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CURRENT AFFAIRS

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"WORLD`S FIRST 3D PRINTED ROCKET BY INDIAN STARTUP AGNIKUL"

THIS ARTICLE COVERS "DAILY CURRENT AFFAIRS" AND THE TOPIC DETAILS OF "WORLD`S FIRST 3D PRINTED ROCKET BY INDIAN STARTUP AGNIKUL". THIS TOPIC IS RELEVANT IN THE "SCIENCE AND TECHNOLOGY" SECTION OF THE UPSC- CSE EXAM.

WHY IN THE NEWS?

- Agnikul Cosmos Private Ltd., a space start-up based in Chennai, made history by launching the world's first rocket with a single-piece 3D-printed engine. The rocket, named Agnibaan Sub Orbital Technology Demonstrator (SOrTeD), was successfully launched from Sriharikota.
- Agnikul Cosmos Private Ltd., a space start-up based in Chennai, made history by launching the world's first rocket with a single-piece 3D-printed engine. The rocket, named Agnibaan Sub Orbital Technology Demonstrator (SOrTeD), was successfully launched from Sriharikota.

ABOUT AGNIBAAN:

- The Agnibaan SOrTeD marks India's first rocket launch from a private launchpad, named 'Dhanush,' which was set up by Agnikul.
- This launch also represents India's debut in using a semi-cryogenic engine and the world's first deployment of a single-piece 3D-printed engine, both designed and built domestically.
- According to Agnikul, the primary objective of this mission is to conduct a test flight to validate their homegrown technologies, gather essential flight data, and ensure the systems' optimal performance for their orbital launch vehicle, the 'Agnibaan.'

START-UPS IN THE SPACE INDUSTRY:

- **Pixxel:** focuses on Earth-imaging satellites used for applications such as agricultural monitoring and disaster management.
- **Skyroot Aerospace:** Focuses on Developing cost-effective launch vehicles, including the Vikram series, designed for small satellite launches.
- **Agnikul Cosmos:** Focuses on Specializing in 3D-printed rocket engines and launch services, aiming to enhance accessibility to space with their innovative solutions.
- **Astrome Technologies:** Focuses on High-capacity satellite communication through a low Earth orbit (LEO) constellation to provide global internet access.
- **Bellatrix Aerospace:** Focuses on Developing propulsion systems and satellite propulsion services, offering efficient options for manoeuvring in space.

INDIAN SPACE STARTUPS FACE SEVERAL CHALLENGES:

- **Funding:** Startups struggle to secure the necessary funding to build prototypes and demonstrate proof of concept, which are essential for product development. Venture
- **Capital Funding Gap:** The amount of venture capital available for product development is insufficient in India, making it hard for startups to sustain and grow their operations.
- **Complex and Evolving Regulations:** Navigating the regulatory landscape is challenging due to unclear and frequently changing regulations.
- **Lack of Institutional Support:** Startups often depend on ISRO and DRDO for customers, which can limit their growth opportunities from expanding their customer base and scaling up.
- **Limited Deep-Pocket Investors:** The scarcity of substantial investors in India hampers the ability of startups to secure necessary growth funding.
- **Implementation of IN-SPACe:** The establishment of IN-SPACe, a new regulatory body, must avoid adding a bureaucratic burden for private players.
- **Import Dependence:** Approximately 95% of components required for space solutions are imported, which increases costs and impacts self-sufficiency.
- **Global Competition:** To compete globally, India needs to develop a strong funding ecosystem akin to those in the United States and Europe.

GOVERNMENT INITIATIVES:

- **Seed Funding:** Providing substantial seed funding to startups leveraging satellite data for sectors like agriculture and disaster management.
- **Soft Funds:** Establishing soft funds and additional incentives to accelerate the growth of the space sector by offering financial support to startups.
- **Venture Capital Funding:** Encouraging venture capital firms to invest in the space sector by offering incentives and support for investments in startups.
- **Private Investments:** Facilitating private investments by creating a favourable regulatory environment and supporting startups in raising capital from private investors.
- **Collaborations and Partnerships:** Promoting collaborations and partnerships between startups, private companies, higher educational institutions and government agencies to share resources and expertise, thereby reducing costs and enhancing growth potential.
- **Export Licenses:** Providing export licenses to startups, enabling them to participate in global projects and expand their customer base.
- **Regulatory Framework:** Establishing a clear and business-friendly regulatory framework to ensure policy stability and predictability renders it for startups to operate and grow.
- **International Partnerships:** Facilitating international partnerships and collaborations to leverage global expertise and resources, thereby enhancing the competitiveness of Indian space startups.
- **Tax Incentives:** Offering tax incentives to startups and investors to reduce the financial burden and make investments in the space sector more attractive.

WAY FORWARD:

- **Streamline Regulations:** Establish a clear and business-friendly regulatory framework to provide policy stability and predictability, making it easier for startups to operate and grow.
- **Promote Ease of Doing Business:** Implement schemes to promote ease of doing business for space tech businesses, including tax incentives and support for research and development.

- **Develop Local Capabilities:** Encourage the development of local capabilities by providing funding and resources for research and development in space technology, enabling startups to innovate and develop new products and services.
- **Support for Research and Development:** Provide funding and resources for research and development in space technology, enabling startups to innovate and develop new products and services.
- **Visionary Leadership:** Encourage visionary leadership by providing support for startups and private companies in innovation and growth in the space sector.

PRELIMS BASED QUESTION:

Q. Consider the following statements:

1. 74% FDI allowed in the space industry in INDIA.
2. Start-up Agnikul developed the world`s first 3D Satellite rocket engine.

Which of the following is/are correct about the Indian space industry?

1. 1 only
2. 2 only
3. Both 1 and 2.
4. Neither 1 nor 2

Answer: B

MAINS BASED QUESTIONS:

1. **As India`s space industry achieves milestones in the sector, What steps should be taken by the government industry-academia to make India a leader in the sector?**

Vishal Yadav