

# Human Space Flight Centre (HSFC)

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**Context:** The Indian Space Research Organisation has finalised the location where its human spaceflight centre (HSFC) will come up.

- The expensive facility for training astronauts will be established on 400 acres of land earmarked at Karnataka's Challakere, miles away from any urban settlement, The site, in Chitradurga district, is more than 200 km from ISRO's headquarters at Bengaluru.
- It is held as the nodal centre responsible for implementation of the Gaganyaan project which involves end-to-end mission planning, development of engineering systems for crew survival in space, crew selection and training and also to pursue activities for sustained human space flight missions
- At present, the four selected astronauts to embark in India's first manned spaceflight mission Gaganyaan are undergoing training in Russia
- While Gaganyaan is expected to cost India Rs 10,000 crore, the newspaper has reported that the proposed cost for infrastructure required to build the Challakere centre will be an additional Rs 2,700 crores.

## Gaganyaan

- Gaganyaan is an Indian crewed orbital spacecraft that is intended to send 3 astronauts to space for a minimum of seven days by 2022, as part of the Indian Human Spaceflight Programme.
- It will be for the first time that India will launch its manned mission to space, making the country fourth in line to have sent a human to space.

- The human spaceflight will take 16 minutes to reach the orbit where it will stay for five to seven days.
- The spacecraft will be placed in a low earth orbit of 300-400 km.
- The spacecraft, which is being developed by the Indian Space Research Organisation (Isro), consists of a service module and a crew module, collectively known as the Orbital Module.
- Isro's Geosynchronous Satellite Launch Vehicle GSLV Mk III, the three-stage heavy-lift launch vehicle, will be used to launch Gaganyaan as it has the necessary payload capability.
- GSLV Mk III is designed to carry 4 ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO). The powerful cryogenic stage of GSLV Mk III enables it to place heavy payloads into LEO's of 600 km altitude.
- The launcher uses two S200 solid rocket boosters to provide the huge amount of thrust required for lift off.