Chandrayaan-5/LUPEX Rover Prototype

Prelims: *Current events of National and International Importance| Science and Technology*

Why in News?

The Japan Aerospace Exploration Agency (JAXA) unveiled the rover prototype for the joint ISRO–JAXA ***Chandrayaan-5/LUPEX*** *(Lunar Polar Exploration) mission on November 25, 2026, at its Chofu Aerospace Centre in Japan.*

Rover Prototype & Mobility

- **Design–** Built as a four-legged crawler rather than a standard wheeled rover, fitted with belt-like caterpillar tracks.
- **Demonstration–** JAXA demonstrated the prototype moving across simulated uneven lunar terrain on unveiling day.
- **Mass & Lifespan–** Expected to weigh around **350 kg** and operate for roughly **100 days** (up to a few months/one year depending on mission phase) near the Moon's South Pole.
- **Development Status–** The actual flight model is in an advanced stage of testing.

Mission & Partner Roles

- **Launch–** Targeted for **2028** aboard JAXA's **H3-24L** launch vehicle from Tanegashima Space Centre.
- **ISRO & JAXA–** JAXA leads rover development, while India's ISRO is developing the lunar lander. Both agencies are jointly mapping the exploration path and science operations.
- **Payloads–** Includes instruments from ISRO, JAXA, NASA (Neutron Spectrometer to search for subsurface water), and ESA (Exploration Mass Spectrometer for LUPEX to analyze the thin lunar exosphere).
- **Primary Goal–** Investigate lunar volatiles—especially water and water ice on the surface and subsurface—near Permanently Shadowed Regions of the lunar South Pole.



Reference

The Hindu| Chandrayaan-5/LUPEX Rover Prototype

SHANKAR IAS PARLIAMENT
Information is Empowering