

**GOVERNMENT OF INDIA  
PRIME MINISTER  
LOK SABHA**

UNSTARRED QUESTION NO:1402  
ANSWERED ON:14.08.2013  
CHANDRAYAAN -2  
Choudhry Smt. Shruti;Venugopal Shri P.

**Will the Minister of PRIME MINISTER be pleased to state:**

- (a) whether Chandrayaan-2 would be a lone mission by India without Russian tie-up;
- (b) if so, the details thereof including the changes in the mission profile, if any, on account of this;
- (c) whether the Government proposes to send a seismometer on board the landing instrument of Chandrayaan-2, scheduled to be launched in 2014/15 and if so, the details thereof; and
- (d) Whether the sensors have undergone calibrations and if so, the details thereof?

**Answer**

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG & PENSIONS AND IN THE PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY):

(a) Yes, Madam.

(b) Indian Space Research Organization (ISRO) and Russian Federal Space Agency (ROSCOSMOS) have been pursuing Chandrayaan-2 as a joint mission under which, ROSCOSMOS had the responsibility for the Moon Lander and ISRO had the responsibility to realize the Rover Module, Orbiter and the launch by GSLV. Chandrayaan-2 as originally envisaged and approved by Government in September 2008 (at cost of ₹ 425 crores, excluding cost of GSLV and Lander) is an important step in India's Planetary exploration.

ISRO has shown its capability for Moon Orbiter (thru Chandrayaan-1). Development of Rover Module and a few scientific instruments to be flown on the Orbiter and Rover has made good progress. Some level of experimental studies for the Moon Lander has also been undertaken at ISRO.

Consequent to the failure of the Russian-led interplanetary mission Phobos-Grunt, a sample return mission to Phobos (one of the moons of Mars), decisions have been taken by ROSCOSMOS to increase the reliability of their planetary missions. This would result in increase in the mass of the Moon Lander (planned for Chandrayaan-2). ROSCOSMOS suggested that ISRO may provide Indian Rover for launch scheduled in 2015 or in 2017, also indicating that the 2015 opportunity involves mass limitation for Rover and higher risk.

Since these inputs from Russian side called for a major programmatic re-alignment, an integrated programmatic review on Chandrayaan-2 (chaired by Prof U R Rao) was carried out to critically assess our capability to design and deploy a Landing craft in a short time frame. The integrated review of Chandrayaan-2, recommended that India could realize the Lander module in the next few years. Currently the spacecraft is being reconfigured for the proposed Indian Rover and Lander modules.

The details of changes in the configuration and the mission profile are under finalization.

(c) At present, the list of possible payloads considered onboard the Lander also includes seismometer. The payloads on the Lander will be finalized in due course taking into account the weight, volume and power constraints of the Lander.

(d) The calibration of sensors will be done on the flight models after the realization of the lab/engineering models.