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**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
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Draft report

Addendum

I. Space debris

1. In accordance with General Assembly resolution 64/86, the Scientific and Technical Subcommittee considered agenda item 8, "Space debris".
2. The representatives of Colombia, Germany, Greece, India, Indonesia, Italy, Japan, the Russian Federation, the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 8. The observer for ESA also made a statement.
3. The Subcommittee heard the following scientific and technical presentations:
 - (a) "IADC Protection Manual and IADC response to COPUOS request on internationally accessible databases of objects in outer space", by the representative of India;
 - (b) "Space debris activities in India", by the representative of India;
 - (c) "USA space debris environment and operational updates", by the representative of the United States;
 - (d) "Cost and benefit of space debris mitigation measures", by the representative of Germany;
 - (e) "Swiss contributions to a better understanding of the space debris environment", by the representative of Switzerland;
 - (f) "Recent space debris mitigation activities in France", by the representative of France;



(g) “GEO protected region: ISON informational support for tasks of spacecraft flight safety and space debris removal”, by the representative of the Russian Federation.

4. The Subcommittee had before it a note by the Secretariat on national research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris, containing replies received from Member States on the issue (A/AC.105/951 and Add.1).

5. The Subcommittee noted with satisfaction that at its current session the Secretariat had made available the text of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space in the form of a publication (ST/SPACE/49).

6. The Subcommittee noted with satisfaction that some States were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space and/or the Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines and that other States had developed their own space debris mitigation standards based on those guidelines. The Subcommittee also noted that other States were using the IADC Guidelines and the European Code of Conduct for Space Debris Mitigation as references in the regulatory framework established for national space activities.

7. The Subcommittee welcomed the information provided by the Chairman of IADC on the IADC Protection Manual and on the IADC response to the Committee’s request on internationally accessible databases of objects in outer space and requested IADC to inform the Subcommittee of any revisions made to the IADC Space Debris Mitigation Guidelines in the light of evolving technologies and debris mitigation practices. The Subcommittee also noted that the Space Debris Mitigation Guidelines of the Committee might have to be amended in accordance with such revisions.

8. The Subcommittee noted with appreciation that States had adopted a number of approaches and concrete actions to mitigate space debris, including the reorbiting of satellites, passivation, end-of-life operations and the development of specific software and models for space debris mitigation. The Subcommittee also noted that research was being conducted in the areas of technology for space debris observation, space debris environmental modelling and technologies to protect space systems from space debris and to limit the creation of additional space debris.

9. The view was expressed that a comprehensive study on the long-term evolution of the space debris environment was needed.

10. The view was expressed that since the future of space exploration would largely depend on the effectiveness of space debris mitigation measures, all States, and in particular space-faring nations, should pay attention to the issue.

11. The view was expressed that the cost of space debris mitigation measures should be shared by all space users equally and that sharing that cost would keep the business environment for space activities fair and competitive.

12. The view was expressed that States without the capability and expertise to fully implement the Space Debris Mitigation Guidelines of the Committee should

benefit from the best practices of and training provided by States with relevant experience.

13. The view was expressed that it was essential to harmonize existing approaches related to enhancing the safety, security and sustainability of space activities.

14. The Subcommittee agreed that Member States, in particular space-faring nations, should pay greater attention to the problem of collisions of space objects, including those with nuclear power sources (NPS) on board, with space debris and to other aspects of space debris, including its re-entry into the atmosphere. It noted that the General Assembly, in its resolution 64/86, had called for the continuation of national research on that question, for the development of improved technology for the monitoring of space debris and for the compilation and dissemination of data on space debris and had agreed that international cooperation was needed to expand appropriate and affordable strategies to minimize the impact of space debris on future space missions. The Subcommittee agreed that research on space debris should continue and that Member States should make available to all interested parties the results of that research, including information on practices that had proved effective in minimizing the creation of space debris.

15. The Subcommittee agreed that Member States and space agencies should once again be invited to provide reports on research on space debris, the safety of space objects with NPS on board and problems relating to the collision of such space objects with space debris.

16. The view was expressed that reports on national research on space debris, safety of space objects with NPS on board and problems relating to their collision with space debris did not contain replies from the States that were largely responsible for creating space debris, including debris from platforms with NPS.

17. The view was expressed that some States used concepts like “to the extent possible” to take advantage of technological resources without control, which led to an increase in the creation of space debris, while requiring aspiring space-faring States to report on controls and restrictions implemented within their programmes.

18. The view was expressed that space should be considered a safe, secure and sustainable environment by its users and that States should continue to be diligent in actively pursuing ways and means to limit the amount of space debris in order to sustain the space environment for the long term.

19. The view was expressed that in connection with the problem of space debris States should take into account that the Earth’s space environment was a limited resource.

20. The view was expressed that it was important to expeditiously support technical measures for implementing existing and future regulatory frameworks and that progress in that regard could be stimulated by an information platform related to objects in outer space to be established under the auspices of the United Nations, taking due account of potential financial implications and liability issues.

21. The view was expressed that in addition to two-line element data sets, available on the World Wide Web, an international platform on space objects created and maintained on a voluntary basis would preserve transparency and encourage partnerships for ensuring the safety of human space flights and national missions.

22. The view was expressed that the Space Debris Mitigation Guidelines of the Committee should be further developed and that the Scientific and Technical Subcommittee and the Legal Subcommittee of the Committee should cooperate with the aim of developing legally binding rules relating to space debris.

23. The view was expressed that legally binding space debris mitigation measures were not necessary and that States should seek an acknowledgement, by the broadest possible community of nations, that space debris could be controlled and that national implementation of space debris mitigation practices was consistent with mission objectives and principles of cost-effectiveness.

II. Use of nuclear power sources in outer space

24. In accordance with General Assembly resolution 64/86, the Subcommittee considered agenda item 11, "Use of nuclear power sources in outer space".

25. The representatives of the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 11.

26. The Subcommittee had before it a working paper by the Chair of the Working Group on the Use of Nuclear Power Sources entitled "Draft elements of a potential new workplan of the Working Group on the Use of Nuclear Power Sources in Outer Space" (A/AC.105/C.1/L.302).

27. The Subcommittee welcomed the agreement on the Safety Framework for Nuclear Power Sources Applications in Outer Space (A/AC.105/934) reached by the IAEA Commission on Safety Standards at its twenty-fifth meeting, in April 2009.

28. The Subcommittee encouraged Member States to implement the Safety Framework.

29. The Subcommittee expressed its appreciation to the IAEA secretariat for making the joint publication of the Safety Framework available to the Subcommittee in the form of a hard copy and on a CD-ROM.

30. Some delegations expressed the view that the Safety Framework represented a significant advance in the development of safe NPS applications and that the implementation of the Safety Framework by Member States and international intergovernmental organizations would provide assurance to the global public that space NPS applications were being developed, launched and used in a safe manner.

31. The view was expressed that it was exclusively States, irrespective of their level of social, economic, scientific or technical development, that had an obligation to engage in regulatory activity associated with the use of NPS in outer space and that the matter concerned all of humanity. That delegation was of the view that Governments bore international responsibility for national activities involving the use of NPS in outer space conducted by governmental and non-governmental organizations and that such activities must be beneficial and not detrimental to humanity.

32. The view was expressed that no justification existed for contemplating the use of NPS in Earth orbits when other sources of energy were available that were much safer and that had proved to be efficient.

33. The view was expressed that the application of NPS to space missions was important because it could help States to further the objectives of space exploration.

34. In accordance with General Assembly resolution 64/86, the Working Group on the Use of Nuclear Power Sources in Outer Space was reconvened under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held [...] meetings.

35. The Subcommittee noted, with appreciation, the intersessional work conducted by the Working Group on a proposal for a new workplan, aimed at assisting the Subcommittee in promoting and facilitating the implementation of the Safety Framework.

36. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group, including the agreement on the Working Group's workplan for the period 2010-2015. The report of the Working Group is contained in annex II to the present report.

37. The view was expressed that NPS applications addressed in the second objective of the workplan should be in conformity with international law, the Charter of the United Nations and United Nations treaties and principles on outer space, in particular with 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).¹

38. The view was expressed that all Member States should be involved in decision-making and in identifying the issues and challenges associated with the application of NPS and the Safety Framework and that such involvement would ensure the success of the implementation of the workplan.

III. Space-system-based disaster management support

39. In accordance with General Assembly resolution 64/86, the Subcommittee considered agenda item 9, "Space-system-based disaster management support".

40. The representatives of Germany, India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Nigeria, the Philippines, the Russian Federation and the United States made statements under agenda item 9.

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

(a) "Asian Disaster Reduction Centre and its activities", by the representative of Japan;

(b) "HJ-1 small satellites and application for disaster reduction", by the representative of China;

(c) "International global monitoring aerospace system: IGMASS", by the representative of the Russian Federation;

(d) "Cosmo-Sky Med: earthquakes in Haiti and L'Aquila", by the representative of Italy;

¹ United Nations, *Treaty Series*, vol. 610, No. 8843.

(e) “Technical support for non-technical decision support for approaching the last mile problem”, by the representative of Germany;

(f) “Applications of remote sensing satellites and GNSS for disaster management and Earth environment monitoring in Indonesia”, by the representative of Indonesia;

(g) “Bhuvan Portal for space-based information for decision-making”, by the representative of India;

(h) “Space technology and management of the flooding in Burkina Faso in September 2009: from Charter activation to rapid mapping”, by the representative of Burkina Faso.

42. The Subcommittee had before it the following documents:

(a) Capacity-building strategy of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/947);

(b) Report of the Secretariat on outreach activities carried out in 2009 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/952);

(c) Report on activities carried out in 2009 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/955).

43. At the 728th meeting of the Subcommittee, the Programme Coordinator for the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) made a statement on the activities carried out in 2009 and on the implementation of the activities planned for 2010.

44. The Subcommittee noted with satisfaction the progress made with regard to the activities carried out within the framework of UN-SPIDER in 2009, including the support provided through the programme to the emergency efforts made in response to major disasters worldwide.

45. The Subcommittee noted with satisfaction the voluntary contributions that were being made available by Member States, including cash contributions from Austria, Croatia, Germany and Spain, and encouraged Member States to provide, on a voluntary basis, all support necessary, including financial support, to UN-SPIDER to enable it to carry out its workplan for the biennium 2010-2011.

46. The Subcommittee noted with appreciation that Algeria, Iran (Islamic Republic of), Nigeria and Romania, as well as the Asian Disaster Reduction Centre, were contributing to the implementation of the UN-SPIDER workplan in their capacity as hosts of regional support offices.

47. The Subcommittee welcomed the signature, during its current session, of cooperation agreements for the establishment of regional support offices in Pakistan and Ukraine.

48. The Subcommittee welcomed the offers of the Philippines and South Africa, as well as of the Water Center for the Humid Tropics of Latin America and the

Caribbean (CATHALAC) and the University of the West Indies, to host UN-SPIDER regional support offices.

49. The Subcommittee noted the activities of Member States that were contributing to increasing the availability and use of space-based solutions in support of disaster management, including the following: the Sentinel Asia project, which in its second phase of implementation was building upon the additional infrastructure being provided by the Korea Aerospace Research Institute (KARI) and the Geo-Informatics and Space Technology Development Agency (GISTDA) of Thailand, as well as the Wide-band InterNetworking Engineering Test and Demonstration Satellite (WINDS); the International Satellite System for Search and Rescue (COSPAS-SARSAT); the Mesoamerican Regional Visualization and Monitoring System (SERVIR), as well as the SERVIR system in Africa, which is being implemented by the Regional Centre for Mapping of Resources for Development; the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also called the International Charter on Space and Major Disasters); the Famine Early Warning System Network (FEWSNET); GEONETCast, which is a nearly global satellite-based data dissemination system; and those falling within the framework of the Asia-Pacific Regional Space Agency Forum (APRSAF).

50. The Subcommittee noted with appreciation the extensive support provided by Member States, international and regional organizations and UN-SPIDER in the provision of space-based information to support relief efforts following the earthquake that struck Haiti on 12 January 2010.

51. The Working Group of the Whole, reconvened in accordance with General Assembly resolution 64/86, also considered agenda item 9, "Space-system-based disaster management support". At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.