

GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE

RAJYA SABHA

**UNSTARRED QUESTION NO. 2213**

TO BE ANSWERED ON THURSDAY, DECEMBER 21, 2023

**STEPS TO ENHANCE INTERNATIONAL COLLABORATION IN SPACE  
EXPLORATION**

2213. SHRI BABUBHAI JESANGBHAI DESAI:

Will the PRIME MINISTER be pleased to state:

- (a) the steps being taken to enhance international collaboration in space exploration and technology development;
- (b) the measures which are in place to ensure the responsible use of space resources and present space debris;
- (c) the details on the utilization of satellite technology for various socio-economic and environmental applications;
- (d) the manner in which Government is supporting the development of private space industry in the country; and
- (e) the initiatives being taken by Government to promote space education and awareness among the country's youth?

**ANSWER**

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC  
GRIEVANCES & PENSIONS AND IN THE PRIME MINISTER'S OFFICE  
(DR. JITENDRA SINGH):**

- (a) Several steps are being taken to enhance international collaboration in space exploration and technology development such as organizing bilateral meetings on the sidelines of international conferences both in India and outside; Facilitating the interaction between foreign and Indian industries/ academia; Taking up space cooperation as part of various Government-level Joint Committees. Such steps are expected to lead to MoUs/ Agreements, forming of Joint Working Groups and implementation of specific activities that are mutually agreed to.
- (b) In 2022, ISRO System for Safe and Sustainable Operations Management (IS<sup>4</sup>OM) was established, to ensure concerted efforts towards safe and sustainable use of outer space. Several mitigation measures are practiced while conducting space activities such as passivation of upper stages of launch vehicles, Launch COLLision Avoidance (COLA) assessments, close approach analyses for operational satellites, post mission disposal of geosynchronous satellites to graveyard orbits, and end-of-life de-orbiting of LEO (Low Earth Orbit) satellites and rocket stages.
- Continual and dedicated efforts are pursued to improve the compliance level with various space debris mitigation guidelines.
- Efforts are also underway to set up observational facilities, namely radars and optical telescopes, for tracking and monitoring of space object, including space debris.
- (c) Space-based applications derived from remote sensing, satellite communication and navigation have become an integral part of the value chain of the user agencies and user communities addressing various socio-economic and environmental applications. Satellite technologies have directly and indirectly benefited in areas like weather prediction, disaster management, DTH, television broadcasting, digital connectivity, positioning services, Natural resources survey, crop forecasting, search & rescue operations and several others. Besides, space technology-based applications are put to use in several flagship schemes of Government such as PMFBY, AMRUT, PMKSY, GeoMGNREGA, PM-Gatishakti.
- (d) Government has taken several steps to support the development of private space industry in India, which include creation of Indian National Space Promotion and Authorization Centre [IN-SPACe] as the single window agency to authorize, promote and handhold space activities of Non- Government Entities. Further, the Indian Space Policy – 2023 has been released, clearly defining the roles of ISRO, NSIL and IN-SPACe.

(e) ISRO has instituted following programmes for promoting space education among young minds:

- Space Technology Cells (STCs) at premier technical institute like IISc, IITs etc.
- Regional Academic Centre for Space (RAC-S) – 6 nos.,
- Space Technology Incubation Centre (STIC) – 6 nos.,
- *Yuva Vijyani Karyakram* Young Scientists Programme (YUVIKA): For young high school students involving two weeks training, hands on skills, interaction with eminent scientists and facility visit.
- Space Tutor Programme: Enabling NGOs & Institutions in promoting Space Education & outreach across the country.
- *Antarikh Jigyasa Portal*: For educating students online in space Science and Technology.
- Outreach through Space Exhibitions/ Conferences/ Museums.
- Space on Wheels, with six such units covering areas across country.
- Indian Space Science & Technology (IIST) and Indian Institute of Remote Sensing (IIRS), which offer short and long term courses.

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