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Long-term sustainability of outer space activities

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Working paper submitted by France

I. Introduction

1. The long-term sustainability of space activities is a matter of common concern for space-faring nations, States benefiting from space applications and commercial satellite operators.
2. The growing number of Governments and private entities involved in space activities, the effects of space weather on satellites, the proliferation of space debris and the announced development of manned commercial space flights raise questions as to whether it will be possible to continue to operate in a safe space environment.
3. The accidental collision between the Iridium 33 and Cosmos-2251 satellites on 10 February 2009 and the increased frequency of avoidance manoeuvres that have now become necessary to reduce the risk of collision with debris in low-Earth orbit illustrate the critical nature of this situation. In addition, the congestion of the geostationary orbit, which is so essential to telecommunications satellites and weather observation satellites, poses specific problems relating to the risk of electromagnetic interference and optimized orbital resource management. It should also be noted that commercial operators, who are particularly active in this orbit, have begun to put voluntary information-sharing mechanisms in place to minimize the risks of mutual interference.

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4. To ensure the sustainability of space operations, complete, precise and rapidly accessible information on space objects in Earth orbit, on the natural space environment and on threats to the safety of space activities is vital to all entities operating in space. That calls for international efforts in the areas of monitoring, communication and coordination.

5. In such an endeavour, the international community can draw on an already substantial legal corpus: the long-term sustainability of space activities is partly addressed in several instruments and provisions of international law, as well as in national laws, such as the principles relating to the rational use of outer space, State responsibility for activities conducted by them or by their nationals, international liability in the event of damage and transparency in the use and exploitation of outer space, in particular in Earth orbit.

6. The framework is essentially the work of the Committee on the Peaceful Uses of Outer Space. That was the reason why its Chairman for the period 2006-2007, Gérard Brachet (France), proposed in a working paper entitled "Future role and activities of the Committee on the Peaceful Uses of Outer Space" (A/AC.105/L.268 and Corr. 1) that the Committee take up the issue of the long-term sustainability of space activities. The aim was to develop recommendations regarding operations in outer space in order to safeguard its long-term use. At its fifty-second session, in June 2009, the Committee agreed that the Scientific and Technical Subcommittee should include, starting from its forty-seventh session, a new agenda item entitled "Long-term sustainability of outer space activities".¹

7. The purpose of the present working paper is to remind member States of the Committee and organizations having permanent observer status with the Committee of the preparatory work done during the last two years and to set out the Committee's vision of the aims of the work entrusted to the Scientific and Technical Subcommittee.

II. Preparatory work done by the informal working group in 2008-2009

8. France took the initiative of convening an informal international meeting in Paris on 7 and 8 February 2008, on the topic of long-term sustainability of space activities.

9. Representatives from 20 countries, the European Union (European Commission and General Secretariat of the Council of the European Union), the European Space Agency and the Office for Outer Space Affairs of the Secretariat participated in that event. The informal working group that was thus established set itself the goal of preparing a preliminary document in which the issue of the long-term sustainability of space activities would be examined. The main commercial telecommunications satellite operators were invited to join the informal working group.

¹ *Official Records of the General Assembly, Sixty-fourth Session, Supplement No. 20 (A/64/20)*, para. 61.

10. A second meeting of the informal working group was held in Glasgow, United Kingdom of Great Britain and Northern Ireland, on 3 October 2008, alongside the International Astronautical Congress, with an even larger participation (23 countries were represented, as well as the European Union, the Office for Outer Space Affairs, two major telecommunications satellite operators and three representatives of non-governmental organizations).
11. A third meeting of the informal working group took place on 17 February 2009, in Vienna, alongside the forty-sixth session of the Scientific and Technical Subcommittee, with a strong participation by delegations. That third meeting had been preceded by an informal presentation of the working group's aims and work to all delegations present at the forty-sixth session of the Subcommittee.
12. The preliminary text, to which contributions have been made by many experts from different delegations or international organizations and non-governmental organizations, is available in conference room paper A/AC.105/C.1/2010/CRP.3.
13. In the conference room paper, the various issues to be addressed in order to guarantee the long-term sustainability of space activities are explored:
 - (a) The proliferation of space debris;
 - (b) The safety of space operations, with emphasis on the problems involved in operations in the geostationary orbit, in mid-Earth orbits (at an altitude of about 20,000 km) and in low-Earth orbits (at an altitude of between 1,000 and 1,500 km);
 - (c) The management of the radio frequency spectrum;
 - (d) The natural causes of disturbances affecting space systems (space weather, solar flares, micrometeorites etc.).
14. Existing international mechanisms relating to risk reduction in space activities and to the safety of space operations are also examined in that paper, in order to identify possible additions and improvements that need to be made to the mechanisms.
15. Throughout this technical work, the informal group adopted an approach aimed at building consensus on the assessment of the challenges to the long-term sustainability of space activities and, to the extent possible, on the remedies and improvements to be implemented.

III. Aims and suggested method of work in the Scientific and Technical Subcommittee

16. With reference to the multi-year workplan agreed by the Committee at its fifty-second session and endorsed by the General Assembly in its resolution 64/86, the French delegation suggests that, following a general debate on the issue of the long-term sustainability of space activities, during which all interested delegations will be invited to speak, the Scientific and Technical Subcommittee should establish a working group, open to all States members of the Committee, as it has successfully done in the development of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space. The working group could be charged with the following tasks:

(a) Preparation of a preliminary report on the long-term sustainability of space activities taking into account, inter alia, the document produced by the informal working group. The related examination should include consultations with commercial telecommunications satellite operators that have put in place mechanisms for sharing information on their satellite fleets;

(b) Preparation, following a technical approach based on operational experience, of a draft set of good practice guidelines relating to outer space activities and operations. A public forum for presenting the draft guidelines could usefully be organized in 2011 or 2012;

(c) Annual presentation of progress made in the work of the informal working group to the Scientific and Technical Subcommittee and to the Committee. The Committee will be able to take a decision on consulting the Legal Subcommittee when the work has progressed sufficiently;

(d) Preparation of a final report to the Scientific and Technical Subcommittee containing the draft set of good practice guidelines with a view to their adoption.

IV. Conclusion

17. The French delegation considers the long-term sustainability of space activities to be a major issue in which the Committee on the Peaceful Uses of Outer Space has an important role to play.

18. The French delegation is ready to answer any questions from delegations and is prepared to contribute actively to the consideration of this issue by the Scientific and Technical Subcommittee.
