

# **Chandrayaan-1& 2**

## **1.0 INTRODUCTION:**

### **Chandrayaan-1**

India's first mission to Moon was launched successfully on October 22, 2008 from SDSC SHAR, Sriharikota. The spacecraft was orbiting around the Moon at a height of 100 km from the lunar surface for chemical, mineralogical and photo-geologic mapping of the Moon.

The Chandrayaan programmed. It was launched by the Indian Space Research Organization (ISRO) in October 2008, and operated until August 2009. The mission included an orbiter and an impactor. India launched the spacecraft using a PSLV-XL rocket on 22 October 2008 at 00:52 UTC from Satish Dhawan Space Centre, at Sriharikota, Andhra Pradesh.

### **CHANDRAYAAN 2:**

The Chandrayaan-2 mission was successfully launched on 22nd July 2019 at 14:43 hrs by GSLV MkIII-M1 from Satish Dhawan Space Centre (SDSC), Sriharikota. After a series of Earth bound manoeuvres, the spacecraft entered into Lunar Transfer Trajectory (LTT) on August 14th.

## **1.1 OVERVIEW :**

**Chandrayaan-1** was launched on October 22, 2008, and **Chandrayaan-2** was launched on July 22, 2019. Chandrayaan-1 was an orbiter/impactor, while Chandrayaan-2 contained soft Landers/rovers. Chandrayaan-1 orbited the moon a distance of 100 kilometers from its surface, with a mission of chemical, mineralogical and photo-geologic mapping of the lunar satellite. The Chandrayaan-2 orbiter will circle the moon and provide information about its surface.

## **1.2 PURPOSE USE OF THE PROJECT :**

- Chandrayaan 1: Conduct in-situ scientific experiments on the lunar surface.
- Chandrayaan 2: Demonstrate safe and soft landing on the surface of the moon; demonstrate rover operations on the moon.

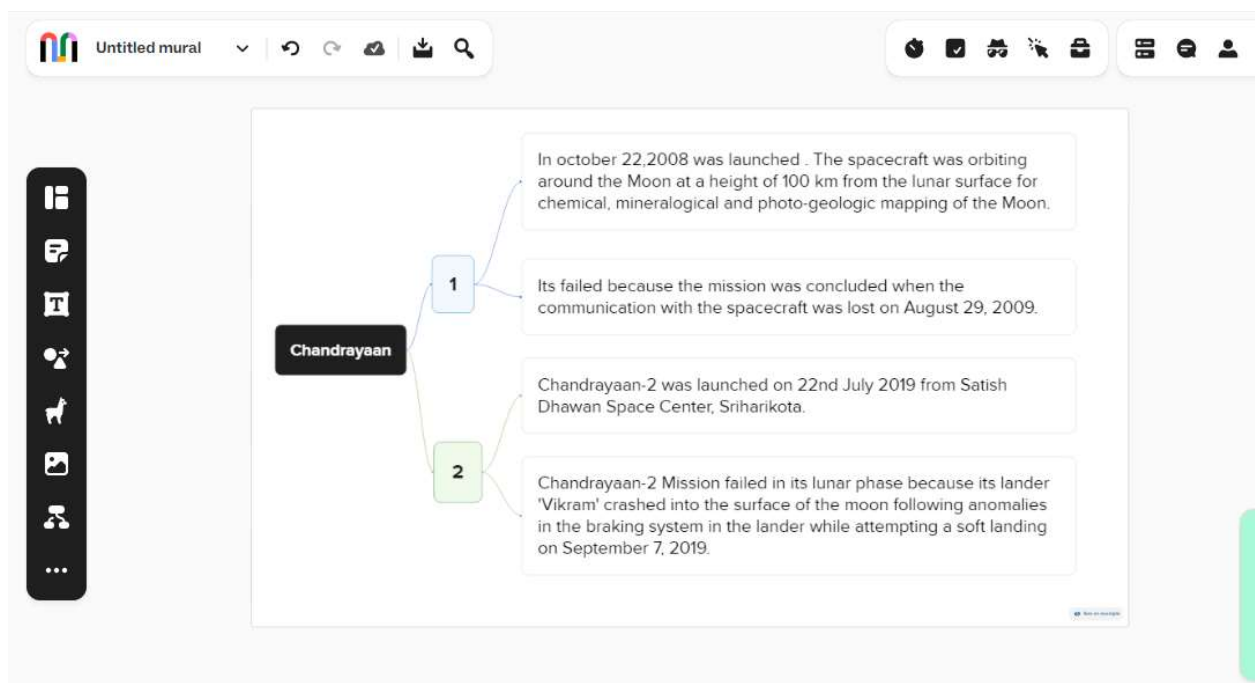
### **Purpose of Chandrayaan 1& 2:**

- To demonstrate safe and soft landing on the lunar surface, especially on the South Pole.
- To demonstrate rover operations on the moon and conduct scientific experiments on the lunar materials
- To showcase India's expertise in lunar exploration

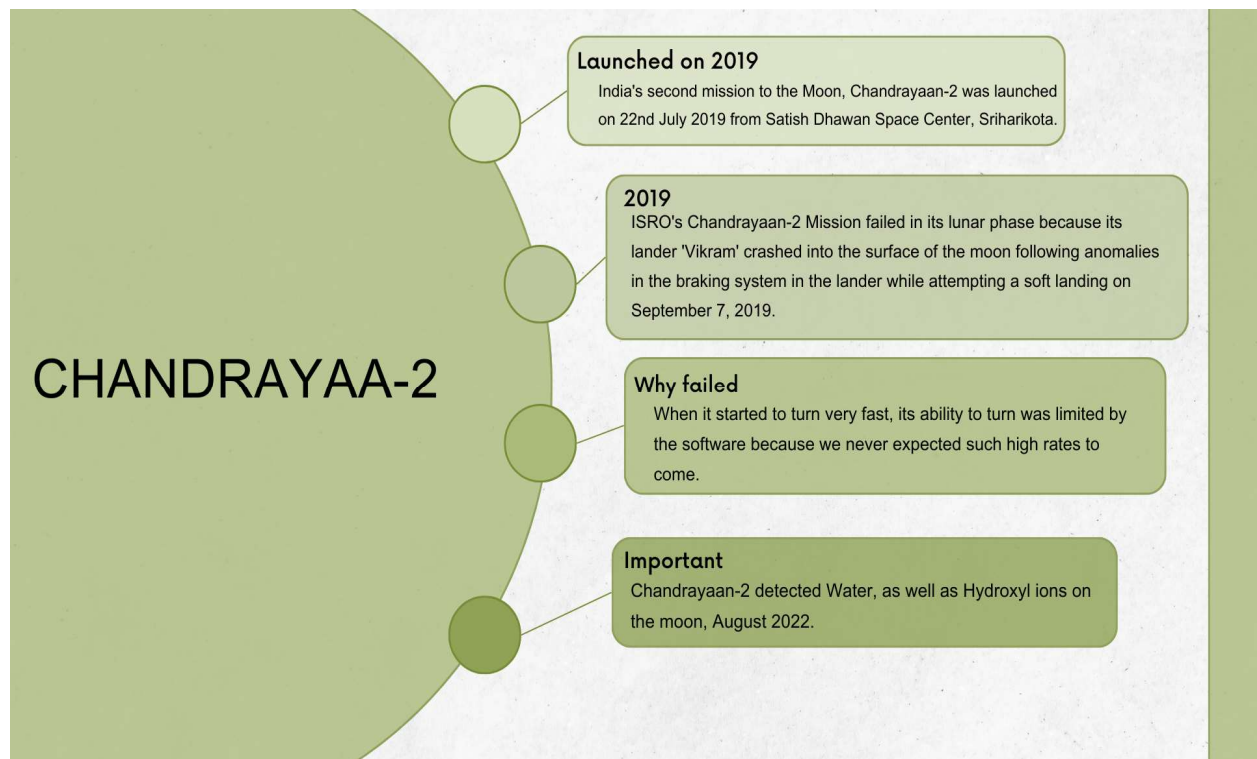
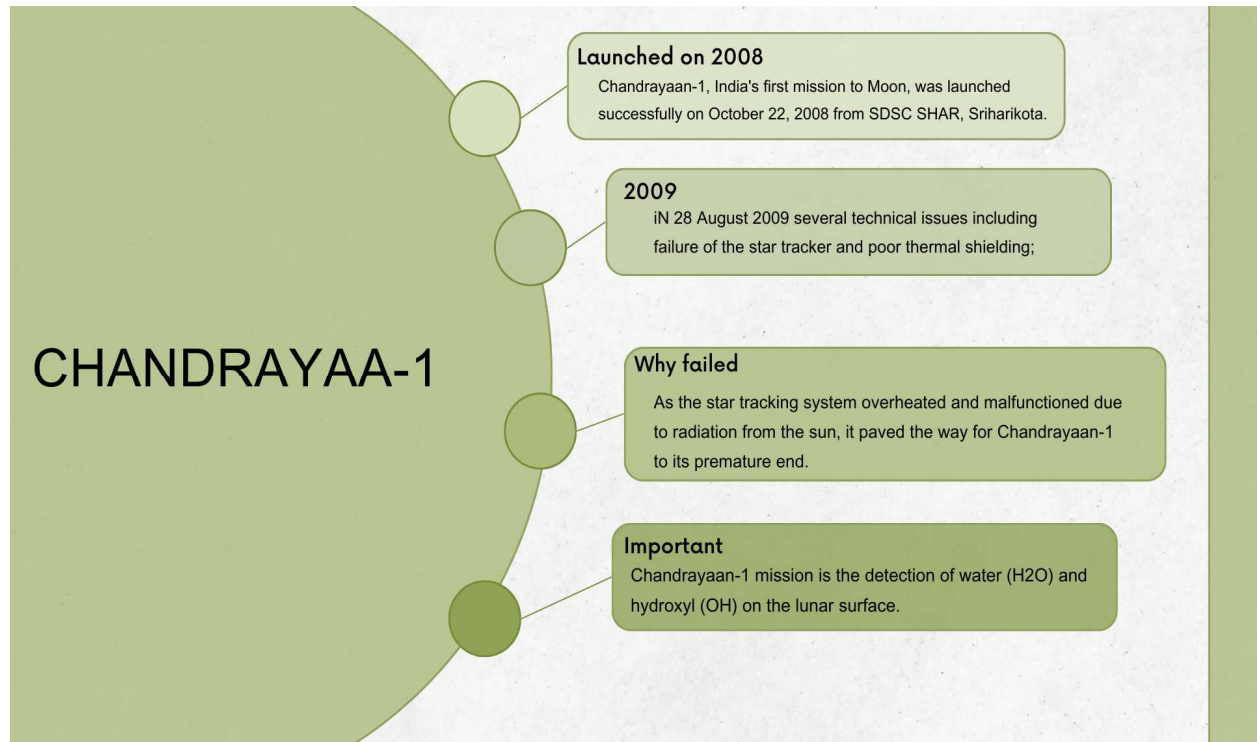
## 2.0 PROBLEM DEFINITION:

The Isro chief said the “**five engines of the lander generating higher thrust, limitation of the software to detect errors and the small landing site**” were the three primary causes for the crash landing of the lander.

## 2.1 Empathy Map:



## 2.2 Brainstorming Map:



### **3.0 RESULT:**

ISRO had a lot of success with the Chandrayaan 1 lunar orbiter, which did high-resolution remote sensing of the Moon. Furthermore, a space capsule called the 'Moon Impact Probe' successfully discovered the presence of water vapour on the Moon. However, a crash landing of Chandrayaan 2 prompted ISRO to launch the Chandrayaan program's third phase.

### **4.0 ADVANTAGES:**

- The mission will help to increase our understanding of the Moon's formation and evolution.
- It will also help us to better understand the lunar environment, which could be useful for future human exploration of the Moon

### **4.1 DISADVANTAGES:**

- The mission could fail. Any space mission is inherently risky, and Chandrayaan-3 is no exception. ...
- The mission could be delayed. Space missions are often delayed due to technical problems or weather conditions. ...
- The mission could be expensive. Space missions are very expensive

## **5.0 APPLICATIONS:**

Chandrayaan-1, the first Indian deep space mission, was launched to orbit the Moon and to dispatch an impactor to the surface. Scientific goals included the study of the chemical, mineralogical and photogeologic mapping of the Moon.

Chandrayaan-2: The primary objectives of the Chandrayaan-2 lander were to illustrate the ability to soft-land and operate a robotic rover on the lunar surface. The scientific goals of the orbiter are: to study lunar topography, mineralogy, elemental abundance, the lunar exosphere, and signatures of hydroxyl and water ice.

## **6.0 CONCLUSION:**

The Chandrayaan mission, India's first successful space mission to the moon's surface, concluded recently after its lander and rover could not be revived from the cold lunar darkness.