



Aerospace Research Institute
Ministry of Science Research and Technology

Long-term sustainability of outer space activities and small satellites

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Introduction

“sustainability of outer space activities, small satellite and their relation”

- **Sustainability of outer space activities**
 - ✓ balances the objectives of access to the exploration and use of outer space
 - ✓ by governmental and non-governmental entities ,
 - ✓ the need to preserve the outer space environment and the needs of current and future generations
- **SmallSats are a category of satellites having a mass of less usually less than 500 kg.**
- **Small Satellites relationship with sustainability of outer space activities**
 - ✓ High Collision risks
 - ✓ Increasing Debris

Current International Regulations governing small satellites

- Space Law regulations (five space treaties) ; and States' Responsibility
- ITU regulations; and
- A few Space standards such as **Guidelines for the long-term sustainability of outer space activities**

Main Challenges for
long term sustainability of outer space activity
by small satellites

1. The Proliferation of Space Debris;
2. The Increased Risks of Collisions; and
3. Interference With the operation of Space Objects

Concerns on long term sustainability of outer space activity by Increasing Small satellites

- ❖ Technical
- ❖ Safety
- ❖ Security

Debris as a Main Challenge and Guidelines for the Long-term Sustainability of Outer Space Activities

- The U.N.'s Committee on the Peaceful Uses of Outer Space (COPUOS) formally approved [21 guidelines for long-term sustainability of space](#) at the end of its latest session in Vienna June 21, 2019 The U.N.'s
- Committee referred them to the U.N. General Assembly for endorsement later this year.
- The guidelines cover a range of recommended behaviors and best practices in space, including safety of space operations and international cooperation.

Guidelines for the Long-term Sustainability of Outer Space Activities

- A. Policy and regulatory framework for space activities**
- B. Safety of space operations**
- C. International cooperation, capacity-building; and awareness**
- D. Scientific and technical research and development**

The Guideline and Small Satellite

- ❖ C. Report of the Legal Subcommittee on its fifty-eighth session
General exchange of views on the application of international law to small-satellite activities
- ❖ G B.8: Design and operation of space objects regardless of their physical and operational characteristics

Failure of current space law for applying to small satellite activities

- The small satellite can not be tracked by ground based radars;
- Neglecting small satellite operators to treaty requirements and not controlling their performances; and
- The Guidelines for the long-term sustainability of outer space activities and other standards are soft law

Emerging the new Legal challenges

Structural problems:

- Lack of a regulatory international entity
- Lack of national space regulatory entity

Problems of law and regulation:

- Lack of entry into force space international regulations and standards
- Lack of Uniformity National space Law and Regulation

Needs to A New Approach to Civil and Commercial/ Space Activities

- Separation of civil space activities from the military operations
- Space traffic management as a necessary measures by international body
- Modeling relevant international law and entities such as ICAO, ITU and so on.

Conclusion

- Authorization, supervision, and registration can ensure good governance of small satellites activities;
- UN must enact appropriate international regulatory mechanisms governing commercial space activities, with attention to space traffic management regarding space objects including small satellites activities;
- States must enact appropriate national regulatory mechanisms governing space activities, with attention to a tailored and reasonable normative regarding small satellites activities, supportive for operators.

Thank you for your attention



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