The Third Launchpad

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Establishment of Third Launchpad at Satish Dhawan Space Centre (SDSC), Sriharikota

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Context

The Union Cabinet has approved the establishment of a **third launchpad** at the **Satish Dhawan Space Centre (SDSC)** in Sriharikota, Andhra Pradesh. This decision is a significant step to support ISRO's future space programs, particularly for the **Next Generation Launch Vehicle (NGLV)** and advanced missions like **human spaceflight**.

SDSC is India’s sole spaceport and plays a critical role in India’s space endeavors. Operational since 1971, the spaceport is renowned for launching numerous indigenous satellites and missions, including the **Chandrayaan** and **Mars Orbiter Mission**.

Key Historical Background of SDSC

1. **Inauguration and Early Operations**
    - Became operational in **1971** with the launch of the **Rohini-125 rocket**.
    - Renamed in **2002** to honor **Satish Dhawan**, a pioneer in Indian space science.
2. **Satish Dhawan’s Contributions**
    - **Early Life and Achievements**:
        - Born in Srinagar, Dhawan was a renowned rocket scientist known as the **'Father of Experimental Fluid Dynamics' in India**.
        - Made significant contributions to **turbulence and boundary layer studies**.
    - **Leadership at ISRO**:
        - Succeeded **Vikram Sarabhai** as ISRO Chairman in **1972**.
        - Oversaw the development of key systems like:
            - **INSAT**: Telecommunications satellites.
            - **IRS**: Indian Remote Sensing satellites.
            - **PSLV**: The launch vehicle that elevated India to a global space power.

- **Legacy**:
    - After his passing in **2002**, the Sriharikota facility was renamed the **Satish Dhawan Space Centre** in recognition of his contributions.

Why Sriharikota Was Chosen as India's Launch Site?

Strategic Considerations

- **Proximity to the Equator**:
    - Enables efficient launches of **geostationary satellites**, which need to orbit along the equatorial plane.
- **East Coast Location**:
    - Launching rockets eastward leverages **Earth's rotational speed**, adding an extra **450 m/s of velocity** to rockets, thus improving payload capacity.
- **Safety Factors**:
    - Sparse population and proximity to the sea ensure a **safe flight path**, with debris falling over the ocean.

Fast Execution

- **1968**: Site survey and acquisition completed within months.
- **~40,000 acres of land** were acquired at Sriharikota, demonstrating the efficiency and urgency of the initiative.

Details of the Third Launch Pad (TLP)

Purpose and Scope

- Designed for the **Next Generation Launch Vehicles (NGLVs)** and as a backup for the **Second Launch Pad (SLP)**.
- Supports **human spaceflight** and **exploration missions**.

Key Features

1. **Universal Design**:
    - Accommodates vehicles like **NGLVs**, **LVM3**, and rockets with **semicryogenic stages**.
    - Scalable for **future advanced configurations**.
2. **Project Timeline**:

- To be completed within **4 years**.
- Supports India's space needs for the next **25-30 years**.

3. **Boost to India's Space Ecosystem**:
   - Enables **higher launch frequencies**.
   - Strengthens India's capability in **human space exploration** and **satellite deployment**.

Existing Launch Infrastructure at SDSC

1. **First Launch Pad (FLP)**:
   - Supports **PSL** and **SSL** vehicles.
2. **Second Launch Pad (SLP)**:
   - Versatile, prepared for **human-rated LVM3** missions such as **Gaganyaan**.

Conclusion

The **Third Launch Pad (TLP)** at SDSC is a vital step in advancing India's space program. It reinforces ISRO's ability to undertake **complex missions**, including **human spaceflight**, while addressing the growing demands of **satellite launches**. This move not only enhances India's space infrastructure but also ensures that the country remains a global leader in space technology for decades to come.