Development of UNCOPUOS Guidelines for the Long Term Sustainability of Outer Space activities (Current Status)

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UN COPUOS – Overview

- UN COPUOS (Committee on the Peaceful Uses of Outer Space) is the primary international forum for the development of laws and principles governing activities in outer space.
- A standing committee of the UN, founded in 1959 by 24 Member States.
  - Currently **83 Member States** and a large number of permanent observers.
  - The technical work of COPUOS is carried out by two subcommittees.
    - Scientific and Technical Subcommittee (STSC)
    - Legal Subcommittee (LSC)
- Decisions are reached by absolute consensus.
- Secretariat is the UN Office for Outer Space Affairs (Vienna).
5 treaties on outer space: peaceful use, registration, liability, astronaut return and moon
10 sets of Legal principles, guidelines or frameworks governing activities of States, including remote sensing, space debris mitigation, nuclear power source, etc.
Over 110 General Assembly resolutions and recommendations on outer space matters
3 UN space conferences (1968, 1982, 1999)
UN program on space applications
  - Many workshops each year
  - Regional Centres for Space Science and Technology Education
  - SPIDER (Disaster Management)
  - International Committee on GNSS
Activities relating to space security/sustainability
  - UN COPUOS space debris mitigation guidelines
  - UN COPUOS/IAEA safety framework for nuclear power source applications in outer space
  - WG on long-term sustainability of outer space activities of the STSC
  - In recent years, tendency to non-binding decisions, rather than treaties.
    (Non-binding does not mean non-legal)
All humanity uses space for peaceful purposes and for socioeconomic benefits.

Space technology is a critical tool to support sustainable development.

The Earth’s orbital space environment and Radio-Frequency Spectrums are limited natural resources.

**Needs of Space Sustainability**

- Orbital Debris
- Radio Frequency Interference
- Near Earth Objects

**Threats in space**

- Emerging Space Actors (New Emerging Countries and Non-Governmental Entities such as Private Sectors or Universities)
- Spontaneous Increase of Space Debris
- Difficulties of Active Removal
- Lack of Transparency and Confidence Building Measures
- Difference of Priorities and Funding Levels on Outer Space activities
- Space Based Military Systems

**Factor of Threats**
Objective
• The objective of the Working Group is to examine and propose measures to ensure the safe and sustainable use of outer space for peaceful purposes, for the benefit of all countries

Terms of Reference
• The Working Group will examine the long-term sustainability of outer space activities in the wider context of sustainable development on Earth
• The work will take into consideration current practices, operating procedures, technical standards and
• The Working Group will take as its legal framework the existing United Nations treaties and principles

Outcomes by 2014 (changed to by 2016)
• Prepare a report on the long-term sustainability of outer space activities
• Produce a set of voluntary recommended guidelines

Organization of works
• Four Expert Groups (sustainable space utilization, space debris, space weather, regulatory regime)
• Inputs received from international organisations (e.g. IAA, IADC, CCSDS, etc.) and non-governmental organisations
A. Expert group on sustainable space utilization supporting sustainable development on Earth
   Co-Chairs: Filipe Duarte Santos (Portugal) and Mr. Enrique Pacheco Cabrera (Mexico)
   23 States
   5 IGOs
   7 candidate guidelines
   4 topics for future consideration

B. Expert group on space debris, space operations and tools to support collaborative space situational awareness
   Co-chairs: Claudio Portelli (Italy) and Dick Buenneke (USA)
   23 States
   4 IGOs
   8 candidate guidelines
   3 topics for future consideration

C. Expert group on space weather
   Co-Chair: Takahiro Obara (Japan) and Mr. Ian Mann (Canada)
   27 States
   5 IGOs
   5 candidate guidelines
   2 topics for future consideration

D. Expert group on regulatory regimes and guidance for actors in the space arena
   Co-Chair: Sergio Marchisio (Italy) and Michael Nelson (Australia)
   25 States
   6 IGOs
   11 candidate guidelines
   5 topics for future consideration
The candidate guidelines of the EGs are necessarily thematically oriented and some address cross-cutting issues from a thematic perspective.

Before COPUOS in 2014, Chair integrated and issued the paper composed of 31 candidate guidelines from expert group and 2 additional guidelines added by chair for considerations by the WG. (A/AC.105/C.1/L.339)

These guidelines were broadly grouped into implementation-oriented categories, such as:

- Policy, regulatory, and organizational,
- Scientific and Technical,
- International Cooperation and Capacity building

In June 2014, the Working Group began its consideration of the candidate guidelines, adding 3-additional guidelines, 2 from Russia and 1 from Switzerland and agreed on a framework for the consolidation of the candidate guidelines to eliminate duplication. Further, WG mandate was extended to 2016 to discuss additionally proposed guidelines for inclusion.

In February 2015, WG further considered the consolidated guidelines, resulted to 19 guidelines out of 36 guidelines. (A/AC.105/L.298)

In June 2015, 10 additional guidelines, 8 from Russia, 1 from US and 1 from GRULAC were proposed. France also proposed new structure of guidelines and Japan and US also proposed similar approach.
Current Draft Guidelines

• In October 2015, intersessional informal coordination meeting was conducted with extensive discussion for consolidation.
• The guidelines are grouped into categories to facilitate their implementation by various governmental and non-governmental space actors.
  - policy and regulatory framework for space activities
  - safety of space operations
  - international cooperation, capacity-building and awareness;
  - scientific and technical research and development
  - implementation and updating
• Current proposed guidelines are 29 in total. (A/AC.105/C.1/L.348)
  - For 11, close to consensus (G-5 merged to G-6)
  - For 9, expected to achieve consensus
  - For 8, difficult to achieve consensus
• Phased approach was considered at last week STSC. Preambular text and 17 Guidelines came to nearly consensus last week. However, WG did not achieve consensus for both phased approach and any set of guidelines. At next June COPUOS meeting and intersessional meeting Updated L.348 will be discussed.
POLICY AND REGULATORY FRAMEWORK FOR SPACE ACTIVITIES

- G-1 Adopt, revise and amend national regulatory frameworks for outer space activities
- G-2 Consider a number of elements when developing, revising or amending national regulatory frameworks for outer space activities
- G-3 Supervise national space activities
- G-4 Ensure the equitable, rational and efficient use of the radiofrequency spectrum and the various orbital regions used by satellites
- G-5 Provide registration information on space objects (merged to G-6)
- G-6 Enhance the practice of registering space objects
- G-7 Commit, in national legal and/or policy frameworks, to conducting space activities solely of a peaceful nature
- G-8 Implement operational and technological measures of self-restraint to forestall adverse developments in outer space
- G-9 Implement policy aimed at precluding interference with the operation of foreign space objects through unauthorized access to their on-board hardware and software
- G-10 Refrain from intentional modifications of the natural space environment
SAFETY OPERATIONS

- G-11 Provide contact information and exchange information on space objects and orbital events
- G-12 Improve accuracy of orbital data on space objects and enhance the practice and utility of sharing orbital information on space objects
- G-13 Promote the collection, sharing and dissemination of space debris monitoring information
- G-14 Perform conjunction assessment during orbital phases of controlled flight
  - G-15 Develop practical approaches for pre-launch assessment of possible conjunctions of newly launched space objects with space objects already present in near-Earth space
- G-16 Share operational space weather data and forecasts
- G-17 Develop space weather models and tools and collect established practices on the mitigation of space weather effects
- G-18 NOTE: MAY BE POSSIBLE TO MERGE WITH GUIDELINE 19 Respect the security of foreign space-related ground and information infrastructures
G-19 Strengthen the security and resilience of terrestrial infrastructure upon which the operation of space systems and services depend—(merged with G-18)

G-20 Develop and implement criteria and procedures for the preparation and conduct of space activities aimed at the active removal of space objects from orbit

G-21 Establish procedures and requirements for the safe conduct, in extreme cases, of operations resulting in the destruction of in-orbit space objects

G-22 Develop criteria and procedures for the active removal of space objects, and under exceptional circumstances, for the intentional destruction of space objects, specifically as applied to non-registered objects

INTERNATIONAL COOPERATION, CAPACITY-BUILDING AND AWARENESS

G-23 Promote and facilitate international cooperation in support of the long-term sustainability of outer space activities
G-24 Share experience related to the long-term sustainability of outer space activities and develop procedures for sharing information exchange

G-25 Promote and support capacity-building

G-26 Raise awareness of space activities

SCIENTIFIC AND TECHNICAL RESEARCH AND DEVELOPMENT

G-27 Promote and support research on and development of ways to support sustainable exploration and use of outer space

G-28 Investigate and consider new measures to manage the space debris population in the long term

IMPLEMENTATION AND UPDATING

• G-29 NOTE: CONSIDER INCLUDING AS PREAMBLE LANGUAGE Establish normative and organizational frameworks for ensuring effective and sustained implementation of the guidelines and subsequent activity on their review and enhancements
Timeline

2011  WG adopts Terms of Reference and three-year work plan
      WG establishes four expert groups to consider topics in TOR

2012  First COPUOS Long-Term Sustainability Workshop
      Expert Groups commence work and refines list of topics to discuss

2013  Second COPUOS Long-Term Sustainability Workshop
      Candidate guidelines proposed by expert groups (31+2 guidelines)

2014  WG begins consideration of draft guidelines during STSC (3 additions)
      Begin consideration of consolidated guidelines (19 guidelines) and review
      work plan (agreed on 2-years extension)

2015  Submit proposals on new elements, structural change or additional
      guidelines (10 additions resulted in 46 guidelines in total)
      WG consolidates the updated draft guidelines (29 guidelines)

Way Forward

In February 2016 at STSC  After extensive discussion, nothing has reached
                           consensus
In June 2016 at COPUOS  agree on first set of guidelines and put it in
                           the report of COPUS as an annex, possibly.
                           Agree on next work plan of LTSWG
In October at 2016 at GA  Annex of omnibus resolution adoption
UNISPACE + 50 in 2018  Additional set of guidelines will be agreed
Conclusive Remarks

• It would be still important to look into the overall role in meeting the needs for long-term space utilization by appropriately identifying the synergies of common interest issues with related countries.
• Although consensus was not reached for first set of Guidelines, it is strongly urged to be implemented by new actors as a real product of COPUOS.
• WG work will be extended to coordinate a set of guidelines at June COPUOS meeting.
• Further work will be required and new work plan will be discussed along with UNISPACE+50 process.
• At last STSC, new Expert Group for information exchange was also presented, but no consensus was reached.
• LTS is currently the only multilateral space security initiative that is making slow progress.
• It is highly encouraged to achieve full consensus for the best practice guidelines.
Thank you for your attention!

Visit UNOOSA Website:

http://www.oosa.unvienna.org/oosa/COPUOS/copuos.html
Urgent Needs of Coordination for Outer Space Activities

- Limited nature of some space resources will require governance challenges to ensure equitable access for entities.
- International cooperation will support in the transfer of expertise and technology for the access to, and use of space, by emerging space actors.
- Space industry will lead to decreasing costs for space access and use, and may increase the accessibility for a wider range of space actors.
- Military space sector may be an important driver in the advancement of capabilities to access and use space, but may be source of friction.

Coordination Mechanisms for International Cooperation

- **Long Term Sustainability Working Group (LTSWG)** established in the Scientific and Technical Subcommittee
- **Code of Conduct (ICoC)** for Outer Space Activities initiated by European Union----Voluntary based Politically Binding
- **Report from UN Group of Governmental Experts (GGE)**----Selected by UN Secretary General
- **Treaty on Prevention of the Placement of Weapons in Outer Space and the Threat of the Use of Force against Outer Space Objects (PPWT)** ----Legally Binding
- **Conference of Disarmament (CD)** is still deadlocked