
INDIA'S CHANDRAYAAN MOONSHOT - TIME FOR A ROBUST LEGISLATIVE FOUNDATION TO GOVERN INDIA'S SPACE SECTOR

From discovering water on the moon in 2008, and reaching Mars in its very first attempt in 2014, to being the first country to soft land its lunar exploration mission, Chandrayaan-3, on the south pole of the moon on August 23, 2023, India has taken rapid strides in space exploration.

The Indian Space Research Organisation ('ISRO'), Government of India's ('GoI') space exploration agency now has its sights firmly set on the sun, and on September 2, 2023, launched the ambitious 'Aditya L1 Solar Mission'.¹ Following this, amongst other space missions of ISRO, India's maiden human space flight programme 'Gaganyaan', is likely to be launched in the fourth quarter of 2024², and 'Shukrayaan' (a Venus orbiter mission) and 'Mangalyaan-2' (ISRO's second interplanetary mission to Mars) are slated for the next couple of years.

Early Days - Beginning of India Inc's Space Journey.

It wasn't until the 1960's that India's space programme took its first steps. In 1962, the Indian National Committee for Space Research ('INCOSPAR') was established by the first prime minister of India, Pandit Jawaharlal Nehru, under the aegis of Dr. Vikram Sarabhai, widely regarded as the father of India's space programme.³ Subsequently, INCOSPAR was superseded by ISRO, which was established in 1969 (the same year that Neil Armstrong and Buzz Aldrin landed the Apollo 11 Lunar Module 'Eagle' on the moon). Subsequently, the GoI constituted the Space Commission and established the Department of Space ('DoS') in June 1972, and brought ISRO under DoS.

Up until the early 1990's, India's space industry and space economy was largely spearheaded by ISRO, and saw limited participation by the private sector. This has changed in recent times with the implementation of forward-looking structural reforms in the Indian space sector, particularly with respect to increased private participation in space activities including measures allowing private players to access ISRO's facilities and services. One of the consequences of such measures led to M/s Skyroot Aerospace Private Limited becoming the first Indian private company to launch (with the able support of ISRO), the 'Vikram-S' rocket into space on November 18, 2022.⁴

Interestingly, a report titled "*India in Space: A US\$ 100 billion Industry by 2040*" by Arthur D. Little, a global management consulting firm, enunciates the view that India's space market, currently valued at US\$ 8 billion, is growing at a compounded annual growth rate (CAGR) of 4%, outpacing the global average of 2%. The said report also envisages that India's space market would touch US\$ 40 billion by 2040, and states that with the right strategies, India could tap into a US\$ 100 billion market opportunity.⁵

Indian Space Domain – Initiatives & Reforms.

¹https://www.isro.gov.in/Aditya_L1-MissionDetails.html#:~:text=Following%20its%20scheduled%20launch%20on,necessary%20velocity%20for%20its%20journey.

² <https://pib.gov.in/PressReleasePage.aspx?PRID=1885438>

³ History of India's Space Journey, available at: <https://asean-iit.in/history-of-indias-space-journey/>

⁴ https://www.isro.gov.in/mission_prarambh.html

⁵ <https://www.forbesindia.com/article/news/how-indias-space-economy-could-hit-100-billion-by-2040/87001/1>

In November 2017, the draft Space Activities Bill was first made public for comments by the DoS. The said bill was introduced towards providing dedicated space legislation in India and to encourage private participation in space activities under the guidance and authorisation of the DoS. In a written reply to a question in the Lok Sabha on February 9, 2022, Dr. Jitendra Singh, the Minister of State for Science and Technology (**‘Dr. Singh’**), stated that *“the draft Space Activities Bill has completed public and legal consultations and will be processed for further approvals for inter-ministerial consultations”*.⁶ With the Space Activities Bill being in limbo and no definite timeline being set for its enactment, it appears that the government is instead relying on the Indian Space Policy - 2023 (**‘Space Policy 2023’**).

Pertinently, the Ministry of Science and Technology has also notified the National Geospatial Policy in 2022, with an aim to create an enabling ecosystem thereby providing a conducive environment to Indian companies that will enable them to make India *‘Atmanirbhar’* (self-reliant) in producing and using its own geospatial data/ information and compete with foreign companies globally.⁷

Space Policy 2023

The GoI announced space sector reforms on June 26, 2020, with the aim of transforming the Indian space sector by encouraging participation of private players in Indian space programmes. Towards this, the Indian National Space Promotion and Authorization Centre (**‘IN-SPACE’**) was established in June 2020 as an autonomous agency under DoS to promote, hand-hold, guide and authorise private participants/ non-government entities (**‘NGEs’**) in space activities.⁸

With an endeavour to provide regulatory certainty to space activities and to harness a thriving space ecosystem, ISRO released the Space Policy 2023 on April 20, 2023. Introduction of the Space Policy 2023 opened the doors for greater participation of NGEs across the entire value chain of the space economy, while clearly delineating the roles of various stakeholders namely the GoI, DoS, NGEs, IN-SPACE, ISRO, and New Space India Limited (**‘NSIL’**), the commercial arm of ISRO.

SpaceTech Innovation Network Platform

In a one-of-its-kind public-private collaboration for start-ups and SMEs in the space industry, the SpaceTech Innovation Network (**‘SpIN’**) platform was launched on December 6, 2022, by way of a memorandum of understanding signed between ISRO and Social Alpha, a multistage innovation curation and venture development platform for science and technology start-ups. SpIN is India’s first dedicated platform for innovation, curation and venture development for the burgeoning space entrepreneurial ecosystem, with primary focus on facilitating space tech entrepreneurs in three distinct innovation categories: (i) geospatial technologies and downstream applications; (ii) enabling technologies for space and mobility; and (iii) aerospace materials, sensors, and avionics.⁹

FDI Policy

⁶<https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1796867#:~:text=The%20Minister%20said%2C%20to%20facilitate,Technology%20Transfer%2C%20Navigation%2C%20Space%20Transportation>

⁷National Geospatial Policy, 2022, available at: <https://dst.gov.in/sites/default/files/National%20Geospatial%20Policy.pdf>

⁸ <https://pib.gov.in/PressReleasePage.aspx?PRID=1945024>

⁹ <https://www.isro.gov.in/Spin.html>

At present, 100% foreign direct investment ('**FDI**') is permitted in satellite operations and establishments through the government route only.¹⁰ Notably, in a statement before the Rajya Sabha in April 2023, Dr. Singh mentioned that IN-SPACe was involved in revising the extant FDI policy and that the specific role of IN-SPACe for channelizing FDI would evolve post approval of a new FDI policy for space ('**Draft Space FDI Policy**') by the GoI.¹¹

Based on the statement made by Dr. Pawan Goenka, the Chairman of IN-SPACe, at the fourth edition of the Space Economy Leaders Meeting held in Bengaluru in May, 2023, the Draft Space FDI Policy is expected to be rolled out soon, barring any last-minute hitches. At the same meeting, he also stated that it is expected that the Draft Space FDI Policy would allow 100% FDI in (i) satellite establishment and operations; (ii) launch vehicle operation; and (iii) manufacturing, and sub-system manufacturing and that while some level of investment will be permitted via the automatic route, and beyond that investment will be allowed via the government approval route. While Dr. Goenka indicated that the threshold up to which government approval would not be required for FDI under the new policy is still being finalised, the same is expected to be different for each of the three kinds of space activities detailed above, and may range from 49% to 100%.¹²

Satellite Launch Services – 0% GST Regime

Ensuing the successful launch of Chandrayaan-3 and in furtherance of the recommendations of the 50th meeting of the goods and service tax ('**GST**') council held in July 2023¹³, the Ministry of Finance, has issued notifications to provide GST exemption for satellite launch services offered by private sector organizations.¹⁴ Previously, this exemption was limited only to satellite launch services supplied by ISRO, Antrix Corporation Limited and NSIL.

The Next Frontier– Steps towards achieving a US\$ 100 Billion Space Economy by 2040.

Even though India is a space faring nation, it presently contributes only about 2% to the global space economy that is valued at US\$ 360 billion.¹⁵ Within the global space economy, private sector companies, such as the likes of SpaceX, Blue Origin, Virgin Galactic and Arianespace have revolutionized the space sector by reducing costs and turnaround time, with innovation and advanced technology. In India however, players within the private space industry have been limited to being vendors or suppliers to the government's space program.¹⁶

Given that the space sector is heavily capital intensive and does not work in isolation, India's space budget would have to rival those of its global peers in order for it to harness its true potential in the global space economy. Although India has witnessed a fourfold increase in the number of space sector

¹⁰ Consolidated FDI Policy, available at: https://dpiit.gov.in/sites/default/files/FDI-PolicyCircular-2020-29October2020_0.pdf

¹¹ <https://pib.gov.in/PressReleasePage.aspx?PRID=1914226>

¹² <https://economictimes.indiatimes.com/tech/technology/revival-of-the-space-fdi-policy-in-the-works-in-space-chairman-pawan-goenka/articleshow/101548890.cms?from=mdr>

¹³ <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1938812>

¹⁴ <https://egazette.gov.in/WriteReadData/2023/247632.pdf>

¹⁵ <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/apr/doc2023410179001.pdf>

¹⁶ <https://transformingindia.mygov.in/wp-content/uploads/2021/09/Space-reform-booklet-compressed-1.pdf>

start-ups in the country, the need of the hour is for robust funding mechanisms and schemes providing monetary support to Indian space entrepreneurs.

While the Space Policy 2023 aims to make private industries a co-passenger in India's space journey, in its current form it lacks clarity as it neither sets out a time frame within which IN-SPACE would create a regulatory framework, nor provides an indicative timeline for ISRO to start focusing on research and development in advanced technologies and transition out of its existing practices (of manufacturing operational space systems). Moreover, IN-SPACE currently functions under the DoS and lacks legislative authority. This has led to ambiguity on IN-SPACE's position and function considering executive powers cannot be effectively exercised without legislative backing. Notably, even the guidelines to address liability aspects arising out of potential damages due to space activities have been left to the discretionary orders of IN-SPACE.

India Inc's shift from a US\$ 8 billion to a US\$ 100 billion space economy by 2040, would have to be primarily driven by the private sector including startups, big conglomerates and space tech manufacturers stepping in and establishing their presence in space industry and working in conjunction with GoI, DoS, NGEs, IN-SPACE, ISRO, and NSIL.

Conclusion.

While ISRO's achievements are being acknowledged and celebrated globally owing to its trained workforce, credibility, and cost-competitive engineering, private space sector start-ups in India have as of yet been unable to measure up with their overseas competitors in terms of scale and investments due to the current regulatory uncertainty, particularly around FDI.

In order for India to compete for the global space tech pie, the extant policy framework would need to provide clear guidelines and regulations, with impetus being placed on further opening up of the sector to FDI. Needless to mention, rolling out of a forward-looking Space FDI Policy would attract foreign investment in space sector start-ups in India, which would in turn enable such entities to compete globally. Further, putting in place a regulatory framework dealing with licensing, government procurement to sustain new space start-ups, provision of liability in case of violations, safety and security requirements for space objects, and protection of intellectual property rights created through space activities would provide a major boost to the Indian space industry and enable it to reach its full potential.

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