

## **BRAHMOS MISSILE DEVELOPMENT:INDIA-PAKISTAN CRISIS AND ESCALATION DANGERS**

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### **Abstract**

*India is developing ten different versions of BrahMos Missiles. Since, 2017 it has carried out sixty tests of BrahMos missile alone. Missile speed ranges from Mach 2.8 to under developed Mach 6. It can destroy targets within 290 KMs to under developed 1000 KMs range with grave security implications for Pakistan. BrahMos Block-I and II is currently deployed in Southern and Northern Rajasthan and BrahMos-A at Halwara Air Force Station to destroy counterforce targets inside Pakistan. Qualitative improvements, production, deployment and missile ability to carry nuclear warheads intensifies Pakistan's threat perception. SOW capabilities endow Indian armed forces to operationalize offensive military operations, decapitating strikes, surgical strikes and first strike to destroy Pakistan's counterforce targets. Missile deployments at sea, land based assets and aerial vehicles are eroding strategic and crisis stability. It requires doctrinal and operational changes and inherits problems wherein C2 will face operational challenges during Crisis. Deterrence can breakdown in future. New Delhi is widening the prevailing gulf between India and Pakistan to tilt the strategic balance in Indian favor. Indian decision makers instead of investing in offensive arms should work on Confidence and Security*

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*Building Measure (CSBMs) and operationalize strategic restraint regime to preserve regional peace.*

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## **1. Introduction**

BrahMos missile is a joint venture of Russian Federation and India, started in 1998. The missile was named after the Indian Brahmaputra and Russian Moskva rivers (BrahMos Supersonic Cruise Missile). The first test of BrahMos missile was carried out in June, 2001. It has various versions e.g. N1 version can be launched from ships, supersonic cruise missile BrahMos-A can travel with speed of Mach 2.8 to destroy targets within the range of 400 Kilometers. It can be launched from aircrafts including SU-30MKIs. Indian engineers are retrofitting BrahMos-A and the lighter version also known as Next Generation (NG) with Tejas aircrafts, Mig-29 fighter jets and Rafale multirole fighter aircraft. Block-I, II & III missiles can be launched from land platforms to destroy floating, air and land based targets. New Delhi is also working on the path to develop BrahMos-II hypersonic cruise missile. Indian security analysts attempt to justify the development of supersonic and hypersonic BrahMos-II cruise missiles in the guise of Chinese development of anti-ballistic missile and sea-based anti-missile system (Mitra, 2018). Secondly, India wants to be recognized in international community as technologically advanced emerging global power. This explanation is designated as prestige driven case. Third, Indian defensive capabilities against China enables New Delhi to enjoy strategic edge over and pose dangers for Pakistan's security. Security establishment in Rawalpindi is therefore aware of the fact that qualitative advancements is widening the gulf between South Asian nuclear arch rivals and the strategic balance is tilting in Indian favor. BrahMos-II, supersonic cruise missiles and the recent internal debate in India regarding discarding the No-First Use (NFU) increases the risks of preemption against Pakistan. It strengthens Islamabad's perception that India can carry-out decapitating first-strike against Pakistan. Consequentially, missile increases Pakistan's preexisting security dilemma and threat perception. Eroding strategic stability in South Asia increases the probability of crisis instability. Keeping in view the aforesaid assertion

Indian security establishment is attempting to financially overburden, drag Pakistan into unnecessary and costly missile race.

### 1.1

<b>Missile</b>	<b>Range</b>	<b>Speed</b>	<b>Deployed</b>	<b>Possession</b>	<b>Status</b>
Block I	290 KMs	Mach 2.8	North Rajasthan	Army	In Service
Block II	290 KMs	Mach 2.8	Southern Rajasthan	Army	In Service
Block III LACM	450 KMs		LAC	Army	In Service
BrahMos NG/ SLCM	290 KMs	Mach 3.5		Navy	In Service
Anti-Ship	300 KMs	Mach 3		Navy	Under Developme nt Phase
Hypersonic CM	600 KMs	Mach 6		Navy	Under- Developme nt Phase
BrahMos-NG	290 KMs	Mach 3.5	Halwara	Air Force	Under- Developme nt Phase
BrahMos-A	400 KMs	Mach 2.8	Halwara	Air Force	Trial Phase
BrahMos ER	800- 1000 KMs				Under- Developme nt Phase

#### **Types and Ranges of BrahMos Missiles**

This academic research comprises of three sections. First section briefly highlights test firings of land and naval versions. Second portion discusses retrofitting BrahMos-A, NG and Extended Range (ER) missiles with Indian aircrafts. It highlights the prominent features of Balakot Crisis. This segment brings into limelight the impact of qualitative changes on future India-Pakistan crisis. Fourth portion concludes this paper.

## **2. Land Version**

In 2004, Indian army successfully test fired the land version of BrahMos Block-I missile from mobile launchers. Block-I is deployed in North Rajasthan BrahMos land version was further tested in June, 2007 and inducted into Indian service in 2007 (Gady, 2019). In March, 2008, and March, 2009, Land Attack Cruise Missile (LACM) more advanced version BrahMos Block-II cruise missile were test fired. It is deployed in Southern Rajasthan. In 2010, after successful tests Indian engineers made a breakthrough by achieving steep-dive capabilities. However, Block-I and II Missiles are designed to target small targets (Pandit, 2018). In December, 2010 BrahMos Block-III LACM was first successfully tested. November 18, 2013 test achieved deep penetration capabilities. This supersonic LACM with an extended range of 450 Kilometers (KMs) was again successfully tested on March 11, 2017, May 4, 2017 and on September 30, 2019. Block three is known for precision strike rate (Bhatia, 2017). Indian sources claims that Block-III is deployed along with 4057 KMs long Line of Actual Control (LAC). However, keeping in view the Cold Start Doctrine (CSD), the Land Warfare Doctrine (LWD), Balakot Crisis it is speculated that India will deploy LACM along with Pakistan's border. Likely targets of Block-I, II and III could be Pakistan tactical missile batteries and advancing armored infantry. Currently, three regiments are equipped with LACMs.

## **3. Naval Version**

In 2005, Indian navy inducted anti-ship BrahMos Missile in its frontline ship INS Rajput. Missile was successfully tested from Indian naval ships. In 2013, missile was again tested from submerged submarine. In 2017, Indian navy tested LACM to neutralize targets on land. It was a major achievement as US, China, Russia and UK can only attack targets on land from sea. BrahMos Submarine Launched Cruise Missile (SLCM) is designated as BrahMos-NG (Gady, 2019). The NG Lighter Version of supersonic cruise missile are under development for INS Arihant and diesel-electric attack submarines (Project 75- India). Indian Ministry of Defense approved procurement of six diesel-electric attack submarines equipped with Air-Independent Propulsion System. Lighter version of missile can be launched from torpedo tubes. It will have a land attack capability with a speed of Mach 3.5 with a range of 290 KMs. Naval version plays twofold roles. First, it aims at preventing any hostile ship from getting closer to Indian coastal areas.

Second, equipping submarines and frigates is aimed at destroying floating, submerged as well as land targets. However, unlike Block-I, II and III versions LACM is required to be deployed near enemy coastal areas. Close proximity makes the frigates and frontline ships vulnerable to enemy attacks. Conversely, missile can be destroyed before it is even launched. Threats posed to Indian naval forces resulted in the development of hypersonic cruise missiles for Indian navy with an extended range of 600 KMs.

#### **4. Balakot Attacks and India-Pakistan Crisis**

Combination of BrahMos-A and SU-30MKI is certainly a technological breakthrough. Indian aim and objective seemingly is to enhance credibility of nuclear deterrent. However, author believes it discarded policy of Credible Minimum Deterrence (CMD) instead replaced it first with strategy of escalation dominance. In view of qualitative improvements India is currently set on the path to adopt strategy of full-spectrum escalation dominance. Once integration process is completed this weapon system will enable IAF to acquire stand-off weapons (SOW) capabilities. Significance of SOW stems from recent Balakot air strike wherein Mirage-2000 equipped with Israeli manufactured Spice-2000 missile targeted an alleged terrorist training camp in Balakot, Pakistan. IAF fighter crafts did not enter into Pakistani airspace instead it fired missile from Indian airspace across the Line of Control (LOC). Balakot crisis had several significant aspects. First, SOW capability enabled India to fire missiles from Indian airspace against alleged terrorist campsto inflict maximum damage inside Pakistani territory. Secondly, it remained below Pakistan's defined nuclear threshold. It wanted to assure the enemy that after land forces IAF also possesses tactical missiles to destroy Pakistan's conventional military and potential strategic capabilities. Certainly, enemy cities will be held hostage in any future crisis by the IAF. Third, crisis nullified an established narrative that Pakistan will respond to Indian conventional misadventure with tactical nuclear weapons (TNWs). Fourth, Pakistan's conventional response to Indian surgical strike set precedent for Indian decade and half long desire to fight limited conventional war.

This threat is looming due to Military exercises including Gagan Shakti and Vijay Prahar followed by the new Land Warfare Doctrine (LWD) encourages Indian Armed Forces to fight in nuclear, biological, Chemical and radiological theater. On January 10, 2019 Rawat reiterated that India is perfecting offensive war

fighting strategy against Pakistan (Overviewing India's Military Modernization: 2019 and Beyond). Indian Prime Minister Modi in the wake of Pulwama attack (carried out on February 14, 2019) on February 15, 2019 stated that India will give a befitting reply to Pakistan (Abi-Habib, Yasir, & Kumar, 2019). Modi further stated that he has authorized his forces to choose timing, place and nature of response in retaliation to alleged terrorist attack (2019). The authorization to Indian armed forces to respond to alleged Pakistan sponsored terrorism resulted in February 26, 2019 Indian air strike in Balakot deep inside Khyber Pakhtoonkhwa province of Pakistan (Dalton, 2019). On February 27, 2019 after Pakistani airstrikes in Indian Occupied Kashmir (IOK) Indian National Security Advisor (NSA) Ajit Doval talked to Inter-Services Intelligence Chief Lt. General Asim Munir that India would not back-off (Miglani & Jorgic, 2019). On April 21, 2019 Modi publicly set Indian bellicose posture during his election campaign. Modi stated that he has refused to be intimidated by Pakistan's nuclear weapons and asked "what do we have then? Have we kept our nuclear bomb for Diwali?" (Have we Kept our Nuclear Bomb for Diwali, asks Narendra Modi, 2019).

Perhaps the aforesaid military preparations emboldened Indian Politico-Military leadership to punish Pakistan. Indian military strike as a response to alleged Pakistan sponsored terrorism is termed as a new normal by the Indian strategic community. Indian aggressive posture based on the brinkmanship is a precarious policy as it makes crisis management a difficult task. New Delhi's security establishment introduced a new war-fighting strategy. It aims at crisis escalation to raise political cost for Pakistan by isolating Islamabad at international level. Second tier aims at operationalizing the "strategy to punish the adversary at the tactical level," by attacking enemy's specific capabilities. In recent crisis India used IAF to climb up the escalation ladder in pursuit to achieve military objectives. Indian planners adopted an irrational behavior by deploying missiles "to attack nine targets in Pakistan," in Karachi and Bahawalpur (Ghauri, 2019). On April 21, 2019 Modi termed it as "qatakiraat," (Langa, 2019). It is not clear whether New Delhi was planning to attack counterforce or counter value targets.

Balakot strike served Modi's purpose to convince the domestic audience that "policy of zero tolerance for alleged cross-border terrorism" is implemented and Indian forces successfully punished Pakistan. Consequentially, Indian masses were pleased government was able to win their minds hence won the general

election. Modi administration has thus set the precedent for inflicting punishment at the tactical level and also set a “commitment trap.” It will have to retaliate against alleged terrorists training camp (specific capabilities) on Pakistani soil after becoming prey to a next terrorist attack allegedly perpetrated by Islamabad. Failure or reluctance to retaliate would be considered as weakness. It is quite possible that Indian forces will target counterforce targets in Pakistan in future crisis. In either case retaliation would lead to escalation of crisis and use of conventional force perhaps at a limited scale. It is a dangerous course as throughout the history nuclear capable states have not been involved in direct military confrontation. It demarcates an abrupt change from crisis escalation to crisis mismanagement by India resulting in “assured nuclear winter.”

### **5. Air Launched Versions: Escalation Dangers**

Indian air force (IAF) is working on two different versions of BrahMos missiles to be equipped with Indian fighter jets. First, the lighter version 1.5 tones BrahMos-NG air-to-air missile for Mig-29k is under development. It aims at destroying enemy’s warships. It will have a speed of Mach 3.5 (Krishnan, 2019). BrahMos NG is compatible with Tejas, SU-30MKI and French Rafael fighter jet (Episkopos, 2019). It is designated as air borne warning and control system (AWACS) killer, destroy transport aircrafts, enemy ships, land targets and aircrafts from a distance of 300 KMs. NG is designed to enable IAF to dominate the enemy and fulfill future requirements of IAF. In 2024 it will be inducted in service. One SU-30MKI will be able to carry five BrahMos-NGs (Unnithan, 2019). Secondly, the BrahMos-A supersonic cruise missile is being integrated with Sukhoi SU-30MKI. IAF has so far successfully equipped two SU-30MKIs with BrahMos-A missiles. IAF successfully test fired air version of BrahMos-A supersonic cruise missile to destroy target on surface/ sea from SU-30MKI on November 22, 2017. Two significant features of air launched BrahMos-A cruise missiles includes First, it is nuclear capable. Secondly, it is world’s fastest cruise missile. It can destroy targets within 300 to 400 KMs. However, a Sukhoi fighter craft can carry only one missile due to its heavy weight (2.5 tons).

On May 22, 2019 India test fired missile to destroy a land target. SU-30MKI is capable of detecting large building from a distance of 400 KMs whereas its power radar can detect small buildings from a distance of 120 KMs (Krishnan, 2019). In July, 2018 and on December 17, 2019 BrahMos-A the air version was test fired

from mSU-30MKI (Krishnan, 2019). Indian Ministry of Defense issued a statement on December 18, 2019 that the integration of BrahMos-A with SU-30MKI is completed (Gady, 2019). Missile can be fired in all weather conditions. It supports day and night missions. The missile increases IAF operational capabilities as it can carry out conventional and strategic missions. Pinpoint accuracy of missile helps India in achieving strategic goals. Rakaish Krishnan claims that a BrahMos-A missile mated with and fired from SU-30 MKI taking off from Halwar air force station (AFS) will take only a minute to destroy targets in Pakistani city of Bhawalpur (Krishnan, 2019). Additional dangers of BrahMos-A mated with SU-30 MKI deployed at Halwar AFS are posed to Pakistani;

#### **6. Counter value targets**

It includes Shakar-Garh, Sialkot, Faisalabad, Lahore, Jhang, Sahiwal, Pir-Mahal, Multan, D G Khan, Melsi, Khushab, D I Khan, Layyah and Bhakkar. In future crisis Pakistani cities can be held hostage by the IAF.

#### **7. Counterforce targets**

Sukhoi capable of firing BrahMos-A deployed at Halwar AFS can target Army Corps Headquarter (ACHQ) at Gujranwala, ACHQ Lahore, ACHQ Bahawalpur, ACHQ Multan and ACHQ Mangla. It can also target Vihari forward Air Base (FAB), Multan FAB, Faisalabad FAB, Lahore FAB and Murid FAB. Pakistan Air Force (PAF) major air bases including Sargodha, Chaklala, Kamra, Rafiqui and Mianwali, can be listed among other potential counterforce targets. Indian defense planners have expressed their intentions to modify two squadrons (32 to 36 fighter crafts) of SU-30 MKI to equip them with BrahMos-A missiles by 2020-21.

#### **8. Pakistan's Nuclear Installations**

SU-30MKIs equipped with BrahMos-A can pose threats to nuclear installations at Gadwal Uranium Enrichment Plant, Pakistan Ordnance Factory Warhead Production facility, Missile Complex ShakarDara, National Development Complex FatehJhang, Chashma Reprocessing Plant, Khushab Nuclear Complex, Nilore (Plutonium) Reprocessing Plant and Kahuta Uranium Enrichment Plant (Kristensen, 2016).



## **9. Nuclear Missions**

India established tri-services strategic forces command (SFC) in January, 2003. It works under National Command Authority (NCA) chaired by the Indian Prime Minister (Strategic Command to Acquire 40 Nuclear Capable Fighters, 2010). In September, 2010 the SFC submitted a proposal for the formation of “mini-air force,” to deliver nuclear weapons against enemy targets. SFC chose Sukhoi fighter aircrafts. It has a speed of 2,100 KMs per hour and capable of entering enemy’s hardened defense mechanisms. Potential reasons for the establishment of dedicated air force entail reasons e.g. ballistic missiles once launched cannot be returned to base. The short flight time between India-Pakistan can result in accidental launch of missiles based on false information. Nuclear capable aircrafts in such circumstances can be directed to abort the mission and avoid nuclear catastrophe. Aircrafts can be directed by the Command, Control and Communication Center (C4) to change the target and repeat sorties. Ballistic missiles can also be destroyed before hitting their targets. It is difficult and expensive to be replaced.

## **10. BrahMos-A and Crisis Escalation**

Indian planners believe integration of Sukhoi-30MKI equipped with BrahMos-A missile into IAF widens prevailing conventional asymmetry in Indian favor. It is obsessed with the perception that offensive nature of this weapon system promises strategic edge to India and it would prevent the enemy resistance and inflict maxim damage to the enemy. Offensive nature and widening conventional asymmetry can encourage Indian establishment to launch a surprise attack, first strike or a preemptive strikes against Pakistan’s counterforce targets. List of counterforce targets includes C4 System, battlefield missiles, radars and underground built hard structures as BrahMos missile with Mach 3.5 speed produces nine times more force as compared to Mach 1. New Delhi therefore fast-tracked the integration process to equip forty Sukhois with BrahMos-A missiles. The decision was taken after six weeks of Balakot crisis(2019) with an aim to complete the integration by 2020. Possession, integration and deployment of Sukhoi-30MKI necessitates India to increase production of weapons grade fissile material for the development and deployment of additional nuclear warheads for BrahMos-A. It is inevitable because of the availability of huge caches of weapons grade fissile material due to preferential treatment and wavier granted to New

Delhi by the Nuclear Supplier Group (NSG). Secondly, India has abundance of economic resources. Third, Indian entry into Missile Technology Control Regime (MTCR) enables it to evade Category-I items restrictions. It is developing qualitatively advanced miniaturized nuclear capable supersonic cruise missiles designated as Extended Range (ER). BrahMos-ER is capable of destroying targets within the range of 800KMs to 1000KMs. Indian deployment of nuclear forces at a large scale will result in setting a dangerous course the launch of BrahMos-A will result in confusion as it will become difficult for the potential victim to assess whether the incoming missile is nuclear capable or conventional. Further, “mini nuclear air force,” will result in deployment and putting Indian nuclear weapons on hair-trigger-alert or launched on warning posture. Indian adoption of super-ready status inherits the problems of unauthorized and accidental use of nuclear weapon. Further, it complicates Indian Command and Control (C2) System and brings it under immense pressure during crisis. Indian military capabilities to operationalize offensive military operations vis-à-vis Pakistan intensifies Islamabad’s security dilemma. Certainly, it would necessitate military response from Pakistan. Thus the deployment of BrahMos-A will bring Pakistani engineers working in research and development wing of National Engineering and Scientific Commission (NESCOM) to introduce qualitative changes in nuclear capable missiles. Conversely, Pakistan will introduce changes in its unwritten nuclear doctrine and adopt ready or super-ready status. In addition escalate the ongoing missile race in the region.

## **11. Conclusion**

New Delhi is also raising the strategic temperature in Southern Asia by discarding the erstwhile policy of CMD and replaced it with FSED posture vis-à-vis Pakistan. BrahMos is world fastest cruise missile. SOW capabilities had made it an ideal weapon for Indian air force. Missile once retrofitted with SU-30MKIs, Tejas, Rafael, MiG-29K will support offensive military operations vis-à-vis Pakistan. Most likely operation will emulate Balakot attack. It is therefore pertinent to highlight prominent features of Balakot crisis including, IAF neither crossed Pakistan’s nuclear threshold nor did it target Pakistani counterforce targets in Balakot attack. Crisis had short lifecycle, it remained below nuclear threshold. However, nuclear strings were attached to it. Antagonists were locked in commitment trap (Modi claimed to punish Pakistan while Prime Minister

Imran Khan cautioned with assured retaliation). New Delhi enjoyed international community's support during crisis. International support encouraged Indian politic-military leadership to climb up the escalation ladder and expand the operations wherein Indian submarine was deployed near Pakistani coastal areas however it was interdicted. US tilt towards India resulted in the deployment of missiles at an early stage to attack Pakistani cities with missiles. I think Indian leadership's irrational behavior. Substance of the matter is US recessed diplomacy emboldened New Delhi to adopt bellicose strategy towards Pakistan. Mismanagement of the crisis could have resulted in full-scale conventional war resulting in nuclear exchange.

Indian security establishment knows the short range of BrahMos forces necessitates it to be deployed near enemy border. Conversely, makes missile forces vulnerable to enemy strikes. The short range and close deployment near enemy border brings battlefield commanders under psychological pressure and enhances junior ranking officer's security dilemma at the battlefield/tactical levels. Border proximity (3323 KMs border), short flight time and missile capable of carrying nuclear warhead intensify crisis instability. Keeping in view these operational challenges Indian engineers are extending the range and introduced qualitatively improved NG and BrahMos-II missiles. India is devising a two prong strategy to tackle future crisis. Indian decision makers are preparing country's armed forces to target Pakistan's specific counterforce capabilities in pursuit to punish Pakistan. Secondly, India carried out military exercises Gagan Shakti and Vijay Praharto prepare Indian armed forces to fight war in nuclearized, chemical, biological, nuclear (CBN) and radiological environment. Procurement of T-90MS tanks equipped with PKUZ kit its deployment near Pakistani border endorses aforementioned claim. T-90MS tanks provide cover against CBN weapons attacks and radiological environment. Perhaps Indian military aims at coercing Pakistan to use tactical nuclear weapons and declare Pakistan a Pariah state. Ultimate objective seemingly is to roll-back Pakistan's nuclear weapons programme. It is evident from critical analyses that these developments are eroding South Asian strategic stability. Further, crisis management and de-escalation of crisis will become difficult in future.

Indian decision makers should realize that instead of extending the ranges of missiles it is imperative for both states to exercise arms control and restraint to preserve strategic stability and avoid nuclear catastrophe.

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