

6th Aug 2022 AIR Spotlight: India's Journey in Space Programmes

AIR Spotlight is an insightful program featured daily on the All India Radio Newsonair. In this program, many eminent panellists discuss issues of importance which can be quite helpful in [IAS exam](#) preparation. This article features India's Journey in Space Programmes as well as its benefits to other countries.

Participants:

1. Pallava Bagla, Science Communicator and Senior Science Journalist.
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Context: India's progress in the space sector since Independence.

Background Details:

- India's Space Programme is not as old as India's Independence. However, the [Indian Space Research Organization \(ISRO\)](#) and the Department of Space (DoS) have contributed immensely in the field since shortly after independence.
- The journey started with the [launch of a small satellite Aryabhata](#) and has now reached a point where India has achieved interplanetary strides.

Sectors that benefited from the Indian Space Programme (ISP):

- Weather Predictions and Weather Forecasting:
 - India was the first country to have a hybrid satellite with both communication and weather instruments.
 - India has dedicated satellites to monitor the earth on an hourly basis and help in weather forecasting.
 - Tremendous achievement is made in early warning predictions of cyclones which has resulted in reducing the number of cyclone-related deaths from lakhs to just double digits.
- Communication: ISP is the major reason behind the communication revolution beginning with one national channel (Doordarshan) to hundreds of channels now.
- Border Protection: ISP has remarkably helped in border security aspects as well.
- Environment: Ocean monitoring and evaluation of the snow on the Himalayas can also be attributed to ISP.
- Financial Transaction: Real-time cash transfer and withdrawals from ATMs (Automatic Teller Machine) through online banking is also possible due to satellite communications.

How the Indian Space Programme benefits other countries:

- Indian Earth Observation Satellites provide high-quality images which are in great demand in other countries as well. These images can be very helpful in urban planning and infrastructure development.

Major Achievements of Indian Space Mission:

- **Chandrayaan 1:**
 - Chandrayaan 1 was launched when India was facing technology denial and sanctions.
 - The first evidence of the presence of water molecules on the surface of the moon was provided by it, which resulted in re-writing the lunar planetary history.
- **Mars Orbiter Mission - Mangalyaan:**
 - First major attempt to transcend beyond the Earth's gravitational field.
 - It was a remarkable mission conceived and delivered in record time.
 - It was in this very maiden attempt that India reached the orbit of Mars, a feat that was not achieved by all the three countries (erstwhile USSR, USA and China) that completed the mission.
 - Moreover, it continued to operate well beyond its life of six months.
- **Chandrayaan 2:**
 - This was the second lunar mission of India.
 - Though its lander and rover could not be launched due to some technical issues, its orbiter continues to function.

Future Mission:

- **Gaganyaan**
 - India aims to send its first manned aircraft under the title of Gaganyaan. It is under development and will be launched by the end of 2024.
 - The Government of India has allocated around Rs 9000 crore for this mega project.
 - Four Indian Airforce pilots have undergone training as astronauts.
 - ISRO is developing the GSLV launcher for the mission.
 - If India achieves its target, it will be the fourth country in the world to have sent a manned mission to space on an independent basis.
- **NISAR:**
 - It is an Earth Observation Satellite which will be jointly launched by NASA and ISRO.
 - It is one of the most expensive missions.
 - It will provide data for monitoring glaciers, waterways and vegetation cover across the world.

Conclusion:

In the coming times, the refinement of communication technology and satellite-based internet connectivity will be omnipresent. The unlocking of the space sector to the startups is a great step by the Government of India that will offer great opportunities and solutions in the field of space.

