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# Third Launch pad project for ISRO

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## Context:

The new project being established at the **Satish Dhawan Space Centre** in **Sriharikota, Andhra Pradesh** is focused on the development of a **Third Launch Pad (TLP)** to enhance India's space launch capabilities.

## About TLP:

- **Key Features:**
- **Support for NGLV and LVM3:** TLP is designed to support launches of **the Next Generation Launch Vehicle (NGLV)** and the **Launch Vehicle Mark-3 (LVM3)**, both featuring a semi-cryogenic stage.
- **Launch Pad Flexibility:** It supports both **horizontal** and **tilted integration** for new NGLVs.
- **Significance:**
- **Increased Launch Frequencies:** The TLP will help facilitate higher launch frequencies, enabling faster turnaround for space missions.
- **Enhanced Capacity:** It will support **human spaceflight** and future **space exploration missions**, enhancing the launch capabilities for various types of payloads.



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## Existing Launch Pads:

Currently, ISRO uses two primary launch pads at the **Sriharikota site**:

1. **First Launch Pad (FLP)**: Primarily used for **Polar Satellite Launch Vehicle (PSLV)** and **Small Satellite Launch Vehicle (SSLV)**.
2. **Second Launch Pad (SLP)**: Initially developed for **Geosynchronous Satellite Launch Vehicle (GSLV)** and **LVM3** missions, it also serves as a backup for the PSLV.

The **FLP** has supported major missions such as the **Chandrayaan-3 mission** and is set to play a role in launching **Gaganyaan missions**.

## Reasons for Choosing Sriharikota for TLP:

### 1. Strategic Location:

- Located on India's eastern coast, it offers a natural advantage for launching rockets in an **easterly direction**, taking advantage of the Earth's rotation for added velocity.

### 1. Proximity to the Equator:

- The region's proximity to the **equator** provides a boost in launch efficiency. The **Earth's rotation** is fastest at the equator, giving a significant advantage in terms of payload capacity and reducing operational costs.

### 1. Safety and Security:

- The location is free from major international air and sea routes, ensuring that the flight paths of launch vehicles are safe and clear, with launches taking place over the sea in a largely **uninhabited area**.

## New Generation Launch Vehicles (NGLV) Programme:

- **About the Programme**: This program is designed by ISRO to develop a new rocket, known as the **Soorya Rocket**, aimed at launching satellites and other space payloads with improved efficiency.
- **Key Features**:
- **Three-Stage Vehicle**: The NGLV will have a **three-stage vehicle** with a reusable first stage, which lowers the overall cost of access to space.
- **Green Propulsion**: The vehicle will employ **modular green propulsion systems**, using semi-cryogenic technology that utilizes **refined kerosene** and **liquid oxygen (LOX)**.
- **Increased Payload Capacity**: It will have **three times the payload capacity** of current vehicles while being **1.5 times more cost-effective** than the **LVM3**.

The development of the **TLP** and the **NGLV** reflects ISRO's continued commitment to expanding India's space exploration capabilities and increasing the frequency and cost-effectiveness of its space launches.