

What is ISRO's Project NETRA?

Project NETRA is an initiative by the Indian Space Research Organisation ([ISRO](#)) which is an early warning system in space to detect debris and hazards to the Indian satellites.

Under this project, the Indian space organisation plans to put up many observational facilities like telescopes, connected radars, data processing units and a control centre.

In this article, we bring to you the significance of Project NETRA for the Indian space program. This topic is important for candidates preparing the [IAS exam](#) and various other Government sector examinations.

Strengthen your know knowledge about the Indian and International Space satellites, missions, etc. with the help of links given below:

- [List Of Space Centres & Indian Space Agencies](#)
- [List of Indian Satellites](#)
- [Mars Orbiter Missions](#)
- [Juno Mission](#)
- [JAXA's Hayabusa 2](#)
- [Indian Spacecraft for Science and Technology](#)
- [ISRO's EOS-01 Space Observing Satellite](#)

Significance of Project NETRA

This project will help ISRO safeguard the Indian satellites in space and is estimated to cost approximately Rs. 400 crores.

The project holds a deep significance in terms of space program and given below are the major points of importance of this Project NETRA:

- With the help of telescopes, radars, data processing units, etc., the researchers and scientists will be able to spot and track 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 aims at capturing the geostationary orbit (GEO), which is closely 36000 km away and is the point where the communication satellites operate
- With this project, India aims at gaining its own capability of **Space Situational Awareness (SSA)**. This accomplishment will help ISRO predict any harm or thread that may affect Indian satellites in space
- This project will bring India at an equal platform with the other International space agencies which have already been tracking their satellites to protect them from debris and hazards
- The functional Indian satellites on GEO and LEO orbits can easily be kept safe and secure with the help of this project

Current India gets its information about the space debris from North American Aerospace Defence Command (NORAD), which is an initiative by the U.S. and Canada. But the exact and appropriate data cannot be gathered from NORAD. Thus, this project holds great significance for ISRO researchers and scientists.

What is Space Situational Awareness (SSA)?

Space Situational Awareness (SSA) is the capability to detect any natural or man-made hazard which may affect the space assets. Thus, to safeguard our space assets, India must have the capability of SSA.

It will not just boost the country's space missions but also help with the security of the Indian satellites in space. Initially, India's SSA will be for low earth orbits and would consolidate the activity of debris tracking.

SSA will also be a benefit from the Defense perspective. It will be able to detect any harm coming from a height (for example missiles) and initiate an early warning.

What is space debris?

The dead particles which are left floating in the Earth's orbit and can cause harm to the existing space commodities are called space debris. These are created by the particles of dead satellites or rockets.

This concept of satellites and space mission comes under the Science and Technology part of the IAS exam syllabus. Thus, candidates can get [UPSC Notes on Science and Technology](#) at the linked article.

Components of Project NETRA

The Project NETRA will comprise the following:

- High precision and long range telescopes in Leh and a radar in the North East
- ISRO plans to use the Multi-Object Tracking Radar (MOTR) and install it at the put up at the Satish Dhawan Space Centre in Sriharikota
- Telescopes will be set up at Ponmudi and Mount Abu to get a broader SSA picture
- Talking of Indian assets in space, then current there are:
 - 15 functional Indian communication satellites in GEO
 - 13 Remote Sensing Satellites in LEO
 - 8 Navigation Satellites

Thus, to save these Indian satellites in the orbit, Project NETRA will prove to be of great significance.

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