



# International Cooperation: ISRO

## Why in News

Recently, [Indian Space Research Organisation \(ISRO\)](#) and [Japan Aerospace Exploration Agency \(JAXA\)](#) reviewed cooperation in [earth observation](#), **lunar cooperation and satellite navigation**.

## Key Points

### ▪ About the Cooperation:

- They also agreed to explore opportunities for cooperation in “space situational awareness and professional exchange programme”.
- Both agencies signed an **Implementing Arrangement** for collaborative activities on **rice crop area** and **air quality monitoring** using satellite data.
- **India and Japan** are already working on a joint [lunar polar exploration \(LUPEX\)](#) mission.
  - LUPEX aims to **send a lander and rover to the Moon’s south pole around 2024**.

### ▪ Agreements with Other Countries:

- **India and Italy** have decided to explore opportunities in **earth observation, space science and robotic and human exploration**.
- **India and Australia** signed an amendment to the MoU which will build on the **Comprehensive Strategic Partnership**.
  - Both countries are also in discussions for **Australia to host vital tracking infrastructure** to support the [Gaganyaan](#) manned space flight mission.

## Few Achievements Through International Cooperation

### ▪ Chandrayaan-1:

- ISRO’s maiden mission to Moon, the [Chandrayaan-1](#), has been an exemplary example of international cooperation with its international payloads.
- It has also earned several national and international laurels and was instrumental in the **ISRO-NASA joint discovery of water molecules** on the moon surface, unattained by any of the previous missions of such nature.

### ▪ Megha-Tropiques:

- The **Indo-French joint satellite mission** called [MEGHA-TROPIQUES](#) was launched in 2011 for the study of the tropical atmosphere and climate related to aspects such as [monsoons](#), [cyclones](#), etc.

### ▪ Saral:

- The **Indo-French** joint mission, named **SARAL (Satellite for ALTIKA and ARGOS)** for studying the ocean from space using altimetry was successfully launched in 2013.

### ▪ NISAR:

- **ISRO and NASA** are realizing a joint satellite mission called **NISAR (NASA ISRO Synthetic Aperture Radar)** for earth science studies.
- The mission will observe Earth and measure its changing ecosystem and masses globally.
- It is the world's most expensive imaging-satellite and the two space agencies intend to launch the satellite by 2022.

▪ **UNNATI:**

- **ISRO has launched capacity building programme on** nano satellite development, named as **UNNATI (UNISpace Nanosatellite Assembly & Training by ISRO)** as an initiative of **UNISPACE+50** (the 50<sup>th</sup> Anniversary of the first United Nations conference on the exploration and peaceful uses of outer space).

▪ **TRISHNA:**

- ISRO and the French space agency **CNES** have partnered in developing advanced upgradation satellites like TRISHNA to **monitor the water cycle** to help in finding out proper ways to utilize it.

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