

# Session 11A - ISRO R&D Centres, Labs and Autonomous Bodies

## Key Facts on Indian Space Research Organisation (ISRO)

### Overview

The **Indian Space Research Organisation (ISRO)**, established on **August 15, 1969**, is the national space agency of India.

Initially known as the **Indian National Committee for Space Research (INCOSPAR)**, it was set up in **1962** under the leadership of **Jawaharlal Nehru**, based on recommendations from **Dr. Vikram Sarabhai**.

The establishment of ISRO marked the institutionalization of space research in India.

### Historical Development

ISRO was founded to develop an independent space program for India.

A significant milestone in its history was the launch of its first satellite, **Aryabhata**, by the Soviet Union in **1975**.

This was followed by a landmark achievement in **1980** when ISRO launched the **RS-1 satellite onboard SLV-3**, making India the seventh country capable of orbital launches.

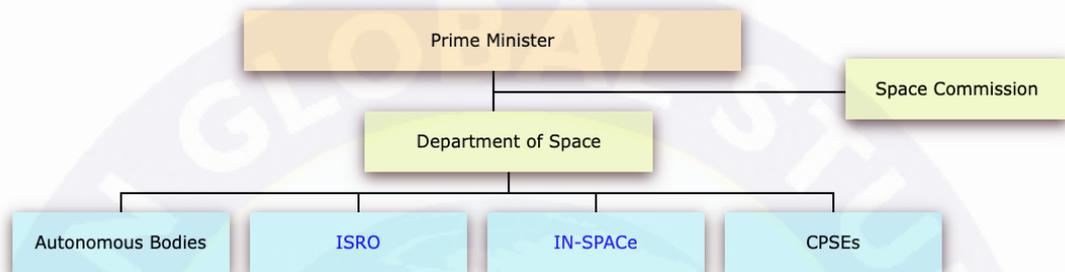
Over the years, ISRO has successfully deployed several space systems, notably the **Indian National Satellite (INSAT) system** for telecommunications, television broadcasting, meteorology, and disaster warning, and the **Indian Remote Sensing (IRS) satellites** for resource monitoring and management.

### Objectives

- Conducting space-based operations and exploration
- Advancing space technologies
- Fostering international space cooperation

- Supporting India's socio-economic development through space applications
- Facilitating navigation and reconnaissance missions
- Enabling remote sensing and Earth observation

## Administrative Control



## Apex Leadership

- **Prime Minister:** Top of the administrative structure, signifying the importance of space research in national policy.

## Supervisory Bodies

- **Department of Space:** Central government department responsible for space science and exploration programs. In **1972**, the Government of India established the **Space Commission and the Department of Space (DoS)**, integrating ISRO under this new structure. The Chairman of ISRO also serves as the executive of the DoS, which is **directly overseen by the Prime Minister of India**.
- **Space Commission:** Governs policies of space research organisations and institutions.

## Operational Arm

- **ISRO (Indian Space Research Organisation):** The main executive arm for space missions and related R&D.

## Supporting Entities

- **Autonomous Bodies:** Involved in specific areas of space research and applications.

- **IN-SPACe (Indian National Space Promotion and Authorisation Centre):** Focus on space commercialisation and policy-making.
- **CPSEs (Central Public Sector Enterprises):** Contribute to production and operational aspects of the space program.

## ISRO Centres & Units

Sl. No.	Centre/Unit	Location	Role
1	Department of Space and ISRO HQ	Bengaluru	Central administrative body for ISRO, overseeing all operations.
2	Human Space Flight Centre (HSFC)	Bengaluru	Responsible for development of human spaceflight capabilities.
3	Indian Institute of Remote Sensing (IIRS)	Dehradun	Specialises in training and research in remote sensing and GIS.
4	ISRO Inertial Systems Unit (IISU)	Thiruvananthapuram	Focuses on research and development of inertial sensors and systems.
5	ISRO Propulsion Complex (IPRC)	Mahendragiri	Key site for testing and assembling launch vehicle propulsion systems.
6	ISRO Telemetry, Tracking and Command Network (ISTRAC)	Bengaluru	Manages ground-based infrastructure for spacecraft tracking and operations.
7	Laboratory for Electro-Optics Systems (LEOS)	Bengaluru	Engaged in development and support of electro-optical systems for space applications.
8	Liquid Propulsion Systems Centre (LPSC)	Thiruvananthapuram	Specialises in the development of liquid propulsion systems for launch vehicles.

9	Master Control Facility (MCF)	Hassan	Primary facility for controlling and monitoring geostationary satellites.
10	National Remote Sensing Centre (NRSC)	Hyderabad	Focuses on remote sensing satellite data acquisition and processing.
11	Satish Dhawan Space Centre (SDSC) SHAR	Nellore	Primary launch site for ISRO, equipped for vehicle assembly and launching.
12	Space Applications Centre (SAC)	Ahmedabad	Involved in the development of payloads for space applications.
13	U R Rao Satellite Centre (URSC)	Bengaluru	Leads design, development and integration of satellite technologies.
14	Vikram Sarabhai Space Centre (VSSC)	Thiruvananthapuram	Main centre for launch vehicles development.

## IN-SPACE

Sl. No.	Centre/Unit	Location	Role
1	IN-SPACE	Ahmedabad	Facilitates private sector participation in Indian space activities.

## Central Public Sector Enterprises (CPSEs)

Sl. No.	Centre/Unit	Location	Role
1	Antrix Corporation Limited	Bengaluru	Commercial arm of ISRO, handles space products, technical consultancy and transfer of technologies.

2	NewSpace India Limited (NSIL)	Bengaluru	Promotes and commercially exploits space products, including launch services and satellite fabrication.
---	-------------------------------	-----------	---

## Autonomous Bodies

Sl. No.	Centre/Unit	Location	Role
1	Indian Institute of Space Science and Technology (IIST)	Thiruvananthapuram	Premier institute for space sciences and technology education and research.
2	National Atmospheric Research Laboratory (NARL)	Tirupati	Specialises in fundamental and applied research in atmospheric sciences.
3	North Eastern-Space Applications Centre (NE-SAC)	Ri Bhoi District	Focuses on space technology applications relevant to the North Eastern region of India.
4	Physical Research Laboratory (PRL)	Ahmedabad	Conducts advanced research in areas of physics, space and atmospheric sciences, and astronomy.

