

## **Workshop of the Working Group on the Long-term Sustainability of Outer Space Activities**

### **Panel 2 on Safety of space operations**

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**“Efforts of India in complying with guidelines related to long-term presence of space objects at end-of-life, case studies and future plans”**

1. India has always placed high importance on the sustainable utilisation of outer space and its preservation for the future generation. Continual and proactive efforts are undertaken for space debris mitigation in the design, operational, and disposal phases for Indian space programmes.
2. This talk features the various efforts undertaken by India for limiting the long-term presence of space objects at their end-of-life, which includes post mission re-orbiting of geostationary orbit (GEO) satellites, de-orbiting of low-Earth orbit (LEO) objects, and passivation. Specific case studies of a few recent post-mission disposal of ISRO’s GEO satellites, de-orbiting of LEO satellites (Cartosat-2, Microsat-1), deorbiting of Polar Satellite Launch Vehicle (PSLV) upper stages and the controlled re-entry experiment of Meghatropiques 1 are included.
3. Future endeavours to improve the compliance with the guidelines related to the long-term presence of space objects, especially for LEO satellites, are also presented. Finally, the importance of awareness-raising among the emergent space actors, sharing of experience, and hand-holding for better compliance with these guidelines are highlighted.