

Moon Sniper Japan's 1st Spacecraft On The Moon

Why In News

- Anticipation is reaching lunar heights as the **Japan Aerospace Exploration Agency's (JAXA) "Moon Sniper"** prepares for a historic touchdown on the moon's surface.
- The mission, carrying the aptly named **Smart Lander for Investigating the Moon (SLIM)**, marks a pivotal moment in the international space race and could revolutionize future lunar exploration.



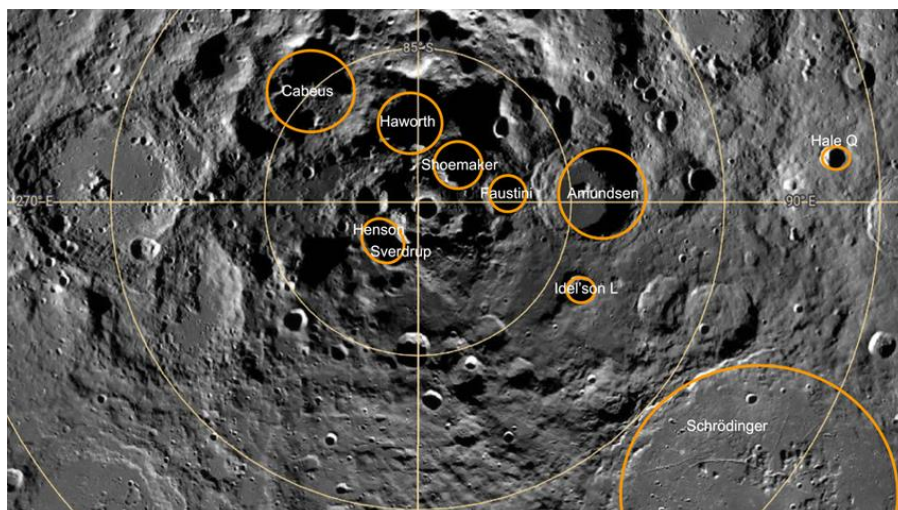
Moon Sniper

- **SLIM's achievement** would signify **Japan's inaugural deployment** of a robotic explorer on the lunar surface.
- This accomplishment would position Japan as the third country in the 21st century and the fifth nation overall to achieve a soft landing on the moon since the historic **Soviet Luna 9 mission in 1966**.
- If successful, Japan will join the elite club of nations to have landed on the Moon, marking a major milestone in the international space race.
- Artist impression of the SLIM spacecraft cruising above the lunar surface.
- "**Lunar orbiters such as Kaguya**, the USA's Lunar Reconnaissance Orbiter (LRO), and India's Chandrayaan missions have provided large amounts of high-

resolution observation data of the lunar surface," explained Kushiki. Therefore, interest in lunar science and resource exploration has shifted from somewhere on the Moon's surface' to 'that rock next to this specific crater!' he said.



- **Japan's space agency (Jaxa)** hopes the precision navigation technologies built into Slim will stack the odds in its favour. Those technologies are behind the mission's nickname of "Moon Sniper".
- The lander's onboard computer will be using rapid **image processing and crater mapping** to try to get to within 100m (330ft) of the targeted touch-down point.
- Slim is set to begin the descent manoeuvres from an **altitude of 15km**. Slim is not expected to work for long on the lunar surface, however.



- **Shioli is currently bathed in sunlight** and when darkness returns at the end of the month, the spacecraft's solar panels won't be able to generate electricity and components will probably break in the plummeting temperatures.
- But before then, Slim wants to use a **scientific camera to study the rocks** around the crater. The mission could also examine how potential water resources might be harnessed to help build bases on the moon.
- **The possibility of lunar commercialisation** would depend on whether there is water at the poles And with luck the mission's two small rovers will have had success traversing the local terrain.



- One is a **hopping robot that weighs about 2kg (4.4lb)**. The other is a ball that will change its shape when it stops to take photos.
- One of the companies behind its development is Tomy, who created the Transformers toys.
- In November 2022, **Japan abandoned attempts** to land the lunar probe Omotenashi on the moon; and in April 2023, a Japanese start-up aiming to become the **first private firm** to land on the moon lost contact with its craft after it made a “hard landing”.
- Last year, a private Japanese company, **Ispace**, had a go at landing. Its Hakuto-R craft crashed when the onboard computer became confused about its altitude above the Moon. It shut down its thruster system early, assuming the surface had been reached when in reality the mission still had another 5km (3 miles) to go