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Indian Next-Generation Close Combat Missile: Enhancing Combat Potential with Atmanirbharta

Prof (Dr) Dinesh Kumar Pandey

Senior Fellow, Centre for Air Power Studies

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Source: Defence Decode, "NGCCM is not a Missile its technology, any WVR with IIR seeker and state of the art Avionics is an "NG-CCM" i.e. ASRAAM, Python 5, ASTRA IIR." *Twitter*, April 18, 2022,

<https://pbs.twimg.com/media/FQoJHEXaQAYaSG9?format=jpg&name=small>. Accessed on June 11, 2023.



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The 'Next-Generation Close Combat Missile' (NGCCM) is an enhanced short-range infrared homing missile for 5th generation aircraft currently being developed by India's Defence Research and Development Organisation (DRDO). MBDA, a European multinational weapons manufacturer, and Bharat Dynamics Limited (BDL), state-owned Indian military corporation, have reached an agreement to create a facility in India for the final assembly, integration, and testing of the Advanced Short Range Air-To-Air Missiles (ASRAAM). The new facility will first emphasise MBDA's ASRAAM; thus, the company will supply "equipment, knowledge, and training" to start moving in the right direction.¹

The ASRAAM was India's top pick, and a contract worth US \$250 million was struck with the company. According to the terms of the agreement, the Indian Air Force's (IAF) fleet of upgraded SEPECAT Jaguar fighter aircraft will be equipped with the ASRAAM, with plans to incorporate the system into the Sukhoi Su-30 MK-I eventually. The ASRAAM for the IAF has been named the 'New Generation Close Combat Missile' (NGCCM). This designation was given to it since it is a component of their arsenal. The R-73 SRAAM, which was manufactured in Russia and has not been as productive over the last several years, will be replaced by the more cost-effective and efficient ASRAAM, which will be manufactured in India.²

The European version of ASRAAM has an infrared homing system that can track and home in on a target from a range that is inside the line of sight. The missile's weight is 88 kg (194 pounds), and it has a range of more than 25 km (15.5 miles). The F/A-18, the F-35 Lightning II, the Eurofighter Typhoon, and the Tornado can all carry this missile. The air forces of Australia and the United Kingdom both use these munitions these days. In addition, an order for them has been placed by the IAF.³

Under the terms of the agreement, MBDA will collaborate with BDL to set up a facility inside the latter's existing production complex in Bhanur, Telangana. In the future, MBDA's Common Anti-Air Modular Missile (CAMM) assembly, integration, and testing services will be carried out at this location. CAMM may provide anti-aircraft and anti-missile defence, a surface-to-air missile with a short range that can be fired from land-based positions. MBDA is fulfilling the Indian Navy's request for a short-range surface-to-air missile by supplying the CAMM as part of the Sea Ceptor air defence system. This induction will allow the Indian Navy to defend its aircraft better.⁴

Potentials and Limitations

The NGCCM is an infrared-homing short-range missile with a maximum range of 20 km that can operate in all weather conditions. With the two-way data link, the missile may, even after being launched, be guided to the location of its intended target. It will be able to engage targets not in the launching aircraft's direct line of sight thanks to its Lock-On After Launch (LOAL) capabilities and 90-degree off-boresight targeting capabilities. The superior performance of this capability will make it impossible for the R-73 missile to compete with it.⁵ The IAF intends to utilise it to replace the R-73 missiles that are installed on its existing 4th and 4.5 generation aircraft.⁶ However, even if the air force decided to equip its fleet of around 270 Su-30 MKI with ASRAAMs, the current stockpile of missiles would be utilised by the Rafale, Mirage, and Jaguar aircraft.

The ASRAAMs are designed to be used in conjunction with a radar system. The IAF has high expectations that it will be able to reduce the amount of money it spends on weapons and the maintenance they need if it decides to standardise its entire fleet on the Close Combat Missile (CCM).

The NGCCM is presently being developed in two different iterations: one that is 'directed' and one that is 'unguided'. The guided version of the missile will include an advanced 'seeker' that uses infrared imaging technology to assist it in zeroing in on its intended target. The unguided variant of the missile will be equipped with a less sophisticated infrared seeker, which will give it the ability to recognise and follow targets to a lesser extent. It can track targets in all situations. The pilot and the missile are connected by a two-way data link, allowing continuous target updates.

The work being done on the NGCCM by the DRDO is a component of a broader initiative that aims to provide the IAF with a new generation of air-to-air missiles (AAMs). Its fighter jets will become more resistant to damage due to the missile. It is expected that the NGCCM will be inducted into the IAF at some point in the 2030s. Within the family of indigenous missiles, it will take its place alongside other missiles such as the Astra Beyond Visual Range Air-to-Air Missile (BVRAAM) and the Advanced AAM-5. Currently in development are two weight classes: one for the Tejas light combat aircraft (LCA) and another for the Advanced Medium Combat Aircraft (AMCA) of the 5th generation.

One of the most significant downsides of the NGCCM is that it still needs to be operational and is still in the process of being developed. The MICA-NG and several other modern missile systems are NGCCM's potential competitors.

Conclusion

The NGCCM is a significant advancement for the IAF. It will provide the IAF with advanced air-to-air missiles with close range that belong to the most recent generation. Given the prevalence of AAM in the future, it is important to consider about ensuring that all IAF aircraft can exploit NGCCM. The NGCCM will not only improve the air combat capabilities of the IAF but will also act as a deterrent against potential aggressors.

Partnerships between Indian businesses and international original equipment manufacturers will play an essential role in producing military equipment and establishing self-sufficiency, i.e., a concrete step towards *atmnirbharta*. The IAF has high expectations that it will be able to reduce the amount of money it spends on weapons and the maintenance they need if it decides to standardise its entire fleet on the CCM. The NGCCM project of the DRDO will be able to use the technical and manufacturing experience acquired via the ASRAAM programme.

NOTES:

¹ Inder Singh Bisht, "MBDA to Invest in Indian Missile Development Unit", *The Defence Post*, August 24, 2021, <https://www.thedefensepost.com/2021/08/24/mbda-asraam-facility-india/>. Accessed on June 11, 2023.

² Jon Grevatt, "MBDA outlines Indian missile investment plan", *Janes*, August 23, 2021, https://www.janes.com/defence-news/news-detail/mbda-outlines-indian-missile-investment-plan_19786. Accessed on June 15, 2023.

³ Ibid.

⁴ Bisht, n1.

⁵ Bisht, n1.

⁶ "Bharat Dynamics, MBDA missiles deal to help indigenous programs in India, says GlobalData",

Defence Review Asia, August 24, 2021 <https://defencereviewasia.com/bharat-dynamics-mbda-missiles-deal-to-help-indigenous-programs-in-india-says-globaldata/>. Accessed on June 11, 2023.