

India reaches for Mars on prestige space mission

November 3 2013, by Adam Plowright

India began a countdown Sunday to the launch of its most ambitious and risky space mission to date, sending a probe to Mars which was conceived in just 15 months on a tiny budget.

After a recent Chinese attempt flopped, India is seeking to make a statement of its technological prowess by becoming the first Asian power to reach the Red Planet more than 200 million kilometres (124 million miles) away.

An unmanned probe, weighing 1.35 tonnes and about the size of a large refrigerator, will leave earth strapped to an Indian rocket which is set to blast off from the south-east coast on Tuesday afternoon.

Wrapped in a golden film, the orbiter will carry advanced sensors to measure the Martian atmosphere, hoping to detect traces of methane which could help prove the existence of some sort of primitive life form.

"Any interplanetary probe is complex. As we can see for Mars, there were 51 missions so far around the world and there were 21 successful missions," chairman of the Indian Space Research Organisation (ISRO), K. Radhakrishnan, told AFP last Thursday.

Undeterred by the failure rates, he laughed off any suggestion of lastminute nerves, saying: "If it is a failure, then learn. Failure is a stepping stone for success."



Success would be a source of national pride for Indians, whose 2008 unmanned mission to the moon helped prove the existence of water in another leap forward, 39 years after Neil Armstrong set foot there.

It would also bolster the reputation of India, the land of the world's cheapest car, as a leader in low-cost innovation. The project was announced in August 2012 with a budget of only 4.5 billion rupees (\$73 million).

Lacking a rocket large enough to fire the satellite directly out of earth's atmosphere, ISRO has also had to rely on another famed Indian specialism of "Jugaad"—confecting a cheap work-around solution.

Instead of flying directly, the 350-tonne rocket will orbit earth for nearly a month, building up the necessary velocity to break free from the earth's gravitational pull.

"Don't underestimate it because it is a low-cost mission that is being done for the first time," Indian science journalist Pallava Bagla, author of the book "Destination Moon", told AFP.

"Yes, there is Jugaad in it, there is innovation in it... and everyone wants to do low-cost missions nowadays."

NASA is under budget pressure and has faced cuts to proposed Mars missions in 2016 and 2018 despite having an overall objective, set by US President Barack Obama, of sending an astronaut there by 2030.

The United States is the only nation that has successfully sent robotic explorers to land on Mars, the most recent being Curiosity, a nearly one-tonne vehicle which touched down in August 2012.

One of its discoveries appeared to undercut the purpose of the Indian



mission after a study published in September revealed Curiosity detected only trace elements of methane in the Mars atmosphere.

NASA will help ISRO with ground monitoring from three deep-space facilities after the launch at 02:38pm (0938 GMT) on Tuesday. The American space agency will send its own probe, Maven, 13 days later.

The official countdown for blastoff of the Indian orbiter, nicknamed "Mangalyaan" in local media, began at 06:08am on Sunday, which is the Hindu festival of lights known as Diwali.

Only the US, Russia and the European Union have succeeded in reaching Mars before. China failed in 2011 with its <u>probe</u> aboard a Russian <u>rocket</u> and Japan's effort floundered in 2003.

Radhakrishnan denies that India is competing with China despite speculation that India accelerated its Mars <u>mission</u> to prove a point against its militarily and economically superior Asian rival.

He also defends ISRO and its 16,000-strong workforce against suggestions that New Delhi should not be spending on space when more than a third of all children are malnourished and half of Indians have no toilets.

"Space is one area right from the beginning that has been contributing to the development process of the country," he said, pointing to better weather forecasting for farmers and satellite communication networks.

Upendra Choudhury, an associate professor at Aligarh Muslim University who is an expert on India's ballistic missile programme, says the spending has also boosted national security.

"India's achievements in space technology are contributing to its missile



technology, including the Agni-V," he told AFP.

The Agni-V, capable of reaching Beijing and eastern Europe, was test fired for the first time in April 2012 and catapulted India into a small group of countries with such long-distance missile technology.

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