BrahMos ALCM (air-launched supersonic cruise missile) being test-fired from an Indian Air Force Sukhoi-30MKI fighter-bomber

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BRAHMOS: THE GAMECHANGER

India's best known supersonic cruise missile can be a great instrument of military diplomacy for its immense export potential in Asian markets, reports **ARITRA BANERJEE**

The $375 million deal to export the BrahMos cuise missile to the Philippines placed India in the elite missile exporters' club. Having received the relevant government's approvals, BrahMos is set to export its supersonic cruise missile to third-party friendly, responsible nations. The company's CEO Dinkar Rane had hinted in a recent interview that exports may even begin this year.

The sale to Manila which happened through a 'Government-to-Government (G2G) route' serves as a precedent for more prospective customers in South East Asia. BrahMos is already talking to several prospective buyers in Asia, Latin America, and the Middle East.

The current geopolitical situation raises export opportunities, as well as supply chain challenges for the BrahMos Joint Venture, which is the flag-bearer of Indo-Russian technical cooperation and strategic partnership.

Tech behind the BrahMos

Aerospace & Defence analyst Girish Linganna described the missile's technical specifications. He noted that the BrahMos is a two-stage missile. At stage one, the solid propellant booster engine separates after it reaches Mach-1 or supersonic speed. In stage two, the liquid ramjet engine boosts the missile's speed to about Mach 3 in cruise phase. "The BrahMos [...] can be launched from land, air, and sea. It is a multi-capability missile with pinpoint accuracy that works both day and night" in all weather conditions, Linganna added. He also highlighted that BrahMos missile operates on the 'Fire and Forget' principle, possesses stealth technology, and is the fastest mid-range missile today.

Linganna spoke about the extended range of the missile, too. "The BrahMos missile was initially developed with a range capped at 290 km," Linganna said, further adding that "following India's entry into the Missile Technology Control Regime (MTCR) club in June 2016, the range is planned to be extended to 450 km, and to 600 km at a later stage [...] The range of the BrahMos missile has been increased already and with the advantage of being airborne at high altitudes, the missile can travel a longer distance and can hit targets at 800 km and beyond. India has enhanced the range of the tactical missile recently and it can go

A model of the upcoming BrahMos-2 hypersonic cruise missile

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beyond 500 km with just an upgrade in its software."

Saturated competition and other challenges

However, BrahMos has strong competitors in the market. *Miguel Miranda*, a Philippines based south asian defence industry analyst, told this author that time is of the essence for BrahMos, which he acknowledged as "one of the best cruise missiles available for export today." Miranda highlighted that Russia is also selling its combat proven Onyx cruise missile, while China is offering several indigenous supersonic cruise missiles "to anyone who can afford them. South Korea has tested a weapon system resembling the BrahMos. Any day now, Israel and the USA can lift export controls on supersonic cruise missiles. India must stay agile and build strong relationships with a select client pool."

Aviation Week's Defense Editor, Steve Trimble aligns with this view. According to him, "the BrahMos missile suffers a bit from direct competition with Russia's Yakhont missile on the export market. As both are used principally on exported Russian weapons platforms, they compete in the same market sector." He also noted that the Russian Oniks-M missile already provides a better range than BrahMos' extended range missile version. "Yakhont requires the approval of only one government; BrahMos needs two, which sometimes complicates things," Trimble added.

This concern was also taken up by Rear Admiral Vineet Bakhshi (Retd.), who told this writer that "reports suggest an indigenous content of around 65 percent. There's still a long way to go before we are truly independent of foreign suppliers. The supply chains can be disrupted by international Black Swan events at any time, and this aspect of making all components and software within our own borders would perhaps be the most critical mission for the company."

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Alongside these barriers, the recent accidental launch of the BrahMos missile which sent a projectile into Pakistan, could be another challenge. While Trimble is of the view that this accident was an "extremely unfortunate, one-off event that one hopes never happens again," those in India have a different take.

Major General Anil Senger (Retd) sees the incident as a definite setback in terms of safety measures and standards in the Indian military. "It does impact the professional and technical image of the army and the equipment."

Group Caption Johnson Chacko (Retd) believes that this accident has two consequences. "One is that accidental firing could not be prevented, so the system needs additional safety features. Secondly, it could not be detected in time by Pakistan's air defence system and neutralised before it reached the target. While the first can be avoided by additional safety features, the second indicates gaping holes in Pakistan's air defence system, presumably comprising Chinese interception missiles."

While there are several challenges, it is also true that there is a strong international market for precision-guided projectiles with such capabilities as the BrahMos supersonic missile. This is especially true in the case of the Asian region, where several nations view the rise of China as a security threat.

Export potential

RAdm. Bakhshi (Retd) believes that countries in East Asia, Middle East, Latin America, and the Indian Ocean Region have always been potential buyers, "stymied by a no sale policy by India." He said that the current developments of a focus on defence exports is a welcome change. Noting that BrahMos has an impressive flexibility to fire from land, air and water, the admiral added that "the Su version reportedly provides extended ranges in a couple of thousand km according to open sources. Its multiwarhead capabilities are a good asset."

A favourable assessment of the missile is provided by Miranda, too. He believes that they are gamechangers for militaries acquiring them. "Each missile has been tested over and over again, and enhanced to an impressive degree. They are either air-launched or ground-launched and suited for arming any naval vessel. If deterrence and long-range precision matter, BrahMos is a superb choice," he said.

Maj Gen Senger (Retd.) noted that BrahMos has immense potential, especially due to the Chinese-belligerence prompted activity in the South China Sea (SCS). "India must exploit military diplomacy with SCS littoral countries to improve relationships as a prelude to defence export, with the Make-in-India initiative that will have some successful projects," the General opined.

Gp Capt. Chacko (Retd.) presenting an analysis of BrahMos' potential in terms of its intercept-ability, said "BrahMos has a speed of almost 1km per second. The operator of the AD Radar needs to be specially trained to detect it unless the radar has a very high-end software. Typically, the current SAGW radars have an acquisition range of about 80 kms and for a low flying BrahMos it will be limited to the radar horizon of 22 kms. This restricts the time available to the SAGW Squadron to decide whether it is friendly, neutral or hostile, launch an interceptor

DEADLIEST CRUISE MISSILES IN THE WORLD

A BrahMos cruise missile being launched from an Indian Navy warship

- **3M-54 Klub:** The Russian 3M-54 is developed by the Novator Design Bureau. It is designed to destroy submarine and surface vessels and also engage static/slow-moving targets, whose coordinates are known in advance, even if these targets are protected by active defences and electronic countermeasures.
- **C-802:** The C-802 land attack and anti-ship cruise missile [Western designation SACCADE], is an improved version of the C-801 which employs a small turbojet engine in place of the original solid rocket engine. Its guidance equipment has strong anti-jamming capability, and targets ships that have a very low success rate in intercepting the missile.
- **P-800 Oniks:** The P-800 Oniks is one of the deadliest anti-ship missiles today. It has an effective guidance system. Its "fire-and-forget" system allows its launch platform to run to safety after launching the missile.
- **P-270 Moskit:** The P-270 Moskit is a Russian supersonic ramjet-powered cruise missile. The Moskit is one of the missiles known by the NATO codename SS-N-22 Sunburn. It reaches a speed of Mach-3 at high altitude and Mach 2.2 at low-altitude.

BRAHMOS

missile, flight time of the missile to detonation to less than 22 seconds. That is extremely difficult for a well trained SAGW crew."

He further remarked that the missile has good potential in the international market, provided an aggressive marketing effort, "highlighted by the inability of Pak AD to intercept it. The hegemonistic tendencies of a superior power can be checked with the possession of BrahMos by any littoral state who has the will to use it."

The geopolitical juggle

Akash Sahu, Southeast Asia Analyst at Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) explained that "other countries in Southeast Asia have also shown interest [in the missile]. Vietnam had expressed an intent some time back, and there have been deliberations with Indonesia more recently regarding such a purchase. The region of Southeast Asia may continue to witness an increase in procurement of arms as countries seek to modernise their air defence. China's aggressive actions in the South China Sea have only added to the insecurity among the ASEAN nations."

The development of the sale of the missiles to BrahMos also has strong geopolitical implications. Moscow-based American geopolitical and military analyst Andrew Korybko said, "the recent deal with the Philippines to purchase these supersonic cruise missiles also wasn't sanctioned by the US because the Indian Ambassador to the country noted that it's a bilateral deal and thus not subject to America's unilateral restrictions against Russia. This presents an opportunity for Russia to continue exporting state-of-the-art military equipment to its partners without American interference so long as such is jointly produced with India and sold directly via New Delhi. Prospectively, other countries like Vietnam might also consider purchasing BrahMos or other jointly produced arms."

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He further highlighted the geopolitical dimension to this deal, framing it in the context of the Philippines, which is a US mutual defence ally, and also embroiled in a tense maritime dispute with Russia's Chinese partners. "This proves that Russia isn't taking sides in the South China Sea, which should bolster its regional reputation as a neutral military partner.

The emerging model is that India is becoming indispensable to Russia's 'military diplomacy' in the New Cold War since it helps its jointly produced exports evade the US' 'secondary sanctions' and also assists Moscow in engaging with new partners like Manila that it might not otherwise have had inroads with to that extent," he opined.

Another comment on the politics between various interconnected players in this contract was made by Trimble. He said, "the export of the baseline missile to the Philippines is notable mainly because it would have required approval jointly by India and Russia. The latter has a strong relationship with China, which takes a dim view of BrahMos exports to countries

A BrahMos missile at the moment of impact on a target

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around the South China Sea. But Russia seems to have approved the export to the Philippines anyway. That is a hopeful sign for expanding exports potentially to other countries in the region, such as Malaysia."

On the same topic, Sahu opined that "Southeast Asia is increasingly becoming the theatre for superpower rivalry between China and the US. India's engagements with Southeast Asian countries in the defence industry sector are valuable in forging a closer foreign policy alignment between them and preventing any friction on issues of regional security. It can help in sustaining the balance of power in the Indo-Pacific."

The Russia equation

While these complex relations remain at play, the Russia equation in this context appears to be the most prominent.

In Maj Gen. Senger's view, India benefits from BrahMos being a joint venture, as Russia gives it credibility, while the missile's successful induction in the Indian military provides confidence. "India's involvement will make it financially cheaper. India's image as a mature upcoming power in this region and the globe, August well if we can make it a win-win situation for both."

"What India obtains from this mutually beneficial arrangement is more Russian technology, domestic joint production, a greater international military-strategic role, and the chance to expand this cooperation to more third countries for advancing their shared vision of assembling a new Non-Aligned Movement ("Neo-NAM").

That concept refers to their desire to cooperate in creating a third pole of influence in the bi-multipolar transitional phase of the global systemic transition to multipolarity wherein international relations are presently shaped largely by the competition between the American and Chinese superpowers. In other words, the BrahMos are a military means to this grand strategic end, a stepping stone in the direction of proving that the concept of the Neo-NAM is viable and can eventually be expanded to create a larger network of states that are attempting to balance between those superpowers in the New Cold War," noted Korybko.

Dr Indu Saxena, Deputy Director of Indo-Pacific Researchers and a member of the International Security Section of the American Political Science Association (APSA) also pointed out that Russia-India strategic relations are tested with time and on geopolitical rationale. This relationship "becomes important when it comes to India's rivalry with China. The calculus of Russia-India relation is not going to alter in near and midterm," she told this author.

Adding a note of caution, Dr Saxena observed that their "invasion of Ukraine and therefore the severe sanctions imposed by the West, is going to cost Russia heavily, contracting its GDP by 15 percent this year. These sweeping economic sanctions will potentially disrupt the supply chain that includes military goods and supplies. This indicates a strong reason to believe the disruption in the manufacturing process of BrahMos unless India is fully independent of its production."

Miranda concludes: "The rapid proliferation of highly accurate large caliber rocket artillery and various hypersonic missiles can shrink demand for the BrahMos cruise missile faster than anyone realises. Establish alliances quickly and build partnerships for the long-term."

Time will tell how New Delhi fares in this new-age arms export race.

The author is a New Delhi-based journalist and is the cofounder of the online-military reforms think-tank Mission Victory India (MVI)