Agenda Item – 7: Space Debris

Mr. Chairman and Distinguished Delegates,
The rapidly increasing space object population including operational satellites and debris, pose a looming threat to humankind's capability of utilising space for the development and benefit of our societies. It adds questions on the long term sustainability of outer space and the safe and productive utilisation of space in the future.

Mr. Chairman,
India accords utmost importance to the long-term sustainability of outer space activities, undertakes relevant studies, analyses and projects to intensify its efforts towards ensuring sustainable and meaningful use of outer space. India is committed in the efforts to mitigate the threats posed by orbital debris to safe space operations. India implements the space debris mitigation guidelines recommended by United Nations (UN) and the Inter-Agency Space Debris Coordination Committee (IADC) to the maximum extent feasible and practicable in all its space missions.

The upper stages of all Indian satellite launch vehicles are passivated after payload injection to minimize the risk of any possible explosion that may create space debris. Such passivation was carried out for the upper stages of the recently launched PSLV C52, PSLV C53, PSLV C54, and LVM3 Mission.

In order to synergise space debris studies and mitigation efforts across the country, the ISRO System for Safe and Sustainable Space Operations Management (IS^4OM) has been established. It undertakes COLlision Avoidance (COLA) assessments to ensure safe, collision-free lift-off times within the designated launch windows for all its launch vehicle missions. The satellite separation sequences are designed to avoid any risk of collision amongst the separated payloads after injection. ISRO undertakes Space Object Proximity Analysis (SOPA) daily for all its operational spacecraft to mitigate any close approach risk with catalogued space objects. Coordination with external agencies is carried out for the exchange of relevant information to improve the accuracy of close approach analysis. A total of 14 collision avoidance manoeuvres for LEO and 7 collision avoidance manoeuvres for GEO satellites were carried out in 2022.

Mr. Chairman,
In order to comply with the post mission disposal guidelines for LEO objects, the MeghaTropiques satellite was de-orbited through a series of manoeuvres at the end of its life. Consequently, the post mission orbital lifetime of the satellite has now been reduced to a few months. It is further planned to carry out controlled re-entry of the satellite over an uninhabited area safely.

Through the NEtwork for space object TRacking and Analysis or NETRA project, India strives to enhance its existing capability of tracking and monitoring objects in space, including space debris. Under NETRA, the establishment of dedicated observation

facilities are progressing across the country. In addition to collision risk assessment and mitigation, re-entry analyses and predictions are being carried out on regular basis, continual efforts are underway to improve the accuracy of predictions. ISRO regularly participates in the annual IADC re-entry prediction campaign and provides the re-entry predictions using its in-house developed tools.

Mr. Chairman,
The problem of space debris is indiscriminating and of global nature. Sharing and exchange of relevant data and information is therefore vital among international space entities for effective monitoring and mitigation of the space debris environment. ISRO upholds the importance of technical cooperation to tackle the problem of space debris and is actively involved in activities of the IAA Space Debris Working Group, the IAF Space Traffic Management Technical Committee and the ISO Working Group 7.

Mr. Chairman,
An international workshop on "SSA & STM: Growing Concerns on Space Environment" during January 11-13, 2023 at Bangalore was organised to raise awareness among the new space actors about the challenges posed by proliferation of space debris and the need to develop innovative solutions to tackle these challenges.

Mr. Chairman,
The widening scope of space activities and the increasing number of non-traditional actors in space present unprecedented challenges for the future of space operations. It is the responsibility of all member states to imbibe on the emergent space actors the importance of responsible behavior in space, and instill in them the discipline to undertake best practices by adhering to the space debris mitigation guidelines.

Thank you, Mr. Chairman and distinguished Delegates.