

# 'We're launching Chandrayaan-2 for a total coverage of the moon'

*On August 30, India's second unmanned scientific mission to the moon, the Rs 425-crore Chandrayaan-2, slated for launch in 2013, a joint Indo-Russian flight, from Sriharikota, took a definite shape with the seven scientific instruments or payloads – five on the India-built orbiter and two on the indigenous rover – being announced by ISRO. A high-level committee headed by U R Rao, chairman, Advisory Committee on Space Sciences, made the choice of instruments. Srinivas Laxman talks to Rao, who was also chairman of ISRO between 1984 and 1994:*

**■ India's first lunar mission Chandrayaan-1 had accomplished nearly 95 per cent of its scientific objectives and is considered a success internationally. Why is India returning to the moon?**

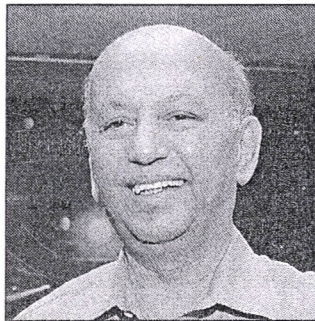
There are still a lot of

outstanding issues about the moon, which have to be resolved in greater depth. Some of the experiments of Chandrayaan-1, moreover, achieved only 50 per cent to 70 per cent of their objectives. Again, due to power limitations, the Terrain Mapping Camera of Chandrayaan-1 could map only 45 per cent of the moon. We are launching

## Q&A

Chandrayaan-2 because we need a total coverage of the moon, employ improved and new technology and obtain better quality photo imageries. The orbiter with the five payloads will be flying at an altitude of 200 km above the lunar surface and we estimate that its lifespan would be for two years depending on the use of the propellant.

**■ A significant aspect of Chandrayaan-2 is that the orbiter, unlike in Chandra-**



**yaan-1, does not have any foreign payloads even though NASA and the European Space Agency showed interest. Is there any reason why foreign payloads have been removed?**

As per the present plan we do not have any weight in the orbiter for foreign payloads. We were keen on giving an opportunity to our scientists. This is why we decided not to invite international participation this

time. Keeping this in view we, unlike in Chandrayaan-1, did not issue a formal Announcement of Opportunity calling for international participation. Even at the last moment if we decide to have foreign payloads on Chandrayaan-2 after making weight allowances, we have to issue an Announcement of Opportunity, an elaborate exercise, which can delay the flight. The total mass of the five payloads on the orbiter is about 40 kg at the moment and we are trying to reduce it, which may be difficult.

**■ In Chandrayaan-1 many Indian scientists regretted that their achievements were sidelined especially with regard to the discovery of water and NASA took away the credit. Is this a reason why the committee eliminated foreign instruments on board Chandrayaan-2?**

[Laughs] The instruments were chosen based purely on their scientific merit.

**■ The weight of Indian rover was earlier stipulated as 15 kg. Has this been finalised and what will be its lifespan?**

It will be more than that. It will function only for a few days on the surface of the moon because of power limitations. It will carry its own power. The design and development of the rover is a new technology for us. For the orbiter we have selected the right altitude of 200 km above the moon's surface for it to fly because too many corrections are not needed at this altitude. (The flight plan envisages the lander with the rover detaching from the orbiter at a certain point near the moon and soft landing on the lunar surface, the place has yet to be finalised. Thereafter, the rover will move out of the lander.)

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