Need for a National Space Law in India

For Prelims: National Space Day, Gaganyaan, Bharat Antariksh Station, Chandrayaan-3, Outer Space Treaty

For Mains: National Space Policy of India and its implications, Emerging global competition in space exploration

Source:TH

Why in News?

On **23rd August,** India will observe its **second** National Space Day, highlighting upcoming missions such as **Gaganyaan and the Bharat Antariksh Station**.

- However, while India's space achievements continue to grow, the **absence of a national space law threatens** to slow its commercial, innovative, and global ambitions.

National Space Day

- India celebrated its **maiden National Space Day (NSD)** on **23rd August 2024**, to commemorate the successful soft landing of the **Chandrayaan-3 Mission's Vikram Lander** and the deployment of the **Pragyan Rover** on the Moon on 23rd **August 2023.**
- The day showcases India's space prowess and inspires future generations to pursue STEM.

Why Does India Need a National Space Law?

- **Operationalise Global Commitments:** India is a signatory to the **Outer Space Treaty, 1967** and related UN agreements. These treaties establish principles like peaceful use of space, state responsibility for national activities, and liability for damages.
    - **United Nations Office for Outer Space Affairs (UNOOSA)** treaties are **not self-executing, countries must enact domestic space laws.**
    - The US, Japan, and Luxembourg have laws for licensing, liability, and commercial use. Without one, India risks non-compliance and falling behind globally.
- **Balance Domestic Gaps with Geopolitical Realities:** While the **Outer Space Treaty** has held firm globally, rising tensions among space superpowers (US, Russia, China) threaten space governance.
    - India must strengthen its domestic legal framework to safeguard its commercial interests, even as international uncertainties persist.
- **Provide Legal Certainty for Industry:** Policies (like the **Indian Space Policy 2023** and **IN-SPACe Guidelines 2024**) show intent but lack statutory force.

    - A national space law would give **Indian National Space Promotion and Authorization Center (IN-SPACe)** legal authority as the central regulator, streamline licensing, reduce delays, and build investor confidence in India's space sector.
- **Support Startups and Innovation:** Startups face high risks with satellites and launch vehicles but lack affordable insurance.
    - A law can mandate **third-party liability coverage**, establish clear frameworks for claims and accident investigations, provide affordable insurance for startups, and enforce strong IP protections to encourage R&D and prevent brain drain.
- **Manage Safety and Sustainability:** A comprehensive law can set safety standards, **manage space debris, establish accident procedures**, and unify satellite frameworks, ensuring responsible space use and protecting India's credibility.

Indian Space Policy 2023

- **Objective:** Augment space capabilities, encourage private sector participation, drive technology development, and strengthen international cooperation.
- **Delineation of Roles:** The policy delineates the roles and responsibilities of **Indian Space Research Organisation (ISRO)**, space sector PSU **NewSpace India Limited (NSIL)**, **IN-SPACe**, and and the Department of Space.
    - **ISRO:** Focus on research, innovation, and advanced space technologies.
    - **IN-SPACe:** Serve as a single-window agency for authorising space activities by government and private entities, ensuring safety, national security, and compliance with international obligations.
    - **NSIL:** Commercialise publicly funded space technologies and provide space-based services to government and private entities.
    - **Department of Space:** Implements policy, ensures safe and sustainable operations, coordinates international cooperation, and resolves disputes.
- **Applicability:** This policy covers all space activities in Indian territory and its exclusive economic zone, with the Government reserving the right to grant case-by-case exemptions.

What Challenges Does India's Space Industry Face Without a National Space Law?

- **Regulatory Hurdles:** Multiple ministries (Defence, Telecom, Commerce, Department of Space) handle approvals, causing duplication and delays. Satellite communication projects, for example, require simultaneous clearance from DoT, DoS, and Defence, hindering operations.
    - IN-SPACe operates through executive orders, lacking formal legislative authority. This reduces investor confidence as regulatory decisions can be legally challenged.
- **Liability Concerns:** Under the Outer Space Treaty, India is internationally liable for all space activities, including private launches.
    - Startups face high entry barriers due to costly liability insurance requirements.
- **Foreign Direct Investment (FDI) Concerns:** Limited FDI allowed in satellite manufacturing; unclear automatic approval routes deter foreign investors.
    - India's space industry seeks clear **100% automatic FDI in satellite components to attract investment.**
    - Competitor nations like Luxembourg and UAE attract space startups with more liberal investment policies.
- **Cybersecurity Threats:** Satellites are vulnerable to hacking, GPS spoofing, and space-based espionage. India lacks an independent Space Cybersecurity Command or autonomous ISRO cybersecurity division, posing national security risks.
- **Climate Change and Infrastructure Risks:** Coastal launch sites like **Sriharikota and Thumba** face climate threats. No legal requirement exists for climate adaptation measures, leaving infrastructure vulnerable to extreme weather.
- **Strategic Military Gaps:** Delays in establishing space-based defense assets and integrated commands are exacerbated by lack of statutory support.

What Measures are Needed to Enhance India's Space Industry?

- **Provide Legal Backing:** Enact a comprehensive space law to align with OST, define roles of government and private actors, and establish liability norms.
- **Expand Private Sector and Startup Participation:** Fully implement New Space Policy 2023 to enable private development of launch vehicles, satellites, and deep-space tech.
    - **Strengthen IN-SPACe** to streamline approvals and reduce bureaucratic delays.
- **Strengthen Space Traffic Management and Debris Mitigation:** Establish an independent Space Traffic Management (STM) system to track and mitigate debris.
    - Deploy active debris removal satellites using laser ablation and robotic arms.
    - Enhance international cooperation via UNOOSA and IADC (Inter-Agency Space Debris Coordination Committee) for sustainable space operations.
- **Enhance Cybersecurity and Space Asset Protection:** Create a dedicated Space Cybersecurity Command under ISRO and DRDO.
    - Strengthen satellite defenses with quantum encryption, AI-driven anomaly detection, and satellite firewalls.

Conclusion

India's scientific and technological achievements are undeniable, but a national space law is needed to ensure regulatory clarity, attract investment, protect startups, and promote sustainable, globally aligned space development.

Drishti Mains Question:

Evaluate the importance of a comprehensive national space law for India's growing space sector. What are the challenges in its absence?

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Mains

Q.1 What is India's plan to have its own space station and how will it benefit our space programme? **(2019)**

Q.2 Discuss India's achievements in the field of Space Science and Technology. How the application of this technology helped India in its socio-economic development? **(2016)**

Q.3 What is the main task of India's third mood mission which could not be achieved in its earlier mission? List the countries that have achieved this task. Introduce the subsystems in the spacecraft launched and explain the role of the 'Virtual Launch Control Centre' at the Vikram Sarabhai Space Centre which contributed to the successful launch from Sriharikota. **(2023)**