Safeguarding National Security In Outer Space: A Comparative Study Of Policies And Normative Structures

Raunak Sood*
Dimpal T. Raval**

Abstract

This paper examines the critical intersection of national security and space resource activities, analysing legal and policy frameworks across major spacefaring nations. Through analysis of international submissions, national laws, and scholarly works, it identifies key challenges that are unregulated private sector involvement, dual-use technologies, and the absence of binding norms to prevent harmful interference. The study proposes an eight-pillar National Security Doctrine for Space Resource Activities, emphasising authorisation regimes, cybersecurity, and international cooperation. Findings reveal fragmented governance favouring advanced nations, leaving developing countries vulnerable. Recommendations include legislative reforms, institutional coordination, and multilateral measures through COPUOS to ensure equitable and secure participation in space resource exploitation while mitigating militarisation risks.

Keywords: *space resource activities, national security, outer space governance, dual-use technologies, national security doctrine*

Introduction

Outer space is more than scientific exploration and has become a domain where national security, economic interests and geopolitical influence are converging. The rapid expansion of space resource activities grounded in the Outer Space Treaty, 1967, is insufficient with respect to commercial space activities and national defence objectives. This study originates from the recognition that national security concerns are permeating all dimensions of space resource activities, especially

* Doctoral Research Scholar, Rashtriya Raksha University, Gujarat, India. Email: raunak.sood_phd@rru.ac.in

** Associate Professor and Director, School of Criminal Law and Military Law, Rashtriya Raksha University, Gujarat, India. Email: dimple.raval@rru.ac.in

connected to dual-use technologies and cyber vulnerabilities, including the potential militarisation of commercial missions. The Outer Space Treaty has provided for the general principles for peaceful use, but prioritising the strategic control over equitable access and exclusion from the emerging "resource race" deepens structural inequalities in global space governance.

The researcher will investigate the intersection between national security and space resource governance through comparative legal and policy-based analysis by systematically examining how major space-faring nations such as the US, China, Japan, Luxembourg, UAE and European Union are constructing national security doctrines around resource utilisation. By analysing the official submissions to COPUOS, domestic legal instruments and relevant policy documents. This research is motivated by three central issues, which are firstly, whether national legal and policy frameworks integrate national security considerations within space resource activities, whether legal and normative gaps persist in preventing militarisation or weaponisation of space resources and finally, whether a unified national security doctrine can be developed for balancing the sovereign interests with collective global security in outer space.

The significance of this study with respect to India is that even though the Indian Space Policy, 2023 and the NGP, 2024, provide for an authorisation-based structure for private participation, they remain silent on a national security framework tailored to space resource exploitation. This study will address that very lacuna by conceptualising a national security doctrine for space resource activities and offering India a model for integration of security imperatives within its regulatory and strategic ecosystem. The research is of policy relevance because it reinforces India's strategic autonomy while ensuring compliance with its international obligations under the Outer Space Treaty. This research will further the argument that space resource activities will evolve under a cooperative yet security-conscious legal order where authorisation, regulation and international coordination will be the key pillars.

I. Research Methodology

The research employs a qualitative methodology integrating doctrinal, normative and comparative analysis of legal and policy frameworks concerning national security in space resource activities. Using descriptive, analytical and prescriptive approaches, the study examines scholarly literature, international submissions to COPUOS and the national laws of major spacefaring nations. The methodology synthesizes findings from these diverse sources through case study analysis to identify the legal commonalities. This culminates in the proposal of a working national security doctrine for regulating space resource activities.

II. Scholarly Perspectives

From the perspective of Asena and N. Ceren Turkmen, Türkiye has been acting in a manner prioritizing its national interests and security while enacting its space policies, for the regulation of indigenous satellite and missile capabilities, entangling its defence strategies (these defence strategies are going around the area of surveillance, reconnaissance and secure communications).[1] Kamel Dine Remili et al, in their research, have associated "national security" with Critical Technologies (technologies which are advanced for the achievement of national security objectives, including sovereignty and prosperity), which are important to national security.[2] Examples of critical technologies for serving national security are, firstly, satellite communication, secondly, remote sensing and finally, quantum technologies.[3] Sandunika Hasangani has defined the term "techplomacy" as one of the newest additions to the field of diplomacy.[4]

---

1 Asena Boztas and N. Ceren Turkmen, "An interdisciplinary analysis of Turkiye's space policy: An economic and political perspective," 72 *Space Policy* 101664 (2025), *available at:* http:// dx.doi.org /10.1016/j. spacepol.2024.101664

2 Kamel Dine Remili et al., "Tech diplomacy and Critical Technologies: Case of the LEO satellite internet," 49 *Telecommunications Policy* 102947 (2025). https://doi.org/10.1016/j.telpol.2025.102947

3 *Ibid.*

4 Sandunika Hasangani, *Tech Giants, 'TechPlomacy' and Mitigating Online Radicalization: Lessons for Sri Lanka* 1–13, (Lakshman Kadirgamar Institute of International Relations and Strategic Studies, Colombo, Sri Lanka, 2020) at p.no. 2, *available at:* https://lki.lk/publication/tech-giants-

Jessica L. West is of the view that for pursuing "shared safety, security and benefits in outer space" by nations, there has to be a strategy, policy, MOU ("Memorandum of Understanding") or Accord for overcoming the strategic rivalry between nations, national security concerns and reducing their competing interests.[5] Luncedo Ngcofe has opined that access to outer space is extremely crucial for developing nations (e.g. India, Indonesia, South Africa and others) for strengthening national security, promotion of scientific research, creation of an innovation-friendly environment and fostering international collaboration.[6] Carla P. Freeman has analysed the Chinese perspective on governance of outer space since its corresponding strategy for outer space is informed by Chinese national security concerns, because of the US dominance in the international arena.[7] Legal scholars and experts in China have argued for sovereign rights over space-based objects and objected to the US-led militarisation of outer space.[8] Arfin Sudirman and Taufik Rachmat Nugraha have analysed the Indonesian perspective on space security in the Indo-Pacific by specifically conducting an analysis of Indonesia's space security policy, which led to a finding that space is a strategic frontier similar to land, sea, and air for military use, thereby any desecuritization trend in Indonesian space law and policy needs to be re-amended to securitize space-assets of Indonesia.[9] Juan Racionero-Garcia and Siraj Ahmed Shaikh have examined how Western countries and organisations understand outer

techplomacy-and-mitigating-online-radicalization-lessons-for-sri-lanka/ (last visited July 22, 2025)

5 Jessica L. West "Space Security Cooperation: Changing Dynamics," *Handbook of Space Security* 145–62 (Springer International Publishing, Cham, 2020) at p.no. 145. https://doi.org/10.1007/978-3-030-23210-8_123

6 Luncedo Ngcofe, "Is there enough space for Africa in outer space?" 121 *South African Journal of Science* (2025) at p.no. 1. https://doi.org/10.17159/sajs.2025/18777

7 Carla P. Freeman, "An Uncommon Approach to the Global Commons: Interpreting China's Divergent Positions on Maritime and Outer Space Governance," 241 *The China Quarterly* 1–21 (2020) at p.no. 4. https://doi.org/10.1017/S0305741019000730

8 *Id.* at p.no. 17.

9 Arfin Sudirman and Taufik Rachmat Nugraha, "Space security in Indo-Pacific: An Indonesian perspective," 20 *Asian Security* 129–40 (2024) at p.no. 3,7 & 8. https://doi.org/10.1080/14799855.2024.2431964

space as per their national security strategies and found that national security strategies are directly linking cybersecurity and geopolitical competition.[10] National security strategies in outer space should focus on alliances and multilateral cooperation, but within a realistic framework (based on pragmatic practices) with more emphasis on State sovereignty and strategic advantage.[11] Mariel Borowitz clearly stated the national security argument of the U.S., which means and includes the ability and potential of the nation to defend and protect its interests concerning space activities associated with both lunar and cislunar space for protection against potential threats and successful projection of power in outer space.[12] Another argument of Mariel Borowitz is that the military force of the U.S. needs to develop its military presence to counter China in the cislunar space because of heavy Chinese investments in technologies for capturing the cislunar space.[13] A common argument of the UN NSS ("United States National Security Council") is that national security capabilities must be developed in cislunar space for defence of strategic assets on the Moon, therefore lunar resources have a strategic value with potential for economic benefits for the U.S. leading to the acquisition of a strategic interest to access and defend lunar resources.[14] Mariel Borowitz, Althea Noonan and Reem El Ghazal have further argued that civil or commercial cislunar activities benefit from military support, but such efforts do not represent national security activity in space; hence, to attach a national security value to operations in cislunar space means to protect against threats or project military power.[15] Lawrence Rubin has written on

10 Juan Racionero-Garcia and Siraj Ahmed Shaikh, "Space and cybersecurity: Challenges and opportunities emerging from national strategy narratives," 70 *Space Policy* 101648 (2024). https:// doi.org /10.1016/j. spacepol. 2024.101648

11 Mireia Mas Vivancos, "The importance of space security for the Global South → UNIDIR" *The United Nations Institute for Disarmament Research*, 2025, *available at*: https://unidir.org/the-importance-of-space-security-for-the-global-south/ (last visited July 11, 2025).

12 Mariel Borowitz "US Strategic Interest in the Moon," 1st ed. *Routledge Handbook of Space Policy* 457–91 (Routledge, London, 2024) at p.no. 467.

13 *Id* at p.no. 471.

14 Supra note 12 at 472.

15 Supra note 12 at 474; Mariel Borowitz, Althea Noonan and Reem El Ghazal, "U.S. Strategic Interest in the Moon: An Assessment of Economic, National

the space race in the Middle and further highlighted that national security, prestige and commercial development are the rationale of Middle Eastern countries for developing their respective space programs.[16] "National security" centres on the idea that space assets enhance the power of a State and its security by providing a wider range of sensitive military intelligence and increasing fighting capabilities.[17] Susan Henrico, Ivan Henrico, and Dries Putter have analysed the African perspective in the case of an armed conflict in outer space, the authors went on to argue that South Africa's "national interests and security" are envisaged (co-located) within the "freedom from fear and freedom from want" paradigm, which makes "national development" inseparable from "national security" in the space domain.[18] Jane Harman, Nina Armagno and Esther Brimmer are of the opinion that maintaining national security in outer space will involve securing access to space, maintaining technological superiority and fostering a capable domestic workforce.[19] Harrison H. Schmitt has argued that widening disparity between the supply and demand for highly educated talent weakens a nation's capacity to compete globally in advancing commercial and national security technologies, especially in the case of maintaining a lunar helium-3 fusion power initiative.[20]

Security, and Geopolitical Drivers," 69 *Space Policy* 101548 (2024). https://doi.org/10.1016/j.spacepol.2023.101548

16 Lawrence Rubin, "A Middle East space race? Motivations, trajectories, and regional politics," 69 *Space Policy* 101608 (2024). https://doi.org/10.1016/j.spacepol.2023.101608

17 *Ibid.*

18 Susan Henrico, Ivan Henrico and Dries Putter, "A grey zone: The contours of outer space armed conflict and South Africa's national interests," 32 *African Security Review* 57–80 (2023) at p.no. 71. https://doi.org/10.1080/10246029.2022.2138769

19 Jane Harman, Nina Armagno and Esther Brimmer, "Why Space Is a National Security Priority | Council on Foreign Relations", *available at*: https://www.cfr.org/article/why-space-national-security-priority (last visited July 11, 2025).

20 Harrison H. Schmitt, "Lunar Helium-3 Energy Resources," *Energy Resources for Human Settlement in the Solar System and Earth's Future in Space,* 33–51 (American Association of Petroleum Geologists, Tulsa, OK U.S.A.) at p.no. 47, *available at:* https:// i2 massociates.com/downloads /CHAPTER02.pdf *(*last visited July 22, 2025)

III. Summarization of Research Gap Identified

The existing literature explores the national security concerns in outer space but does not address the legal and policy challenges arising from space resource activities. There is a lack of focused analysis as to how space mining and resource utilization impact national security. Securitization of space assets and technological capability of major space powers leaves developing countries with unclear pathways for secure and equitable participation, which is a critical gap in the evolving global space governance. There is a lack of recognition of authorisation and an absence of a multilateral control mechanism. There is a normative and definitional vacuum around dual-use technologies in resource missions, which are potentially leading to covert militarisation under the guise of commerce. The absence of a coordinated global Space Situational Awareness system, which integrates both governmental and commercial data sources under neutral supervision, is another research gap. No uniform SOPs exist for interpreting and implementing "harmful interference" thresholds specific to space resource activities, and lack of a binding international regime for private actor compliance with national security protocols, especially in multilateral ventures or orbital mega-constellations.

IV. An International Perspective On National Security And Space Resource Activities

The UN General Assembly has established the COPUOS ("Committee on Peaceful Uses of Outer Space") whose role and function is to review international cooperation for peaceful uses of outer space, develop programs to assist in the continuation of research on outer space, study legal problems and report to the General Assembly about its activities.[21] The COPOUS has a role to act as a facilitator for international legal and scientific conferences for the exchange of experiences by Member States in consultation with the Secretary-General and in cooperation with appropriate specialised agencies.[22]

21 UN General Assembly, *International Co-operation in the Peaceful Uses of Outer Space*, GA Res 1472 (XIV), GAOR, UN Doc A/RES/1472(XIV) (Dec. 12, 1959) at p.no. 5.

22 Id. at p.no. 6.

A. Submissions of Member States before the Working Group on Legal Aspects of Space Resource Activities

The COPUOS has released an initial draft containing recommendations for a set of principles for space resource activities, with the first principle being that space resource activities should be directed in accordance with international law (in full compliance with the Charter of the United Nations) to maintain international peace and security and promote international cooperation and understanding.[23] The Islamic Republic of Iran has expressed in its submission to the Legal Subcommittee that COPUOS should play a central role in data sharing, facilitating equitable access to space data, setting reporting standards and ensuring transparency while safeguarding legitimate security concerns associated with space resource activities.[24] It can be derived from the submission of Iran that national security for space resource activities should be regulated by a global authority such as the UN COPUOS, and the legal mandate for COPUOS should be increased for it to be made a regulator for addressing the security concerns of States. Canada, in its submission, is of the view that, to maintain international peace and security, space resource activities should be conducted with due regard to the interests of all States and avoid potentially harmful interference with the space resource activities of other States.[25] A legal argument can be made from the submission of Canada that a national security threat in space resource activities could mean that other States are not giving "due

23 Working Group on Legal Aspects of Space Resource Activities, *Initial Draft Set of Recommended Principles for Space Resource Activities*, UN Doc A/AC.105/C.2/L.339, (2025) at p.no. 4

24 Working Group on Legal Aspects of Space Resource Activities, Islamic Republic of Iran, *Perspective on the Initial Draft Set of Recommended Principles for Space Resource Activities*, UN Doc A/AC.105/C.2/2025/CRP.25 (2025) at p.no. 7.

25 UNCOPOUS, "Submission of Canada to the Working Group on Legal Aspects of Space Resource Activities of the Legal Subcommittee of COPUOS" *Working Group on Legal Aspects of Space Resource Activities, available at*: https://www.unoosa.org/documents/pdf/copuos/lsc/space-resources/DraftPrinciplesContributions/Submission_of_Canada_to_the_Working_Group_on_Space_Resource_Activities_-_Draft_Set_of_Principles_14_November_2025.pdf (last visited July 13, 2025).

regard" and causing "harmful interference" in space resource activities of another State. The Grand Duchy of Luxembourg has submitted that the emergence of new space actors, including the private sector, is creating complex security issues (including opportunities) and advocated for practical guidance on the avoidance of the "harmful interference" principle.[26] Indeed, "harmful interference" is more of a technical term with no practical guidance; thus, for strengthening national security in space resource activities, it is important for States to come together to develop a consensus on an SOP ("Standard Operating Procedures") offering practical guidance to all States on an international platform. Another aspect can be addressed from the point of Iran's submission that COPOUS, maybe the body well-equipped for the development of a document on practical guidance.

France, in its submission, has underlined that in practice, astronauts have a military background and the equipment used during space missions contains "dual-use technologies" which can be used for non-peaceful purposes, thus raising a national security concern for other nations.[27] Italy, in its submission, has iterated the No-Harm Principle in Art. III of the OST to mean prohibition of activities which cause significant harm to other States or ABNJ ("Areas Beyond National Jurisdiction")[28] and relied on the Advisory Opinion rendered by the ICJ

---

26 COPUOS, "Contribution of the Grand Duchy of Luxembourg on Elements for an Initial Draft Set of Recommended Principles for Space Resource Activities" *Working Group on Legal Aspects of Space Resource Activities,* at. p.no 2.

27 COPUOS, "Second French contribution to the Working Group on Legal Aspects of Space Resource Activities, November 2024" *Working Group on Legal Aspects of Space Resource Activities, available at*: https://www.unoosa.org/documents/pdf/copuos/lsc/space-resources/DraftPrinciplesContributions/241220_French_contribution_French_ressources.pdf (last visited July 13, 2025).

28 UNOOSA, "Working Group on Legal Aspects of Space Resource Activities– Italian Contribution" *Working Group on Legal Aspects of Space Resource Activities, available at*: https:// www.unoosa.org /documents/pdf/ copuos/lsc/space-resources/DraftPrinciplesContributions/ITALIAN_CONTRIBUTION_Working_Group_on_Legal_Aspects_of_Space_Resource_Activities.pdf (last visited July 13, 2025).

on the 'Legality of Threat or Use of Nuclear Weapons' (1996) *"to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction"*[29]. An argument can be made from the submission of Italy that national security for space resource activities means not causing damage to the assets of other States during resource-related activities. The Kingdom of the Netherlands and Luxembourg, in their joint contribution, have expressed that appropriate measures should be taken for the avoidance and mitigation of harmful impacts arising from space resource activities which are a risk to the safety of persons, cause damage to persons, cause adverse changes in the environment of Earth, and cause harmful interference with other ongoing space resource activities.[30] Drawing from the submission of the Netherlands and Luxembourg national security approach, for space resource activity, should deter harmful interference with national space resource activities, cause adverse changes in the environment of Earth, including the national territory, cause damage to citizens or risk the safety of citizens engaged in space resource activities.

Contribution from the Russian Federation has expressed that space resource activities should be based on the principle of control because of the special nature of space resource activities and their associated risks. Furthermore Russian Federation suggested that control mechanism which may include the establishment of responsibility, monitoring compliance with legal norms of resource exploitation, control over the licencing of activities, algorithm for resolving conflicts and finally the establishment of an international body responsible for ensuring implementation of regime for the exploration, exploitation and use of space resources (analogous to International Seabed Authority and International Telecommunication Union).[31] UAE, in its submissions, have raised

29 Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, [1996] I.C.J. Rep 226 at para. 27.

30 UNCOPOUS, "Joint contribution submitted by Luxembourg and the Kingdom of the Netherlands on Elements for an Initial Draft Set of Recommended Principles for Space Resource Activities" *Working Group on Legal Aspects of Space Resource Activities,* at pt. 10.

31 UNOOSA, "Contribution of the Delegation of the Russian Federation to the Working Group on Legal Aspects of Space Resource Activities of the Legal

similar contentions to the principle of control expressed by the Russian Federation, but instead seeks to control space resource activities by engaging in careful authorization of space resource activities, thus slightly deviating from the "principle of control" as expressed by the Russian Federation.[32] An argument for a national security approach to space resource activities derived from submissions of the Russian Federation and UAE ("United Arab Emirates") can be that any non-state actor which are engaging in space resource activities without proper authorization (or proper control as expressed by the Russian Federation) can be a national security issue for Member States. Finally, the U.K. ("United Kingdom") in its submission highlighted that space actors should undertake space resource activities in accordance with relevant principles as agreed by other State-based mechanisms or mechanisms established by COPOUS for safe operations on celestial bodies, including responsible use of existing resources with due regard to other potential users of existing space resources.[33] Borrowing from the UK's position on space resource activities, it can be argued that a breach of national security may be invoked if mechanisms for safe operations and responsible use have been violated. Such violations could cause harm or pose a threat of harm to potential users.

B. Reports of the Committees, Commissions and Representations before the United Nations General Assembly

Indonesia and Japan have legislation and domestic regulatory frameworks dedicated to addressing policy agendas such as national

Subcommittee of the Committee on the Peaceful Uses of Outer Space on elements for an initial draft set of recommended principles for space resource activities" *Working Group on Legal Aspects of Space Resource Activities, at* pt. 7.

32 UNOOSA, "Elements for an Initial Draft Set of Recommended Principles for Space Resource Activities: UAE Contributions" *Working Group on Legal Aspects of Space Resource Activities,* at p.no. 2.

33 UNCOPOUS, "UK Contribution to Chairs of the Working Group on Space Resources for Consideration in Zero Draft" *Working Group on Legal Aspects of Space Resource Activities,* at p.no. 2.

security and business promotion in outer space.[34] The names of the legislation are as follows:

1. Indonesia has enacted legislation titled "Law No. 21 of 2013 on Space Activities".[35]

2. Japan has enacted the legislation titled "Act on the Promotion of Business Activities for Exploring and Developing Space Resources"[36]

India, Indonesia, Turkey, and Thailand have expressed their plans to draft new legislation, and Malaysia has established regulations for the implementation of the Malaysian Space Board Act, 2022.[37] The COPOUS, in its report before the UNGA, has stated that national security-related discussions for outer space should take place before the Disarmament Commission and First Committee of the UNGA.[38] In the UNGA, Mr. Felemban, representing Saudi Arabia, stated that the outer space policy of Saudi Arabia has been developed for the development of the economy, human capital, enhancing international cooperation and strengthening national security.[39] The SSC ("Saudi Space Commission" established in 2018) has been active in the area of strengthening space

34 Committee on the Peaceful Uses of Outer Space, *Report on the Status of the National Space Legislation of Countries of the Asia-Pacific Regional Space Agency Forum National Space Legislation Initiative, Third Phase*, UN Doc A/AC.105/2025/CRP.20 (June 23, 2025), para. 37.

35 The Space Activities Law, 2013 (Law of the Republic of Indonesia No. 21 of 2013, State Gazette No. 133 of 2013) *available at:* https://www.unoosa.org/documents/pdf/spacelaw/national/UU_Nomor_21_Tahun_2013.pdf (last visited October 8, 2025).

36 APBAEDSR (Act No. 83 of 2021), *available at:* https://www.japaneselawtranslation.go.jp/en/laws/view/4332/en (last visited October 8, 2025)

37 *Id.* at para. 36.

38 United Nations General Assembly. (2023). Report of the Committee on the Peaceful Uses of Outer Space, Sixty-sixth session (31 May–9 June 2023). Official Records, Seventy-eighth Session, Supplement No. 20 (A/78/20). United Nations, para. 50.

39 United Nations General Assembly. (2023). Summary record of the 16th meeting of the Special Political and Decolonization Committee (Fourth Committee), Seventy-seventh session, Agenda item 45: International cooperation in the peaceful uses of outer space (continued). Official Records, A/C.4/77/SR.16. United Nations, para 1.

security and cooperating with respective international counterparts.[40] Ms. Fernandez Palacios, representing Cuba, has voiced concerns in the UNGA about the development of space weapons and opposed the use of space technology to undermine the national security of other nations as "highly concerning", including the use of a spy satellite network, which is not compatible with peace and development.[41] A viewpoint can be taken out of the statements of Mr. Felemban and Ms. Fernandez Palacious that national security for space resource activities should mean that space technology should not be used to undermine the security of other nations; instead, it should be used for strengthening the security of private activities controlled by States. The Disarmament Commission has recommended measures in its report that, voluntarily and subject to national security considerations, States should engage in the TCBM ("transparency and confidence-building measures") for preventing an arms race in outer space activities.[42] So, for the promotion of national security in space resource activities, it can be suggested that states should regularly engage in TCBM to prevent it from turning into an arms race during resource exploitation, extraction, processing and other connected activities.

V. Global Legal And Policy Frameworks

China

China views outer space as a global common and supports the usage and exploration of resources. Art. 32 of the National Security Law of the People's Republic of China states that China is committed to the peaceful exploration and use of outer space by supporting scientific investigation, development and exploitation, strengthening international cooperation and preserving the national security of its activities and assets in outer space.[43] In 2021, China released a white paper titled "China's Space Activities", in Art I. China claimed that it wanted to utilize outer space

40 Ibid.
41 Supra note 38 at para 4.
42 UN General Assembly, *Report of the Disarmament Commission for 2023*, GAOR, 78th sess, Supp No 42, UN Doc A/78/42 (27 April 2023) at para. 15.
43 National Security Law of the People's Republic of China, 2015, art. 32.

only for its growing demand for national security, the construction of the economy and for developing the collective national strength of China.[44] The U.S.-China Economic Security Review Commission released a report claiming that China (in its joint statement with Moscow dated 05.07.2017) was threatening to weaponize outer space, threatening international security and strategic stability, especially since China is not agreeing to go with a Code of Conduct in outer space.[45] The legal and strategic position for China is that its legal framework should ensure that its space activities conducted by China do not conflict but advance strategic interests; thus, to maintain national security in space resource activities from a Chinese perspective, there must be a balance of economic benefits with the global common principles for the avoidance of unilateral exploitation of space resources.

European Union

The European Commission has released a proposal for "safety, resilience and sustainability of space activities in the Union"[46] (hereinafter referred to as "Proposal") the proposed regulations seek to avoid interfering with sovereign competences in defence and national security by explicitly respecting Art. 4(2) of the Treaty of the European Union[47] which states that national security remains the sole responsibility of each Member State. The proposed regulation completely excludes space objects which are used for defence or national security, regardless of being

44 Information Office of the State Council of the People's Republic of China, *China's Space Activities* (November 2000), available at: https://www.cnsa.gov.cn/english/n6465684/n6760328/n6760333/c6813192/content.html (last visited on July 14, 2025).

45 U.S.-China Economic and Security Review Commission, *China's Position on a Code of Conduct in Space* (Washington, 8 September 2027) at p.no. 2, *available at:* uscc.gov/siteshttps://www.uscc.gov/sites/default/files/Research/USCC_China%27s%20Position%20on%20a%20Code%20of%20Conduct%20in%20Space.pdf/default/files/Research/USCC_China%27s Position on a Code of Conduct in Space.pdf. (last visited July 23, 2025)

46 Proposal for a Regulation of the European Parliament and of the Council on the safety, resilience and sustainability of space activities in the Union, COM (2025) 335 final, 25 June 2025.

47 The Treaty on European Union, 2012, art. 4(2).

operated either by government or private entities.[48] Art. 4 of the Proposal envisages the "National security clause" that the national security of the Members cannot be overridden by anything contained in the Proposal.[49] This leaves a vacuum for states to invoke national security exceptions under the Proposal for space resource activities to shield sensitive space resource activities from public or international scrutiny, justify non-disclosure of operational details for defence reasons and limit private access to certain space domains for national interest. A communication from the Commission for "Welcoming Foreign Direct Investment while protecting essential interests" stated that foreign control over companies poses risks to security, public order, and technological sovereignty, and screening of foreign investments in critical sectors is extremely crucial.[50] Space technologies, which are often of dual use, are treated as strategic assets under national security doctrines; hence, members can block or impose conditions on such investments to protect vital space infrastructure.[51] An inference may be drawn from this communication that national security concerns involve foreign companies buying stakes in companies handling critical space technologies, thus space resource activities, which might involve critical, dual-use technologies vital to national defence and strategic autonomy. They must be safeguarded through security, screening and regulation to prevent foreign control or interference.

India

The ISP ("Indian Space Policy, 2023") is the main document for the regulation of space activities in India, released by ISRO ("Indian Space

48 Proposal for a Regulation of the European Parliament and of the Council on the safety, resilience and sustainability of space activities in the Union, COM (2025) 335 final, 25 June 2025, at whereas cl. 36.

49 *Id* at art. 4.

50 European Commission, "Communication from the Commission to the European Parliament, The European Council, The Council, The European Economic and Social Committee and the Committee of the Regions: Welcoming Foreign Direct Investment while Protecting Essential Interests" (European Union, 2017) *available at:* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52017DC0494 (last visited July 11, 2025)

51 Ibid.

Research Organization"). IN-SPACe ("Indian National Space Promotion and Authorisation Centre) has to function like an autonomous institution with the mandate to guide and authorize space activities, keeping in mind the national security, safety and foreign policy considerations and international obligations.[52] In May 2024, IN-SPACe came up with NGP ("Norms, Guidelines and Procedures for Implementation of Indian Space Policy-2023 in respect of Authorization of Space Activities") norms, Chapter III clause (5) states that space activities cannot be carried out in a manner which might pose to defence, security and intelligence operations, public order, property, safety of people or foreign relations of India and should not have a negative effect on environment and public health.[53] IN-SPACe is allowed to impose control on operations of authorised space objects and space activities or terminate authorisation in the interest of national security.[54] Chapter III clause (25) clearly makes a provision for exploration and utilization of space resources, which requires separate authorization which might be denied if it may interfere with activities of other states or it acts in conflict with the national interest and international obligations of India.[55] Applications must give prior notice before discontinuing any authorized space activity which affects public interest or national security, with penalties for unjustified withdrawal.[56] In the case of Ex-Armymen's Protection Services Private Limited v. Union of India and Ors, the SC ("Supreme Court") has clearly stated that it is very difficult for the court to give an exact definition of "national security" but the term "national security" is inclusive of "*socio-political stability, territorial integrity, economic solidarity and strength, ecological balance, cultural cohesiveness, external peace etc.".*[57] Thus, India's stance is

52 The Indian Space Policy, 2023, s. 5(1).

53 Norms, Guidelines and Procedures for Implementation of Indian Space Policy-2023 in respect of Authorization of Space Activities (NGP), Indian National Space Promotion and Authorization Centre, Department of Space, Government of India, IN:ISP2023:NGP2024/V1.0 (May 2024) at chap. III, cl. 5.

54 Supra note 53 at chap. III, cl. 21.

55 Supra note 53 at chap. III, cl 25.

56 Supra note 53 at chap. III, cl. 27.

57 Ex-Armymen's Protection Services Private Limited v. Union of India and Ors, 2014 SCC OnLine SC 175, at para. 15.

crystal clear that space resource activities should not jeopardize India's national security, strategic interests or international obligations. IN-SPACe retains the authority to suspend or revoke authorizations if such activities are posing risks to defence, intelligence or public order.

United States

The U.S. has enacted the CSLCA ("U.S. Commercial Space Launch Competitiveness Act, 2015"), Title I ("Spurring Private Aerospace Competitiveness and Entrepreneurship Act of 2015") Sec. 109 (7) (e) (1) has given the Department of Defence the power to protect national security assets in space.[58] The interpretation given is that when it comes to safeguarding the national security of the U.S., the Department of Defence has full power related to it.[59] The Secretary of Transportation, concurring with the Secretary of Defence after consultation with heads of other Federal agencies, has the mandate to release safety-related space situational awareness data and information to any entity consistent with national security interests and public safety obligations of the United States.[60] The Secretary of Transportation has been further given the mandate of overseeing and coordinating space activities and has the duty to protect national security interests, public property, health and foreign policy interests of the U.S.[61] Furthermore, after consultation with the Secretary of Defence, Administrator of NASA, and heads of other executive agencies it is obligated to identify the requirements for the protection of national security interests, foreign policy interests for any launch of commercial vehicles.[62] The Secretary of Commerce, in consultation with heads of other appropriate federal agencies and NOAA ("National Oceanic and Atmospheric Administration") on remote sensing shall submit a report to the Senate Committee (Commerce, Science and Transportation) and the House Committee (Science, Space and Technology) recommending statutory updates for licensing remote sensing systems for protection of US national security, maintenance of US

58 U.S. Commercial Space Launch Competitiveness Act, 2015, Title I, s. 109(7)(e)(1).
59 *Id* at Title I, s. 109(7)(e)(1).
60 Supra note 58 at Title I, s. 110 (1).
61 Supra note 58 at Title I, s. 113 (b) (3).
62 Supra note 58 at Title I, s. 113 (c) (1) (A).

private sector leadership and reflecting the state of art technologies to maintain US technological dominance in this area.[63] POTUS ("President of the United States") has the responsibility to promote the right of U.S. citizens to engage in exploration and commercial recovery of space resources free from any "harmful interference" by continuing the authorization and supervision by the Federal Government.[64] Thus, national security for space resource activities from an American perspective is a tripartite combination of the Department of Defence (Protection, Defence and Strategy), the Department of Transportation (oversight on launch activities) and the POTUS (diplomatic responsibilities). U.S. leadership for space resource utilization is not only commercial or scientific, it is more strategic for deterrence and defence readiness, supply chain independence and preservation of a free, open and rule-based space environment.

Luxembourg

Luxembourg passed the "*Loi du 20 juillet 2017 sur l'exploration et l'utilisation des ressources de l'espace."* (translated to English: "Law of July 20th 2017 on the exploration and use of space resources") has a strict authorization regime consisting of only Luxembourg-based corporate entities[65], authorization is non-transferable[66], administrative presence in Luxembourg is essential,[67] and management must be of good repute and experience[68]. The Luxembourg law provides for gatekeeping mechanisms for screening of bad actors, foreign control or infiltration of sensitive technologies or dual-use applications. There is a requirement for detailed risk assessment and financial coverage[69], auditing by independent and experienced auditors[70], disclosure of shareholders and beneficial

63 Supra note 58 at Title II, s. 202.
64 Supra note 58 at Title IV, § 51302 (3).
65 *Loi du 20 juillet 2017 sur l'exploration et l'utilisation des ressources de l'espace* , 2017, art. 4.
66 *Id* at art. 5.
67 Supra Note 65 at art. 7(1).
68 Supra Note 65 at art. 9.
69 Supra Note 65 at art. 10.
70 Supra Note 65 at art. 11.

ownership[71], and authorisation can be withdrawn for failure to meet conditions[72]. The national security implications for provisions of Luxembourg law include security for money laundering, terrorist financing or illicit technology transfers and use of space missions as a front for non-transparent financial or intelligence operations. Finally, penalties for unauthorised space activities or false information, including prison and fines; courts can issue injunctions with daily penalties up to one million euros.[73] Having legal penalties gives a deterrent effect and enforcement leverage for the prevention of abuse of the space resource framework being used for any national security threat.

Japan

Japan has passed the "Act on the Promotion of Business Activities for Exploring and Developing Space Resources" (Act. No. 83 of 2021), though the act does not mention "national security" explicitly but the national security interest in space resource activities can be observed in provisions related to licensing, international cooperation, public disclosure limitations and coordination. The Act has placed licensing restrictions on grounds of public safety and international commitments, "public safety" might implicitly imply the inclusion of grounds such as "national defence", strategic risk mitigation and especially regulation of "dual-use technologies" or geopolitical sensitivities.[74] The Prime Minister of Japan has the power to withhold information from the public,[75] giving discretionary confidentiality, which can extend to national security-sensitive activities that could have military or geopolitical implications. Space Resource Activities should not harm other states or hinder the implementation of treaties in an unjust manner, which harms the interests of other states,[76] thereby preserving peaceful and lawful conduct in space, minimising geopolitical friction, especially in areas of resource competition or militarisation of space. Coordination with foreign

71 Supra Note 65 at art. 8.
72 Supra Note 65 at art. 14.
73 Supra Note 65 at art. 18.
74 Act on the Promotion of Business Activities for Exploring and Developing Space Resources, 2017, art. 3(2)(i).
75 Supra note 74 at art. 4.
76 Supra note 74 at art. 6.

governments and international systems is important for strategic alignment and technology standardization for the deterrence of unilateral actions posing security risks.[77] Ministerial consultation between the Prime Minister and the Minister of Economy, Trade and Industry,[78] Although it appears to be commercial in nature but where critical minerals or resources are concerned, independence will intersect with economic security.

United Arab Emirates

The concept of national security is not defined in the resolution issued by the UAE for space resource activities, but it is contextually embedded in several provisions of the regulation. The regulation prescribes several conditions for applications as operators should not carry out activities which jeopardize or carry the risk of causing damage to international legal obligations of UAE.[79] National security is tied to the safety and continuity of strategic assets in space; thus, applicants have to prevent or mitigate risks to persons or property and harmful interference with ongoing space activities.[80] The state is under an obligation to consult with any affected state when it has reasons to believe that space resource activities may result in interference with another State's activities, because fulfilling the consulting obligations can avert potential space disputes, which could escalate into national security threats.[81] The UAE space agency has been given the flexibility to address evolving national security threats, such as the emergence of dual-use technologies or cyber vulnerabilities.[82] The maintenance of a space resources database for tracking activities and priority rights at the national level[83] is serving as a national security function for enabling surveillance, threat assessment and strategic planning about potential adversaries or unauthorized actions in space. Even though the regulation is focused on commercial rights,

77 Supra note 74 at art. 7.
78 Supra note 74 at art. 3(3).
79 Space Resources Regulation: Regulatory Framework on Space Activities of the United Arab Emirates, 2023, art. 4 (1)(a).
80 *Id* at art. 4(1)(c).
81 Supra note 79 at art. 5(4).
82 Supra note 79 at art. 5(6).
83 Supra note 79 at art. 6.

"without prejudice to international obligations"[84] embeds a national security-related reservation for protecting sovereign claims and preventing unauthorised exploitation of space resources by third parties, having both economic and security implications. The reporting of accidents, interference, damage to property or persons and incidents involving other state's space objects[85] is relevant to SSA ("space situational awareness") and critical to defence strategy, thereby intersecting with national security imperatives.

VI. Analyzing the Legal and Policy-based Commonalities Observed Across Jurisdictions

States like Canada, Italy and the Netherlands are stressing the "no-harm" principle as a cornerstone of national security. Russia and the UAE argue for strict control mechanisms and authorisations for preventing unauthorized actors from undermining national security in space resource activities. The U.K. emphasizes safe operations and due regard, while Iran and Cuba highlight the use of space technologies which do not undermine other nation's security. France warns of dual-use militarization via private actors. The following are some of the commonalities observed by the researchers:

a. **Authorisation and Control of Space resource activities** - States need to have strict Licensing regimes, foreign entity screening, and revocability of license on national security grounds.

b. **Harm Prevention and Due regard to other nations during space resource activities** - Art. IX of OST and the enactment of national laws requiring risk assessments, emergency reporting.

c. **Strategic Infrastructure Protection** - National SSA systems, remote sensing and technological controls should be maintained during space resource activities by the private sector

d. **Cybersecurity & Techplomacy** – Interagency coordination, data sharing limitations and private companies must be vetted securely after authorisation for space resource activities.

84 Supra note 79 at art. 7.
85 Supra note 79 at art. 8.

e. **Military-Civilian overlap** – Dual-use clauses, as observed by the US and France, ought to be paid heed to for international practical guidance on such technologies.

f. **Foreign Policy Alignment** – National security is linked to international cooperation in outer space (UAE, China and India).

The key capabilities which are essential for ensuring national security and defence in the context of space resource activities include; firstly, advanced warning and military intelligence systems; secondly, secure communication networks and coordination mechanisms; thirdly, space-based environmental monitoring and resource management systems; the constructive and strategic use of space technologies for strengthening national security and finally fostering global cooperation which presents unprecedented opportunities for enhancing collective security and governance in outer space.[86] The collective addressability of congestion, competitiveness and contestation in space resources must be reduced and managed effectively by nations, thus ensuring that future "national security" threats are effectively addressed by nations.[87] Therefore, international cooperation and space situational awareness are important pillars of national security.

The researchers are proposing a working national security doctrine for space resource activities, which is as follows:

"National Security in Space Resource Activities refers to the sovereign right and obligation of a State to regulate, protect, and defend space-based assets, infrastructure, and commercial activities related to space resource exploration, exploitation, and utilization, including the mitigation of threats that may arise from foreign interference, militarization, cyber operations, environmental damage, or geopolitical instability"

86 Volodymyr Neskorozhenyi, Volodymyr Zakharov and Alexander Slyusarenko, "Space and National Security: Points of interaction, Opportunities and Issue of Priority," 13 *Advanced Space Law* (2024) at p.no. 102-103. https://doi.org/10.29202/asl/13/9

87 Joshua Duke, "Seizing the Stars: Resources, Expansion, and Counterspace Contingencies Across the Space Domain," 3 *Space Education and Strategic Applications Journal* 34 (2022) at p.no. 34. https://doi.org/10.18278/sesa.4.1.1

TABLE 1: NATIONAL SECURITY DOCTRINE FOR SPACE RESOURCE ACTIVITIES

PILLAR	SIGNIFICANCE OF THE PILLAR	ANALYSIS
Authorization of Space Resource Activities	Authorisation regimes should be governed by national laws and policies	The legal issue which needs to be addressed is that only State-authorised actors should be engaging in space resource activities, thus shielding sovereign security and preventing foreign infiltration.
State-based mechanism for oversight of dual-use technology	Regulation of technologies which serve both civilian and military purposes	Commercial private players can be disguised as covert military operatives, thus underscoring the need for interpretative clarity under Art. IV of OST.
National SSA Systems	State-based monitoring frameworks for space situational awareness (as observed in the case of the U.S. and the UAE)	A sovereign right to surveillance for early threat detection, which is legally aligned with the obligation for avoidance of "harmful interference" under Art. IX of the OST.
Cybersecurity and techplomacy	Protection against cyber threats and strategic vetting of private actors	Expands legal accountability by requiring cyber-resilient infrastructures; connects with soft law mechanisms like TCBMs and confidentiality clauses in licensing.
Cooperation at an International Level	Multilateral mechanisms like COPOUS, TCBMs and SOPs	Embedded in Art. I of OST, cooperation is becoming a security tool which allows the building of consensus and the prevention of conflict in contested or shared resource zones.
Protection of Celestial Zones	Safe usage and sustainable development of resource-rich lunar or asteroid bodies	This demands an interpretation of Art. II and IX of the OST, which are helping to prevent unilateral appropriation while ensuring that technology is being used for peaceful purposes and to preserve the environment.
Emergency Protocols	Notification and response duties in the case of space incidents	The legal responsibility of states under international law is important for collective security against emerging orbital threats

Regulation of Non-State Actors	State liability for private activities under Art. VI of OST	Having a state liability for national control over commercial missions fills gaps in OST by requiring domestic mechanisms for disciplining and monitoring private companies.

(SOURCE: Self-Conceptualised by the Researcher)

The pillars of the national security doctrine for space resource activities are legal authorisation, dual-use technology oversight, national space situational awareness, international cooperation with vetting, cybersecurity and technological sovereignty, protection of celestial zones, emergency protocols and non-state actor regulation by respective states. The proposed definition is more function-based as it focuses on the subject matter by narrowing "national security" to a specific operational context, and legally, it sets the definitional scope by distinguishing it from space security.[88]

VII. Way Forward: Suggestions And Proposal For India

For the implementation of the national security doctrine in space resource activities, the best legal and policy-based suggestions for States can be the following:

a. Taking legislative actions to incorporate a national security doctrine in it

b. Establish national security officers within space agencies for enabling better institutional coordination

c. Enable the administrative and judicial review of licences on national security grounds

d. Improving international cooperation and coordination by using SOPs and TCBMs through COPUOS or on other international forums.

A viable way forward for India is to include the introduction of NSIA ("National Security Impact Assessment") for space resource extraction missions. On the parallel lines, the development of SSS ("Space Security Standards"), which is a set of multilaterals, interoperable norms covering

88 Jakhu, R.S., Pelton, J.N., Nyampong, Y.O.M., "National Space Laws and the Exploitation of Natural Resources from Space," *Space Mining and Its Regulation* 131–44 (Springer International Publishing, Cham, 2017) at p.no. 135-139. https://doi.org/10.1007/978-3-319-39246-2_11

cybersecurity, private actor compliance and orbital safety, can provide a soft law foundation for responsible behaviour. India should establish a civil-military coordination agency and intelligence services to review license applications by the private sector and share threat intelligence and security incidents related to space resource activities. India should amend the Indian Space Policy to integrate the core tenets of the proposed eight-pillar national security doctrine and officially recognise space resource activities as a domain for bringing legislation into existence. Further suggestions by the researcher are as follows:

1. Develop a national policy for space resource activities and address the defence and national security priorities of India in it.
2. Ensure a strong Public-Private Partnership Model for creating an enabling environment for startups and established companies to participate in this sector through financial incentives, technology transfer and clear regulatory guidelines.
3. India should play an active role in the Working Group on Legal Aspects of Outer Space and give inputs on draft space resource activities legislation, and propose it to the Working Group for further action.

Conclusion

As space resource activities accelerate, the intersection of national security and outer space demands urgent and coherent regulation. This paper has proposed a foundational working draft of a national security doctrine grounded in comparative legal analysis and international consensus-building. However, this is a beginning point; future work must focus on operationalising this doctrine through multilateral treaties, standardised licensing norms, and institutional frameworks, especially under the umbrella of COPUOS. Since the space economy is expanding, the legal and policy framework for safeguarding sovereignty and shared security should be taken care of in the final frontier of mankind. Addressing the risk of militarized claims over resource-rich zones, states should collectively establish a global registry of space resource zones where the licensed activities are recorded to enhance transparency and reduce the risk of conflict. At the national level, each state should have a coordination agency which is a combination of civil-military interface, which is primarily responsible for intelligence-sharing, licensing review,

and preparedness against sabotage or interference. The framework has to be inclusive, and in totality, the national security in outer space should evolve into a resilient, transparent and cooperative model where both the strategic interests are safeguarded not via unilateralism but through shared norms, risk assessments, and institutional innovation. Without such transformation, space resource activities are going to become flashpoints for future geopolitical instability rather than instruments of collective progress.