

Revised draft outline for a final report of the Working Group on the Long-term Sustainability of Outer Space Activities

Non-paper by the Chair of the Working Group in the Long-term Sustainability of Outer Space Activities - 6 February 2025

Note: The present non-paper by the Chair represents a good faith attempt to combine various texts and proposals currently before the Working Group for consideration.

Revised draft outline with indicative content

I. Introduction

1. At its sixty-second session, in 2019, the Committee on the Peaceful Uses of Outer Space adopted the Guidelines for the Long-term Sustainability of Outer Space Activities (A/74/20, annex II). The Committee encouraged States and international intergovernmental organizations to voluntarily take measures to ensure that the Guidelines were implemented to the greatest extent feasible and practicable (A/74/20, para. 163).

2. At the same session, the Committee decided to establish, under a five-year workplan, a working group under the agenda item on the long-term sustainability of outer space activities of the Scientific and Technical Subcommittee (A/74/20, para. 165).

3. The Committee also decided that the working group would agree on its own terms of reference, methods of work and dedicated workplan, and that the working group would be guided by the following framework (A/74/20, para. 167):

(a) Identifying and studying challenges and considering possible new guidelines for the long-term sustainability of outer space activities. This could be done by taking into consideration existing documents, including, inter alia, documents A/AC.105/C.1/L.367 and A/AC.105/2019/CRP.16;

(b) Sharing experiences, practices and lessons learned from voluntary national implementation of the adopted Guidelines;

(c) Raising awareness and building capacity, in particular among emerging space nations and developing countries.

4. In accordance with its terms of reference (A/AC.105/1258, annex II, appendix, para. 9), the Working Group on the Long-term Sustainability of Outer Space Activities was tasked with producing a thorough report on the long-term sustainability of outer space activities, containing the following:

(a) Information on the identification and study of challenges, and corresponding recommendations, as well as possible new guidelines for the long-term sustainability of outer space activities;

(b) Information on experiences, practices and lessons learned from voluntary implementation of the adopted Guidelines and recommendations for their further practical implementation;

(c) Information on and recommendations for capacity-building and awareness-raising activities, including those related to improving international cooperation in capacity-building, taking into particular consideration the requirements of emerging space nations and developing countries;

(d) Recommendations on future activities and work.



5. The Working Group followed a multi-year workplan (A/AC.105/1258, annex II, appendix, para. 18), working during the annual sessions of the Scientific and Technical Subcommittee, as well as intersessionally, as needed, attaching equal importance to each of the three elements of its terms of reference.

6. Many ideas and concepts considered by the Working Group interconnected. For instance, some experiences in the implementation of the adopted Guidelines included or revealed a challenge or a related opportunity for capacity-building.

II. Consensus results from the work of the Working Group

A. Information on the identification and study of challenges, and corresponding recommendations, as well as possible new guidelines for the long-term sustainability of outer space activities

Information

7. Repeated themes/groupings of challenges, coming from the tables of compiled inputs on challenges by Working Group members include:

- (a) Constellations, including related regulation, registration, operational contact points and need for definition;
- (b) Space situational awareness, including related information-sharing and coordination;
- (c) Spacecraft manoeuvring – rules and requirements;
- (d) Design and operation of small-sized space objects;
- (e) Active debris removal and on-orbit operations;
- (f) Ensuring that all nations, including emerging spacefaring nations, enjoy inclusive participation in space activities and in Guideline implementation; and
- (g) Capacity-building and international cooperation.

8. There are risks and challenges to outer space activities and difficulties in implementation of the voluntary Guidelines for the Long-term Sustainability of Outer Space Activities, as well as proposals to update existing and/or development of new Guidelines, that are not currently covered, for instance in the areas of safety and security of space operations. Some of these include:

- (a) Implementation of operational and technological measures of self-restraint to States' space activities in order to prevent adverse developments in outer space;
- (b) Preclusion of interference with the operation of foreign space objects;
- (c) Refrain from modifications of the space environment;
- (d) Respect for the safety and security of foreign space-related ground and information infrastructure;
- (e) Development and implementation of criteria and procedures for the preparation and conduct of space activities aimed at the active removal of space objects from orbit;
- (f) Safe conduct of operations for destruction of space objects;
- (g) Appropriate solutions for active removal and destruction of non-registered space objects.

Recommendations

9. Related recommendations include:

- (a) Further study of the repeated themes within the challenge process, including discussion of challenges which appear in multiple guideline areas (themes A-D in the adopted Guidelines).
- (b) Consideration of forming an expert group to discuss possible thematic areas or potential new guidelines, such as:
 - i. Space situational awareness, including related information-sharing and coordination, if not addressed through a different Committee on the Peaceful Uses of Outer Space action group;
 - ii. Design and operation of small-sized space objects;
 - iii. Space debris [and space debris mitigation] and on-orbit missions;
 - iv. Sustainability of deep space missions;
 - v. Safety considerations with respect to sustainability for human spaceflight;
 - vi. Potential findings on Dark [and Quiet] Skies [and mega constellations]

B. Information on experiences, practices and lessons learned from voluntary implementation of the adopted Guidelines and recommendations for their further practical implementation

Information

10. Working Group members have voluntarily reported on experiences, practices and lessons learned from voluntary implementation of the adopted Guidelines. Such information is found in documentation for the Committee, the Subcommittee and the Working Group, as well as in the Long-term Sustainability of Outer Space Activities Information Repository developed by the Office for Outer Space Affairs (see A/AC.105/1279, annex II, paras. 17-21 and spacesustainability.unoosa.org).

Recommendations

11. Related recommendations include:

- (a) Continue voluntary implementation of the adopted Guidelines as the primary course of action.
- (b) Use the repository to capture voluntary implementation.
- (c) Gap analysis of non-governmental entities that are needed to address the long-term sustainability of outer space environment (noting a number of Guidelines mention non-government bodies but are not specific on who or how these should be engaged).
- (d) Guideline-specific recommendations, including:
 - i. States should have awareness of the location and status of their in-orbit space objects. [Guideline B.1, B.2]
 - ii. Communication, coordination and collaboration between existing or developing space situational awareness (SSA) systems in the different regions of the world should be promoted, through routine exchange of information on space objects and events in order to improve space safety and sustainability. [Guideline A.5, B.1, B.2 B.3]

- iii. Awareness raising should be encouraged to sensitize all space operators to the risk of collision in an increasingly congested outer space and to the importance of inter-operator coordination. [Guideline B.1, B.4]
- iv. A recommendation could be that States should consider implementing navigation and anti-collision mechanisms to safeguard the sustainability of current and future outer space activities. [Guideline B.4, C.4]
- v. States should consider ongoing monitoring and regular reporting mechanisms to assess the effectiveness of measures for mitigating space debris. [Guideline D.2]
- vi. States [space-service providers] should consider incentives for the development of new technologies and innovative practices to help mitigate the creation of new space debris. [Guideline D.2]
- vii. Public-private partnerships should be encouraged to accelerate the adoption and implementation of new space debris mitigation technologies. [Guideline D.2].

C. Information on and recommendations for capacity-building and awareness-raising activities, including those related to improving international cooperation in capacity-building, taking into particular consideration the requirements of emerging space nations and developing countries

Information

12. Relevant international and regional cooperation is supported through a number of organizations, initiatives and forums, including the following: World Meteorological Organization (WMO), ITU, International Civil Aviation Organization (ICAO), Inter-Agency Space Debris Coordination Committee (IADC), International Committee on Global Navigation Satellite Systems (ICG), International Space Exploration Coordination Group (ISECG), Committee on Earth Observation Satellites (CEOS), Group of Earth Observation (GEO), International Astronautical Federation (IAF), International Organization for Standardization, Committee on Space Research (COSPAR), Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (International Charter on Space and Major Disasters), International Space Weather Initiative (ISWI), International Space Environment Service (ISES), European Space Agency (ESA), European Union, European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), European Cooperation for Space Standardization, Asia-Pacific Regional Space Agency Forum (APRSAF) and its National Space Law Initiative, Asia-Pacific Space Cooperation Organization (APSCO), Association of Southeast Asian Nations (ASEAN), Subcommittee on Space Technology and Applications (SCOSA), African Space Agency, Brazil, Russian Federation, India, China and South Africa (BRICS), the Commonwealth of Independent States (CIS) and the regional centres affiliated to the United Nations.

Recommendations

13. Related recommendations include:
- (a) International cooperation efforts should be as inclusive as possible, with particular efforts made to include developing countries.
 - (b) It is important for a broad cross-section of stakeholders to be engaged. This includes public, commercial and academic representatives, in addition to national and foreign Governments.
 - (c) Capacity-building and awareness-raising activities may take many forms, including: training courses, fellowships, webinars, workshops, international conferences, forums at the ministerial level, industry events, the provision of

technical assistance, technology transfer, academic articles, digital outreach programmes, social media efforts, podcasts and monthly question and answer opportunities with subject matter experts from the space sector.

- (d) The Office for Outer Space Affairs strategy should continue to support capacity-building and awareness-raising activities in areas linked to the long-term sustainability of outer space activities.
- (e) Encourage developed space nations to continue to share insights into operational and design approaches to address challenges related to sustainability of the outer space environment.
- (f) A common approach to registering constellations to improve efficiency and completeness could be shared [by the Office for Outer Space Affairs].
- (g) A glossary to facilitate the understanding and harmonisation of specific terminology shared by all member States could be developed.
- (h) Conduct outreach with industry and academia to promote the development and use of techniques and methods to improve knowledge. This includes participating in conferences, workshops, and exercises.
- (i) Development of Frequently Asked Questions (FAQ) and factsheets on specific aspects of Guideline implementation/the long-term sustainability of outer space activities can help with the development of capacity-building among emerging and established countries.

D. Recommendations on future activities and work

14. Recommendations include:

- (a) Leverage opportunities through the Scientific and Technical Subcommittee, Legal Subcommittee, and the Committee on the Peaceful Uses of Outer Space to bring experts together to exchange best practices related to the challenges identified.
- (b) Advance capacity-building discussions.
- (c) Establishment of a new Working Group (Working Group on the Long-term Sustainability of Outer Space Activities 3.0) at the conclusion of the current mandate with a workplan that includes expert groups. The duration and the Chairmanship of the Work Group are to be decided.
- (d) Whenever a new guideline is proposed, the criteria, structure and procedure need to be clearly defined. In this connection:
 - i. A new draft guideline may be submitted by any of the delegations and should concern specific threats/risks of a natural or unintentional man-made nature to the safety of space operations.
 - ii. A new draft guideline, as well as a proposal to amend/supplement an adopted Guideline, should contain information on specific methods and means of their application available to participants in space activities that can be used or, vice versa, the application of which should be refrained from in order to eliminate/reduce the threats/risks to objects of space infrastructure and the environment. It is important that the interests of all participants in space activities be taken into account and the generally accepted norms and principles of international law be abided by.
 - iii. At the initial stage of considering initiatives on new draft guidelines, delegations should focus on discussing and agreeing upon the overall structure of the proposed draft. After that, it would be possible to proceed to the revision of the text of the

- proposed draft, with an emphasis on achieving the most verified and concise language.
- iv. If the Committee adopts a new draft guiding, it would be reasonable to include it in the set of previously adopted Guidelines for the Long-term Sustainability of Outer Space Activities.
- (e) Work to continue towards a Committee on the Peaceful Uses of Outer Space Compendium on the Long-term Sustainability of Outer Space Activities, to be structured as follows:
- i. Preamble
 - ii. Definition and terms
 - iii. Challenges and threats
 - iv. Set of guidelines
 - v. Update procedures
 - Introducing proposal on a new guideline or updating existing ones, including criteria for a guideline, structure for a guideline and procedures
 - Considering and adopting proposals, including scope and methods of work and drafting the text of a guideline
 - Update of the compendium, including revision and decision making
 - vi. Guideline implementation feedback
- (f) The establishment of one or more Group(s) of Governmental Experts or Open-ended Working Group(s) on dedicated long-term sustainability of outer space activities topics to be considered.

Annex

Compiled substantive inputs by Working Group members

[An annex to the report could be comprised of an updated version of the tables of compiled inputs on challenges, the content of which need not reach consensus.

An exception to usual United Nations parliamentary document word limits could be obtained, if this is considered a part of the final output of the Working Group.]
