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**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-seventh session
Vienna, 3–14 February 2020**

Draft report

I. Introduction

D. General statements

1. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Australia, Austria, Brazil, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechia, Dominican Republic, Egypt, Finland, France, Germany, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Kazakhstan, Kenya, Luxembourg, Mexico, Morocco, New Zealand, Nigeria, Pakistan, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Singapore, South Africa, Spain, Switzerland, Thailand, Turkey, United Arab Emirates, United Kingdom and United States. Statements were also made by the representative of South Africa on behalf of the Group of African States and by the representative of Egypt on behalf of the Group of 77 and China. The observer for the European Union made a statement. The observer for the World Meteorological Organization also made a statement. Additional statements were made by the observers for APSCO, CRTEAN, ESA, ESO, For All Moonkind, IAA, IAF, ISNET, ISPRS, ISU, the Moon Village Association, SGAC, UNISEC-Global and WSWA.

2. The Subcommittee heard the following scientific and technical presentations:

(a) “International Space Forum 2019: the Mediterranean chapter – in Reggio Calabria (Italy)”, by the representative of Italy;

(b) “World Space Forum”, by the representative of Austria;

(c) “Baku State University: achievements and perspectives for cooperation in science, education and innovation”, by the representative of Azerbaijan;

(d) “Milestones of the Russian space science programme”, by the representative of the Russian Federation;

(e) “ISU team project ‘Space 2030: space for the future, space for all’”, by the observer for ISU;

(f) “The results of The Hague International Space Resources Working Group”, by the representatives of the Netherlands;



(g) “Update on the Consortium for Execution of Rendezvous and Servicing Operations (CONFERS)”, by the representative of the United States;

(h) “The Space Safety Coalition in the context of international space cooperation”, by the representative of the United States;

(i) “Moon Village Association global survey on Moon exploration”, by the observers for the Moon Village Association;

(j) “Space cooperation through Kibo utilization”, by the representative of Japan;

(k) “New way of international space collaboration: university-based ‘UNISEC-Global’”, by the observer for UNISEC-Global;

(l) “Asia-Pacific Regional Space Agency Forum vision for the next decade in the Asia-Pacific region”, by the representative of Japan;

(m) “India Space Research Organization mission updates 2019”, by the representative of India;

(n) “UNISpace Nanosatellite Assembly and Training (UNNATI): India’s training programme on nanosatellite building”, by the representative of India;

(o) “NASA’s commercial lunar payload services initiative”, by the representative of the United States;

(p) “Lunar science with the Chandrayaan-2 orbiter”, by the representative of India;

(q) “India’s human spaceflight programme – Gaganyaan: update”, by the representative of India;

(r) “India’s satellite navigation programme and ICG-14”, by the representative of India.

3. The Subcommittee welcomed the election of Natália Archinard (Switzerland) as Chair for a two-year term, starting in 2020. The Subcommittee expressed its appreciation to the outgoing Chair, Pontsho Maruping (South Africa), for her leadership and contribution to furthering the achievements of the Subcommittee during her term of office.

4. At the 915th meeting, on 3 February, the Chair of the Subcommittee made a statement outlining the work of the Subcommittee at its fifty-seventh session. The Chair underscored the uniqueness and importance of the Committee as the main global international intergovernmental body dedicated to space affairs and underlined that, over the years, relations between spacefaring nations and emerging space nations, increased international cooperation, and contributions to capacity-building in developing countries had created the conditions for progress. Therefore, strengthening coordination and cooperation among all space actors and enhancing the use of space technologies and applications would be essential to support sustained economic growth and the implementation of the 2030 Agenda for Sustainable Development. At the same time, the increasing participation in space activities would generate new challenges that the Committee and its subcommittees would need to address.

5. At the same meeting, the Director of the Office for Outer Space Affairs made a statement in which she reviewed the work done by the Office since the fifty-sixth session of the Subcommittee, including the Office’s contribution to the achievement of the Sustainable Development Goals and the growing working alliances with governmental, intergovernmental and non-governmental organizations and entities, as well as with industry and the private sector. She introduced the current priorities in the work of the Office, which were being pursued following a conceptual approach aimed at achieving gender equality in the space sector. Furthermore, the Director stressed that the global space sector continued to evolve rapidly in all its political, legal and technical aspects and that the United Nations was prepared to work

efficiently in that context. In that regard, the newly issued Secretary-General's bulletin on the organization of the Office for Outer Space Affairs (ST/SGB/2020/1) provided the Office with incentives to further increase its support to Member States.

6. The Subcommittee agreed that it, together with the Committee and the Legal Subcommittee, with the support of the Office for Outer Space Affairs, remained a unique international forum tasked with promoting international cooperation in the exploration and peaceful uses of outer space and offering an appropriate environment to discuss matters that had a great impact on the development of States for the betterment of humankind.

7. The Subcommittee reiterated its commitment to taking a cooperative approach to advancing the exploration and use of outer space, and stressed that only through cooperation would it be possible to fully reap the benefits of space science and technology while ensuring that space activities continued to be conducted for peaceful purposes. In that connection, the Subcommittee agreed that international cooperation and dialogue would be essential for effectively addressing the demands and challenges of space, and for promoting space as a driver of sustainable development to achieve global, regional and national goals.

8. The Subcommittee noted that the work relating to the "Space2030" agenda and its implementation plan would contribute to enhancing and raising awareness of the benefits of space activities and tools for the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals and targets contained therein.

9. The Subcommittee agreed that space technology continued to be a valuable tool for the benefit of humankind and the achievement of the Sustainable Development Goals, and that it had become an indispensable element of public infrastructure. Therefore, States members of the Committee must combine their efforts to increase the benefits of space and preserve it for future generations.

10. Some delegations expressed the view that, in order to achieve the main objectives of the Subcommittee, it would be important to focus its work on such areas as the building and promotion of technological capacities, the transfer of technology favourable to developing countries, the prevention and mitigation of natural disasters and scientific and technological research in developing countries, within the framework of international cooperation.

11. Some delegations expressed the view that applications of space technology must translate into concrete benefits for developing countries and that, in order to achieve such benefits, the transfer of technology needed to be promulgated through capacity-building and access to technology on terms favourable to developing countries. In that connection, the delegations expressing that view strongly urged States to refrain from promulgating, adopting or applying any unilateral economic, financial or trade measures that could impede access to space and space activities, in particular in developing countries, and called upon the Office for Outer Space Affairs and Member States to increase support to enhance both North-South and South-South cooperation, with a view to facilitating the transfer of technology among nations.

12. The view was expressed that international cooperation should be inclusive and should take into account the various levels of technological development, in particular those of non-spacefaring nations.

13. Some delegations expressed their concern about threats to security in outer space and reiterated the position that an arms race in space was contrary to the principle of the peaceful use of outer space.

14. The view was expressed that, in relation to the disarmament agenda, the Disarmament Commission and the Conference on Disarmament were best positioned to consider the emerging threats to space operations. The delegation expressing that view was also of the view that threats posed by weapons placed in space or based on the Earth, or by the disruption of critical systems by electronic means or by means of

energy weapons, should be dealt with under the agenda item on prevention of an arms race in outer space of the Conference on Disarmament and not discussed within the Committee, which, in the meantime, could continue to support developing nations in gaining access to space and encourage those that already had such access to be responsible operators.

15. The view was expressed that the peaceful use of outer space was significantly complicated by the announced plans for the deployment of weapons in outer space, which affected the work of both the Committee and the Subcommittee. The delegation expressing that view called for the prompt initiation, within the Conference on Disarmament, of negotiations on an international binding instrument containing guarantees against the deployment of arms in outer space, which could be based on the existing draft China-Russian Federation Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects.

16. The view was expressed that it was important for Member States to pay more attention to the “No first placement of weapons in outer space” initiative and political obligation, already supported by 22 Member States, which continued to be the only effective instrument for preserving outer space from any weapons.

17. Some delegations expressed the view that the space treaties developed in the framework of the United Nations constituted the cornerstone of the global governance of outer space activities. The delegations expressing that view underlined the need to foster increased international cooperation and establish principles guiding responsible behaviour in, and the sustainability of, space activities. Those delegations also stressed the need to strengthen commitments to avoiding potentially harmful interference with the peaceful exploration and use of outer space and facilitating equitable access to outer space.

18. Some delegations expressed the view that it was important to continue to promote the preservation of a safe, secure and sustainable space environment and the peaceful uses of outer space on an equitable and mutually acceptable basis, and stressed the importance of transparency and confidence-building measures and the need to advocate responsible behaviour in outer space in the framework of the United Nations.

19. Some delegations expressed the view that it was important to develop initiatives that increased confidence and mutual trust, and that, while a legally binding instrument could be considered as a possible option, the most realistic near-term prospect lay in reaching agreement on a voluntary instrument or voluntary norms to establish standards of responsible behaviour across the full range of space activities. Such a voluntary instrument could include a political commitment by States and create a more structured cooperative framework.

20. The Subcommittee expressed its gratitude to the organizers of the following events, held on the margins of the fifty-seventh session of the Subcommittee:

(a) Panel discussion on the theme “European Union-United Nations: 40 years together in Vienna – multilateralism at work”, co-organized by the delegation of the European Union and the Office for Outer Space Affairs;

(b) Panel discussion on the theme “Opportunities and challenges for international cooperation in the implementation of the long-term sustainability (LTS) Guidelines”, organized by SWF;

(c) Ceremony for the signing of the joint statement on space debris by the Office for Outer Space Affairs and the Government of Japan, co-organized by the Office for Outer Space Affairs and the Permanent Mission of Japan;

(d) Evening event entitled “Space traffic management: national and international perspectives”, co-organized by ESPI and UNIDIR;

(e) Side event entitled “Capacity-building through small satellite development: opportunities through KiboCUBE”, co-organized by Japan and the Office for Outer Space Affairs;

(f) Side event entitled “The ITU-R Study Group Circle and Conference System”, organized by ITU;

(g) French-language side event on space and diplomacy, organized by the delegation of France;

(h) Side event entitled “Update on the Office for Outer Space Affairs project on space law for new space actors”, organized by the Office for Outer Space Affairs.

V. Space debris

21. In accordance with General Assembly resolution [74/82](#), the Subcommittee considered agenda item 8, entitled “Space debris”.

22. The representatives of Austria, Canada, China, Colombia, Germany, India, Indonesia, Japan, Mexico, Pakistan, Peru, the Russian Federation, Thailand, the United Arab Emirates and the United States made statements under agenda item 8. The observers for UNIDIR and ESA also made statements. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

23. The Subcommittee heard the following scientific and technical presentations:

(a) “Space debris mitigation activities at ESA in 2019”, by the observer for ESA;

(b) “Current status of IADC activities”, by the representative of France;

(c) “The 2019 United States Government orbital debris mitigation standard practices”, by the representative of the United States;

(d) “Overview of recent activities on space situational awareness in the Republic of Korea”, by the representative of the Republic of Korea;

(e) “2019 space debris activities in France: highlights”, by the representative of France;

(f) “Space safety and the IAASS Manifesto”, by the observer for IAASS;

(g) “Space debris laser ranging: recent progress and new applications”, by the representative of Austria;

(h) “Chang’e 4 and the mysterious far side of the Moon”, by the representative of China.

24. The Subcommittee had before it information on research on space debris, the safety of space objects with nuclear power sources on board and problems relating to the collision of such objects with space debris, in replies received from Member States and international organizations (see [A/AC.105/C.1/116](#) and [A/AC.105/C.1/116/Add.1](#)).

25. The Subcommittee agreed that addressing space debris continued to be critically important to the long-term sustainability of space activities, and that international collaboration remained essential to ensure the coordination of operational best practices, mitigation strategies and space debris research activities. In that regard, the Subcommittee continued to play an important role by promoting dialogue, information-sharing and cooperation, with a view to providing tangible solutions and practical recommendations for action.

26. The Subcommittee noted with appreciation that, at its current session, the Office for Outer Space Affairs and the Government of Japan had signed a joint statement expressing their intention to cooperate in addressing the challenge of space debris,

and to work together to increase global understanding of and the consolidation of knowledge on space debris, disseminate information on the latest research, cooperate with space actors to support the implementation of existing mitigation guidelines, and strengthen international cooperation on and global awareness of space debris mitigation.

27. The Subcommittee noted with satisfaction that the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space continued to be an important source of guidance for space actors in controlling the space debris problem for the safety of space missions, and, in that connection, that many States and international intergovernmental organizations were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee and/or the Space Debris Mitigation Guidelines of IADC and were using relevant ISO standards, and that a number of States had harmonized their national space debris mitigation standards with those guidelines.

28. The Subcommittee acknowledged the important work and contribution of IADC in the field of space debris.

29. Some delegations expressed the view that the further development of guidelines for space debris mitigation would be necessary given the changing uses of space, and that, in particular, the rapid increase in the number of satellites launched into low Earth orbit needed to be taken into account. In that connection, the delegations expressing that view were also of the view that IADC, as the primary forum for technical and scientific expertise on all matters relating to space debris, should continue to play the major role in the further development of technical guidelines for space debris mitigation.

30. The Subcommittee noted with appreciation that States had undertaken a number of measures to mitigate space debris, such as improving the design of launch vehicles and spacecraft, developing special software, re-orbiting satellites, passivation, life extension, end-of-life operations and disposal. The Subcommittee noted the evolving technologies related to the in-orbit robotic servicing of satellites and the extension of satellite lifespans.

31. The Subcommittee noted the development and application of new technologies and ongoing research related to space debris mitigation; collision avoidance; protecting space systems from space debris; limiting the creation of additional space debris; re-entry and collision avoidance techniques; the measurement, characterization, continuous monitoring and modelling of space debris; the prediction, early warning and notification of space debris re-entry and collision; and space debris orbit evolution and fragmentation.

32. The Subcommittee agreed that national and international collaboration in the area of space debris continued to be imperative in order to ensure a common understanding of existing threats and to maximize resources invested in that area.

33. Some delegations expressed the view that the Subcommittee should continue to consider the reports of IADC on its technical work and that those inputs should be taken into account in the Subcommittee's deliberations on the agenda item on space debris, as well as in the discussions on the topics to be addressed by the newly established Working Group on the Long-term Sustainability of Outer Space Activities.

34. Some delegations expressed their serious concern over the placement of large and mega-constellations of satellites and its implications, and, in that connection, expressed the view that that topic should be treated by the Subcommittee as a priority, with a view to mitigating the creation of space debris.

35. Some delegations expressed the view that the lack of consensus on the way to remove space debris was a matter of concern and that the major contributors to space debris must take appropriate responsibility in its removal under an internationally agreed framework.

36. The view was expressed that the generation of space debris, in the short term, would restrict the possibility of access to space in safe conditions and that the free access to outer space could be precluded if no mechanisms were found to remove space debris or return it to Earth.

37. The view was expressed that the operational community would need to continue to evolve and adapt in the coming years as the number of space assets continued to grow, new tracking systems with the ability to track smaller debris objects came online and new propulsion technologies became more widespread. In that connection, continued technical and policy coordination within the international community would be essential to ensuring the long-term sustainability of space operations.

38. The Subcommittee expressed its gratitude to the Office for Outer Space Affairs for continuing to maintain the compendium of space debris mitigation standards and urged all Member States and international organizations to continue to routinely review and update the compendium as necessary to help promote transparency and spaceflight safety.

39. The Subcommittee took note of paragraph 13 of General Assembly resolution 74/82 and agreed that Member States and international organizations having permanent observer status with the Committee should continue to be invited to provide reports on research on space debris, the safety of space objects with nuclear power sources on board, problems relating to the collision of such space objects with space debris and the ways in which debris mitigation guidelines were being implemented.

XII. Use of nuclear power sources in outer space

40. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 15, entitled “Use of nuclear power sources in outer space”.

41. The representatives of China, the Russian Federation and the United States made statements under agenda item 15. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

42. The Subcommittee welcomed the fact that some States and an international intergovernmental organization were developing, or considering developing, legal and regulatory instruments on the safe use of nuclear power sources in outer space, taking into account the content and requirements of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space and of the Safety Framework for Nuclear Power Source Applications in Outer Space.

43. The view was expressed that the Principles and the Safety Framework provided a comprehensive foundation for supporting the safe use of nuclear power sources in outer space, and that the guidance provided in the Safety Framework enabled new approaches to safety on the basis of continuing advances in knowledge and practice since the adoption of the Principles. Furthermore, the Safety Framework allowed for States and international intergovernmental organizations to come up with new approaches on the basis of the expansion of knowledge and best practices gained from experience, and therefore continuously improve safety. The delegation expressing that view was also of the view that, to date, the Working Group on the Use of Nuclear Power Sources in Outer Space had not identified any challenges to implementing the Safety Framework that would require any modifications or additions to the Safety Framework. Thus, the practical application of the Safety Framework satisfied the safety intent of the Principles and therefore provided sufficient guidance to States and international intergovernmental organizations seeking to ensure the safe development and use of nuclear power in space.

44. The view was expressed that, since 1961, nuclear power source applications had been playing a critical role in the exploration of space, enabling missions of scientific discovery to destinations across the solar system, and that their use would be continued on some future space missions.

45. The view was expressed that nuclear power could ensure the effectiveness of space programmes in both near-Earth and deep space and that it was a matter of priority to ensure the nuclear and radiological safety of nuclear power sources in outer space during the entire cycle of their development and use. In that connection, relevant documents developed under the auspices of the United Nations assisted greatly in the drafting and implementation at the national level of norms relating to the safety of nuclear power sources in outer space.

46. The view was expressed that the Principles, as well as the recommendations contained in the Safety Framework, had proved to be sufficient sources of guidance for Member States and international intergovernmental organizations in providing for the safe use of nuclear power sources in outer space.

47. Pursuant to General Assembly resolution [74/82](#), the Subcommittee, at its 915th meeting, on 3 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space, with Sam A. Harbison (United Kingdom) as Chair.

48. The Working Group on the Use of Nuclear Power Sources in Outer Space held [...] meetings. At its [...] meeting, on [...] February, the Subcommittee endorsed the report and recommendations of the Working Group.
