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AGNI V: INCREMENTAL CAPABILITY ADDITION

Arjun Subramanian P
Associate Fellow, CAPS

The recent successful test firing of the canisterised Agni V was a significant milestone in India's long range nuclear strike capability. This was the third successful test launch of the missile where one of the key developmental objectives were met, i.e. canisterising it. This is a remarkable achievement as only a couple of countries have achieved such a capability. Canisterisation of the missile would enable better handling of the missile and would to some extent ease the reloading effort. The other objective is to incorporate MIRV capability on which DRDO is reportedly working.

The missile has three stages all powered by solid rocket motors. The use of solid fuel reduces launch preparation time and imparts better mobility. As far as the accuracy of the missile is considered, it was stated that the missile had achieved very high accuracy but the exact CEP was not specified. Nevertheless, for a nuclear delivery vehicle very high accuracy is not a concern unless employed for counterforce strikes. In the last test the missile is said to have achieved a range of more than 5000 km with a payload capacity of 1.1 tonne.[1] The exact range achieved was not specified.

India's current strategic threat scenario does not necessitate a missile with range more than 5000 odd kilometers which is adequate to target key political and economic centers of China. Hence, the signaling is very clear as to the actual purpose of the missile and hence the intention of Indian government. This signaling might have been one important reason as to why there was no adverse reaction from the international community, more particularly from western countries when it was tested for the first time.

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It is to be noted that the rocket launch conducted by North Korea which happened around the same time was severely condemned by the international community. The other reason is that India is recognized as a responsible player.

The missile was test launched in a depressed trajectory. One advantage of launching it in a depressed trajectory is that it gives the ability to counter ballistic missile defence system. A BMD system normally functions by predicting the usual trajectory of a ballistic missile to intercept it. In case of a depressed launch the missile has a flatter re-entry angle unlike a conventional launch, where it is steeper. Further, the time of flight is considerably reduced giving lesser reaction time for the BMD to track and engage the target.

In Agni V the diameter of the solid rocket boosters has been increased compared to other Agni series to keep the length in check. However, if the missile is to be deployed on a SSBN in future as an SLBM, it would necessitate the use of better fuel with higher burn rate performance so that the size would be compact enough to fit in a SSBN's launch tube. Compact size would also go a long way in optimizing the submersible's design for reduced acoustic profile.

The next step in capability addition could be incorporation of MIRV in Agni V. It could be argued that such a capability would run counter to India's no-first use policy, but by deploying the missiles in limited numbers and by stating that it is a counter BMD effort (China is actively pursuing BMD capability) the capability addition could be justified. MIRV capability would go a long way in strengthening India's deterrence against China.

In a nutshell, Agni V in the present configuration is a missile which is highly mobile, has lesser launch preparation time, offers better handling due to canisterisation and has counter BMD capability when launched in a depressed profile. Possible capability addition in the near future would be the incorporation of MIRV capability. Looking long time, it could also be converted to an SLBM to strengthen the sea leg of deterrence.

(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])

End Notes

[1] Y. MallikArjun, " Agni-v's maiden canister trial a roaring success", http://www.thehindu.com/news/national/maiden-canister-trial-of-agniv-a-roaring-success/article6841942.ece, 31 January 2015
