

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE**

**LOK SABHA**

**UNSTARRED QUESTION NO. 281**

**TO BE ANSWERED ON WEDNESDAY, JULY 24, 2024**

**PUSHPAK VIMAN LAUNCH VEHICLE**

**281. SHRI S JAGATHRATCHAKAN:**

**Will the PRIME MINISTER be pleased to state:**

- (a) whether the Government has taken any initiatives to make space access more affordable and sustainable;**
- (b) if so, the details thereof and if not, the reasons therefor;**
- (c) whether the Indian Space Research Organisation (ISRO) aims to make the upper stage of Pushpak Viman Launch Vehicle reusable, reducing costs and minimizing space debris; and**
- (d) if so, the details thereof and if not, the reasons therefor?**

**ANSWER**

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC  
GRIEVANCES & PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

**(DR. JITENDRA SINGH):**

**\*\*\*\***

- (a) Yes, Sir.**
- (b) ISRO has been developing critical technologies towards reusable space transportation systems to make space access more affordable and sustainable. ISRO has developed a winged**

**body Reusable Launch Vehicle (RLV) named Pushpak and successfully demonstrated the autonomous Runway Landing over three Landing (RLV-LEX-01, RLV-LEX-02 & RLV-LEX-03). ISRO has also initiated the development activities towards a mission to demonstrate the orbital flight and re-entry of Pushpak.**

**In addition to the above, ISRO has initiated the development activities towards the demonstration of Vertical Take-off & Vertical Landing (VTVL), which is an enabling technology for recovery & reuse of booster stages of heavier launch vehicles. ISRO is also working on the critical technologies for Scramjet propulsion, which will be useful during the atmospheric phase of the flight of a launch vehicle, as the oxidizer for the fuel is derived from the atmosphere itself. This reduces the need for carrying the oxidizer along with the fuel and will benefit in bringing down the cost of access to space.**

**(c) & (d)**

**The Pushpak Vehicle by itself can potentially be used as a reusable flyback upper stage of a heavier launch vehicle. As of now, ISRO is currently focusing on the demonstration of orbital flight & re-entry of Pushpak and establishing the reliability through multiple missions.**

**\*\*\***