1. ISRO's Moon Mission Presents India a Chance to Reassess its Space Priorities

Context:

- India's first attempt to land a spacecraft on the Moon has not been successful. The ground control station had lost contact with the lander when it was about **2.1 km above the Moon**.

What is Chandrayaan 2 Mission?

- Chandrayaan 2 is the space mission to the moon. **The mission comprised an orbiter, a lander and rover.** The orbiter part is functioning normally.
- Most of the scientific investigations of the mission are supposed to be carried by instruments onboard the orbiter, including studies to find more evidence of water on the Moon.
- The **lander and rover had a mission life of only 14 days while the orbiter will function for at least one year.**
- Scientists insist that 80-90 per cent of the science output of the mission have to come from the orbiter, and that has not been affected at all. The mission has not failed, although the attempt to land a spacecraft on the moon certainly has.

Is it possible to re-establish contact with the lander? Past Instances:

- The lander appears to have made a hard-landing because of which, possibly, ISRO is not able to establish any contact.
- Still, ISRO has not given up and they propose to keep on trying for 11 to 12 days — when sunlight would be available on the Moon's surface, providing energy for the lander.
- There have been occasions in the past when declared "dead" satellites/space probes have suddenly come alive.
- One recent case is that of NASA's IMAGE satellite launched in early 2000. The spacecraft stopped transmitting from 2005 and NASA declared the satellite dead but got a signal from this satellite after many years and NASA declared this satellite live again in 2018. However, this activity has happened in the Earth orbit. We have no such experiences from the Moon orbit.

Need of the Hour:

- For all these years, with various successes in the domain of space, ISRO has raised the stature of the country internationally. At the same time, it is also important to do some critical assessment of where India stands in the domain of space.
- For this, it is important to make an **Assessment of the technical resources** and **expertise available with ISRO** in order to carry forward a major space programme and of the nature of likely governmental funding available for these purposes.
- It is also important to factor in the **nature of the private space industry** which **can support a space programme of this size**. In addition to all this, international collaborations have become an important element in the present times. The government needs to carry out a detailed assessment of all these aspects to prioritise the Space Mission.

Space Science and Human Development:

- Firstly, there should be clarity about why India should invest in space. Actually, our forefathers had thought about it very wisely: India's investments in space should be made bearing **socio-economic development in mind like Education, health care and Information Technology** which ultimately improves the Standard of living.
- At present, space technology has become so important that the daily lives of human beings get affected and are, consequently, governed by it. Going to the Moon and Mars is important for multiple reasons, including **The Quest for Minerals and Energy Security (Helium 3).**

Space Programme and Foreign Policy:

- Space should emerge as an important constituent of foreign policy. Missions like those to the Moon and Mars offer India prime **opportunities for bilateral or multilateral collaboration.**
- There are indications, in fact, that Chandrayaan 3 could be a joint mission with Japan, and this is an idea that needs to be welcomed. Such collaborations could **allow technology sharing** and they could also prove to be **more cost-effective and time-saving.**

Way Forward:

- India needs **to make more investments in its strategic programme**: Efforts made to conduct an **ASAT (anti-satellite test)** should not remain one-off attempts, and should be capitalised upon.
- Today, the armed forces require many more satellites for various purposes and ISRO just cannot be overloaded with this task. There is a need to evolve a separate agency for this purpose.

- The problem with Chandrayaan 2 has presented an opportunity to have a relook at the priorities for India's space agenda. In the future, money and manpower are going to emerge as major issues. Therefore, **Investments in this domain should be done only for Social Reasons, for Science and for Security.**
- If India has to emerge as a space power, then it should be via a combination of soft and hard power. Missions like the ones to the Moon offer such opportunities.