

Agenda Item – 12

Long-term sustainability of outer space activities

Mr. Chair and Distinguished delegates,

Long-Term Sustainability of outer space activities remains a matter of utmost priority to India, and will play a meaningful role in the international efforts in addressing challenges to the sustainable use of outer space. The voluntary implementation of the adopted LTS guidelines, and sharing of implementation experiences, practices and lessons learned are crucial in this respect. The challenges posed by rapidly evolving space scenario also needs to be addressed. In this regard, we are encouraged by the progress made by the Working Group on LTS, and congratulate the Chair of the Working Group Mr. Umamaheswaran Raman of India for his efforts in effectively steering the work of the Working Group, and UNOOSA secretariat for the excellent support extended to the efficient functioning for the Working Group.

Mr. Chair,

India has been actively participating and contributing to the efforts of Working Group on Long Term-Sustainability of Outer Space Affairs. India through its submission to the Working Group provided its views on challenges for long-term sustainability of outer space activities, and shared its experiences, practices and lessons learned from the voluntary national implementation of the adopted LTS guidelines.

In the submission, we focused our attention to the challenges to the long-term sustainability of outer space activities that arise in the context of the safety of spaceflight, especially while operating in the presence of large constellations and small satellites. We voiced our concerns on the collision risks involving small satellites without provisions for tracking, maneuvering and point of contact. Restrictions on the availability of conjunction-free lift-off timings due to the proliferation of LEO constellations is another concern, which is expected to be further exacerbated in coming days. The risks posed by defunct satellites of the large constellations also needs to be addressed, as number of such satellites is expected to rise considerably when multiple constellations

are fully deployed. Large constellations can also affect the object detection capability of ground-based optical telescopes. We are hopeful that these challenges will be suitably addressed by the Working Group.

Mr. Chair,

India is a party to all major international treaties and regulations related to outer space, including Outer Space Treaty, the Rescue Agreement, the Liability Convention and the Registration Convention. Indian Space Research Organisation (ISRO) follows internationally accepted Space Debris Mitigation Guidelines and best practices while conducting space operations. ISRO System for Safe and Sustainable Space Operations Management (IS⁴OM) has been established to ensure that Indian outer space activities are conducted in a safe and sustainable manner. India is actively involved in the activities of the IADC, IAA Space Debris Working Group, the IAF Space Traffic Management Technical Committee, and ISO Working Group 7 related to the long-term sustainability of outer space activities.

ISRO regularly conducts Space Object Proximity Analysis to identify potential collision threats to operational satellites and performs collision avoidance maneuvers as and when needed. Any maneuver plan for maintenance of mission orbit is subjected to conjunction assessment to ensure that post maneuver orbit of the satellite is clear from collision threats. ISRO carries out Launch COLLision Avoidance (LCOLA) for different lift-off timings within the entire launch window to detect any close approach of space objects during the ascent (and descent) phase of the launch vehicle and the initial orbital phase of the payload(s) after the injection.

As part of the efforts for efficient use of orbital regions, ISRO meticulously carries out post-mission disposal of GEO (Geostationary Earth Orbit) satellites by maneuvering them away from the GEO protected region, followed by passivation to minimise post-mission break-up risk. Efforts have been initiated for post-mission disposal of LEO objects to limit their presence in the LEO region. To cite a recent example, the Earth Observation satellite MeghaTropiques has been de-orbited through a series of maneuvers at its end-of life, as a result, its post mission life time, which would have

been more than 100 years, is now reduced to only a few months. It is further planned to carry out controlled re-entry of this satellite in uninhabited region over the Pacific ocean.

Indian satellite RISAT-2, which was launched from India in 2009 has recently reentered earth's atmosphere in October 2022. It was continuously tracked, and reentry predicted and monitored using the data from Indian ground-based radar and from USSPACECOM.

On the policy front, necessary legal framework is being revised to facilitate the private participation in Indian space sector, as provisioned in the recent space reforms. The newly established national space regulator INSPACe has already provided authorization to many space activities including suborbital launch, satellite manufacturing and downstream products and services. We are happy to report that an Indian private company in the field of Space Situational Awareness has launched its dedicated commercial space-based space weather monitoring system satellite recently.

Mr. Chair,

India has also been making efforts for raising awareness on LTS. An international workshop on Space Situational Awareness and Space Traffic Management was organized by India in January 2023 which focused on the challenges posed by the rapidly changing Space Environment and deliberated on the methods, procedures, technologies, and policies for ensuring long-term sustainable utilisation of outer space. The workshop featured invited talks by the leading experts across the globe, panel discussions, and a one-day industry meet, where leading and upcoming industries involved in SSA and observational sensor manufacturing and academia participated to deliberate on the road-map to improve SSA and STM capabilities for LTS.

In conclusion, India places highest importance to long-term sustainability of outer space and is committed to play a responsible role in the international efforts towards preserving benefits of outer space for the future generations.

Thank you, Mr. Chair and distinguished delegates.