

Agni-III range can extend to 5,000 km: scientists

Buoyed by the successful test firing of a nuclear capable ballistic missile they designed and developed, Indian scientists confidently declared Friday it could be inducted into service in two to three years, even as they said its range could be extended to 5,000 km.

Agni-III, a 3,000-km range intermediate range ballistic missile (IRBM) that was sent aloft from a defence base in Orissa Thursday, 'would be the stepping stone to build capability for a longer range of 5,000 km,' M. Natarajan, head of the Defence Research and Development Organisation (DRDO), which developed the system, told reporters here Friday.

Agni-III is a two-stage missile 'and we could squeeze in a third stage to enhance its capability. I don't have a solution now but we will work toward building capability on the basis of our success with the first and second stage motors,' said Natarajan, who is also the scientific advisor to the defence minister.

'We would need to conduct more tests for another two to three years to build confidence levels before we declare it safe for handing over to the armed forces,' he added.

Thursday's test was all the more significant as the missile was built with 85 percent Indian know-how.

'We have developed the capacity for the balance 15 percent and will be progressively introducing this,' Natarajan added.

The building of the missile has also proved how effective a laboratory-industry-academia collaboration can be.

'There were 258 private-public industries, 28 laboratories (of DRDO) and countless academic institutions that worked on the development of Agni-III,' he said.

The missile was tested for only the second time Thursday. It had lifted off smoothly on July 9, 2006 but had then plunged into the Bay of Bengal well short of its intended target.

'We might have had our share of difficulties but this is an integral part of the development process. You cannot have success without setbacks, so it is better not to hype successes or failures,' Natarajan said.

Speaking about the previous launch, Agni-III mission director Avinash Chander said his team had extensively studied the telemetry data obtained to rectify the error.

'We went through the analysis and were very clear that the primary problem was that at supersonic speeds at a height of 35 to 40 km, there was re-circulation of hot gas and the external cold stream mix. A lot of this got sucked into a cavity between the flux nozzle and the heat shield,' Chander said.

'At that time, the temperature shot up to 700-800 (degrees Celsius) and more and it burnt some cables that controlled the nozzle actuation device.'

'So we knew that now we have to bring in thermal barriers. But was not easy because this barrier has to be flexible to allow the nozzle to flex. So it could not be solid,' he said.

'We spent quite a lot of time and now we have developed new silica based materials that are actually stitched like a skirt or umbrella. It moves along with the nozzle and at the same time serves to insulate. Also, some parts were moved out to other locations so they were away from the heat,' Chander said.

It is this ability to quickly analyse a problem and find a solution that has given DRDO scientists immense confidence, Natarajan said.

'All this happened not due to luck, but because of the years of toil and hard work put in by our scientists. I am sure the next generation of younger scientists will carry this nation forward by drawing strength from this technology.

'Strength is necessary for democracy and peace,' he added.

Agni-III builds on its predecessors, Agni-I that is a single stage 700-km missile, and Agni-II that is a two-stage 2,000-km system. These two have already been inducted into the armed forces.

(© IANS / India eNews)