

India hopes scrubbed launch is just one small step back

NEW DELHI

BY JEFFREY GETTLEMAN

With the minutes ticking down, less than an hour to launch time and scores of top scientists and V.I.P.s gathered at a remote coastal site, it appeared that all systems were go.

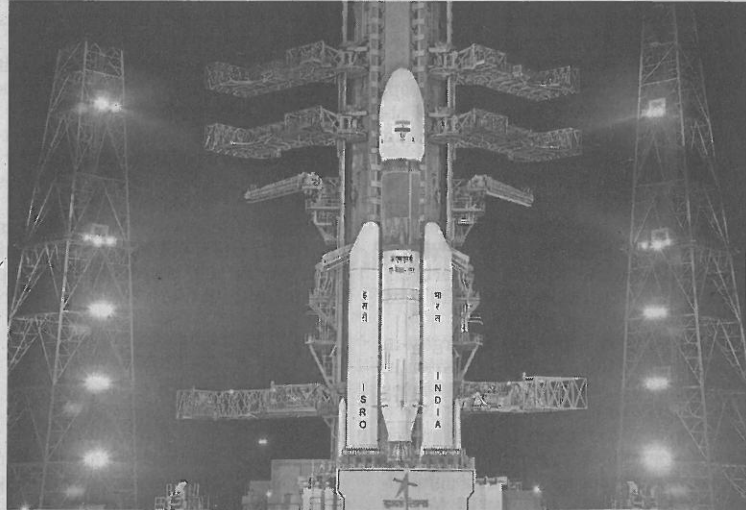
The skies had cleared after a short drizzle. The towering rocket stood on the launchpad, full of fuel. The rocket carried an orbiter, a lunar lander, a robotic rover and, in many ways, India's space dreams.

India was going to be only the fourth country to land on the moon (albeit with an uncrewed rover) and the first to reach the moon's mysterious south pole. This was to be a huge leap forward for the country's ambitious space program, and around the world scientists and defense experts were watching to see if the Indians could pull it off.

The plan was to launch the rocket, in a mission called Chandrayaan-2, at 2:51 a.m. Monday.

But with 56 minutes to go, the countdown stopped. At the media center a few miles from the launchpad, the screens from mission control suddenly turned solid blue.

"I was alert and up and about and watching what was happening with a hawk's eye," said Pallava Bagla, a sci-



Chandrayaan-2 on the launchpad in Sriharikota, India. The rocket, which was aimed at reaching the moon's south pole, had its launch canceled because of a "technical snag."

ence journalist who was attending the launch at the Satish Dhawan Space Center, near Chennai. "A beautiful moon was shining down through the clouds and asking the rocket to come to it. But then there was confusion. Everyone was trying to figure out what went wrong. The excitement was very high."

The countless Indians across the

country up in the middle of the night and raptly watching did not know what was going on, either. But they had a bad feeling.

"I had my laptop open," said Namrata Bera, a space teacher. "I was following the news, and we were all so excited. This is a huge moment of pride for all Indians. I am sad, definitely, but deep in-

side I totally believe we will succeed in this mission."

In the end, Indian scientists announced that nothing disastrous had happened but that the launch needed to be postponed because a "technical snag" had been discovered while filling the rocket with cryogenic fuel. They were studying printouts and reams of data, they said Monday morning, and would provide more information as soon as they had it.

Mr. Bagla, who has attended more than 20 launches, said there was chatter at the space center that a small leak might have sprung in the rocket's engine system. Indian space scientists would not comment on that possibility.

"We have not concluded anything as of yet," said Vivek Singh, a spokesman for the Indian Space Research Organization, India's version of NASA.

But, Mr. Singh admitted, "it was unfortunate."

The weather conditions were "absolutely favorable," Mr. Singh said. Monday morning was muggy and warm, in the 90s even after midnight.

The Satish Dhawan Space Center sits in a coastal area far from any cities on an isolated spit of land, essentially a barrier island. Feral cows and leopards roam freely. Several hundred journalists and dignitaries, including Ram Nath Kovind, India's president, had flown in to watch the launch.

The spacecraft had been mounted on India's most powerful rocket, the Geosynchronous Satellite Launch Vehicle — Mark III, which has successfully launched at least two times.

Once in space, the orbiter would take a slow and steady (and cost-efficient) trip to the moon, making ever-widening orbits around Earth before being captured by the moon's gravity and pulled into lunar orbit. This would conserve fuel and take about 50 days.

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Then a lunar lander would emerge and make a soft landing on the moon's powdery surface, considered the trickiest aspect of the entire operation. The *Israels* crashed a lander in April trying to do the same thing.

But the Indians are confident they can do it, and if so, a little six-wheeled remote-controlled rover would pop out. The rover would rumble across the moon's surface near the south pole, collecting samples and conducting experiments.

The whole mission was precisely timed to maximize the sunlight for the solar-powered rover to operate. This is why postponing the mission raises complications.

Scientists had worked backward, starting with the exact time they wanted the rover to land on the moon and determining that the best time to launch the rocket was early Monday.

The mission had been delayed several times already, though never with the rocket sitting on the launchpad, all fueled up and with minutes to go.

Mr. Singh said he was confident that India's space agency would fix the problem and choose a new launch time soon, though he was not sure when.

Indians across the country are waiting. The possibility of reaching the moon has ignited a burst of national pride, especially among children learning about space.

Veronica Sodhi, a 12-year-old who wants to be an astronaut, has been absorbing all the details of the Chandrayaan mission at her school near New Delhi. She was not allowed to stay up to watch the launch, but she had been looking forward to seeing the video of it later in the day.

When she woke up at 6 a.m. for school on Monday, her parents delivered the bad news.

"You know that feeling when you get your hopes up about something you really want to do," she said, "and suddenly it just breaks apart?"

Hari Kumar contributed reporting from New Delhi.