#### **GOVERNMENT OF INDIA**

#### DEPARTMENT OF SPACE

### LOK SABHA

## **UNSTARRED QUESTION NO. 121**

#### **TO BE ANSWERED ON WEDNESDAY, DECEMBER 07, 2022**

**AUTONOMOUS PRECISION LANDING OF SPACE ROCKETS** 

# 121. SHRI PARVESH SAHIB SINGH VERMA: Will the PRIME MINISTER be pleased to state:

- (a) whether the Government is working on Autonomous Precision
  Landing of Space Rockets, if so, the details thereof;
- (b) whether the Government has any plans to tap into the small satellite market, and if so, the details thereof; and
- (c) the steps taken by the Government to manage the increasing space debris in lower earth orbit?

#### ANSWER

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

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 (a) Yes, Sir. The Department has initiated studies towards undertaking the development of critical technologies required to achieve Autonomous Precision Landing of Space Rockets and their demonstration through Vertical Take-off & Vertical Landing (VTVL) of Test Vehicles.

- (b) In order to become an active stakeholder in the small satellite market, ISRO/DOS has initiated development of Spacecraft buses for the small satellites, which includes nano-satellite and microsatellites. Further to that, the development of Small Satellite Launch Vehicle (SSLV) is also underway to provide launch services catering to small satellite market.
- (c) Department of Space has put in place appropriate measures to manage the increasing space debris in low earth orbit comprising of defunct satellites, discarded rocket stages and other orbital debris.

ISRO has been an active member of the Inter-Agency Space Debris Coordination Committee (IADC) and India has contributed immensely to the IADC and UN guidelines for safe and sustainable space operations.

Mechanisms are in place for ensuring that the space activities are conducted in a safe and sustainable manner, which include:

- Establishment of facilities for tracking and monitoring of space objects.
- Best practices such as passivation of launch vehicle upper stages, conjunction assessment and collision avoidance for satellites, post mission disposal of satellites and upper stages, etc.

 Operationalization of ISRO System for Safe and Sustainable Space Operations Management (IS4OM) for safeguarding Indian space assets against space environmental hazards, to pursue the related R&D activities, and also to contribute to awareness raising on the long-term sustainability of outer space activities.

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