

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

Event 3 - Section C, International Cooperation, Capacity-building and Awareness

12 June 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 #3 - International cooperation, capacity building and awareness

To access the recording of the event, please click [here](#).

Panelists:

- **Moderator: Moriba Jah**, Co-Founder and Chief Scientist - Privateer Space
- **Fariz Outamazirt**, Expert in Satellite Communications Value-Added Services - Algerian Space Agency
- **Gina Petrovici**, Law and Policy Advisor - German Aerospace Center (DLR)
- **Milind Pimprikar**, Chairman - CANEUS International
- **Rosa Jesse**, Senior Editor - European Space Agency (ESA)

Summary

The moderator, **Moriba Jah** started his intervention by introducing the three main topics relevant to Section C, international cooperation, capacity-building and awareness. Through a short video summary, Mr. Jah depicted similarities between the environmental degradation on Earth and the growing space debris issue in the

Earth's orbits. Accordingly, we as humanity have chosen to explore and unsustainably use our land, ocean and air to the detriment of the environment, and all living creatures on Earth. Our actions lead to instability between humans and the environment. However, Mr. Jah underlined, there was still time to turn things around, not only on Earth, but also in our orbital space environment.

Mr. Jah shared examples of how humanity depends on services and capabilities provided by space assets. The growing volume of space debris, however, is increasingly threatening our access to space and risks our ability to leverage space-based services. Space debris positioning provides information of specific orbital momentums and shows that the so-called "orbital highways" are becoming increasingly congested, as the rate at which space objects are being launched into the Earth's orbits far exceeds the removal rate.

Moreover, there is an increasing risk of uncontrolled re-entry of space debris that may hit populated areas, potentially resulting in great financial losses and even costing human lives in the future. The dark and quiet skies problem is also a concern, according to the moderator. In addition, Mr. Jah asserted that humanity will not stop launching space assets. In fact, there is an exponential growth of satellite launches, and therefore the need to find a way to act in a more sustainable manner. Besides the creation of an international space traffic cooperation mechanism, Mr. Jah highlighted the need to consider Indigenous knowledge in reaching the long-term sustainability of outer space activities, given Indigenous peoples are the original stewards of our planet with invaluable traditional ecological knowledge (TEK). The teachings of Indigenous peoples, Mr. Jah concluded, may help us to achieve sustainability in a holistic way - relevant to land, air, oceans and outer space.

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

The first speaker of the event, **Fariz Outamazirt** emphasized that awareness on the long-term sustainability of outer space activities, especially in developing countries, starts with outreach activities focusing on the use of space-based services in everyday life, especially as relevant to the achievement of the United Nations Sustainable Development Goals (SDGs). This awareness step helps the general public and decision makers comprehend that space technologies have become indispensable in everyday life, providing a wide range of services in the country [**Guideline C.4**]. Mr. Outamazirt presented the use of space applications in Algeria in his introduction, including their relevance to agriculture; climate change; disaster

risk management; communications and navigation. By leveraging innovation, digital and frontier technology, including the use of space technology applications, Mr. Outamazirt explained, Algeria can effectively deliver services and engage the whole of society in achieving the SDGs. In terms of international cooperation [**Guideline C.1 and C.2**], Mr. Outamazirt emphasized that the Algerian Regional Support Office (RSO) of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) has been hosted by the Algerian Space Agency since 2009. Mr. Outamazirt shared that, from an Algerian perspective, international cooperation in the peaceful use of outer space was the most appropriate way to facilitate knowledge-sharing, transfer of the expertise and to promote space technology and application in support of sustainable socioeconomic development.

The second speaker, **Gina Petrovici** began her remarks by emphasizing the urgency and importance of organizing international and multi-stakeholder discussions on the topic of the long-term sustainability of outer space activities [**Guideline C.4**]. Such awareness and capacity-building events lead to exchange of information and learning of new insights, which allow the global space community to identify synergies across their space capabilities and programs. This further allows for matching capacity-building needs with existing and potential opportunities [**Guideline C.3**]. Regarding Germany's overall implementation of the LTS Guidelines, Ms. Petrovici drew the audience's attention to information on Germany's implementation experiences (see document [A/AC.105/C.1/L.409/Add.4](#)). In terms of Section C of the LTS Guidelines, Ms. Petrovici emphasized that it is through active exchanges between COPUOS States members [**Guideline C.1**] and capacity-building efforts of space agencies, research institutions and industry that space activities are becoming increasingly accessible to new actors in the space domain.

In addition, two capacity-building activities [**Guideline C.3**] were highlighted by Ms. Petrovici, the [Drop Tower Experiment](#) and fellowship program of the UNOOSA Access for Space for All Initiative in collaboration with the Center of Applied Space Technology and Microgravity (ZARM) and the German Aerospace Center (DLR); and Germany's overall contribution to raise awareness about and increase understanding of space law. Consequently, Ms. Petrovici highlighted capacity-building activities carried out through the UNOOSA [Space Law for New Space Actors Project](#), or via several space law projects managed by the [European Centre for Space Law](#) (ECSL) and the [Space Generation Advisory Council](#) (SGAC), and lastly the [Manfred Lachs Space Law Moot Court Competition](#) organized by the International Institute of Space law (IISL).

Next, **Milind Pimprikar** introduced the work of CANEUS, a non-profit organization concentrating on the development of emerging technologies through international collaborations especially relevant to the space domain. Mr. Pimprikar first discussed the relationship between the so-called traditional Indigenous knowledge (TIK)¹ and space technology and explained that the relevance of TIK to space activities has not been fully recognized by the global space community. Furthermore, TIK is scattered, at times exists in small pockets, and much is transferred through practices not well documented. It needs to be recognized, preserved, and protected. Hence, CANEUS created the Indigenous Knowledge Research Infrastructure (IKRI) to ensure that Indigenous Peoples and Local Communities preserve their knowledge and practices. The IKRI will integrate TIK into various space applications, such as geospatial intelligence, Earth Observation (EO) and navigation. Through their IKRI initiative, CANEUS is working towards stimulating collaborations between the global space community and indigenous communities towards the achievement of the SDGs, as well as relevant to the sustainable management of the orbital space environment [**Guideline C.1, C.2, and C.3**].



Excerpt from Mr. Pimprikar presentation

Moreover, Mr. Pimprikar introduced the G20 space solutions mechanism, to address multiple challenges due to the lack of access to near-real time, high complexity EO data and actionable information [**Guideline C.3**]. CANEUS has proposed multiple solutions to implement by the G20 mechanism, with the emphasis on collaborations especially with respect to the management of daily EO data, the most crucial space application in the achievement of the 17 SDGs.

¹ Traditional indigenous knowledge (TIK), referenced by Mr. Pimprikar and traditional ecological knowledge (TEK) mentioned in Mr Jah's introduction refer to the same concept.

In her introduction, the fourth speaker, **Rosa Jesse** shared her first-hand and personal experience as a science communicator. Working with ESA, she has had the opportunity to communicate on the issue of space debris, and the [impact of space activities on our orbital space environment](#). According to Ms. Jesse, public awareness on space sustainability varies widely. While there are many people who have not heard of space debris and are not aware of the huge role that satellite technologies have in our daily lives, others follow the subject very closely and are very critical and concerned about what is happening. As a science communicator, Ms. Jesse explained that of all the topics she writes about, those in connection with space sustainability are the most emotive. The topic can trigger feelings of anger, disappointment and hopelessness, because with the issue seeming too large and difficult and so won't be resolved. Such responses are similar to those in response to the climate crisis. The difference between the two subjects, according to the science communicator, is that the idea of space, and especially the orbital space environment, as a limited natural resource is still a new one, at least in popular culture. For a long time, outer space seemed infinite, untouchable, empty, and we are seeing now that we actually have an impact on it. The effects of using space in an unsustainable way are also not quite as direct as the climate crisis is now. However, videos are increasingly being shared as people are witnessing trains of satellites being launched and reentering through the atmosphere. Ms. Jesse emphasized that we should learn from the successes and failures of decades of communication on the climate crisis, as our impact on the planet was once also a new idea that many were skeptical about but is now widely accepted. A difficulty with communicating this topic is that people feel, understandably, that they do not have a say over what happens in space or how space actors behave. Therefore, Ms. Jesse highlighted that it is up to science communicators that, "while we inspire a sense of urgency [through outreach activities], we also make people realize that there are solutions", but that we should consider how people could and should have a voice, so that space is done with the public and not "to" them. [**Guideline C.4**]. Lastly, Ms. Jesse called the attention to an even more inclusive approach of science communication, especially through the use of the Internet and social media, as such platforms offer great opportunities to be in an interactive dialogue with the public and to make sure that the process of tackling space debris is something that is done as a society.

During the discussion portion of the event, the moderator began by inviting the panelists to discuss how to effectively recruit empathy for people to care about space sustainability. **Ms. Petrovici** underlined the importance of involving the youth in capacity-building and awareness-raising activities, to learn about the challenges of space sustainability and how to tackle them. This way, the younger generation can start their activities in the space domain with existing knowledge on the issues and about the potential ways fighting those challenges. **Mr. Outamazirt** argued that international regulations, guidelines, standards, and best practices relevant to the long-term sustainability of outer space activities should be followed by all space actors, as such instruments also promote transparency and build trust among the

actors. **Ms. Jesse** and **Mr. Jah** agreed that having options of what people can do to tackle the growing space debris problem is challenging, yet a crucial factor to build into communication strategies. The [Space Sustainability Rating](#) was mentioned among the speakers as an example of a tool that could help people make informed decisions.

The role of sharing information and experience [**Guideline C.2**] was also underlined during the discussion, as such actions allow for common knowledge and common practices of space operations to develop. **Mr. Pimprikar** added to the conversation that through the G20 mechanism, they try to build a digital highway platform for space data where they bring together the data providers with the end users in need of such data (e.g. for agriculture or water conservation needs). Additionally, the necessity of showcasing existing practical case studies in using such data was emphasized, along with the need to set up an open repository of critical data. Moreover, software standardization was mentioned as an important further step towards a more sustainable outer space environment.

Conclusion

In their short concluding remarks, the panelists stressed that international cooperation and information sharing are inevitable to ensure that capacity-building and awareness activities have a true impact in the long-term sustainability of outer space activities. Lastly, the important role of future generations in shaping the course of sustainable space activities was highlighted.

[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.