

PARLIAMENT QUESTION: GAGANYAAN PROGRAMME

प्रविष्टि तिथि: 29 JUL 2026 4:08PM by PIB Delhi

The development activities carried out for Gaganyaan mission include the following:

- **Human Rated Launch Vehicle (HLVM3):** Development and ground testing of all propulsion stages and structures completed.
- **Orbital Module:** Propulsion systems for Crew Module and Service Module developed, tested and qualified. Engineering model for Environmental Control & Life Support System (ECLSS) has been realized. Deceleration system, Crew Module Up-righting System, Thermal Protection System and end to end avionics have been developed and tested.
- **Crew Escape System (CES):** 5 types of motors developed and static tested. All the CES structures are realised and qualified.
- **Infrastructure established:** Orbital Module Preparation Facility, Gaganyaan Control Centre, Gaganyaan Control facility, Crew training facility, Second Launch pad modifications have been realised.
- **Test Missions:** First Test Vehicle mission (TV-D1) for inflight validation of Crew Escape System (CES) has been successfully completed. Integrated Air Drop Test- 01 (IADT-01) and Integrated Air Drop Test- 02 (IADT-02) with simulated Crew Module for validation of deceleration system have been completed successfully. Accomplishment of TV-D2 mission is in advanced stage.
- **Flight Operations and Communication Network:** Ground network configuration finalized. IDRSS-1 feeder stations and terrestrial links established. MoUs have been signed with other space agencies for cross supports.
- **Crew Recovery Operations:** Recovery assets finalized. Recovery Plan worked out.

Parallely, various ground qualification tests towards demonstrating new systems realized for Gaganyaan are being carried out.

Gaganyatris have completed generic training at Glavkosmos, Russia. Gaganyaan mission specific training is in progress at Astronaut Training facility, Bengaluru.

Activities are in progress towards accomplishment of first uncrewed mission, G1. All stages of HLVM3 viz. HS200, L110 and C32 and CES motors ready. Crew Module and Service Module systems realized. Assembly, Integration and testing of Crew Module and Service Module nearing completion Integrated simulations are being carried out.

Gaganyaan missions will be launched from Second Launch Pad (SLP) of SDSC SHAR. Accordingly, to meet the integration, testing and launch requirements, various elements/ facilities/ systems were planned, configured and realized. Orbital Module Preparation Facility (OMPF) is realized to carry out the preparation of Crew Module (CM), Service Module (SM) and Crew Escape System (CES) including the CES solid motors. The integration and access requirements including the checkout requirements were considered for modifications in Second Vehicle Assembly Building (SVAB). Checkout facilities at SVAB

Terminal Room (SVTR) and Launch Pad Terminal Room – Gaganyaan (LTR-G) interfaces Checkout systems for sub-assembly/ stage preparation facilities (HS200, L110-G, C25-G and EB) are augmented. Additionally, Crew Access Arm, bubble lift and zip line system are augmented at Umbilical Tower of Second Launch Pad, to meet requirements of crewed missions.

Environment Control & Life Support System (ECLSS) is a “system of systems” and very critical technology for human spaceflight. It is used to maintain a habitable environment during the entire duration of the mission by maintaining temperature, humidity, pressure and carbon dioxide levels in the Crew Module. This system is being developed indigenously by ISRO. Currently, the system is undergoing development tests. Flight demonstration of reduced version of ECLSS is planned in uncrewed Gaganyaan missions.

This information was given by Union Minister of State for Prime Minister’s office and Personnel, Public Grievances and Pensions, Atomic Energy and Space, Dr. Jitendra Singh, in a written reply in the Lok Sabha today.

NKR/AK/NM

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