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Committee on the Peaceful Uses of Outer Space

Report on the United Nations/Turkey/Asia-Pacific Space Cooperation Organization Conference on Space Law and Policy

(Istanbul, Turkey, 23–26 September 2019)

I. Introduction

A. Background and objectives

1. The United Nations/Turkey/Asia-Pacific Space Cooperation Organization Conference on Space Law and Policy was held in Istanbul, Turkey, from 23 to 26 September 2019. It was organized jointly by the Office for Outer Space Affairs of the Secretariat, the Government of Turkey, TÜBITAK Space Technologies Research Institute (TÜBITAK UZAY), the Turkish Space Agency and the Asia-Pacific Space Cooperation Organization (APSCO).
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 Netherlands, the Republic of Korea, Brazil, Nigeria, Ukraine, the Islamic Republic of Iran, Thailand, Argentina and China. The most recent workshop was hosted by the Office and held at the United Nations Office at Vienna.
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 and held in Moscow from 11 to 13 September 2018.
4. International and regional cooperation in the peaceful uses of outer space help 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 challenges to sustainable development. In this 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, where the number of actors that engage in space activities increases every day, it is 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 suitable legal advice and disseminate information and knowledge about space law, in particular in developing countries, depends on the availability of adequate education 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 was provided with an overview of the legal regime governing the peaceful uses of outer space, examined and compared various aspects of the broader issue of space security within the global governance of outer space activities, including transparency and confidence-building measures in outer space activities, and addressed space law and policy. It did so in pursuit of 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 studies 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. At its fifty-eighth session, held in April 2019, the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space had noted with appreciation the forthcoming Conference.

11. 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.

12. The report will be submitted to the fifty-ninth session of the Legal Subcommittee.

B. Attendance

13. 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, Azerbaijan, Bangladesh, Bhutan, Brazil, Canada, Chile, China, Egypt, France, Georgia, Germany, Greece, India, Indonesia, Iran (Islamic Republic of), Jordan, Kazakhstan, Lao People's Democratic Republic, Lebanon, Malaysia, Mexico, Mongolia, Netherlands, Norway, Oman, Pakistan, Peru, Philippines, Poland, Portugal, Russian Federation, Rwanda, Singapore, Thailand, Turkey, Tunisia, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America and Uruguay. Representatives of APSCO, the Inter-Islamic Network on Space Sciences and Technology, the International Institute for the Unification of Private Law (Unidroit), the European Space Agency, the Secure World Foundation and the Office for Outer Space Affairs also participated in the Conference.

14. Funds provided by the United Nations and the host country were used to cover the travel and living costs of participants invited to the Conference. The Conference noted with appreciation the financial support provided by APSCO to some of the speakers and its member States and the financial support provided by the Inter-Islamic Network on Space Sciences and Technology to its member States to enable them to attend the Conference, and the provision by Mudd Law, a private law firm based in the United States, of scholarships to students in the field of space law to enable them to attend the Conference.

C. Programme

15. The Chief of the Committee, Policy and Legal Affairs Section of the Office for Outer Space Affairs, the Deputy Minister of the Ministry of Industry and Technology of Turkey, the Vice-Rector of Istanbul Technical University, the Director of TÜBITAK UZAY, the President of the Turkish Space Agency and the Secretary-General of APSCO opened the Conference with welcoming and introductory statements. The keynote addresses were dedicated to space law, the global governance of outer space activities and matters regarding space security. Speeches were given on topical issues of concern to the space community, in particular capacity-building in space law and policy, the peaceful uses of outer space and the promotion of international cooperation in space activities.

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

- (a) The case for no waste: autonomous decommissioning devices as a requirement for satellites, an approach for Europe;
- (b) Legal resources of jurisdiction over space objects;
- (c) The role of international manuals in contributing to the peaceful and safe use of outer space;
- (d) The law of armed conflict in a domain for peaceful purposes: international humanitarian law in outer space.

17. The second theme concerned best practices in sharing remote sensing data. Presentations were given on the following topics:

- (a) Remote sensing data policies and the sharing of Earth observation data for non-commercial purposes;
- (b) Environmental applications of remote sensing;
- (c) Best practices in sharing remote sensing data to achieve the Sustainable Development Goals.

18. The third theme concerned the legal regime for outer space and global governance. Presentations were given on the following topics:

- (a) The guidance document in support of global space governance;
- (b) Deficiencies and pressing issues in the existing legal regime for outer space;
- (c) Space governance: the role and contribution of international intergovernmental organizations;
- (d) Space law, air law, telecommunications law: elective affinities and fundamental differences;
- (e) Harmonized system of secured transactions law for space assets – the Space Protocol of the Cape Town Convention;
- (f) The exploration, exploitation and utilization of space resources: legal and policy issues;
- (g) Moon Agreement: establishment of a legal regime that regulates the exploitation of the Moon and other celestial bodies;
- (h) Space mining: social and legal challenges;
- (i) The Hague International Space Resources Governance Working Group and the space resources debate.

19. The fourth theme concerned the long-term sustainability of outer space activities. Presentations were given on the following topics:

- (a) Small satellite activities and long-term sustainability of outer space activities;
- (b) International cooperation and sustainable development in outer space: China as an example;
- (c) Rule of law ensures long-term sustainable development of outer space activities;
- (d) Addressing the management of outer space through Antarctic experience;
- (e) Liability issues in current space activities: evolution or revolution?

20. The fifth theme concerned the strengthening of capacity-building in space law and policy. Presentations were given on the following topics:

- (a) Space law for new space actors: fostering responsible national space activities;
- (b) Capacity-building approach for space laws and policies for (emerging) African countries;
- (c) Leveraging space law capability for new space actors in Asia-Pacific;
- (d) The APSCO approach to capacity-building in space law and policy;
- (e) Moving from encouragement to facilitation through capacity-building: ensuring next-generation participation in space policy decisions.

21. An interactive break-out group session was organized to discuss national legal and policy frameworks for outer space activities.

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

23. An introductory note to the Conference, the Conference programme and the presentations given at the Conference are available on the website of the Office (www.unoosa.org).

II. Conclusions, observations and recommendations

24. The Conference considered several topics related to contemporary space activities, with an emphasis on policy and regulatory frameworks in support of space activities and national space programmes. Particular attention was paid to promotion of the peaceful uses of outer space and responsible and sustainable space operations. Safety and security concerns were also addressed.

25. The Conference noted the unprecedented advancement of space technology and growth in the public and private space sectors over the past decades. The adoption in 2019 of the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space was noted as an achievement in terms of fostering responsible and sustainable space activities.

26. The Conference considered the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals, in particular Goal 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels), which had a bearing on the establishment of space policy, regulatory and institutional frameworks and infrastructure.

27. The Conference discussed the broad issue of the global governance of outer space activities, including the stability and safety of space operations in orbit, as well as the safety, security and protection of space assets and infrastructure, including space debris mitigation and remediation. Ways and means of maintaining outer space for peaceful purposes were addressed in that context.

28. The Conference discussed a broad range of issues concerning the rule of law and jurisdiction and control over space objects. The view was expressed that the concept of “nationality” of a space object could be considered in order to support those cases in which none of the launching States had registered a space object launched into outer space.

29. The Conference noted that space-derived data and information, such as remote sensing data, were of significant importance to the achievement of the Sustainable Development Goals. It also noted that in order for such data to be used effectively, given the growing reliance on data and the involvement of private entities, they should be provided on a continuous basis and made as accurate, accessible, and interoperable as possible, in accordance with the Principles relating to Remote Sensing of the Earth from Outer Space.

30. The Conference welcomed the establishment of the United Nations Technology Bank for the Least Developed Countries in Gebze, Turkey, in 2018. It was noted that the foundational objective of the Bank was to develop science, technology and innovation capacity in order to assist the least developed countries in attaining the Sustainable Development Goals, and that the entity therefore required sustainable funding.

31. Presentations were given on the exploration, exploitation and utilization of space resources, with speakers representing various positions and providing various recommendations. In that connection, the Conference noted that informal consultations were scheduled to be held during the fifty-ninth session of the Legal Subcommittee with the aim of having a broad and inclusive exchange of views on the topic.

32. In this context, the Conference noted that other areas of international law, such as the law of the sea, the Antarctic Treaty System and the regulations of the International Telecommunications Union, could be studied further to serve as reference for certain aspects of future space activities.

33. Small satellite activities, as well as large and mega-constellations, were considered from a regulatory perspective. Particular consideration was given to how to balance their benefits with the need to address the challenges posed by the creation

of space debris in the long term. The risk of harmful interference and challenges relating to responsibility and liability for such activities were also considered.

34. The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, was observed to be an important instrument in fostering international space cooperation on a mutually beneficial basis. The special needs of developing countries and the importance of encouraging developed countries to offer assistance to developing countries were also noted.

35. The Conference noted the work of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space of the Legal Subcommittee, and also noted that the draft guidance document would, when finalized, constitute a useful tool for providing guidance and building capacity in space law and policy and would increase awareness among decision makers and policymakers at the national level.

36. The Conference acknowledged the many efforts made to strengthen capacity-building in space law and policy for the sustainable growth of space activities. In that regard, the approach by the Office for Outer Space Affairs of promoting and strengthening capacity-building for all countries, irrespective of the status of their space programmes, was noted. It was also noted that other intergovernmental organizations, non-governmental organizations, academia and private sector entities were responsible for capacity-building, including by means of scholarships and internships.

37. The Conference noted the new project on legal advisory services launched by the Office for Outer Space Affairs and, in that context, the holding of a regional Asia-Pacific workshop to be organized by the Geo-Informatics and Space Technology Development Agency of Thailand. The Conference also took note of the initiatives taken by APSCO under the knowledge exchange platform to organize and co-organize international symposiums, space law and policy forums, workshops and conferences, contributing to capacity-building of its member States and promoting the global governance of outer space activities for peaceful purposes.

38. The Conference warmly welcomed the organization of the APSCO Training Course on Space Law, which was co-organized by TÜBITAK UZAY and held back-to-back with the Conference. The Conference noted that this was an effective way of providing participants from APSCO member States with the opportunity to attend both events, thereby enabling them to deepen their understanding of space law.

Break-out group session on national legal frameworks related to outer space activities

39. The Conference welcomed the holding of an interactive break-out group session to discuss national legal and policy frameworks for outer space activities. Participants were divided into the following five groups: group 1, on scope of application; group 2, on authorization; group 3, on supervision and registration; group 4, on liability/insurance; and group 5, on space debris mitigation. The outcomes of the discussions under each topic represent ideas put forward by each group individually.

Group 1. Scope of application

40. Group 1 acknowledged that promoting the search for new common denominators in outer space activities, such as draft model national space laws and space policy, as well as improved adherence to outer space treaties, was essential for facilitating and encouraging the further development of international space law.

41. It also highlighted the importance of the promotion of transparency and confidence-building measures through the creation of a compendium of policies on national space activities intended to disseminate common knowledge of policy instruments at the international level.

42. The group identified the need for improvements in the organizational structure of space activities among the relevant national authorities. In addition, it noted that the need to raise awareness of international law was a top priority, followed by the need to increase cross-sectoral coordination and to secure permanent financial support.

43. The group focused on whether there was a need to harmonize national space laws and on identifying potential benefits and risks relating to harmonization. In that context, the group noted that State sovereignty affected the harmonization of national law given the different interests and priorities of States. Significant risks that could result from divergence between the various national laws were noted, namely, with regard to differences in interpretation and to the fragmentation of obligations under international space law.

44. The group observed that differences in treaty interpretation and the ratification status of treaties could lead to misperceptions affecting the peaceful uses of outer space. Thus, the group identified the need for responsible national space activities and consistency with international obligations.

45. In this context, the group agreed that the definition of terms used in treaties would reduce the scope for differing interpretations.

46. The group identified the need for consistency with regard to international obligations and the harmonization of national space law, as necessary, in particular when the interpretation of public international law was affected.

47. The group identified the need to study and categorize the existing national space legislation of countries with commonalities in terms of benefits expected from space applications, levels of technological development and strategic interests.

Group 2. Authorization

48. Group 2 agreed that authorization served as a link between international law and domestic rules and that the authorization of space activities marked a significant step and should represent a considered decision by the relevant national government, which should identify and apply rational, feasible and realistic standards.

49. The group also agreed that authorization was the means by which States ensured that actors subject to their jurisdiction and control acted in conformity with relevant international legal obligations. The group further agreed that as the key legal action taken by States with regard to non-State space actors, the authorization and licensing of national space activities should be a critical focus of domestic space law.

50. With respect to problems that could occur in relation to authorization, the group considered recent incidents in which private actors had launched objects into space without authorization or licensing by any State, in which an entity had intentionally misinformed a governmental authority about the contents of a space object, and in which an entity might have been authorized by the inappropriate State. The group agreed that serious penalties should be established for intentional abuse of the authorization system, including domestic criminal penalties, and recommended the establishment of an international blacklist for entities that had committed serious abuse of the authorization system.

51. The group also agreed that States should establish, within their domestic systems, a unified regulatory authority for space activities, which should employ technical experts and promulgate clear and publicly available standards on space activities. Those standards should be developed through a stakeholder consultation process.

52. The group acknowledged that authorization related to activities in outer space rather than to specific space objects; consequently, space objects whose missions could change over time, such as satellite servicing missions, should seek and receive multiple authorizations on the basis of their changing missions.

Group 3. Supervision and registration

53. Group 3 conducted a review of national policy and regulatory frameworks, legislative development and institutional mechanisms for space activities from a broad range of countries with different levels of national space activities. The Group noted that different approaches were taken by States to meeting their specific needs and practical considerations.

54. Noting that a national law was not a requirement for registration, the group was of the view that the recommendations on national legislation relevant to the peaceful exploration and use of outer space adopted by the General Assembly in its resolutions 62/101 and 68/74 should be followed. The group also noted the need to establish and maintain a central registry of space objects at the national level. For efficiency purposes, that could be done by the national entity that is in charge of producing, launching and operating space objects and that establishes and maintains a central national registry of space objects.

55. The national registry could be maintained using the model registration form for registration of space objects with the Secretary-General (UNOOSA/REG/FRM/1(P), UNOOSA/REG/FRM/1(W)), produced by the Office for Outer Space Affairs in 2008. The view was expressed that that could complement additional useful information, such as information gathered in light of the newly adopted Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space, which could be obtained from private entities.

56. The group agreed that clear and uniform definitions for terminology such as “space object” were needed in order to assist in the identification of space objects.

57. The group emphasized the importance of capacity-building in relation to the procedure for registering space objects with the Secretary-General, in particular, for emerging space nations.

58. The group also acknowledged that space objects should be registered in a timely manner, in particular, when the object was a small satellite with a short mission duration. The group noted the view that updated information on a space object should also be transmitted to the Secretary-General.

59. The group noted the importance of identifying the State of registry through an agreement when a State procured a launch service, and agreed that the Office for Outer Space Affairs could draft a template for such an agreement. The group also noted the view considering the possibility of the Office drafting a template for an agreement related to transfer of ownership, which could be concluded between the State of registry and the State taking ownership and cover matters related to the exercise of jurisdiction and control.

60. The group was of the view that a new concept of “launching parties”, covering all stakeholders relevant to the launched space object, whether public or private, could be considered at the national level taking into account the following: (a) only States could be responsible for national activities in outer space carried out by governmental and non-governmental entities under their jurisdiction and control; (b) States were to define guidelines for stakeholders to become “launching parties”; (c) States were to define minimum launch service agreements/conditions for the approval of “launching parties” (“pre-launch assessment”); and (d) States were to establish a national permit/clearance system to enter into such an agreement.

Group 4. Liability/insurance

61. Group 4 discussed national space legislation on liability for damage caused by space objects and insurance of space activities. It noted that the Convention on International Liability for Damage Caused by Space Objects established a liability regime with no ceiling with liability to be borne by States. National space legislation was considered an instrument through which to further define the risk of space operations shared by States and national operators. The discussion touched upon

different approaches to establishing how space operators could indemnify a State and the transfer of liability between States.

62. The group considered that a ceiling on liability should be established, as appropriate, and recommended that States should also define a ceiling in their national legislation for liability borne by space operators. The group agreed that such a ceiling should be low in order to foster the development of the space industry. However, the ceiling should not apply if space operators failed to comply with the applicable authorization and registration procedures and conditions.

63. The group noted that time limits for insurance requirements would be desirable and should be established according to the planned duration and different phases of space operations.

64. The group agreed that national legislation might promote innovation in appropriate circumstances by way of three mechanisms: (a) establish a financing regime for private space companies, covering, in particular, clauses relating to transfers of space assets, including their security interests as covered under the Space Protocol of the Cape Town Convention; (b) encourage public-private partnerships with regard to space insurance; and (c) provide salvage rights for insurers to allow insurance providers to offer more competitive rates.

65. With regard to insurance, the group noted that the Space Protocol of the Cape Town Convention established salvage rights for insurers – that could be considered an example of a provision to include in domestic space legislation in order to allow insurance providers to offer more competitive rates, especially as in-orbit servicing technologies advanced and the residual value of satellites grew.

66. The group considered that the domestic space insurance community should be consulted and a mechanism be explored that would allow insurance providers to take into account the differing risk profiles of space companies, especially those that followed safer and more innovative practices.

67. The group further considered that national legislation should allow companies launching constellations to have a cumulative insurance policy, whereby the operator could acquire one insurance policy and continue to add its satellites to it, rather than having to acquire individual insurance policies for each satellite in the constellation.

68. The group noted that any insurance requirement under national legislation should refer to the financial risk arising from damage to a third party.

Group 5. Space debris mitigation

69. Group 5 highlighted thematic priority 2 of the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50), “Legal regime of outer space and global space governance: current and future perspectives”, as an essential platform to create awareness and to identify the criteria for developing relevant instruments for addressing potential gaps in the legal framework for outer space, in particular, on space debris mitigation. In that connection, the fundamental role played by the Committee on the Peaceful Uses of Outer Space in supporting States in implementing existing regulations was emphasized, in particular, its key role in promoting international mechanisms of cooperation and exchanging information on registration of space objects, notification procedures and institutional requirements for space traffic management.

70. Some participants in group 5 referred to proportional responsibility for space debris mitigation and emphasized that States’ actions should be based upon differentiated responsibilities, taking into account their respective capabilities and the limited access to outer space that impaired the development of space capabilities by the least developed countries, developing countries and private actors.

71. The group highlighted that some of the non-spacefaring States and private entities did not have space surveillance or risk detection programmes and proposed that databanks on near-Earth space monitoring should be created at the national level.

The proposal was supported by most participants in the group, who recognized the importance of making improved orbital and conjunction analysis data available to the public and commented on the benefits of sharing scientific and technical expertise on the design and end-of-life disposal of spacecraft as a way to mitigate the potential increase of debris in orbit.

72. The group also highlighted the importance of establishing transparency and confidence-building measures to provide necessary information related to disposal operations in order to prevent an increase in space debris. The group stressed that national frameworks related to space debris mitigation, in particular with regard to satellite mission design and post-mission disposal, should be strengthened, consistent with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.

73. Some participants emphasized that an attractive mechanism in the form of incentives for the space industry could be of vital importance to the adoption and implementation of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space. Those incentives could be introduced through domestic regulations, with tax reductions or awarding mechanisms in the procurement phase.

74. The group acknowledged that insurance played an important role in commercial space activities and could be used as a tool for formulating incentives through the lowering of premiums for space actors that complied with the recognized debris mitigation requirements. The group recognized the important role that quantifiable metrics in the form of ratings could play by facilitating evaluation of the grade of compliance within the space industry. In this context, political will was considered to be essential in developing new technical standards that could be introduced through regulations and licensing.

75. The group emphasized the importance of developing effective laws and policies at the national level as an essential mechanism for ensuring the global governance of outer space activities. The group also emphasized that in order to guarantee an international regime of liability and responsibility in relation to space debris, it was of fundamental importance for States to recognize the existing international legal framework governing outer space activities and, consequently, ratify the United Nations treaties on outer space. The issue was discussed in the context of the adherence of an increasing number of States to the treaties, which demonstrated the need for regulations governing space activities.

76. The group concluded that the global nature and universal character of space activities served as a basis for guiding States and paved the way towards the development of national space laws and policies in accordance with the implementation plan of the "Space2030" agenda, which was under development, in order to best guarantee the success and sustainability of the future exploration and peaceful uses of outer space.

III. Concluding remarks

77. The Conference expressed its deep appreciation to the Office for Outer Space Affairs, the Government of Turkey, TÜBITAK UZAY, the Turkish Space Agency and APSCO for organizing the Conference.
