

What is Agnibaan SOrTeD?

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About Agnibaan SOrTeD

- **Agnibaan SubOrbital Technological Demonstrator (SOrTeD)** is a **single-stage launch vehicle** powered by **AgniKul's** patented **Agnilet engine**.
 - It is an **entirely 3D-printed**, single-piece, 6 kilonewton (kN) **semi-cryogenic engine**.
 - It is the **world's first single piece 3D printed semi-cryogenic rocket engine**.
- It will be **launched from India's first private launchpad, ALP-01, located** inside the Indian space agency **ISRO's Sriharikota spaceport**.

Features

- It is **India's first** ever **vehicle equipped with a semicryogenic engine**, the Agnilet, a subcooled **liquid oxygen-based propulsion system** developed indigenously.
- The rocket engine will **burn kerosene in liquid oxygen** and can be directly used in the rocket.
- It stands 18 meters tall and is 1.3 meters in diameter.
- It has the capability to carry a **100-kg payload** up to a height of 700 km with a lift of mass of 14,000 Kgs.
- It can **access both low- and high-inclination orbits** and is completely mobile.
- It will also have the **first ever Ethernet-based avionics architecture** and fully in-house developed autopilot software from India.
- The rocket is also **designed for launch from more than 10 different launch ports**.
- To ensure its compatibility with multiple launch ports, AgniKul has built a **launch pedestal named 'Dhanush'** that **will support** the rocket's **mobility across all its configurations**.

Points to Remember

- AgniKul Cosmos is an **IIT Madras incubated space** start up based in **Chennai**.
- It was established in 2017.
- It became the **first company** in the country to **sign an agreement with ISRO under the IN-SPACE initiative** to have access to the space agency's expertise and its facilities to build Agnibaan in December 2020.
- In 2022, Agnikul **inaugurated India's first private launchpad** and mission control centre at **Satish Dhawan Space Centre**.

Q1: What is the Indian National Space Promotion and Authorisation Centre (IN-SPACE)?

It is a single-window, independent, nodal agency that functions as an autonomous agency in the Department of Space (DOS). It is formed following the Space sector reforms to enable and facilitate the participation of private players. The agency acts as an interface between ISRO and Non-Governmental Entities (NGEs) and assesses how to utilize India's space resources better and increase space-based activities.