AIR Spotlight: Unlocking Space Sector for Private Participation

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 is about the discussion on the **Unlocking Space Sector for Private Participation**.

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Context

India has successfully launched the Vikram-S rocket which is the country's first-ever privately developed rocket.

Background

- Vikram-S rocket has been developed by the Hyderabad-based Skyroot Aerospace.
- The rocket has been named "Vikram" as a tribute to Vikram Sarabhai who is a renowned scientist and the founder of the Indian space program.
- Vikram-S rocket is a single-stage suborbital launch vehicle.
- The Vikram-S rocket reached an altitude of 89.5 km with three payloads weighing about 83 kilograms and later splashed in the waters of the Bay of Bengal safely at around 115 km after the lift-off from Sriharikota.

Read more about - Vikram-S rocket

Significance of the launch of the Vikram-S rocket

- The launch of the Vikram-S rocket has created history and is considered a major milestone in the commercial space industry.
- This event marks the first time in India that a private company has successfully designed, developed and tested a full solid propulsion rocket stage.
- The private aerospace company Skyroot took only about two years to develop Vikram-S which showcases India's capabilities in rocket building and space technologies.
- Further, the Vikram-s rocket requires minimal range infrastructure and can be assembled and launched within 24 hours from any launch site.

- The entry of private companies into the space sector is expected to widen the space economy of the country.
    - The Indian space industry was worth close to $7 billion in 2019 and has the potential of increasing to $50 billion by 2024.
- Additionally, the entry of the private sector will not just boost the space sector but also defence systems and manufacturing.
- The success of Skyroot Aerospace will encourage other startups and industries to explore the untapped potential of the space sector.
- The launch of the country's first-ever privately developed rocket also provides impetus to the "Make In India" and "Atma Nirbhar Bharat" initiatives of the government.

Potential for private sector

- In recent years there has been a surge in the number of startups involved in the space sector because of the change in the technology as well as unlocking the commercial applications of the space sector which was earlier limited to strategic applications.
- The space sector had traditionally been a capital and labour-intensive sector. However, in the last 10 years, there has been a shift from the development of large satellites which required huge amounts of capital to the development of small and microsatellites. This has opened the arena for smaller players.
- The technological advancements with respect to 3D printing technologies, communication technologies, artificial intelligence, machine learning, adaptive manufacturing and miniaturisation have also helped to cut down the costs involved and have made space projects viable.
- The availability of capital and the interests of venture capitalists in the sector also provided huge opportunities for the private sector to thrive.

Interventions by the government

- ISRO has encouraged and engaged the private sector to participate in its ongoing missions for a long time.
    - **Example**: Over 70 to 80% of the systems of the PSLV rocket have been built by the private sector after being designed and developed by ISRO.
- The government has also established the Indian National Space Promotion and Authorization Centre (IN-SPACEe) as a national-level autonomous nodal agency under the Department of Space for promoting, handholding, authorizing and licensing private players to carry out space operations.
- Further, to boost the private sector participation in the space sector, the government has proactively revised and drafted new policies for various areas such as Remote Sensing, SpaceCom, Navigation, Space Transportation, Space exploration and Space Situational Awareness.

- ISRO has also provided access to its world-class facilities and expertise to private players and has been nurturing Indian space industries by sharing its experiences on quality and reliability protocols, documentation, testing procedures, etc.
    - Skyroot Aerospace firm was also launched by former ISRO engineers and has recruited other members who have worked in various agencies of ISRO.
    - Skyroot and another startup Agnikul have also signed a Memorandum of Understanding (MoU) with ISRO to access facilities and expertise in developing and testing Space Launch Vehicle subsystems and systems.
- New Space India Ltd (NSIL) which is a central public sector enterprise under the Department of Space has transferred advanced technologies developed by ISRO to Indian industries.
- Additionally, the government budget allocation to the space sector is also increasing every year.
    - In the Budget 2022-23, the Department of Space was allocated about ₹13,700 crores out of which ₹7,456.60 crores is earmarked for capital expenditure.

Path ahead

- The pilot project is expected to take the shape of a full fledged orbital project very soon considering the fact that design, development, fabrication and launch of a developmental rocket took only two years.
- The recent demonstration by Skyroot Aerospace is expected to attract commercial proposals from other players to launch their satellites into space.
- More than 55 start-ups are now registered with the ISRO and the Department of Space, in only two years since the Indian Space Department and the ISRO were opened to the private sector.
    - This indicates the level of intervention of private players in the space sector and raises expectations about the prospects of how private sector participation will provide impetus to space activities.