in space law in the region. NSLI's two objectives are: 1) to promote information sharing and mutual learning on the national space legislation practices in the Asia-Pacific region; and 2) to enhance drafting capacities and implementation of national space legislation and policies in the Asia-Pacific countries in accordance with international norms. After the first phase (2019-2021), NSLI's second phase was launched in 2021 with broad support from the APRSAF participants.

NSLI's main task has been drafting a report on the status of national space legislation for submission to the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). Following its 1st report of the first phase (hereinafter "1st NSLI Report"),³ NSLI has successfully submitted its 2nd report, titled "Report on the status of the national space legislation of countries of the Asia-Pacific Regional Space Agency Forum National Space Legislation Initiative, second phase" (hereinafter "2nd NSLI Report"),⁴ to UNCOPUOS in May 2023.

This paper introduces the status of national space legislation in the Asia-Pacific countries based on the 2nd NSLI Report while providing the authors' insight into the trends. The issues related to debris mitigation, authorization and supervision are given particular focus in the introduction. The paper also provides policy implications in terms of the region's further development of national space laws and regulations.

This paper consists of five sections. The introduction is followed by the second section, which outlines NSLI and its reports. The third section examines the general status of national space legislation in the NSLI countries and its trends. The fourth section discusses the status of national space legislation with a particular focus on space debris mitigation. The final section provides a conclusion and policy implications.

Initiatives, IAC-21-E7.5.12, 72nd IAC, United Arab Emirates, 2021, 25-29 October; Y. Tateshita, Progress Report on APRSAF's Initiatives for Enhancing Space Policy and Law Capacity in the Asia-Pacific Region, technical presentation, 66th Session of COPUOS, 5 June 2023, https://www.unoosa.org/documents/pdf/copuos/2023/TPs/Japan_TateshitaCOPUOS_presen_short_ver.pdf, (accessed 08.08.23).

2 For information on APRSAF, *see generally*, APRSAF website, <https://www.aprsaf.org/about/> (accessed 08.08.23).

3 Report on the status of the national space legislation of countries of the Asia-Pacific Regional Space Agency Forum National Space Legislation Initiative, working paper submitted by Australia, India, Indonesia, Japan, Malaysia, the Philippines, the Republic of Korea, Thailand, and Viet Nam, A/AC.105/C.2/L.318, 1 June 2021[1st NSLI Report].

4 Report on the status of the national space legislation of countries of the Asia-Pacific Regional Space Agency Forum National Space Legislation Initiative, second phase, working paper submitted by Australia, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, the Republic of Korea, Singapore, Thailand, Türkiye and Viet Nam, A/AC.105/L.336, 29 May 2023 [2nd NSLI Report].

2. Overview of NSLI and Its Report

2.1. NSLI Outline

NSLI's membership is open to national governmental organizations in the countries of the Asia-Pacific region. The Study Group, which conducts joint analysis and drafts a report on their national space activities and legislation, is led by two co-chairs and supported by the NSLI Secretariat provided by Japan Aerospace Exploration Agency (JAXA). It comprises about 50 regional experts from 20 national governmental organizations of 12 countries, namely, Australia, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, the Republic of Korea, Singapore, Thailand, Türkiye and Viet Nam (hereinafter “NSLI Countries”).⁵

The work of NSLI is based on the 2013 United Nations Resolution adopted by the General Assembly, titled “Recommendations on national legislation relevant to the peaceful exploration and use of outer space” (hereinafter “2013 UN Resolution”).⁶ For the exchange of information and joint study, the Study Group used the special questionnaire prepared by the Secretariat, which refers to the elements in the 2013 UN Resolution and also reflects the interests of the Study Group members.⁷ This methodology provides members with the same understanding of the discussion points and enables effective comparative analysis for drafting a report on the status of national space legislation.

Each country's answers to the questionnaire are compiled in a format called “Information Form,”⁸ which constitutes a part of NSLI's valuable contribution to the global space community in terms of information sharing on national practices. The reports were drafted on the basis of the Study Group's analysis and discussion of the Information Form while incorporating the responses submitted by the member organizations.

2.2. Overview of the NSLI Report

The 2nd NSLI Report, as with the first one, consists of five parts: I. Introduction; II. Overview of space activities; III. Ratification status regarding the international regime; IV. National legal framework relating to space activities; and V. Findings.

5 Membership of the Report on the status of the national space legislation of countries of the Asia-Pacific Regional Space Agency Forum National Space Legislation Initiative, A/AC.105/2023/CRP.17, 1 June 2023.

6 Recommendations on national legislation relevant to the peaceful exploration and use of outer space, A/RES/68/74, 11 Dec. 2013 [2013 UN Resolution].

7 For the questionnaire, *see, supra* note 5, Annex.

8 Consolidated “Information Form” on national space legislation completed by the NSLI member countries, https://www.aprsaf.org/initiatives/national_space_legislation/pdf/UNCOPUOS2023_InformationForm.pdf (accessed 08.08.23) [Information Form]. For the information in this paper, please see also the relevant part of the Information Form.

The 2nd NSLI Report expanded the content from the 1st NSLI Report as it covers information on 12 countries (9 countries for the first phase), and updated information of the first phase. The 2nd NSLI Report also added new topics relating to the national implementation of the “Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space” (hereinafter “LTS Guidelines”)⁹ and the involvement of private entities in national legislation and policymaking processes.¹⁰ The submission of the 2nd NSLI Report was expected to contribute to the implementation of the 2013 UN Resolution and the LTS Guidelines.¹¹

3. General Status of National Space Legislation in the NSLI Countries and Its Trends

3.1. Status of Comprehensive National Space Legislation

According to the 2nd NSLI Report, among the NSLI Countries, Australia, Indonesia, Japan, Malaysia, New Zealand, the Philippines, and the Republic of Korea have established comprehensive national space legislation concerning space activities. The name of the respective countries’ legislation in English and the years of enactment listed in the 2nd NSLI Report¹² are below.

- Australia: Space (Launches and Returns) Act, 2018: (i) Space (Launches and Returns) (General) Rules, 2019; (ii) Space (Launches and Returns) (Insurance) Rules, 2019; (iii) Space (Launches and Returns) (High Power Rocket) Rules, 2020.
- Indonesia: Act on Space Activities, 2013.
- Japan: Basic Space Law, 2008; Space Activities Act, 2016.
- Malaysia: Malaysian Space Board Act, 2022.
- New Zealand: Outer Space and High-altitude Activities Act, 2017: (i) Outer Space and High-altitude Activities (Licences and Permits) Regulations, 2017; (ii) Outer Space and High-altitude Activities (Definition of High-altitude Vehicle) Regulations, 2017.
- Philippines: Philippine Space Act, 2019.
- Republic of Korea: Space Development Promotion Act, 2005; Space Liability Act, 2008.
- Türkiye: Presidential Decree concerning the Turkish Space Agency, 2018.

9 Report of the Committee on the Peaceful Uses of Outer Space, A/74/20, 20 August 2019, para. 163 and Annex II [LTS Guidelines].

10 The 2nd NSLI Report finds that there are several cases of private entities’ involvement in the study of regulation applied to specific space activities. *See, supra* note 5, section IV.E.

11 *Supra* note 5, paras. 11-12.

12 *Id.* para. 34.

After submitting the 1st NSLI report, Malaysia enacted its national space legislation, “The Malaysian Space Board Act,”¹³ and is currently drafting regulations in line with the implementation of the Act.¹⁴ Further, India, Indonesia, Thailand, and Türkiye have plans to draft new legislation.¹⁵ As for India, “The Space Activities Bill” is in the process of being enacted, and the Bill’s draft text is under discussion at the governmental level.¹⁶ Thailand National Space Law is currently under development.¹⁷

3.2. Trends in Comprehensive National Space Legislation

As is referred to in subsection 3.1, the enactment of such national space legislation has been expanding since the year 2000. The 1st NSLI Report suggested that the emerging private entities’ space activities are a factor pushing the countries of NSLI to enact their national space legislation to comply with international legal frameworks.¹⁸

The focus of the above national space legislation is mainly on the launch of a launch vehicle carrying a satellite and the operation of the satellite from the ground station for command and control.¹⁹ In other words, NSLI Countries that launch rockets and operate satellites from their territory, including those by the private sector, have established such national space legislation providing licensing systems for rocket launches and satellite operations. Such countries include Australia, Indonesia, Japan, New Zealand, and the Republic of Korea, as examined in section 4. On the other hand, in countries where satellite launches and operations are conducted conventionally only by the government, like in India, national space legislation has not been necessarily established. However, in the case of India, the government is currently promoting private sector activities and recently launched an authorization mechanism for conducting space activities, and even the drafting of national space legislation is underway, as mentioned above.²⁰ It can be evaluated that such national space legislation has a function to enable enforcement of national obligations under international space law, such as authorization and continuing

13 Malaysian Government, Malaysian Space Board Act 2022, Laws of Malaysia Act 834, 2022 <https://lom.agc.gov.my/act-detail.php?act=834&lang=BI> (accessed 08.08.23).

14 *Supra* note 5, para. 35.

15 *Id.*

16 *Supra* note 9.

17 *Id.*; J. P. Formichella, N. Jamallsawat and O. Khongthon, The space Law Review: Thailand, 5 January 2023, <https://thelawreviews.co.uk/title/the-space-law-review/thailand> (accessed 08.08.23).

18 *Supra* note 4, paras. 69-70.

19 *Id.* para.71.

20 *Id.* para.41, *supra* note 5, para. 51.

supervision of national space activities in line with Art. VI of the Outer Space Treaty (OST),²¹ as elaborated in subsection 4.1.

On the other hand, the focus of some of the above national space legislation is placed on the basic framework for national space activities, such as establishing an organization or authority in charge of space (e.g., space agency, space committee) and providing a vision, basic principles or policy for space activities (e.g., national space policy, space plan). Japan's Basic Space Act²² and the Philippine Space Act²³ are examples thereof. This type of legislation is often the first attempt to establish a national legal framework concerning space activities.

In this way, the scope and structure of national space legislation vary depending on various factors, including the national legal system and political decisions.²⁴ For example, Japan established a hierarchical national legislation system consisting of the basic law, general space activities act, and laws and regulations for specific fields, as seen in subsection 3.3 below. Although Indonesia's Act on Space Activities,²⁵ for example, formulates provisions relating to a national vision and policies, it also provides legal requirements for space activities.

3.3. National Space Legislation Dedicated to Specific Fields

In addition to comprehensive national space legislation, some countries have established national space legislation or a regulatory framework dedicated to specific fields, such as Earth observation and space resources, to address particular policy agendas such as national security and space business promotion. Examples provided in the 2nd NSLI Report²⁶ are below.

- Indonesia: Government Regulation (Number 11) on Remote Sensing, 2018.
- Japan: Remote Sensing Data Act, 2016; Space Resources Act, 2021.
- Viet Nam: Governmental Decree on Remote Sensing, 2019.

21 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, UNGA/RES 2222(XXI), 1966, 610 U.N.T.S. 205, entered into force on 10 October 1967 [Outer Space Treaty or OST].

22 Government of Japan, Basic Space Act, Act No. 43 of 2008, 28 May 2008, <https://www.japaneselawtranslation.go.jp/ja/laws/view/4194> (accessed 08.08.23).

23 Philippine Government, Philippine Space Act, REPUBLIC ACT No. 11363, An Act Establishing the Philippine Space Development and Utilization Policy and Creating The Philippine Space Agency, and for Other Purposes, 8 August 2019, <https://philsa.gov.ph/philippine-space-act/> (accessed 08.08.23).

24 I. Kuriyama et. al, 2021, *supra* note 2. The paper discusses the factors that influence national space legislation.

25 Indonesian Government, Law of the Republic of Indonesia number 21 of 2013 on Space Activities, Act No. 21 of 2013 [version translated in Japanese], in Legal and Compliance Division, General Affairs Department, Japan Aerospace Exploration Agency, Space Law Data Book (Fifth Edition), Japan, 2018, pp. 666-685.

26 *Supra* note 5, para. 36.

3.4. The Status of Laws Governing Frequency Allocation and Export Control

All the NSLI Countries have radio laws, and it is a common practice among the NSLI Countries for the authorities responsible for communication to conduct frequency allocation, both terrestrial and in outer space.²⁷ In Australia, Indonesia, Japan, Malaysia, New Zealand, and Thailand, a specific license or authorization for frequency utilization is required for satellite operation.²⁸

Regarding export control, all NSLI Countries have export control laws as well. The NSLI Countries, except India, Thailand, Türkiye, and Viet Nam, have control lists of goods and technologies approved for use in space. In 2023, Indonesia enacted government regulation on mastering space technology that includes export controls in the space sector.²⁹

Given the above situation, it is safe to evaluate that frequency allocation and export control can be expected to remain regulated by traditional radio and communication laws and export control laws rather than national space legislation.³⁰

3.5. Legislation for Establishing a Space Agency

The 2nd NSLI Report investigates the status of legislation for establishing space agencies. As of the submission of the Report, all NSLI Countries except for Viet Nam and Singapore, have established national space agencies. Japan and the Philippines have specific legislation to establish space agencies, while Indonesia, Thailand, and Türkiye, have established space agencies by presidential or royal decree. Some space agencies have also been established as part of existing ministries. It appears that national space agencies with a regulatory role tend to be established as part of existing ministries.³¹

4. Status of National Space Legislation Relating to Space Debris Mitigation

4.1. Discussion on International Legal Framework on Space Debris Mitigation and Its Implications on National Space Legislation

The Outer Space Treaty (OST) does not have any provisions directly pertaining to space debris, while it provides several provisions that should be noted when international space debris mitigation rules are considered. It provides that a State Party to the Treaty is internationally responsible for its space activities carried out by both governmental agencies and non-governmental entities, and those carried out by non-governmental entities require authorization and continuing supervision by the appropriate State Party to the Treaty (Art. VI). It

²⁷ *Id.* para.37.

²⁸ *Id.* para. 50.

²⁹ *Id.* para. 39.

³⁰ *Supra* note 4, paras. 73-74.

³¹ *Supra* note 5, paras. 23-25, 94.

further provides that a State Party to the Treaty is liable for damage to another State Party to the Treaty (Art. VII). It also provides that a State Party to the Treaty should conduct its space activities with due regard to the interest of all other States to the Treaty (Art. IX).

The Liability Convention³² stipulates the details of the liability under the OST. In addition, the Registration Convention³³ stipulates a mechanism to clarify which State is the launching State or one of the launching States of a specific space object. The State is liable for damage caused by that object as the launching State or one of the launching States.

Though the rules provided by the OST, Liability Convention, and Registration Convention give basic motivation for the space-faring States to mitigate space debris, more specific rules were needed to address the growing concerns regarding space debris in the 21st century. With such background, the Space Debris Mitigation Guidelines were adopted by UNCOPUOS in 2007.³⁴ They are not legally-binding but offer complementary rules for space debris mitigation by means of sharing best practices in the mission planning, design, manufacture, and operational phases of spacecraft and launch vehicle orbital stages. The 2013 UN Resolution recommends that conditions for authorization could include safety and technical standards that are in line with the Space Debris Mitigation Guidelines.³⁵ In addition, the LTS Guidelines were adopted by UNCOPUOS in 2019.³⁶ They are complementary rules that emphasize the safety of space operation as a critical factor for ensuring sustainable space activities as well as space debris mitigation. They also address policy and regulatory frameworks for space activities, international cooperation, and R&D. Sharing information is a critical measure among these guidelines.

The States are subject to these rules provided by both legally-binding and non-legally binding UN instruments, and their implementation depends on each State's practices, in particular, authorization and continuing supervision of the space activities of non-governmental entities via national space legislation. That is why information sharing on national practices and national space legislation is important.

In the following sections, the NSLI Countries' status relating to space debris mitigation is introduced mainly based on the 2nd NSLI Report.

32 Convention on the International Liability for Damage Caused by Space Objects, 961 U.N.T.S. 187, 24 U.S.T. 2389, 10 I.L.M. 965, entered into force 1 September 1972 [Liability Convention].

33 Convention on Registration of Objects Launched into Outer Space, 1023 U.N.T.S. 15, 28 U.S.T. 695, entered into force 15 September 1976 [Registration Convention].

34 Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, A/62/20, 2007 [Space Debris Mitigation Guidelines].

35 *Supra* note 7, para.4.

36 *See, supra* note 10.

4.2. Status of Authorization and Supervision for Rocket Launch

According to the 2nd NSLI Report, among the NSLI Countries, India, Japan, New Zealand and the Republic of Korea have rockets to launch satellites from launch sites in their territories as well as sounding rockets and launch sites for such rockets. Indonesia, Türkiye, and Viet Nam have sounding rockets, and Indonesia has a launch site for them.³⁷

In addition, Australia, Japan, and the Republic of Korea have private entities engaging in the development and launch of their own launch vehicles and sounding rockets. New Zealand has a launch site, which is owned by a private entity.³⁸

Australia, India, Indonesia, Japan, Malaysia, New Zealand, and the Republic of Korea have laws, regulations, or administrative measures applicable to rocket launch activities.³⁹ Australia, Indonesia, Japan, New Zealand, and the Republic of Korea have requirements for launching rockets from launch sites in their territories under their national regulatory framework. The conditions for obtaining a launch license include a proper plan and capacity for a safe launch.⁴⁰

4.3. Status of Authorization and Supervision for Satellite Operation

All the NSLI Countries have satellites operated by governmental agencies and/or private and other entities.⁴¹ The most common categories of satellites are Earth observation (EO) and small/cube (S/C), followed by communication (C), broadcasting (B), space science and exploration (S/E), meteorological (M), and navigation (N).

Based on the Information Form, the status of satellites operated by non-government entities in the NSLI Countries⁴² is as below:

- Australia: S/E, S/C
- India: S/C
- Indonesia: C, B, EO, S/E, S/C
- Japan: C, B, EO, S/E, S/C
- Malaysia: C, B, S/C
- New Zealand: S/E, S/C
- Philippines: C, S/C
- Republic of Korea: C, B, EO, S/C
- Singapore: C, B, EO, S/C
- Thailand: C, B, EO, S/C

³⁷ *Supra* note 5, para. 13.

³⁸ *Id.*

³⁹ *Id.* para. 59.

⁴⁰ *Id.* para. 61.

⁴¹ *Id.* paras. 14-17; *Supra* note 9.

⁴² *Supra* note 9.

- Türkiye: S/C
- Viet Nam: S/C

All NSLI Countries, except for Viet Nam, have laws, regulations, or administrative measures applicable to satellite operations.⁴³ Among them, Australia, Indonesia, Japan, Malaysia, New Zealand and Thailand have regulations that set conditions or requirements for licensing satellite operation, such as registration of satellites and establishment of operation plans.⁴⁴ The Republic of Korea, Türkiye, and Viet Nam have no specific regulations for licensing satellite operations. In India, IN-SPACe is in charge of licensing satellite operations by private entities.⁴⁵

4.4. Registration of Space Objects

Australia, India, Indonesia, Japan, New Zealand, the Republic of Korea, and Türkiye, which are the State Parties to the Registration Convention, have registered their space objects in a national registry and provided orbital information to the Secretary-General of the United Nations.⁴⁶ Malaysia, the Philippines, and Thailand have not ratified the Registration Convention, but have practices to submit orbital information on their space objects to the Secretary-General of the United Nations.⁴⁷

4.5. Space Situational Awareness

Space situational awareness is an important activity relating to sustainable space activities. Among the NSLI Countries, Australia, India, Indonesia, Japan, New Zealand, Türkiye, and Viet Nam have ground-based space situational awareness facilities. They can monitor orbital information from the ground by radar or other means, while no on-orbit space situational awareness system is operated by any of the NSLI Countries.⁴⁸

4.6. Space Debris Mitigation

According to the 2nd NSLI Report, Australia, Indonesia, Japan, New Zealand, and the Republic of Korea have legal measures for space debris mitigation, and the Indian space agency, ISRO, follows the debris mitigation guidelines in conducting its missions.⁴⁹

In addition, the laws and regulations in Australia, Indonesia, Japan, New Zealand, and the Republic of Korea, which provide conditions and requirements for licensing satellite operations, reflect the Space Debris

⁴³ *Supra* note 5, para. 48.

⁴⁴ *Id.* para. 50.

⁴⁵ *Id.* para. 51.

⁴⁶ *Supra* note 9.

⁴⁷ *Supra* note 5, para. 33.

⁴⁸ *Id.* para. 20.

⁴⁹ *Id.* para. 40.

Mitigation Guidelines.⁵⁰ This means these countries obey international norms for mitigating space debris caused by satellite operations.

On the other hand, the status of mitigating space debris caused by rocket launches is not clear in the 2nd NSLI Report, while the launch phase of space objects is also within the scope of the Space Debris Mitigation Guidelines. Referring to materials other than the NSLI report, in Australia, space debris mitigation measures for launch vehicles are provided by Art. 54 of Space (Launch and Returns) (General) Rules 2019 under the Space (Launch and Returns) Act 2018.⁵¹ In Japan, space debris mitigation measures for launch vehicles are provided by Art. 7 of the Cabinet Office Order for implementation of the Space Activities Act.⁵² Accordingly, at least, Australia and Japan have legal measures for mitigating space debris caused by rocket launches.

4.7. LTS Guidelines Implementation

The 2nd NSLI Report addresses the status of the implementation of Section A, “Policy and regulatory framework for space activities,” of the LTS Guidelines. Section A consists of Guideline A.1, “Adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities,” A.2, “Consider a number of elements when developing, revising or amending, as necessary, national regulatory frameworks for outer space activities,” A.3, “Supervise national space activities,” A.4, “Ensure the equitable, rational and efficient use of the radio frequency spectrum and the various orbital regions used by satellites,” and A.5, “Enhance the practice of registering space objects”.⁵³

All the NSLI Countries are voluntarily taking measures that support the implementation and review of the Guidelines of Section A. The 2nd NSLI Report found that this reflects the importance of the Guidelines in enhancing the States’ practices in applying the relevant principles and norms of international law.⁵⁴ The reported laws and regulations listed in connection with the specific Guidelines in the 2nd NSLI Report are below:⁵⁵

- Australia: Space (Launch and Returns) Act of 2018 and the associated rules (A.1, 2, 3, 5) and Radiocommunications Act of 1992 (A.4).

⁵⁰ *Id.* para. 52.

⁵¹ Australian Government, Space (Launches and Returns) (General) Rules 2019, 26 August 2019, <https://www.legislation.gov.au/Details/F2019L01118> (accessed 11.08.23).

⁵² Cabinet Office, Government of Japan, Regulation for Enforcement of the Act on Launching of Spacecraft, etc. and Control of Spacecraft (Cabinet Office Order No. 50 of 2017), https://www8.cao.go.jp/space/english/activity/documents/space_activity_regulation.pdf (accessed 10.08.23).

⁵³ *Supra* note 10.

⁵⁴ *Supra* note 5, para. 98.

⁵⁵ *Id.* section IV. D.

- Indonesia: Act No. 21/2013 on space activities, Presidential Decree No. 45 of 2017 on the Space Activities Master Plan for 2016-2040, Government Regulation No. 11 of 2018 on the management of remote sensing activities, Act No. 36/1999 on telecommunications, Governmental Regulation No. 53/2000 on the use of the radio frequency spectrum and satellite orbits, Act No. 1/2009 on aviation, and Presidential Regulation No. 125/1999 on explosive materials (A.1, 2, 3, 4, 5).
- Japan: Basic Space Law of 2008, Space Activities Act of 2016, Remote Sensing Data Act of 2016, and associated orders, regulations, review standards, and guidelines (A.1, 2, 3), Radio Act of 1950 (A.4), and Application Manual on Space Object Registration (A.5).
- Malaysia: Malaysian Space Board Act of 2022 (A.1, 2, 3, 5) and Communication and Multimedia Act of 1998 (A.4).
- Philippines: Philippine Space Act (A.5).

In relation to the implementation of A.4, all the NSLI Countries have established mechanisms for authorizing radio frequency use and the rational and efficient use of the radio frequency spectrum, as described in subsection 3.4. In addition, Australia, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, the Republic of Korea, Thailand and Türkiye have practices in line with A.5, as examined in subsection 4.4.

5. Conclusion and Policy Implications

The 2nd Report of NSLI confirmed the continued rapid development of national space legislation in the NSLI Countries. As Malaysia enacted its space legislation in 2022, the number of countries with comprehensive national space legislation, while varying in scope, is increasing, with a couple of countries planning to enact new legislation or in the process of reviewing the draft. Behind this trend, space activities, including those by emerging spacefaring nations and the private sector, are expanding in the Asia-Pacific Region. In addition to national space legislation, all the NSLI Countries have established a legal framework for frequency utilization and export control, which also support space activities.

On the other hand, the NSLI Countries face a challenge in terms of space debris mitigation measures and the registration of space objects based on the Registration Convention. A few of the NSLI Countries explicitly provide licensing conditions in their regulations regarding the observance of international guidelines, such as the Space Debris Mitigation Guidelines. Regarding the registration of space objects, most of the NSLI Countries furnish their information on space objects to the UN Secretary-General and/or have a national registry, while some of them do not. For emerging

space actors, implementing these matters may not be easy, but today space sustainability has become an issue that needs to be considered and addressed by all entities. In this regard, further implementation of the LTS Guidelines and Space Debris Mitigation Guidelines as well as further registration of space objects is encouraged in the region.

In accordance with the development of space activities, international norms and rules are also developing. When such norms and rules for space activities are established, the States should consider their implementation, particularly the authorization and supervision of activities of non-governmental entities via national space legislation. At the same time, the accumulation of the best practices for national implementation may influence international norm-building and rule-making for sustainable space activities. This gives importance to national space legislation and NSLI as an initiative for exchanging and sharing information on best practices in national space legislation.⁵⁶

Based on the past successful achievements, the third phase of NSLI is expected to launch from APRSAF-29 later in 2023.⁵⁷ Bearing in mind that the further advancement of space activities in the Asia-Pacific region, including those of the private sector, is anticipated, the issue of authorization and continuing supervision is becoming even more critical. In this regard, authorization and continuing supervision will be a promising new topic for the joint study of the third phase of NSLI. The continued exchange of information and mutual learning on national practices through NSLI would contribute to the improvement of the fulfilment of international obligations in the region and advance the international discussion on norms and rules for the sustainability of space activities.

Acknowledgements

The authors thank Prof. Setsuko Aoki for her valuable advice on this paper, and Ms. Yumiko Tateshita, Ms. Yuri Ishizu, Mr. Hiromichi Kojima and Ms. Yuuki Yoshitomi as the NSLI Secretariat and all the NSLI Study Group members for their contributions to the NSLI activities.

⁵⁶ *Id.* section V.C.

⁵⁷ As of the submission of the paper. The third phase of NSLI launched from the APRSAF-29 held on 19-22 September 2023, Jakarta, Indonesia.