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Report of the Scientific and Technical Subcommittee on its forty-seventh session

Terms of reference and methods of work of the Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee

Working paper submitted by the Chair of the Working Group

I. Introduction

1. In *The Space Millennium: Vienna Declaration on Space and Human Development*,¹ the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space recognized the importance of space science and space applications for improving our fundamental knowledge of the universe, and improving the daily lives of people worldwide through environmental monitoring, management of natural resources, disaster management, meteorological forecasting and climate modelling, satellite navigation and communications. Space science and technology make a major contribution to the well-being of humanity, and specifically to achieving the objectives of global conferences of the United Nations that address various aspects of economic, social and cultural development. Space systems therefore play a vital role in supporting sustainable development on Earth and the achievement of the Millennium Development Goals. Hence, the long-term sustainability of space activities is a matter of concern not only for current and

* A/AC.105/L.276.

¹ *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.



aspiring spacefaring countries, regional space organizations and commercial satellite operators, but also for the international community as a whole.

2. The space environment is being used by more and more State and private sector entities. The growing number and diversity of actors, the proliferation of space debris and the increased possibilities of collisions and interference raise concerns about the long-term sustainability of space operations, particularly in the low-Earth orbit and geostationary orbit environments.

3. The Committee on the Peaceful Uses of Outer Space, through its work in the scientific, technical and legal fields, has a fundamental role to play in ensuring the sustainability of outer space operations. In 2009, at its fifty-second session, the Committee decided that the Scientific and Technical Subcommittee should include on its agenda, starting from its forty-seventh session, in 2010, an item entitled "Long-term sustainability of outer space activities".²

4. At its forty-seventh session, the Subcommittee recalled the importance of ensuring the safe and sustainable future use of outer space and noted, in accordance with the workplan related to this item, that a working group should be established to support the preparation of a report on the long-term sustainability of outer space activities, the examination of measures that could enhance the long-term sustainability of such activities and the preparation of a set of voluntary guidelines focused on practical and prudent measures that could be implemented in a timely manner to enhance the long-term sustainability of space activities.

5. At its 735th meeting, on 18 February 2010, the Subcommittee established the Working Group on the Long-term Sustainability of Outer Space Activities and recommended to the Committee that the Working Group be allowed to hold one meeting during the fifty-third session of the Committee, in June 2010, with interpretation services in the six languages of the United Nations, with a view to further developing its terms of reference and a method of work.³

6. The present working paper, prepared for the meeting of the Working Group to be held during the fifty-third session of the Committee, contains the proposal of the Chair for the terms of reference, method of work and workplan for the Working Group.

II. Terms of reference

7. The Working Group will examine the long-term sustainability of outer space activities in all its aspects, in the wider context of sustainable development, including the contribution to the achievement of the Millennium Development Goals, taking into account the concerns of all countries, in particular those of developing countries, and consistent with the peaceful uses of outer space.

8. The work will take into consideration current best practices, operating procedures, technical standards and policies associated with the safe conduct of space operations, from the pre-launch phase to the end-of-life phase.

² *Official Records of the General Assembly, Sixty-fourth Session, Supplement No. 20 (A/64/20)*, para. 161.

³ A/AC.105/958, paras. 181 and 183.

9. The Working Group will take as its legal framework the existing United Nations treaties and principles governing the activities of States in the exploration and use of outer space and will not address new legal regimes for the conduct of activities in outer space.

III. Objective and outputs

10. The objective of the Working Group will be to examine and propose measures to ensure the safe and sustainable use of outer space for peaceful purposes, for the benefit of all countries.

11. The Working Group will prepare a report on the long-term sustainability of outer space activities containing a consolidated set of current best practices and operating procedures, technical standards and policies associated with the safe conduct of space operations. On the basis of all the information collected, the Working Group will produce a set of voluntary recommended guidelines that could be applied by international organizations, non-governmental entities, individual States and States acting jointly to reduce collectively the risk to space operations for all spacefaring actors and to ensure that all countries are able to have equitable access to the limited natural resources of outer space.

12. Any recommended guidelines for safe space operations should:

(a) Maintain or improve the safety of spaceflight operations and protect the space environment without imposing unacceptable or unreasonable costs;

(b) Remain voluntary and not be legally binding under international law, nor provide specific penalties for failing to follow them, beyond those already provided for under international law;

(c) Be consistent with the relevant activities and recommendations of other working groups of the Committee and its Subcommittees, the Inter-Agency Space Debris Coordination Committee and other relevant international organizations.

IV. Scope

13. Topics for examination by the Working Group under this agenda item could include:

(a) Sustainable space utilization supporting sustainable development on Earth:

(i) The contribution of space science and technology to sustainable development on Earth;

(ii) The concept of sustainable development extended to the domain of outer space;

(iii) Technical capacity-building for developing countries;

(iv) Equitable access to the limited resources of outer space;

(b) Space debris:

- (i) Measures to reduce the creation and proliferation of space debris;
- (ii) Collection, sharing and dissemination of data on space objects;
- (iii) Re-entry notifications regarding substantial space objects;
- (c) Space weather:
 - (i) Collection, sharing and dissemination of data;
 - (ii) Sustaining a global observation capability;
 - (iii) Measures to mitigate the impact of space weather phenomena on operational space systems;
- (d) Space operations:
 - (i) Collision avoidance processes and procedures;
 - (ii) Pre-launch and pre-manoevre notifications;
 - (iii) Common standards, best practices and guidelines;
- (e) Tools to support collaborative space situational awareness:
 - (i) International, multinational or national registry of operators and contact information;
 - (ii) International, multinational or national data centres for the storage and exchange of information on space objects and operational information;
 - (iii) Information-sharing procedures;
- (f) Regulatory regimes:
 - (i) Adherence to existing treaties and principles on the peaceful uses of outer space;
 - (ii) Regulating space activities of the nationals of Member States;
- (g) Guidance for new entrants in the space arena:
 - (i) Technical standards, best practices and lessons learned for the successful development and operation of space systems, from the pre-launch phase to the end-of-life phase;
 - (ii) Microsatellites and smaller satellites.

V. Method of work

14. The Working Group will invite contributions from Member States, from relevant intergovernmental organizations, such as the European Space Agency and the European Organization for the Exploitation of Meteorological Satellites, and from United Nations intergovernmental bodies, such as the Conference on Disarmament, the Commission on Sustainable Development, the International Civil Aviation Organization, the International Telecommunication Union and the World Meteorological Organization.

15. The Working Group will invite contributions of information from international organizations, such as the Consultative Committee for Space Data Systems, the Inter-Agency Space Debris Coordination Committee, the International Space Environment Service, the International Organization for Standardization, private sector space operators with considerable experience of space operations and other relevant non-governmental organizations. The modality for receiving such inputs could include intersessional activities, such as workshops.

16. The Working Group should avoid duplicating the work being done within these international entities and instead identify areas of concern relating to the long-term sustainability of outer space activities that were not being covered by them, or consolidate the work being done by others.

17. The Working Group will take into account the informal preliminary reflections on the long-term sustainability of space activities, as well as progress made by the other working groups of the Subcommittees. Efforts should take into account, but not duplicate or reopen, the activities and recommendations being undertaken in the Working Group on the Use of Nuclear Power Sources in Outer Space and the work of the Subcommittee and the Inter-Agency Space Debris Coordination Committee on orbital debris mitigation.

18. The Working Group will take advantage of intersessional activities, such as meetings, teleconferences, electronic meetings and workshops, either in isolation or in conjunction with planned conferences of intergovernmental and international organizations that provide an opportunity for members of the Working Group to meet and discuss progress. The Working Group will also meet on the margins of the Committee and the Legal Subcommittee.

19. The Working Group may decide to establish expert groups to focus on one or more of each of the agreed areas of work in order to expedite the work of the Working Group as a whole. The expert groups would work intersessionally and would meet on the margins of the meetings of the Committee and its Subcommittees, and at one other agreed time. Member States would be invited to nominate experts from their national institutions and private sector entities to participate in the activities of the expert groups. Each expert group would select its own Chair (from among the participating member States) to lead its work. The expert groups would provide information to support the deliberations of the Working Group, which would consider inputs received and make any necessary decisions regarding those inputs.

VI. Proposed multi-year workplan

20. The proposed workplan under the item “Long-term sustainability of outer space activities” for the period 2010-2014 would be as follows:

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| 2010 | Develop terms of reference, method of work and workplan. Identify a point of contact for each member State represented in the Working Group. Review the work done to date on this issue and prioritize future tasks. Invite member States and organizations having permanent observer status with the Committee and experience in space operations to provide information in 2011 on |
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- their experiences and best practices in the conduct of sustainable space operations. Begin to engage with other entities in the commercial sector and non-profit sector on this issue.
- 2011 Hold a general exchange of views among States members of the Committee and intergovernmental and non-governmental organizations having permanent observer status with the Committee on the topics encompassed within the scope of work. Hold a workshop during the forty-eighth session of the Subcommittee, at which States members of the Committee and intergovernmental and non-governmental organizations having permanent observer status with the Committee and current space operations experience provide information on their experiences and best practices in the conduct of sustainable space operations (presentations and discussions to be conducted in the official languages of the United Nations). Hold consultations with member States and with intergovernmental and international organizations having experience in space operations and those considering or initiating involvement in space activities to provide information on best practices and proposed measures to enhance the long-term sustainability of space activities. Hold a series of meetings of the Working Group in conjunction with meetings of the Committee and its Subcommittees to begin to consolidate information gathered. Develop a draft outline of the report to be produced by the Working Group.
- 2012 Invite representatives of private sector entities having experience in space operations and relevant non-governmental organizations to provide information on their experiences and best practices in the conduct of sustainable space operations at a workshop to be held in conjunction with the forty-ninth session of the Subcommittee (presentations and discussions to be conducted in the official languages of the United Nations). Hold meetings of the Working Group in the margins of the meetings of the Committee and the Legal Subcommittee to consolidate progress made during the intersessional periods. Develop a draft report and draft set of best-practice guidelines for submission to the Subcommittee in 2013. Circulate the draft report and draft guidelines to the Working Group for comment and review. Update drafts.
- 2013 Consider the draft report and guidelines at the Subcommittee's fiftieth session. Finalize the report and the set of best-practice guidelines for presentation to and review by the Committee.
- 2014 Present the report and guidelines to the Subcommittee for approval at its fifty-first session. Determine whether the workplan should be extended to cover potential future work to promote and facilitate the implementation of the guidelines. If the workplan is not extended, finalize the report.
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