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ANALYSIS**

TOPIC

India's Space Economy

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INDIA'S SPACE ECONOMY

Context

- Recently, the **Department of Space** received an 18% hike over its expenses in 2023-24 in the **Union Budget (2024-25)** and the bulk of the hike goes towards the development of space technologies.

India's Space Economy

- India's space endeavours have come a long way since the launch of Aryabhata, its first satellite, back in 1975.
- Over the years, the ISRO has achieved remarkable milestones, from Chandrayaan to Mangalyaan, and has significantly contributed to both scientific research and practical applications.

Current Valuation and Global Share

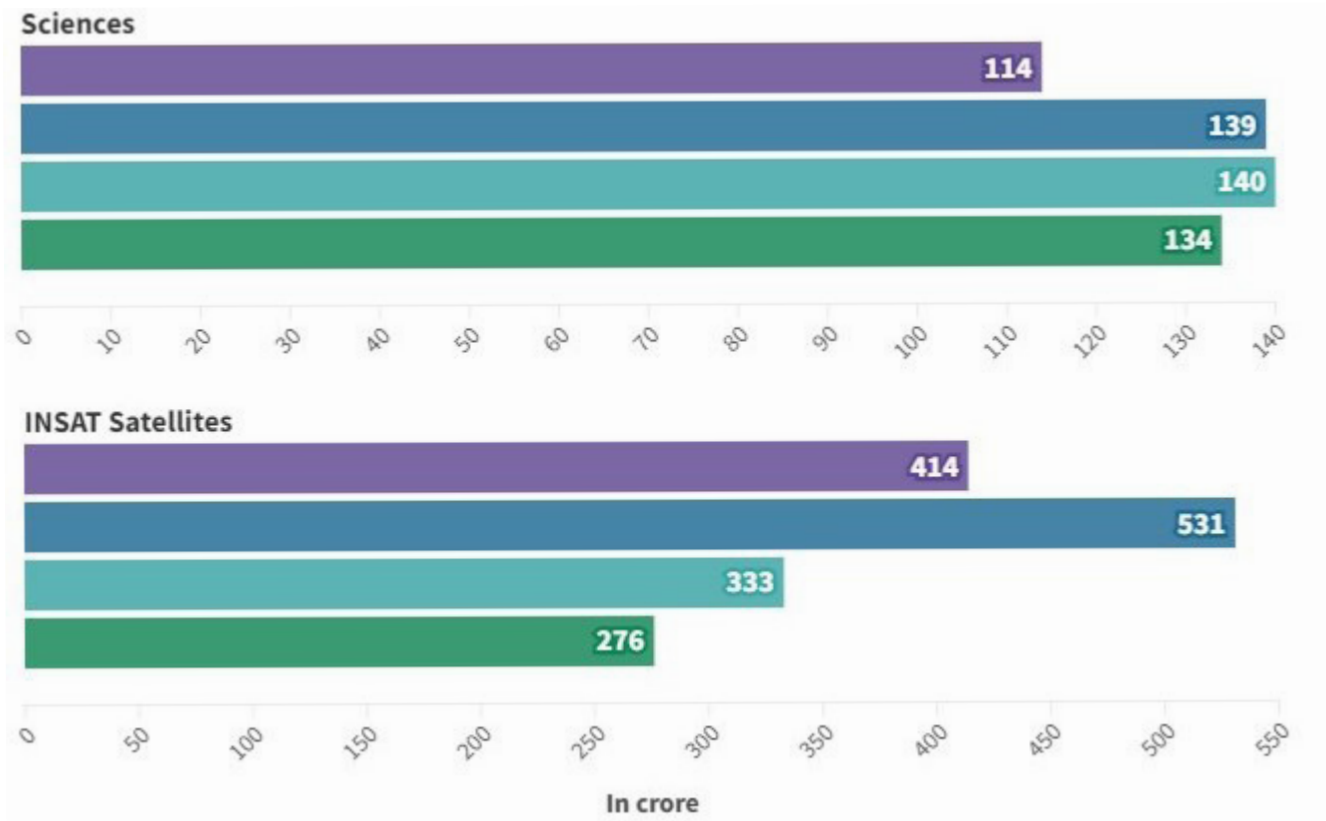
- As of now, India's space economy is valued at approximately 6,700 crore (around \$8.4 billion), accounting for a modest 2% share in the global space economy.
- However, the **Indian National Space Promotion and Authorization Centre (IN-SPACe)** projects that by 2033, India's space economy could reach 35,200 crore (approximately \$44 billion), capturing about **8% of the global market share** and aiming for a **15% share by 2047**.

Budgetary Allocation

- In the recently announced Union Budget for 2024-25, India's space sector received a significant boost. The Central government allocated 13,042.75 crore to support space-related initiatives.
- Now, with a **fresh infusion of ₹1,000 crore (approximately \$134 million)**, as a **Venture Capital Fund (VCF)**, India's space aspirations are set to soar even higher.
- It aims to achieve a fivefold increase in India's space economy over the next decade, along with the **Fostering Innovation, Private Sector Participation, and Global Competitiveness**.
 - India has been actively **liberalising and privatising** its space sector.

Allocation for Space projects





Decadal Vision and Strategy

- IN-SPACE, the single-window, autonomous agency under the Department of Space, recently unveiled its decadal vision and strategy. It focuses on several key areas:
- **Demand Generation:** Creating a robust demand for space-related services and applications.
- **Local Manufacturing Capabilities:** Encouraging indigenous production of satellites, launch vehicles, and other space hardware.
 - ◆ ISRO is actively opening its doors to private sector participation, fostering a resurgent **Aatmnirbhar Bharat (self-reliant India)**.
- **Infrastructure Development:** Building necessary infrastructure for space activities.
- **Regulatory Framework:** Providing clear guidelines to facilitate participation by non-governmental entities (NGEs) in the space sector.

Key Segments of the Space Ecosystem

- **Space-for-Earth:** Applications like weather forecasting, communication, and remote sensing fall under this category.
- **Access-to-Space:** Enabling satellite launches and transportation.
- **Space-for-Space:** Focusing on scientific research, exploration, and interplanetary missions.
- **Strategic and Enabling Capabilities:** IN-SPACE aims to achieve its vision through **ten strategic capabilities** like *Earth Observation (EO) platforms, Communication platforms, Navigation platforms, Research & Development ecosystem, Talent pool creation, Access to finance, International collaboration, and Policy and regulation.*

Potential of Space Sector

- **Export Potential and Investment:** Currently, India's export market share in space-related services stands at 2,400 crore (about \$0.3 billion). The goal is to boost this to 88,000 crore (\$11 billion).

- ◆ An ambitious investment of 17,600 crore (\$22 billion) is envisioned over the next decade.
- **Rise of Space Tourism:** According to media reports, in 2023, the space tourism market was valued at \$848.28 million.
 - ◆ It is expected to grow to \$27,861.99 million by 2032.
 - ◆ **Major Players in Space Tourism:** There are now **six major space companies** that are arranging or planning to arrange touristic flights to space: *Virgin Galactic, Blue Origin, SpaceX, Boeing, Axiom Space, and Space Perspective.*

Challenges in India's Space Sector

- **Competition and Global Market Share:** To achieve this ambitious goal of **8% of the global market share**, Indian space companies must compete effectively on the international stage. They need to offer competitive services, cutting-edge technology, and reliable launch capabilities.
- **Private Sector Participation:** While the private sector has shown interest, there's a need for more substantial investment and commitment.
 - ◆ Companies are waiting to see sustained government support and clear policies that foster long-term collaboration.
- **Technology Development and Innovation:** Developing cutting-edge technologies, such as reusable launch vehicles, miniaturised satellites, and advanced propulsion systems, requires substantial investment and research. Balancing innovation with cost-effectiveness is crucial.
- **Regulatory Framework and Licensing:** Navigating licensing processes, export controls, and compliance can be complex. Clarity and transparency in regulations are critical for private players.
- **Infrastructure and Facilities:** Developing and maintaining such infrastructure requires significant capital. Collaborations between ISRO and private entities can help bridge this gap.
- **Talent and Skill Development:** Attracting and retaining talent is crucial. Efforts to enhance educational programs, skill development, and industry-academia partnerships are necessary.
- **Risk Management and Insurance:** The private sector needs robust risk assessment mechanisms and insurance options to mitigate financial losses in case of mission failures.
- **Collaboration with ISRO:** Finding the right balance—where private companies contribute while benefiting from ISRO's knowledge—is key. Ensuring fair competition and avoiding dependency is a delicate task.

Major Reforms In Space Sector of India

- **Indian Space Policy 2023:** It laid down roles and responsibilities of organisations such as ISRO, **New Space India Limited (NSIL)** and private sector entities.
 - ◆ It aims to enhance the participation of research, academia, startups and industry.
- **Strategic Proposals by SIA:** The Space Industry Association – India (SIA-India) in its Pre-Budget Memorandum for the **FY 2024-25** has proposed a substantial increase in India's space budget.
 - ◆ It aims to support India's expanding space program, foster private sector involvement, drive technological advancements, and position the nation as a key player in the dynamic global space ecosystem.
- **Tax Incentives:** It needs to take more initiatives for tax exemptions/tax holidays/accelerated depreciation for companies directly or indirectly engaged in space sector activities.

FDI in Space Sector

- The Finance Ministry came with new rules, known as the **Foreign Exchange Management (Non-debt Instruments) (Third Amendment) Rules, 2024**, that provide **a liberalised entry route** for FDI in *satellites, launch vehicles, spaceports, and manufacturing space-related components and systems.*
- According to it, **100% percent FDI has been allowed** for the space sector category of *manufacturing and operation of satellites, satellite data products, and ground segment and user segment.*

- Out of this, up to **74% would be through the automatic route** and government nod would be required for investment beyond that.
 - ♦ Under the earlier policy, any foreign investment in manufacturing and operating satellites was allowed only with government approval.

Space Related Start-Ups in India

- The number of **Space Start-Ups** have gone up, from just 1 in 2014 to 189 in 2023 as per DPIIT Start-Up India Portal.
 - ♦ The investment in Indian Space Start-Ups has increased to \$ 124.7 Million in 2023.
- **Private Sector Participation:** The Indian government has taken steps to encourage private sector involvement in space activities. The establishment of the **IN-SPACE** in 2020 was a significant milestone. IN-SPACE is responsible for promoting, authorising, and supervising space activities by **non-governmental entities (NGEs)**.

Conclusion

- India's journey into space has been nothing short of remarkable. From launching satellites for communication, navigation, and scientific research to sending missions to the Moon and Mars, the ISRO has consistently pushed boundaries.
- India's space economy is poised for significant growth, driven by collaboration, innovation, and a forward-looking vision. As private players increasingly participate, we can expect exciting developments in satellite technology, space tourism, and beyond.



Mains Practice Question

[Q] Discuss the potential of India's Space Sector. Highlights the transformative initiative announced in the Union Budget 2024-25 to boost India's space sector?