United Nations A/AC.105/1352

General Assembly

Distr.: General
28 February 2025

Original: English

Committee on the Peaceful Uses of Outer Space
Legal Subcommittee
Sixty-fourth session
Vienna, 5–16 May 2025

Report on the United Nations Conference on Space Law and Policy

(Vienna, Austria, 19–21 November 2024)

I. Introduction

A. Background and objectives

1. The United Nations Conference on Space Law and Policy was held in Vienna, Austria, from 19 to 21 November 2024. It was organized by the Office for Outer Space Affairs.

2. The Conference was preceded by a long-standing series of capacity-building workshops on space law, organized by the Office for Outer Space Affairs since 2002 in cooperation with and hosted by, in chronological order, the Kingdom of the Netherlands (2002), the Republic of Korea (2003), Brazil (2004), Nigeria (2005), Ukraine (2006), the Islamic Republic of Iran (2009), Thailand (2010), Argentina (2012) and China (2014). The most recent workshop was hosted by the Office and held in Vienna in 2016.

3. Building on the workshops, in 2018 the Office moved to the next phase of its capacity-building efforts by launching a new series of United Nations conferences dedicated to space law and policy. The first conference was organized jointly with the Government of the Russian Federation, the second one with the Government of Türkiye and the Asia-Pacific Space Cooperation Organization, the third one in cooperation with the Economic Commission of Africa and with the support of the African Union Commission, and the fourth one in cooperation with the Government of Chile. In November 2023, the conference, on the theme “the Outer Space Treaty for the twenty-first century”, was organized by the Office for Outer Space Affairs and held online.

4. International and regional cooperation in the peaceful uses of outer space helps to bring the benefits of space technology applications to a wide range of stakeholders, both governmental and non-governmental, and to intensify and diversify national space programmes. Policy and regulatory frameworks at the national, regional and international levels are of paramount importance in providing the necessary basis for States, in particular developing States, to meet development goals and address

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challenges to sustainable development. In that connection, it is necessary to continue to strengthen the linkages between international space law and the conduct of space activities.

5. Every year, in its resolution on international cooperation in the peaceful uses of outer space, the General Assembly reaffirms the importance of international cooperation in developing the rule of international law, including the relevant norms of international space law and their important role in international cooperation for the exploration and use of outer space for peaceful purposes, and of the widest possible adherence to international treaties that promote the peaceful uses of outer space in order to meet emerging new challenges, especially for developing countries. The Assembly recognizes that all States, in particular those with major space capabilities, should contribute actively to the prevention of an arms race in outer space with a view to promoting and strengthening international cooperation in the exploration and use of outer space for peaceful purposes.

6. In today's world, the number of actors that engage in space activities increases every day; it is therefore of the utmost importance to ensure that all actors comply with the requirements of international space law in developing international and regional space cooperation.

7. The successful implementation and application of the international legal framework governing space activities depend on the understanding and acceptance of that framework by policymakers and decision makers. The availability of professionals who can provide legal advice and disseminate information and knowledge about space law, in particular in developing countries, depends on the availability of adequate educational opportunities in space law and policy.

8. Against this background, the Conference was held in order to promote adherence to the five United Nations treaties on outer space and to assist States in building their capacity in space law and thus help them to achieve the Sustainable Development Goals.

9. The Conference participants were provided with an overview of the legal regime governing the peaceful uses of outer space. The Conference had the following objectives:

(a) Promote understanding, acceptance and implementation of the United Nations treaties and principles on outer space;

(b) Promote the exchange of information on national space legislation and policies for the benefit of professionals involved in national space activities;

(c) Consider the contribution of space law to economic and social development, and the use of space-derived geospatial data for sustainable development;

(d) Consider trends in and challenges to international space law;

(e) Consider mechanisms for increasing regional and international cooperation in the peaceful uses of outer space;

(f) Consider the development of university-level courses and programmes in space law, with a view to promoting national expertise and capacity in this area;

(g) Discuss novel areas in which international space law could provide potential legal models to balance divergent interests of States.

10. The conclusions, observations and recommendations set out in section II of the present report reflect a number of concrete elements covered in the Conference discussions.

11. The report is to be submitted to the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space at its sixty-fourth session.

B. Attendance

12. Decision makers and policymakers from national space agencies and governmental bodies, experts from the space community, business experts, and researchers, students and specialists from academia involved in space activities from the following countries participated in the Conference: Algeria, Australia, Austria, Argentina, Belarus, Belgium, Bhutan, Bulgaria, Brazil, Cambodia, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Czechia, Ethiopia, France, Germany, Hungary, India, Indonesia, Ireland, Italy, Japan, Kenya, Malaysia, Mongolia, Mozambique, Netherlands (Kingdom of the), New Zealand, Nigeria, Norway, Pakistan, Paraguay, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Senegal, Slovakia, South Africa, Spain, Sweden, Türkiye, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay and Zimbabwe. Representatives of the European Space Agency, the European Union, the International Institute of Space Law, the Open Lunar Foundation, the Square Kilometre Array Observatory, the United Nations Global Geodetic Centre of Excellence, the World Intellectual Property Organization and the Office for Outer Space Affairs also participated in the Conference.

C. Programme

13. The Director of the Office for Outer Space Affairs made welcoming remarks. She noted that the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty) played an important role in guiding the work of actors carrying out space activities as new challenges emerged. She also noted that, while legally binding instruments continued to be discussed, innovative approaches, such as non-legally binding instruments on space law also needed to be taken into consideration, and emphasized the dynamic relationship between the government and private sectors. Emerging opportunities for cooperation reinforced the international commitment to the peaceful use of space development, and collaboration in advancing space law.

14. The first theme of the Conference concerned the promotion of the responsible, peaceful and safe use of outer space and maintaining the sustainability of outer space activities. Presentations were given on the following topics:

(a) Issues and approaches in space debris mitigation from the perspective of the Republic of Korea;

(b) International space law: trends, challenges and prospects for multilateral cooperation;

(c) Global commitment to space sustainability: integrating space situational awareness initiatives and space traffic management initiatives.

15. The second theme concerned the protection of dark and quiet skies and the related legal framework. Presentations were given on the following topics:

(a) Legal and ethical considerations for balancing space innovation and the preservation of dark skies;

(b) *Contra mare liberum*: how to seek the solution to the need for dark skies;

(c) Protection of quiet skies: recommendations to mitigate the impact of satellite mega-constellations on radio astronomy;

(d) Dark Skies National Park and Timau National Observatory as representative of Indonesian government policies in support of dark and quiet skies.

16. The third theme concerned novel legal and policy issues related to space activities. Presentations were given on the following topics:

(a) The intersection of outer space law and intellectual property law;

(b) Ecocide crime: the extension of Belgian criminal law in outer space;

(c) Advancing private human spaceflight: international law, regulatory frameworks and public-private collaboration;

(d) Building a legal blueprint for rendezvous and proximity operations authorization: paving the way for multijurisdictional missions for the long-term sustainability of outer space activities;

(e) Marine-space sustainability governance.

17. Two panels were organized on the following topics:

(a) Information-sharing: the key to unlocking a continuation of cooperation and peaceful activities in outer space;

(b) National space legislation.

18. An interactive breakout group session was organized to discuss legal aspects of the safety of space operations. In their respective groups, the participants discussed the following topics:

(a) The authorization and continuous supervision of national space activities;

(b) Debris mitigation and remediation;

(c) Operational safety and environmental impact.

19. As part of the Conference, the Inter-Agency Meeting on Outer Space Activities (UN-Space) provided opportunities for the participants to meet and network with personnel working in the area of space-related activities in various United Nations offices and entities, such as the Office for Disarmament Affairs, the United Nations Office on Drugs and Crime and the Office for Outer Space Affairs, as well as the Comprehensive Nuclear Test-Ban Treaty Organization, the International Atomic Energy Agency and the World Intellectual Property Organization.

20. The Conference ended with a session on conclusions, observations and recommendations.

21. An introductory note on the Conference and the Conference programme are available on the website of the Office for Outer Space Affairs (www.unoosa.org).

II. Conclusions, observations and recommendations

22. The Conference highlighted numerous aspects of global governance of outer space activities, principles of international space law, and mechanisms for cooperation and collaboration on space activities. The conclusions, observations and recommendations made by the participants in the Conference are set out below.

23. The Conference noted that the foundation of international space law lay in the principles enshrined in the Outer Space Treaty. For more than five decades, those principles had guided the progressive development of binding and non-binding instruments to address the evolving needs of the present.

24. The Conference also noted that approaches to implementing those principles had ranged from formal treaty-making in the early days to the adoption of principles, and, in the present time, to modern voluntary instruments such as the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space (A/74/20, annex II).

25. The Conference noted that multilateralism offered opportunities for all States to contribute to the global governance of outer space activities and the progressive development of international space law.

26. The Conference also noted that a common feature that ran throughout the rich history of space activities was the recognition by States of the need, and their willingness, to work together in multilateral forums, such as the Committee and its subcommittees, in order to address space matters that affect all countries of the world.

27. The Conference encouraged the international space community to work together to find suitable solutions to common challenges. The matters being addressed were, among others: (a) emerging environmental concerns and ensuring the safety of space operations; (b) space traffic management; (c) the utilization of space resources; (d) the protection of dark and quiet skies; (e) information-sharing; and (f) debris mitigation and remediation. Those were examples of matters currently being addressed in multilateral discussions.

28. It was emphasized that stronger cooperation between Governments, intergovernmental and non-governmental organizations, the private sector, academia and research institutions was important in that overall context.

29. The Conference noted that, as space became more accessible to a wider range of new actors, the fundamental principle of the Outer Space Treaty (article VI), under which States parties to the Treaty had the obligation to authorize and continually supervise the activities of non-governmental entities within their jurisdiction, was more important in the present than ever before.

30. It was emphasized that the incorporation of the fundamental principles of space law into national space legislation was essential for fostering legal clarity and predictability and thereby enabling industry, on the one hand, and States, on the other, to implement their legal obligations effectively. That not only promoted the safe and sustainable growth of national and commercial space programmes but also empowered States to maximize the economic and societal benefits derived from space science and technology.

31. Furthermore, it was highlighted that, as the commercialization of space expanded, the importance of protecting intellectual property rights, as a key factor in expanding the space economy, increased.

32. It was noted that the implementation of article XI of the Outer Space Treaty, on information-sharing, might facilitate coordination among Member States and enhance transparency and confidence-building. In that connection, the Conference welcomed that the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space was focusing on the exchange of views on the implementation of article XI.

33. The Conference acknowledged capacity-building efforts undertaken by the Office for Outer Space Affairs, including the organization of the Conference on Space Law and Policy and the implementation of the Space Law for New Space Actors project. It was noted that that project was aimed at delivering targeted legal advice and assistance to emerging spacefaring nations in drafting, refining and implementing their national space laws and policies, including by ensuring the alignment of those laws and policies with international legal frameworks relating to outer space. In that connection, the Conference welcomed tools developed, or in development, under the project, including the e-learning modules on national space law and the Accessing Space Treaty Resources Online (ASTRO) database, as well as the forthcoming toolkit on national space law, policy and regulation for emerging spacefaring nations.

34. The Conference welcomed the engagement opportunities provided by UN-Space through its open session entitled “Meet the United Nations: speed dating”, held in conjunction with the Conference. That open session had provided the participants with a unique opportunity to interact and network, in an informal and accessible

manner, with representatives of various entities of the United Nations system specializing in a diverse range of topics.

Breakout group session on national legal frameworks related to outer space activities

35. The Conference welcomed the holding of an interactive breakout group session to discuss the legal aspects of the safety of space operations, which had been conducted in accordance with the Chatham House Rule. Participants were divided into three thematic groups to discuss subtopics closely linked to the main topic.

36. Each Group identified and decided on three pressing legal and/or policy issues that could have disastrous or detrimental implications for the safety of space operations if related activities were maintained under the current legal framework. Discussions in each group were led by a moderator and supported by a rapporteur.

37. Once the above-mentioned three issues had been identified, each group further discussed the ways and means to address and avoid such disastrous situations affecting the safety of space operations, utilizing for that purpose their knowledge of international and national space law and policy.

38. The outcomes of the discussions under each topic, set out below, reflect the ideas put forward by the respective groups.

Group 1. Authorization and continuous supervision of national space activities

39. Group 1 identified the following three pressing issues:

(a) The challenges posed by fragmented national authorization processes;

(b) The use and occupation of the low Earth orbit, including concerns relating to space traffic management and orbital congestion;

(c) Environmental concerns relating to inadequate authorization and supervision.

40. Group 1 considered that, in order to overcome the challenges posed by fragmented national authorization processes, there was a need for a more unified approach to authorization, such as international standards establishing minimum licensing requirements.

41. With regard to the use and congestion of the low Earth orbit, group 1 identified two key elements to be further considered, namely, the accessibility and affordability of third-party insurance for space activities, and the management of space traffic through the use of consolidated information and national alert mechanisms.

42. Group 1 also noted that the absence of an adequate mechanism for the authorization and supervision by a State of a national space activity might trigger unanticipated environmental damage. In that connection, group 1 noted that clarification on terms and obligations relevant to the space environment was essential. Furthermore, the group discussed the need for balancing environmental protection with the promotion of the space economy, as well as for bottom-up approaches to shed light on the protection of the outer space environment.

Group 2. Debris mitigation and remediation

43. Group 2 identified the following three pressing issues:

(a) The classification of space debris and its implications;

(b) Current frameworks for space debris mitigation and their further improvement;

(c) Active debris removal and other forward-looking solutions.

44. Group 2 considered not only legal aspects but also technical aspects of space debris mitigation and remediation and identified possible criteria for the identification and prioritization of space debris, such as size, functionality, risk level, ownership and control.

45. With respect to the current frameworks for space debris mitigation, it was suggested that the Committee on the Peaceful Uses of Outer Space should play a leading role in mapping the distinctive features of those frameworks and that the assessment of the adequacy and effectiveness of those frameworks was of importance. Furthermore, capacity-building was identified as a key element in raising awareness and promoting the consistent implementation of the existing frameworks.

46. Group 2 discussed active debris removal and other solutions with regard to space debris remediation and identified solutions and legal questions that needed to be considered or addressed in order to enable an approach to active space debris removal involving the categorization of debris as either identifiable or unidentifiable. In that connection, it was noted that further consideration of notification and information-sharing mechanisms was needed.

Group 3. Operational safety and environmental impact

47. Group 3 identified the following three pressing issues:

(a) Addressing irresponsible behaviour in outer space;

(b) Assessing the environmental, operational and societal impacts of space activities, especially in relation to dark and quiet skies;

(c) Orbital congestion, especially in the low Earth orbit, and concerns relating to the risk of cascading collisions.

48. To address the above-mentioned pressing issues, group 3 identified three measures that could address those issues, namely, stakeholder engagement, information-sharing and transparency, and norms of responsible behaviour in outer space to reduce risks.

49. With regard to stakeholder engagement, group 3 noted that there was a lack of communication among stakeholders, in particular as technology outpaced laws and regulations. To that end, the group considered that awareness-raising was essential for ensuring that stakeholders understood the existing rules, and, in that regard, that the general public should also be informed of the benefits derived from space activities.

50. Group 3 considered information-sharing to be an essential mechanism for avoiding accidents in the context of activities carried out in Earth orbit and cislunar space. In that connection, the group considered possible solutions, such as standardizing the framework for information-sharing, which could also protect business and national interests, establishing emergency hotlines to points of contact for space objects or activities and developing space situational awareness using artificial intelligence.

51. Furthermore, group 3 considered that overall definitions should be inclusive and flexible enough to remain relevant to the evolving space field and should be reviewed or updated on the basis of technological developments, and that it was important to acknowledge the difference between responsibility and liability. The group also identified areas for which responsible norms were needed, such as space resource activities and dark and quiet skies.

III. Concluding remarks

52. Participants in the Conference expressed their deep appreciation to the Office for Outer Space Affairs for organizing the Conference. It was noted that the Conference had served to shed light on several emerging issues in space law and policy arising from space activities that required more active discussions among all stakeholders with a wide range of expertise, including those from the space industry, academia, non-governmental organizations, international organizations and Governments.