Source: www.thehindu.com Date: 2019-07-23

## RACE FOR MOON MISSIONS HOTS UP

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July 2019 is a special year for space history. Other than it being the successful launch of Chandrayaan-2 into earth orbit, it also marks the 50th anniversay of the famed Apollo 11 mission of July 1969 that for the first time saw humans land on the moon.

However there's widespread enthusiasm and conmercial interest in several countries for moon missions.

The most high-profile is a proposed December mission by China's Space Administration. This is the Chang'e 5 mission and will be China's first sample return mission, meaning it aims to come back with least 2 kg of lunar soil and rock samples back to the Earth.

The U.S. National Aeronautics and Space Administration (NASA) has outlined plans to send humans back to the moon by 2024 but proposes to do it in collaboration with private companies as well as the European Space Agency.

As a precursor companies have been given contracts to develop payloads that can be sent and successfully landed on the moon.

In the first stage, 9 companies have been shortlisted to design and send landers with at least 10 kg (22 lb) of payload by the end of 2021. Proposals for mid-sized landers capable of delivering between 500kg and 1,000kg of cargo would be considered for launch beyond 2021, according to a statement from the agency. There are newer space launch vehicles being developed for this purpose and these missions, called the Artemis 1,2 and 3 missions will send from 2022-2024 astronauts to the moon orbit and eventually make a moon landing on the south pole of the moon, where astronauts will stay for a week. Japan and Russia too have lunar missions lined up for moon exploration. Russia's Luna 26 mission will consist of a Soyuz rocket to descend a lander that will engage in exploring the surface as would Japan's SLIM (Smart Lander for Investigating Moon) mission. Both of these are currently scheduled between 2021 and 2022.

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