



INDIA'S AGNI I TEST: PREPARING FOR OPERATIONAL READINESS

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On September 11, 2014, India's lone missile test firing range, Wheeler Island in Odhisha coast witnessed yet another successful test firing of the 700kms range nuclear capable Agni I ballistic missile. Reported to have been a 'limited stock production' test the solid fueled missile was 'randomly' chosen to be tested. This missile system was developed under the indigenous Integrated Guided Missile Development Program. The Defence Research and Development Organisation in collaboration with Defence Research Development Laboratory and Research Centre Imarat developed the missile while the missile was "integrated" by Bharat Dynamics Limited, Hyderabad. The missile is a surface to surface, single warhead, mobile missile capable of being launched from Transporter Erector Launcher. This test firing of the missile was done as a part of the Indian Army's regular military exercise. As the missile has already been inducted into the Indian Army, the test firing was conducted by the Strategic Forces Command (SFC) of the Nuclear Command Authority (NCA).

While the range of the Agni-I missile is 700kms, reports confirm that it can be increased to 900kms. Mobility of the missile system would allow the missile to be fired from any part of India along with enhancing the missile's chances of survivability. The 700kms-900kms missile range allows the missile to be fired far away from the border. This reduces the missile's vulnerability to enemy attack. Specialized navigation system on the missile can ensure that the missile reaches its assigned target with accuracy and pin-point precision. The missile was reported to have achieved an accuracy of 50m and can carry one-ton nuclear warhead.

However, the missile is also capable of delivering conventional warheads. Hence, its low circular error probable will play a vital role if Agni I was to deliver conventional payload in a conflict.

The missile uses solid propulsion booster and also liquid propulsion upper stage which is reported to be derived from the DRDO developed liquid fuelled Prithvi ballistic missile. According to the Federation of American Scientists, the first stage of the missile system uses the first stage solid fuelled booster of SLV-3. Thus, Agni I is reported to have used its component of civilian space research program. The carbon composite materials with which the missile is made enables protection of payload during re-entry phase.

This missile development initially in the 1990s was halted by India due to pressure from the United States when the missile was believed to be a “destabilizing weapon”. However, following the Kargil Conflict, the need for the missile was realized and on demand from the Indian Army, the DRDO continued with the development of the missile system. Given its range restriction against China, Agni I is a deterrent against Pakistan along with the Agni II and the Agni III ballistic missiles with longer ranges than the of the Agni I.

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The missile was first test fired in January 2002. However, in the last four years, that is from 2010-2014, the Agni I ballistic missile has been test fired several times. It was test fired in March 2010, November 2010, December 2011, July 2012, December 2012, November 2013, April 2014 and now in September 2014. Reportedly, earlier in April 2014 and now in September 2014, night trials of the Agni I missile were conducted. Similarly, in November 2013, the missile was test fired in the morning. Being inducted in the Indian Army, user trials of the missile system are important in order to test the credibility of the missiles and also to train defence personnels and the SFC in launching the missiles whenever required.

In 2013, during the missile test firing, reports came in that there was “considerable improvements in its re-entry technology and maneuverability” since the first trials of the Agni I

was conducted. The missile arms race is already pacing up in South Asia. In order to maintain a credible minimum deterrent capability, India needs to possess robust missile capabilities. As Prithvi I missile systems are already reaching its obsolescence, the Agni I would form the main constituent of India's nuclear capable short range missile capability.ⁱ

India's nuclear posture is defensive and hence New Delhi had adopted a 'no-first use' doctrine coupled with recessed deterrent posture; warheads are de-mated from the delivery systems. As Air Commodore Jasjit Singh had once said, India's recessed deterrence posture needs "operationally tested missile" and that the missiles need "two or three dozens of tests" for becoming operational.ⁱⁱ Though the missile is already operational with the Indian Army, these tests would further bolster the operational readiness of the missile system. The SFC must continue to conduct more test firings of the Agni missile systems in order to ensure that India's nuclear deterrent capability is indeed credible.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies CAPS)

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ⁱ The author has used NATO definition of short range ballistic missile; missiles within the range of 1000kms.

ⁱⁱ "India bows to Western concerns over Agni I missile," *Reuters*, December 6, 1996, <<http://fas.org/news/india/1996/agni2.htm>>