UNITED NATIONS
Office for Outer Space Affairs

AWARENESS-RAISING AND CAPACITY-BUILDING RELATED TO THE IMPLEMENTATION OF THE GUIDELINES FOR THE LONG-TERM SUSTAINABLITY OF OUTER SPACE ACTIVITIES (LTS GUIDELINES)

Event 1 – Section A

Policy and Regulatory Framework for Space Activities

5 April 2023

Summary Report

About the Project

The Awareness-raising and Capacity-building Related to the Implementation of the LTS Guidelines Project is delivered in the context of the 2019 adoption of the Guidelines for the Long-term Sustainability Outer Space Activities (LTS Guidelines) by the Committee on the Peaceful Uses of Outer Space (COPUOS).

Building upon the success of the multi-stakeholder event series organized in 2021, and the stakeholder study report published in 2022, the third phase of the project once again convenes key players through a new virtual event series. Each event is linked with one section of the LTS Guidelines (A-D), engaging diverse experts in the space field in targeted discussions.

Event #1 – Section A

Policy and regulatory framework for space activities

To access the recording of the event, please click **here**.

Panelists:

- **Moderator: Steven Freeland,** Emeritus Professor – Western Sydney University; Professorial Fellow – Bond University
- **Guoyu-Wang,** Dean – Academy of Air, Space Policy and Law, Beijing Institute of Technology (BIT)
- **Nadia Karemera**, Strategy Analyst – Rwanda Space Agency
- **Ruvimbo Samanga,** Analyst, Space & Spectrum Policy – Access Partnership
- **Tare Brisibe,** Senior Legal and Regulatory Counsel, Asia-Pacific – SES
- **Véronique Glaude,** Senior Radio Communications Engineer and International Telecommunication Union (ITU) Representative to COPUOS – ITU

Summary

The moderator, **Steven Freeland** started his intervention by highlighting the multifaceted nature of outer space. He stressed how everybody depends on space activities and that humanity has been utilizing space for peaceful purposes for more than seven decades, but only recently, space has started to be perceived as a fragile ecosystem. Because of its fragile nature, the moderator argued, human space activities need to be monitored and regulated, in order to ensure ongoing access to space and its benefits.

The international community, and particularly the Committee on the Peaceful Uses of Outer Space (COPUOS), has recognized the subject of the long-term sustainability of outer space activities as a focal point of global space policy. This led to a more than eight-year-long negotiation process and as a result, the adoption of the LTS Guidelines. When addressing this milestone instrument, Mr. Freeland first touched upon the document's preamble, which begins: "The Earth's orbital space environment constitutes a finite resource (…)". Even though orbits are finite, the moderator continued, there is an increasing number of space actors, which leads to endless possibilities. Such never-ending opportunities should be balanced with the ability to provide the needs of the present generation, while preserving the outer space environment for future generations. As an answer to such challenges, Mr. Freeland claimed, the twenty-one guidelines, divided into 4 sections provide a holistic approach on a voluntary premise, based on internationally recognized measures and standards addressed to all space actors.

After his first remarks, the moderator gave the floor to each speaker to give their observations on the subject.

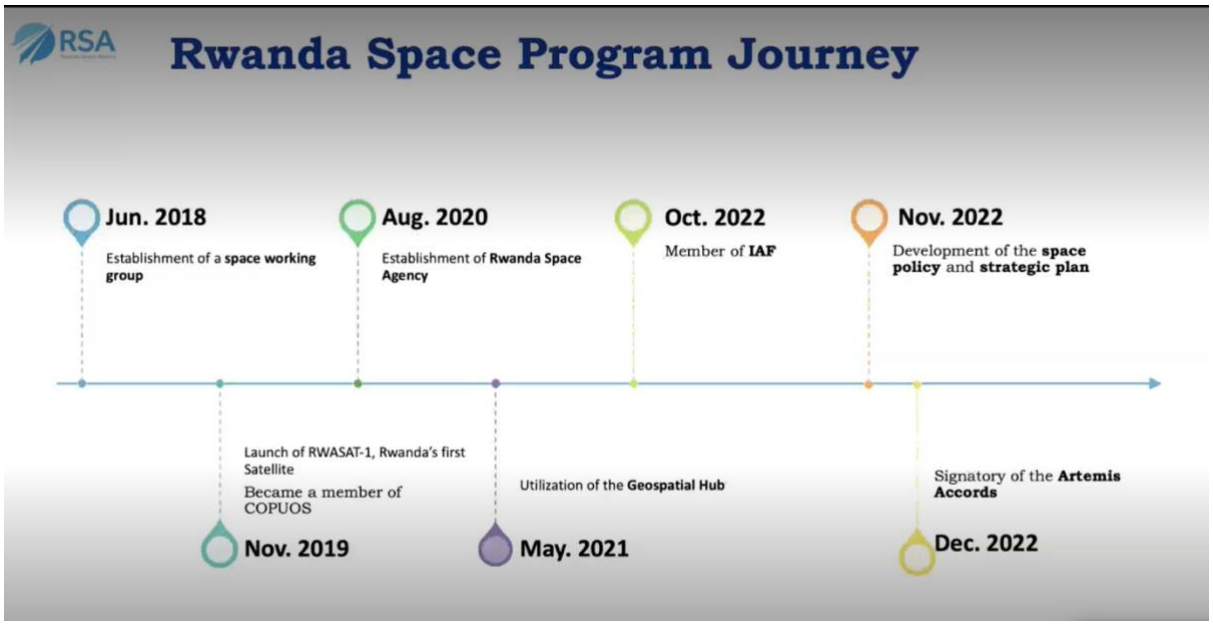
The first speaker of the event, **Guoyu Wang** emphasized that the LTS Guidelines addresses space matters in a comprehensive manner. He commented on how the process of developing and negotiating the Guidelines, including the work of the expert groups, had taken nearly a decade, but had been a great way to better understand the mutual views and positions of COPUOS delegates on critical matters related to the orbital space activities. Mr. Wang underlined **Guideline A.5** – Enhance the practice of registering space objects – in his intervention, stipulating that the requirements for registration of space objects are crucial, even though there are still some remaining questions on the topic to be answered before the global space community. Mr. Wang also drew the audience's attention to a COPUOS document, available in all the official languages of the United Nations,

which includes information on China's implementation of Section A of the LTS Guidelines (see A/AC.105/C.1/L.409/Add.4).

The second speaker, **Véronique Glaude** elaborated on the role of the International Telecommunication Union (ITU) in supporting the implementation of **Guideline A.4** – Ensure the equitable, rational and efficient use of the radio frequency spectrum and the various orbital regions used by satellites. Ms. Glaude emphasized that A.4 refers both to the Constitution and to the Radio Regulations of the ITU, and through both documents, the idea of sustainability appears as a key dimension of ITU in sharing and using the limited natural resources of the radio spectrum of the orbits. The radio spectrum specialist underlined three key dates from the history of the ITU related to space sustainability. First, 1865, when the ITU was established as the first international intergovernmental organization – as International Telegraph Union at that time – with the aim to establish a sustainable and international communication system. In 1906, the first version of the Radio Regulations was adopted, to sustainably manage the frequency spectrum, as a natural resource. Ms. Glaude highlighted that the Radio Regulations have served as an evolutive binding tool to the ITU Member States, to keep the use of spectrum sustainable, as the Radio Regulations adapt to the evolution of space technologies. Lastly, in 1963, the ITU revised the Radio Regulations and introduced two new services into the documents: space radio services from orbits and radio astronomy. In addition to the above, Ms. Glaude noted that the last ITU Plenipotentiary Conference took place in 2022, when ITU Member States approved a new resolution on the sustainability of the radio spectrum and associated satellite orbit resources used by space services. As such, Member States instructed the Radiocommunication Assembly (RA) to urgently perform the necessary studies through study groups to address the increasing use of radio spectrum and associated orbit resources in non-geostationary (non-GSO) orbits and the long-term sustainability of these resources.

Nadia Karemera introduced the establishment of the Rwanda Space Agency (RSA),[1] and outlined the journey of the Rwanda Space Program since 2018 up to 2022, when the country developed its space policy and strategic plan.

[1] Ms. Karemera's introductory observations on the establishment of the Rwanda Space Agency can be connected to Guidelines A.3 – Supervise national space activities of the LTS Guidelines.



Excerpt from Nadia Karemera's presentation

According to Ms. Karemera, the space agency has 4 key responsibilities that are regulation, advice, cooperation, and scientific research and innovation. When it comes to regulatory activities, RSA regulates and coordinates all space activities of various sectors and stakeholders in the country. RSA also builds partnerships with the space industry, which enhances commercialization of space activities within the country. Ms. Karemera also explained that the space agency supports the utilization of the country's Geospatial Hub, set up in 2021, which is associated with smart agriculture, urbanization, disaster management, and climate change activities. Other important aspects of RSA's space activities are small satellite manufacturing and provision of satellite communication services.

In her introduction, the fourth speaker, **Ruvimbo Samanga** looked at different stakeholder initiatives that she has come across as a Space and Policy Spectrum Analyst at Access Partnership, both relevant to the private and public sector. Ms. Samanga also addressed the importance of national regulation,[2] relevant to risk avoidance and with respect to maintaining or to protecting the value of the revenue streams of outer space activities. Additionally, national regulation – according to Ms. Samanga – can bridge the compliance gaps, which further supports monitoring and enforcement activities to ensure that space remains a safe and secure environment.

[2] Ms. Samanga's remarks can be associated with Guideline A.1 (Adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities) and A.2 (Consider a number of elements when developing, revising or amending, as necessary, national regulatory frameworks for outer space activities) of the LTS Guidelines.

Ms. Samanga compared outer space governance to the management of the trade industry, where reducing technical and economic barriers are essential to encourage growth, to foster innovation, and to ensure that the users have great experience, while also reaching the most vulnerable ones. The expert highlighted the role of the private sector in creating standards, or collaborative baselines, which are best elaborated – according to Ms. Samanga – when experience and information sharing are present. The LTS Guidelines in this regard effectively emphasizes the issue of standards and allows companies to not only grow, but also to give back to the community in a sustainable manner.

In his introductory remarks, the fifth speaker, **Tare Brisibe** stressed that the LTS Guidelines were formulated in the spirit of enhancing sustainable practices of States and international intergovernmental organizations. At the same time, Mr. Brisibe noted that the LTS Guidelines are relevant to both governmental and non-governmental entities, including private entities. Mr. Brisibe, a representative of SES (a space company, which operates its satellites in multiple orbits), explained that SES registers all of its satellites through various administrations, in line with **Guideline A.5**. Furthermore, SES provides critical services for Earth applications, therefore environmental sustainability is a core pillar of their governance strategy.

Within the sustainability pillar of SES, the space law expert continued, they concentrate on the life-cycle assessment of their products and services. Through life-cycle assessment, Mr. Brisibe explained, SES hopes to understand and quantify the impact of their operation which, in turn, allows them to make informed decisions to reduce their environmental footprint and to develop new eco-design products. Such attitude is consistent with **Guideline A.3** according to Mr. Brisibe, on supervising national space activities, as it anticipates States to encourage each space entity, through the development of specific requirements and procedures, to address the safety and reliability of outer space activities, especially during all phases of a mission life-cycle. In terms of **Guideline A.4**, Mr. Brisibe argued that SES mostly operates its satellites in the geostationary orbit (GSO) and in medium-Earth orbit (MEO). Accordingly, the expert highlighted, satellite operators should take efficient steps to dispose or remove their spacecrafts when their operational phase is terminated; SES therefore deorbits such spacecrafts to the graveyard orbit.

During the discussion of the event, two questions of the audience were addressed by the panelists. The first question dealt with **Guideline A.2**, which lists numerous elements that States should consider while developing, revising or amending their national regulatory frameworks for outer space activities. The question raised

whether the elements enlisted in Guideline A.2 are sufficient and comprehensive to keep the Earth's orbits sustainable, or if other factors should also be considered.

In his remarks, **Mr. Wang** highlighted the role of registration over spacecraft ownership and nationality and made parallels to such practices under aviation and maritime law, especially related to liability concerns. Mr. Wang stressed that there is no discussion on the feasibility to create a new registration regime relevant to objects launched into outer space; he also added that this step may need to be taken soon.

Ms. Samanga provided her thoughts on the first question by acknowledging the existing legal frameworks of space law and governance. Ms. Samanga then called the attention to the *Kaizen approach,*[3] which could be applied in the space domain as well – the global space community continuously sets new benchmarks, while making sure that the sustainable actions are meaningful, they are feasible, and that operators can begin putting them in place right away. Ms. Samanga also commented on the role of space governance, which does not only entail binding international space law sources and national regulations, but also industry-led practices, norms of behavior, as well as other soft law instruments, such as the LTS Guidelines. Ms. Samanga also called for the need for information sharing practices to be able to decide on the baselines for collaborations, and to include new practices in the existing foundations.

Mr. Brisibe called the attention to article VI of the Outer Space Treaty, which also provides the core legal framework of **Guideline A.3** – supervision of national space activities. Mr. Brisibe noted that the supervisory process is a consequence of the individual needs of a nation. Moreover, Mr. Brisibe highlighted **Guideline A.2**, claiming that, in implementing their obligations, States take measures that are unique and specific in the context of their own national, economic and social interests; and that they lead the way as advocates and collaborators through partnerships to develop best practices for responsible use of space. Some of the initiatives on the subject mentioned were the Net Zero Space Initiative, and the Space Safety Collation's best practices. Continuing the thought process, Mr. Brisibe concluded that such initiatives – following a bottom-up approach – can feed into the efforts of various regulatory authorities, who are otherwise directly responsible for implementing the LTS Guidelines.

The second question dealt with the ITU regime, whether the increasing number of ITU filings – especially regarding large constellations – should be regulated more strictly by the ITU. **Ms. Glaude** addressed the question by emphasizing that it is the

[3] According to TechTarget, the Kaizen approach favors the view of creating continuous improvement based on the idea that small, ongoing positive changes can reap significant improvements.

national delegates who decide during the radio communication conferences every four years to make amendments to the binding Radio Regulations. That is why it is important that effective discussion takes place among the delegates of COPUOS and the ITU, so they can align their goals on space sustainability matters and preferably on the new challenges that the large constellations bring about.

As a conclusion of the event, each panelist addressed one challenge that should be more comprehensively dealt with within the framework of the LTS Guidelines. In his closing remarks, **Mr. Wang** emphasized the increasing urgency of addressing challenges posed by large constellations, which should be addressed in the upcoming discussions on the LTS Guidelines. **Ms. Samanga**, underlined the need for international cooperation and multistakeholder discussions to create collaborative baselines. The issues of equitable access, and the growing number of small satellites launched into low-Earth orbit were also critical according to Ms. Samanga. Last, **Ms. Glaude** shared the views of Ms. Samanga by stating that equitable access is indeed key from the ITU's point of view, and she hoped that the delegates in both COPUOS and ITU fora would find a way to incorporate the sustainability element more in their activities.

Conclusion

The event ended with the concluding remarks of **Mr. Freeland**, who characterized the LTS Guidelines as an incredible document put together through a multistakeholder approach, inclusive of many different perspectives, to reflect what the global space community knew at the time of the adoption as good practice and the way forward. Mr. Freeland pointed out, however, that technology is ever-changing, and the scope of space activities has broadened since COPUOS reached consensus on the Guidelines. This means the LTS Guidelines needs to be a living, breathing document, with its implementation taking into account the dynamics of space activities continue to change, and all voices included in decisions on the way ahead.

The project entitled "Awareness-raising and capacity-building related to the implementation of the LTS Guidelines" is made possible through funding support provided by the UK Space Agency.