

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
RAJYA SABHA
STARRED QUESTION NO. 115

TO BE ANSWERED ON THURSDAY, DECEMBER 05, 2024

**CHALLENGES IN DEVELOPMENT AND TIMELY EXECUTION OF INDIA'S SPACE
EXPLORATION MISSIONS**

*115. SMT. JEBI MATHER HISHAM:

Will the PRIME MINISTER be pleased to state:

- (a) the reasons behind the delay in the mission launch of NASA-ISRO Synthetic Aperture Radar (NISAR);
- (b) the challenges that Government has faced in development and timely execution of India's space exploration missions;
- (c) whether Government has plans to enhance the capabilities of the ISRO in satellite manufacturing, propulsion systems and space exploration, considering the recent emphasis on building leading space companies in the country; and
- (d) the initiatives to promote private-sector participation in India's space sector, including any policy reforms, financial incentives or partnerships aimed at fostering innovation and competitiveness?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

(a) to (d) A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE RAJYA SABHA IN REPLY TO STARRED QUESTION NO. 115 REGARDING “CHALLENGES IN DEVELOPMENT AND TIMELY EXECUTION OF INDIA’S SPACE EXPLORATION MISSIONS” ASKED BY SMT. JEBI MATHER HISHAM FOR ANSWER ON THURSDAY, DECEMBER 05, 2024.

- (a) NASA-ISRO Synthetic Aperture RADAR (NISAR) is an Earth science mission being jointly developed by NASA and ISRO under a collaborative agreement.

The NISAR was earlier slated for launch in the first-half of 2024. However, during the assembly, integration & testing phase, NASA experts determined that the 12-meter Radar Antenna Reflector need some corrective actions and has to be taken to USA for rectification.

Subsequently, the Radar Antenna Reflector, was delivered to ISRO by NASA in October 2024, which is re-integrated with the satellite and currently undergoing necessary tests. Also, due to the eclipse season, the conditions are not conducive for deployment of NISAR’s boom and the Radar Antenna Reflector. In view of the afore-mentioned factors, NISAR is now likely to be launched during March 2025.

- (b) Space exploration missions requires indigenous development of several complex technologies. Such developments go through an exhaustive time cycle that includes conceptualisation, design, development of prototype, qualification of flight model and numerous tests, design iterations, supply chain, extensive reviews. Challenges in International collaborations include geo-political considerations, establishing common mission objectives, alignment with respective national priorities and ensuring timely availability of resources/infrastructure.

- (c) The department is actively enhancing the capabilities through various Technology development and advanced R&D programs. The programs include development of propulsion systems of various thrust capabilities, sensor technologies, advanced docking systems, enhancing Launch vehicle capabilities such as stage recovery, satellite navigation, quantum communication related technologies, optical satellite systems etc.

The government has recently approved the Chandrayaan-4 and Venus Orbiter Mission that would further the capabilities in various elements of satellite realisation. The Chandrayaan-4 mission envisages extraction and return of lunar sample back to Earth. The Venus Orbiter Mission aims to successfully orbit Venus and better understand the

Venusian surface and subsurface, atmospheric processes and influence of Sun on Venusian atmosphere.

Further, realisation of various satellite systems/sub systems and integration are being outsourced to various Indian industries.

(d) The Government has taken following measures to encourage and incentivise private sector participation in space exploration and technology development in India:

- I. The space sector has been liberalised and private sector allowed to carry out end to end space activities. IN-SPACe was created in Department of Space for promoting, authorising and overseeing the activities of Non-Government Entities (NGEs) in Space Sector. The Indian Space Policy-2023 has been formulated by the Government to provide regulatory certainty to space activities.
- II. Various schemes to encourage and hand hold private sector also announced and implemented by IN-SPACe, i.e. Seed fund Scheme, Pricing Support Policy, Mentorship Support, Technical Centre, Design Lab for NGEs, Skill Development in Space Sector, ISRO Facility Utilisation Support, Technology Transfer to NGEs, Creation of IN-SPACe Digital Platform to connect with all the stakeholders of space ecosystem etc.
- III. In order to ease access to foreign capital by Indian NGEs, Government of India has brought out revised FDI policy for Space Sector.
- IV. The Union Cabinet has approved the establishment of a Rs.1,000/- crore Venture Capital Fund dedicated to supporting India's Space Sector.
