

Project NETRA

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In news— With space junk posing an increasing threat to Indian assets in space, ISRO is building up its orbital debris tracking capability by deploying new radars and optical telescopes under the Network for Space Objects Tracking and Analysis (NETRA) project.

Key updates-

- **A space debris tracking radar with a range of 1,500 km and an optical telescope will be inducted as part of establishing an effective surveillance and tracking network under NETRA.**
- **The radar will be capable of detecting and tracking objects 10 cm and above in size.**
- It will be indigenously designed and built.
- ISRO plans to have two such radars deployed 1,000 km apart for spatial diversity.
- **At present, ISRO has a Multi Object Tracking Radar at Sriharikota range, but it has a limited range.**
- **Space junk or debris consist of spent rocket stages, dead satellites,** fragments of space objects and debris resulting from the anti-satellite test (ASAT).
- Hurling at an average speed of 27,000 kmph in LEO, these objects pose a very real threat as collisions involving even centimeter-sized fragments can be lethal to satellites.
- **ISRO's efforts towards space situational awareness (SSA) is coordinated by the SSA Control Center in Bengaluru** and managed by the Directorate of Space Situational Awareness and Management at the ISRO headquarters.

What is Project NETRA?

- It is an early warning system to secure its satellites

and other assets in space.

- **Under this ISRO plans to put up many observational facilities:** connected radars, telescopes, data processing units and a control center.
- They can spot, track and catalogue objects as small as 10 cm, up to a range of 3,400 km and equal to a space orbit of around 2,000 km.
- **It gives India its own capability in space situational awareness (SSA) like the other space powers** – which is used to ‘predict’ threats from debris to Indian satellites.
- It also goes so far as to serve as an unstated warning against missile or space attack for the country.
- Under this project, SSA was first used for low-earth orbits or LEO which have remote-sensing spacecraft.
- NETRA’s eventual goal is to capture the GEO, or geostationary orbit, seen at 36,000 km where communication satellites operate.