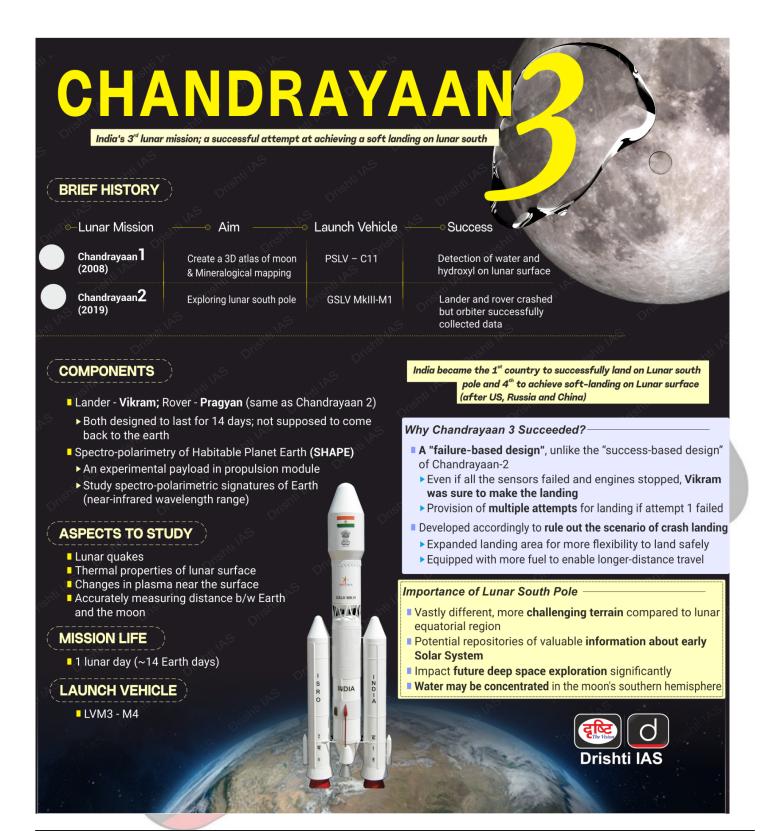


Chandrayaan's ChaSTE

Source: TH

India's <u>Chandrayaan-3 mission's</u> ChaSTE (Chandra's Surface Thermophysical Experiment) became the first-ever instrument to successfully measure subsurface temperature near the Moon's south pole.

- ChaSTE was deployed by the Vikram lander after Chandrayaan-3's successful lunar landing in August 2023.
 - The ChaSTE probe features 10 temperature sensors spaced 1 cm apart along its needle, with a rotation-based deployment mechanism, rather than a hammering one.
 - The probe successfully descended up to 10 cm into the lunar surface and collected thermal data until September, 2023.
 - The **data suggested the presence of more water ice** near the south pole than previously estimated, a crucial discovery for future lunar missions.
 - ChaSTE's success was attributed to its rotating probe mechanism, which proved more effective than the hammering technique used by earlier missions.
- Previous Missions: ESA's Philae lander (2014) couldn't deploy the MUPUS (Multi-Purpose Sensors for Surface and Subsurface Science) thermal probe due to an awkward landing on comet
 - NASA's InSight (2018) on Mars also failed to gather subsurface data due to mechanical issues with the Heat Flow and Physical Properties Package (HP3) instrument.



Read more: Chandrayaan-3 Successfully Lands on Moon's South Pole