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MR-SAM TEST: A MUCH AWAITED BOOST FOR INDIA'S AIR DEFENCE CAPABILITY

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The Air Defence System

Replying to a query in Rajya Sabha on July 26, 2016 regarding the upgradation of Barak Missile System, Defence Minister Shri Manohar Parrikar gave the status report of two similar systems called the Long Range Surface to Air Missile System (LR-SAM) and the Medium Range Surface to Air Missile System (MR-SAM), being jointly developed and produced by the Defence Research and Development Organisation (DRDO), India and IAI (Israel Aerospace Industries), Israel.¹

While the contract for the Naval or the Ship mounted version designated LR-SAM worth Rs 2606.02 Crore was signed on January 27, 2006, the contract for the land based MR-SAM worth Rs. 10075.68 Crore was inked on February 27, 2009. Both the systems are capable of detecting an incoming aerial threat at a distance of over 100 kms and have a destruction range of 70 kms.

While the successful operational flight trials for the LR-SAM aboard the Indian Naval Ship

(INS) Kolkata were conducted on December 29, 2015, the three consecutive flight trials for the MR-SAM have been conducted on June 30 & July 01, 2016 against a target drone at Integrated Test Range (ITR), Chandipur. These trials were significant as even the Hon. President of India, Shri Pranab Mukherjee in a congratulatory message to Dr. S. Christopher, Secretary and Director General, Department of Defence Research & Development (DRDO), said, "I extend hearty congratulations to all those associated with the successful test-firing of the Medium Range Surface to Air Missile (MRSAM), developed jointly with Israel. The nation is proud of the achievement made by the DRDO and looks upon DRDO to make even greater efforts to boost India's indigenous defence capabilities in technologically challenging areas".²

The success of these tests paves a way for the induction of the system. Indian Air Force (IAF) is planning to induct nine such systems with 432 missiles.³ This is likely to enhance the

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ground based Air Defence (AD) capabilities of both Army and the IAF significantly. It would also complement the existing airborne platforms in securing airspace against most aerial threats, the responsibility for which rests primarily with IAF.

The MRSAM System

In addition to collaboration by DRDO and IAI, other significant contributors have been ELTA & RAFAEL who developed its various components in association with many Indian private and public sector companies such as TATA, Bharat Electronics Limited (BEL), Larson & Toubro (L&T), Bharat Dynamics Limited (BDL) among many others.⁴ These tests were significant as they validated the system components and capabilities in extremes of reference scenarios. The scenarios were simulated utilising the Meggitt BTT-3 “Banshee” Unmanned aerial vehicle (UAV). The “Banshee” which has an operational range of 100 Kms and which was originally developed by Target Technology Limited in the 1980s was chosen over the indigenous “Lakshya” probably due to its cost effectiveness and capability to carry varied payloads ranging from smoke tracking flares, IR & Chaff Dispensing pods, IFF transponder, frequency specific active radar augmentors, radar altimeter and acoustic and doppler radar systems⁵ to enable better collection and analysis of telemetry data.

The complete MRSAM system in addition to the missiles is composed of an advanced phased

array radar called the Multi Functional Surveillance and Threat Alert Radar (MF-STAR)⁶ with a range of 250 kms⁷, a command and control system, Mobile launchers and missiles with advanced Radio Frequency (RF) seeker. The system with a kill range of 70 kms would provide a quantum jump from the sub 30 km range ground based AD systems such as the SA-III B Pechora, SA-8B (OSA-AKM), SA-16 (Igla) systems of Russian origin⁸ and the indigenous Aakash systems which were providing point defence only.

A series of these systems would be able to provide area defence and more importantly the system architecture indicates its ability to counter short, medium and intermediate range ballistic missile threat also. However, since the responsibility of air defence of the country rests with the IAF, the onus of revising procedures for the smooth integration of the new area defence system being inducted into the arsenal of all the three services and also including it in the Union War Book (currently being revised)⁹, also rests with IAF.

The Future

It has been a substantial wait for IAF to modernise its ground based SAM¹⁰ systems and to move from a point defence system to the implementation of an area defence concept. It has been worth the wait, as developing an indigenous capability remains a preferred choice vis-à-vis acquiring “off the shelf” systems. It is

likely that similar systems will be available with Army and Navy also. In that case, the task of devising foolproof communication systems with multiple redundancies to avoid fratricide as well for efficient utilisation of available systems will become even more critical. IAF on its part, must take the lead and establish an integrated (tri-service) command and control centre for their deployment and evolve procedures, tactics and doctrines to effectively govern their employment in both peace and war time situations.

(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])

¹ Govt. of India, Rajya Sabha, Question no. 910, “Upgradation of Barak Missile System replied on July 26,2016”, <http://164.100.47.4/newrsquestion/ShowQn.aspx> Accessed on July 27,2016

² Press Information Bureau, Govt. of India, “President of India congratulates DRDO on the successful test-firing of the Medium Range Surface to Air Missile”,<http://pib.nic.in/newsite/erelease.aspx>, Accessed on July26,2016

³ Strategic-affairs, “Making Impregnable Air Defence systems and next generation SAMs”, www.strategic-affairs.com/details.php?task=other_story&&id=124, accessed on July 28, 2016

⁴ IAI, “IAI Successfully Tested the MRSAM Air & Missile Defense System”, <http://www.iai.co.il/Shared/UserControls/Print/PopUp.aspx?lang=en&docid=47501>, accessed July 27,2016

⁵ Naval Drones, “Banshee”, <http://www.navaldrones.com/Banshee.html>, accessed on July 27,2016

⁶ DNAIndia, ‘India Test Fires New Surface to Air Missile developed Jointly with Israel’, <http://www.dnaindia.com/india/report-indi-test-fires-new-surface-to-air-missile-developed-jointly-with-israel-2229589>”, accessed July 27,2016

⁷ Economic Times, “Indo Israeli Barak-8 Missile may Win Orders worth Billions”, <http://economictimes.indiatimes.com/news/defence/indo-israeli-barak-8-missile-may-win-orders-worth-billions/articleshow/49982134.cms> accessed Jul 27,2016

⁸ Bharat-Rakshak, www.bharat-rakshak.com/IAF/Today/Contemporary/328-BMD.html, accessed on July 28,2016

⁹ The Times of India, “Govt Revises Union War Book to meet Current Situation”, www.timesofindia.indiatimes.com/india/Govt-revises-Union-War-Book-to-meet-current-situation/articleshow/6554663.cms, accessed July 28,2016