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THREAT ASYMMETRY AND TRANSITION IN DETERRENCE: TECHNICAL ASSESSMENT OF INDIA'S BALLISTIC MISSILE DEFENSE SHIELD

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ABSTRACT

The global change in perception following the Cold War from deterrence by punishment in the form of Mutually Assured Destruction (MAD) to deterrence by denial has multiplied the utility of the Ballistic Missile Defense (BMD). India's willingness to acquire and develop the advanced BMD shield is inspired, especially by Reagan's Star Wars and the global shift in using it as an instrument of deterrence by denial. But as the application of its offensive-defensive paradox, India is raising a multi-layer air defense system to enhance its freedom of action and to acquire impunity in carrying out what New Delhi believes as its 'limited war' strategy against Pakistan. However, despite having a number of air defense systems in place including the recently acquired advanced S-400 air defense system, India is unable to shield itself completely from the counter-force or counter-value strikes by Pakistan as evident by the Balakot debacle. This is not only because India lags behind in BMD technology but also because of its inability to afford a comprehensive pan-national BMD shield. Therefore, the paper argues that, India's attempt to build a multi-layer air defense system, rather than ensuring balance of power, destabilizes it and the delicate deterrence in place. This is because the threat asymmetry allows Pakistan to develop advanced nuclear capabilities including BMD evading delivery vehicles like MIRV as the offensive firepower to communicate the threat as an effective deterrence. Resultantly, the employment of BMD in South Asia disturbs strategic parity, fractures deterrence, drags down nuclear threshold and hence raises the cost of conflict between Pakistan and India with an elevated threat of annihilation.

Keywords: Air Defense, Counter-Force, Counter-value, Deterrence, Limited War, MAD, BMD, Offensive-Defensive Paradox, Pre-emptive, Star Wars.

INTRODUCTION

Cold War and the ensuing technological advancement re-sketches the strategic deterrence mechanism of major powers. The developments of the Cold War shaped the evolution of strategic calculations and deterrence maneuvering in the nuclear sphere where states relied on MAD for ensuring a peaceful strategic environment. MAD was based on the "maintenance of strategic nuclear forces that could survive the first strike in sufficient numbers to pose an unacceptable threat to the adversary's population and industrial centres" (Flex, 1985: 33). However, the gradual uncertainty in war and nature of the nuclear conflict with sophisticated ballistic and cruise missiles have challenged the concept of

simple nuclear missile deterrence and MAD. Kumar argues that "missile defences were initially seen as an ideal way out of the MAD trap. While threats of assured destruction and massive retaliation have primarily guided deterrence equations between nuclear powers, the propriety of leaving space for mutual vulnerability is now finding few takers" (Kumar, 2010: 10). Hence, with Reagan's Star War speech, the US and other major powers emphasized raising the utility of BMD in ensuring security against a 'ragged retaliation' from the adversaries.

From Nike Zeus Missiles in the 1950s to the MIM PAAC-4 Patriot and Terminal High Altitude Area Defense (THAAD) in 2019, the United States has developed a

comprehensive missile defence shield to protect its interests at home and abroad. Proponents of the BMD in the US doubt the perception of nuclear deterrence and believe that expecting nuclear restraint from the so-called 'rogue states' is "historically misguided and strategically unsound" (Tow & Choong, 2001: 380). The desire to build a missile defense system is equally inspired by the "missile renaissance" identified by sophistication in missile technology including speed, precision and credible strike capabilities of the latest cruise and ballistic missiles in the post World War II era (Karako, 2017: 50). Such sophistication is identified by advancement in multiple delivery systems including "guided and unguided rockets, artillery and mortars, supersonic and subsonic long-range cruise missiles with improved guidance and evasion, guided and manoeuvring re-entry vehicles, depressed trajectory ballistic missiles, ballistic missiles Improved in range, survivability and mobility, anti-ship missiles of various kinds, missile boosted hypersonic glide vehicles, and missile boosted anti-satellite weapon systems" (Karako, 2017: 49). Therefore, India plans to build a similar comprehensive missile defense shield to offset the threat of advanced ballistic and cruise missiles from Pakistan as well as to improve its standing as the security provider with enhanced freedom of action vis-à-vis its regional adversaries. Additionally, China also happens to be India's primary source of insecurity and hence a reason to deploy an advanced weapon system along its border to offset air challenge from China and improve its ability to strike or counter-strike, the like of which is carried out against Pakistan in Balakot. The tensions with China in Eastern Ladakh last year has increased prospects for India to deploy an advanced BMD system along the disputed Line of Actual Control (LaC) with China, which already has acquired the Russian S-400 ABM system; a system that is yet to join India's multilayered BMD shield as the most advanced weapon system by the next few years.

BMD is a reaction to the mentioned sophistication in missile technology but in South Asia, India's attempt to introduce a BMD system can be seen in the context of the multiplied utility of the BMD which transcends the defensive purposes of the weapon and is more likely to be used as a strategic backup to its offensive military posture against regional adversaries, especially Pakistan. Besides this, to counter the BMD system and maintain the strategic parity and stability of the deterrence,

regional adversaries are encouraged to enhance the lethality of delivery vehicles including missiles. For example, India's move to develop its BMD shield prompts Pakistan to arm its missiles with Multiple Independently Targetable Re-entry Vehicle (MIRV). Secondly, even if India deploys a sophisticated BMD technology, the system remains unlikely to shield Indian forces from the counter-offensive strikes by Pakistan or China. This is because of the limited scope, reduced efficiency, and nascent nature of India's BMD on the one hand, and the growing arsenal in Pakistan's conventional and nuclear inventory on the other. Thirdly, the possession of an advanced BMD system gives Indian leadership a false sense of security and hence of more (sense of) impunity to carry out the often-desired surgical strikes in Pakistan, which increases the chances of High Intensity Conflict (HIC) between the two countries. For instance, India's Balakot strikes and Pakistan's counter-strikes in February 2019 brought New Delhi and Islamabad almost into a full fledged nuclear confrontation (Lewis, 2019).

Therefore, the research article is divided into four parts. The first part gives a brief overview of India's BMD development program and its technological evolution. The second part explains the theoretical shift in the utility of deterrence from the Cold War deterrence by punishment to the deterrence by denial, its manifestation, and consequential drawbacks for deterrence in the South Asian context. In the third part, the article highlights India's multi-tier BMD complex, its fundamental strategic parameters, and possible deployment mechanism vis-à-vis Pakistan and China. The fourth part highlights the misuse of BMD as a defensive weapon system in encouraging offensive freedom of action with a theoretical underpinning on BMD as a defensive security measure or offensive means of power. Because of the utmost reliance on its nascent BMD, the fourth part explains regional implications of India's BMD, its possible countermeasures by Pakistan, and Balakot strikes as the case study to explain the illustrated consequences of India's miscalculated strategic adventure.

Finally, the paper concludes with the argument that the introduction of advanced BMD systems inspired by the transition in the utility of deterrence brings the existing arms race between Pakistan and India to a new stage with dilemma-bound countermeasures that not only drags down the nuclear threshold but also increases the

risk of strategic annihilation in South Asia.

INDIA'S BMD DEVELOPMENT

Indian BMD program is part of the Integrated Guided Missile Defence Program (IGMDP) which was launched by Indian Ministry of Defence (MoD) in 1983 to build a comprehensive range of advanced guided missiles. IGMDP is the mother program for all the mainstream Indian guided missiles including short, mid and long range Agni ballistic missile, the surface to air Prithvi missile, a multi-target handling surface to air Akash missile system, the anti-tank 'fire and forget' Nag missile and the short range SAM Trishul (DRDO, 2008: 233). The quest for developing a credible Missile Defense Shield began in the early 1990s, possibly in reaction to Pakistan's acquisition of M-9 and solid-fuelled M-11 SRBMs from China. Initially, India acquired the S-300 SAM system from Russia to ensure the safety of major Indian cities but a credible permanent solution was desired with a willingness to develop its own BMD system. At that time, India possessed enough deterrence in place including Prithvi and Agni; a reliable source of deterrence by retaliation. However, New Delhi was inspired by a global change in perception from deterrence by retaliation to deterrence by denial. However, the Indian Defence Research and Development Organization (DRDO) fell short in technology to independently develop any such system. Therefore, India approached a number of friendly countries for cooperation in developing the BMD system (Kumar, 2008: 179).

After getting disappointed from Russia, India decided to seek assistance from Israel whose Arrow-1 ABM system with long range Green Pine radar attracted the DRDO experts. However, India failed to acquire the system due to the involvement of US technology in developing Green Pine radars (Sharma, 2009: 5). Nevertheless, India succeeded in developing "target acquisition and fire control" Long Range Tracking Radar (LRTR) jointly with Israel. The LRTR was capable of tracking multiple targets simultaneously and hence became principle radar for the Prithvi Air Defense (PAD) which makes the first tier of the multi-tier Indian BMD shield.

Besides LRTR, India also required guidance radar to track incoming hostile airborne targets. For this, India jointly developed guidance and tracking radar with Thales, a French firm. Following successful work on radars, DRDO acquired formal permission for developing

the anti-ballistic missile system in 1998. However, international concerns and scrutiny of the nuclear programmes of India and Pakistan kept the Indian government from publicizing the ambitious project. In the meantime, the withdrawal of the US from the anti-ballistic missile defence (ABM) treaty in 2000 provided India with an opportunity to place itself as BMD capable nuclear power. The ABM treaty ensured mutual vulnerability as the basis of nuclear deterrence in the Cold War whose dismissal reflected a departure in favour of deterrence by denial and encouraged states to employ Anti Access/ Area Denial (A2/AD) capabilities. Frank O'Donnell and Yogesh Joshi argue that "Moving away from the Cold War concept of nuclear deterrence, the super power was now endorsing defense against nuclear weapons. India saw this policy reversal as an opportunity to develop its own capabilities" (O'Donnell & Joshi, 2013). Besides advocating Bush's plans for developing comprehensive BMD, India grabbed the opportunity to gain maximum advantages and publicly endorsed its own BMD programme; thereby leading them to test the Prithvi Air Defense (PAD) and Advance Air Defense (AAD) in November 2006 and December 2007 respectively.

FROM DETERRENCE BY PUNISHMENT TO DETERRENCE BY DENIAL: THE ROLE OF BMD

Deterrence is an important element of nuclear strategy where the adversary is discouraged to carry out undesired action. It is effective only if the threat of responsive annihilation is communicated on the pretext of hostile intent. This is because 'deterrence works on the enemy's intentions' and its effectiveness is the outcome of psychological acknowledgement of the retaliatory outburst to any contemplated action (Schmidt, 2018). Such a strategic objective is achieved in two different ways i.e. Deterrence by Punishment and Deterrence by Denial. In the Deterrence by Punishment, the adversary is threatened for costs higher than the benefits of the hostile offensive. It is usually placed in response to credible threats, which requires a combination of capability and will. The capability should be effective enough in delivering a "combination of risk and cost" to the enemy's doorstep (Schmidt, 2018). Deterrence by Punishment demands capabilities that cut across the full spectrum of threat with weapons reaching swiftly to the enemy, defeating its defences, destroying main targets and devastating its military and population

with counter-force and counter-value strikes (Mitchel, 2015). The MAD concept of the Cold War served as Deterrence by Punishment for both the United States and USSR, based on a mutual realization that of imposing “unacceptable damage” to each other from massive nuclear forces on both sides (Sokolski, 2014: 278).

The second way is Deterrence by Denial where the adversary is denied from taking any target desired and goals anticipated by hostile forces usually by physical means.

Being a defensive weapon system, the BMD is a vital instrument of Deterrence by Denial whose feasibility is measured in terms of the degree of effectiveness against the incoming ballistic missiles. With the technological evolution in modern weapon systems, the concept of deterrence has transformed from deterrence by punishment to deterrence by denial in the latter part of the Cold War. The methodology of missile interception from using nuclear warheads to the use of ‘hit-to-kill’ technology with kinetic energy to destroy ballistic missiles in the exo-atmospheric midcourse phase over the decades following World War II has opened up new avenues for the use of BMD technology. The use of Nike Zeus by the United States to kill German V2 in the “Wizard Program” laid the foundation for the tradition of killing incoming ballistic missiles in the 1960s (Schmidt, 2018). The role of BMD in esteeming deterrence can be measured by the technical assessment of the threat posed by varieties of modern ballistic missiles. Such missiles are classified into SRBMs, IRBMs and ICBMs by range, regular re-entry vehicles, maneuvering re-entry vehicles and hypersonic glide vehicles by type of warhead, conventional, chemical, biological and nuclear by payload, fixed site, mobile launch, submarine and air launched by platform, and finally, liquid or solid fuelled by the propellant (Schmidt, 2018). The diversity in ballistic missiles forms a larger counter-defensive complex; thereby delivers promising annihilation in the first strike which leaves the deterrence by punishment in quicksand. This pushed nations for developing ballistic missile technologies to prevent or at least mitigate the threat posed in the first strike by highly advanced nuclear ballistic missiles.

BMD: Hole in the Strategic Deterrence

BMD is taken for wielding the defences against adversary’s attacks and hence a significant contribution to the deterrence strategy. Its use in defensive context

glorifies its role as “non-escalating means” working in the realm of a pool of deterring capabilities (Schmidt, 2018). However, a BMD can only reduce the degree of penetration intended by the adversary’s ballistic missiles. It cannot, however, achieve 100 percent interception capability which, rather than enforcing deterrence, results in a higher risk of successful ballistic missile attacks and consequences which brings more unacceptable costs for having a BMD system. This reduces the credibility of the threats and hence the deterrence. This is because a successful deterrent does not only require the communication of intent but also the capability to which any BMD falls short in delivering a complete efficiency. Hence deterrence by denial effects of the BMD augments rather than mitigate the gravity of conventional or nuclear conflict.

Moreover, improvement in the BMD drives modernization and lethality of the delivery vehicle on part of the adversary. The adversary tries to develop capabilities that render the BMD system obsolete by leaking into the defences. The capabilities include MIRV technology, the high altitude nuclear blast or the Electromagnetic Pulse (EMP) attack and using swift or manoeuvrable re-entry vehicles with unpredictable flight paths that reduce interception probabilities, resulting in the successful delivery of threat. For example, the United Kingdom (UK) deployed UGM-23 Polaris SLBM in response to the BMD around Moscow whose defended footprint stretched about 450 nm in front of Moscow while 950 miles beyond it. Also, a BMD not only reduces the threshold of conflict but also multiplies the lethality of weapons used by the adversary. Hence a credible BMD has the ability to deter the use of certain weapons but can also result in an aggravated conflict. Therefore, BMD fluctuates the deterrence stability or the ‘Holy Grail’ of arms controls (Krepton, 2018).

Indian Multi-Tier BMD Complex

In November 2006, India became the fourth nation on earth to have successfully tested the indigenously developed BMD system. The system consists of two layers that are designed to intercept any conventional or nuclear missile threat at both endo-atmospheric and exo-atmospheric altitude. The systems include Prithvi Air Defense (PAD) and Advanced Air Defense (AAD).

Prithvi Air Defense (PAD)

Prithvi Air Defense is the first indigenous BMD system employed by India in November 2006. The system is armed with two-staged missiles that can intercept missiles at an exo-atmospheric altitude of 80km. PAD can engage any ballistic missile of class that ranges from 300km to 2000 km with a speed five times the speed of sound (Mach 5). The system is guided by an inertial navigation system (INS) in the midcourse by the Long Range Tracking Radar (LRTR) while in the terminal phase by the active radar homing.

LRTR is also known as the Swordfish which was jointly developed by India and Israel and sketched around the EL/M-2080 Green Pine radar of the Arrow-2 missile defense system. However, India's LRTR is target acquisition and fire control radar sufficiently modified in "transmit-receive modules, signal processing computers and power supply" (Bhutani, 2017).

Advanced Air Defense (AAD)

Advance Air Defense is the second tier of the Indian BMD shield and is designed to intercept incoming missiles at the Endo-atmospheric altitude of almost 30 km. The system employs a two-staged missile interceptor propelled by solid fuel. AAD relies on the same navigation system as that of PAD i.e. INS with ground based radars provides midcourse information and is guided by active radar homing in the terminal phase. The system is subjected to multiple test missions since December 2007 on ballistic missile Prithvi II, with improvement in varying dimensions, from guidance system to the range of interception and maneuverability. Inspired by the successful tests of the Advance Air Defense, the Indian scientists have developed a more advanced version of the missile known as the Surface-to-Air Ashwin Advanced Air Defense system.

S-400 ABM

India has signed for the acquisition of five regiments of advanced Russian S-400 air defense systems in 2018. According to official sources, India will get the delivery of its S-400 batteries by the end of 2021 (Gady, 2020).

Each battalion of the S-400 ABM system comprises eight launchers, equipped with radars, a command and control post with an additional capacity of 16 missiles of variable characteristics. The system has the capability to engage 36 air-bone targets simultaneously with a

maximum speed of 15 Mach or 17000 km/hour (Anti-aircraft missile system S-400 Trimuph, 2020). The system comprises of multi-layered radar umbrella that preserves the system's capability to engage targets at long-ranges.

According to Dr Carlo Kopp, the leading aerospace expert from the *Australian Air Power*, S-400 system employs the 'optional acquisition radars' bearing capability to engage and defeat modern stealth aircrafts such as the F-22 raptor of the US and Russian Su-35 flanker. The system operates at multiple frequencies such as VHF and L-band; thereby engaging fighter jets with stealth coating. This is because most of the stealth aircraft have been designed to overcome the low-detection capability of the X-band radars (Kopp, 2014). Being an advanced air defense system with a 600km detection range, S-400 enhances India's 'Defensive Counter Air (DCA)' operations by proactively tracking and engaging hostile airborne targets even beyond in the hostile territory. For instance, the system can detect Pakistani aircrafts soon after they take off from the airbases and engage them hundreds of kilometres within the Pakistani territory. Apart from that, the system can affect the credibility of Pakistan's full spectrum deterrence by threatening the Low Yield Nuclear Missiles NASR (Hatf-IX) which is to counter the Indian offensives as part of their so-called Cold Start Doctrine. Therefore, the S-400 ABM system is expected to threaten Pakistan's ability to respond to Indian aggression.

BMD AND INDIAN STRATEGIC PARAMETERS

India's perception on BMD development is taken in view of the volatile nuclear strategic environment in the region. The country is vulnerable to a variety of ballistic and cruise missiles of varying capacities from two nuclear armed adversaries, Pakistan and China. China's military modernization and fast growing nuclear arsenal of Pakistan keeps India in fear of being disadvantaged in a 'joint fighting capability' in case of war with Pakistan and China. Therefore, India believes in keeping a sufficient BMD force to hold sway in defeating Chinese Area Access/Area Denial (A2/AD) capabilities in Western Pacific while broadening prospects for a limited war with Pakistan in South Asia (Agnihotri, 2013: 11). Indian experts mention the possibility of a 'Bolt-from-the-Blue' strike as a rationale for having proactive defences which make little sense in terms of the credibility held by Pakistan's Strategic Forces and

effective Command and Control. Rajesh Basrur explains that a “limited BMD can also deter a state with revisionist intentions that would want to carry out a Bolt-from-the-Blue strike. In other words, if generating dissuasion in the mind of the aggressor is central to nuclear deterrence, a limited BMD shield could potentially achieve that in the South Asian context” (Basrur, 2002: 7).

DEPLOYMENT MECHANISM OF INDIA BMD

Indian experts frame the deployment of BMD system in the following possible mechanisms.

- i. Deployment of a comprehensive land and sea-based BMD system across the country to deal with the offensive first strike.
- ii. The second option is to secure the “critical population centres, command and control centres, nuclear forces and vital economic zones” (Nagal, 2016: 6).
- iii. Thirdly, the deployment of BMD in a “selective coverage of command and control centres, nuclear forces and important metropolitan cities” (Nagal, 2016: 6).
- iv. Fourth is to deploy BMD to protect strategic command and control centres, nuclear assets and the capital New Delhi.
- v. Lastly, deployment to protect the instrumental command and control centres and New Delhi to retain the second strike capability.

The first two options require a comprehensive Area BMD while the rest of the three demands Point BMD system. Generally, Area BMD is preferred over the Point BMD for it ensures the safety of large metropolitan cities and strategic installations whose location is bound to remain uncertain (Wilkenning & Watman, 1986: 27-29). However, deployment of BMD by India along the first two mechanisms remains highly unlikely for a number of reasons. The cost-exchange ratio and technology required for fielding such a comprehensive coverage squarely ground Indian capacity and capability. India cannot afford a “pan-national missile interception capability” due to financial constraints (O'Donnell & Joshi, 2013) This is also because Pakistan and China hold a variety of ballistic and cruise missiles which make the systems vulnerable to the ground and air attacks, especially in the border regions.

In addition to this, no BMD can detect and intercept a low-flying cruise missile that can knock out Indian BMDs

with an intended Destruction of Enemy Air Defense (DEAD) mission from Pakistan or China. Joshi and O'Donnell argue that “India also realized that a limited BMD, especially to secure its political leadership and nuclear command and control against a first strike, would augment the credibility of its second-strike nuclear posture” (O'Donnell & Joshi, 2013) Therefore, India will choose selective coverage of important strategic command and control centres and the capital so as to retain the capability to respond to the first strike with a vital retaliatory nuclear force.

India also intends to offset the gap between its No First Use policy against Pakistan's First Use of nuclear weapons by using missile defense shield to avoid annihilation of its capability of assured destruction in a first strike. Such a calculation, however, remains prey to the uncertainty of the missile defense shield since no BMD can effectively counter 100 percent of the incoming hostile targets. Attendant to the fact, however, India will be able to secure its retaliatory capability and the command and control elements necessary to launch a second strike. Christopher Clary is a US scholar maintains that “Indian policymakers must be willing to make the calculation that whatever safety comes from missile defenses of dubious effectiveness outweighs the risk that come from a Pakistani nuclear arsenal that is larger than it would be without Indian missile defences” (Joshi, 2012). This explains the threat of enhanced offensive weaponry and an increase in the nuclear arsenal which is exclusively the result of advanced BMD systems introduced by India in the South Asian region. This is because the threat asymmetry leaves Pakistan at disadvantage vis-a-vis India's growing defensive measures and pushes Islamabad for new means of delivering the threat as the strategic necessity of deterrence to maintain balance in the region. The DRDO's scientific advisor Vijay Kumar Saraswat's assessment suggests that at least two regiments of the BMD will cover about 400 sq. Km which is enough coverage to protect New Delhi. According to reports of *India Today*, India initiated arrangements for protecting New Delhi under the program “Defense for Delhi” in 2003 which also includes Mumbai, for the city hosts a number of significant “nuclear storage facilities” (Ferguson & McDonald, 2017: 11).

Hence, Indian will choose not to defend the entire territory but limited strategic, political and military installations for second strike against any “unauthorized

and accidental launch” or a “Bolt-from-the-Blue” strike by the adversary (Nagal, 2016: 6). Therefore, these defences are likely to defend hardly some selective potential civilian and military installation but still leaves vast majority of India’s critical strategic installations vulnerable to a full-fledged nuclear or even conventional Pakistani counter-offensive’.

LESS A SHIELD THAN A SWORD

Apparently, the BMD Shield is used to defend against incoming ballistic missiles and other airborne targets. However, interestingly, the system being defensive in nature is an offensive advantage to the state in possession. This is because; BMD is the shield that provides capability against hostile missiles but is also a sword that augments state’s capabilities to survive the first strike and hence encourages it for offensive strikes with little concern about a tit-for-tat retaliation.

BMD serves as the offensive strike deterrent for the US forces in Europe. This has been inspired by the maxim that ‘If you have the Shield, it is easier to use the Sword’. It means a credible BMD offsets any concerns for retaliation strike and encourages the holder state to fearlessly go preemptive against the enemy with weak defensive or even offensive infrastructure. For instance, the Russian Foreign Minister while referring to the Missile Defense Shields of the US placed in Poland and Romania stated that “the military realize that missile defense is part of the strategic arsenal of the United States. And when a nuclear shield is added to a nuclear sword, it is very tempting to use this offensive defense capability” (Masters, 2014). This is because it allows the US not only to deter any hostile attack by Russia into Europe and the US but also encourages the US to carry out offensive strikes against Russian installations and hence offensively ensure defensive requirements with a defensive weapon system.

The logic fits more on India where the leadership is vocal about India’s intentions to carry out surgical strikes inside Pakistan. In such a situation, a multi-tiered BMD provides India a credible assurance of their survival to any anticipated conventional or nuclear counter-strike by Pakistan in response to a ‘preemptive strike. Therefore, a BMD with India either acts as a sword or a facilitator to use the sword with more impunity and hence shield against the adversary’s striking capability. The Simpson Center report for Canada and the presence of the BMD system says that

“shield may be protective, but linked to swords they are part of the offensive and provocative system” (Regehr, 2003; p. 27). Vary of US hegemonic policies, a prominent US political scientist Noam Chomsky explains that “BMD is widely recognized as a ‘Trojan Horse’ for the real issues: the coming weaponization of space with highly destructive offensive weapons placed in or guided from space. BMD itself is an offensive weapon. That is understood by close allies, and also by potential adversaries” (Chomsky, 2007; p. 123). In the same book, he explains that the Canadian military planner advised the government that “BMD [in Canada] is arguably more in order to preserve the US freedom of action than because the US really fears North Korean or Iranian threat”(Chomsky, 2007; p. 123). This shows the dubious role of the BMD and its use by revisionist powers. In this case, it ensures India’s freedom of action in South Asia, more specifically against Pakistan.

On account of the dubious role of weapons, their offensive or defensive character in war and peace and their application on BMD, the following section provides critical discourse based on the provision of security and assessment of threat by the state at receiving end.

OFFENSIVE-DEFENSIVE PARADOX AND THE NATURE OF BMD

The terms ‘Offensive’ and ‘Defensive’ renders different meanings for different players involved in an adversarial dilemma. Dietrich Fischer in his book, *Preventing War in the Nuclear Age*, unfolds the complexity by defining terms in pure nature that “purely defensive arms increases the security of the country acquiring them but do not reduce the security of any other state” while “purely offensive arms threaten the security of the potential opponents, but do not (absolutely) strengthen the security of the country acquiring them” (Fischer, 1983: 47). Parallel to the latter case, any Indian BMD, indigenous or acquired, will not only fell short of securing Indian assets against hostile air attack but will also create security dilemma for Pakistan.

It means the Indian argument that the air defense systems serve as a ‘defensive’ deterrent in Indian strategic calculation is unconvincing (Fischer, 1983: 49). Similarly, President Obama’s advocacy to supply ‘defensive lethal weapons’ to Ukraine against Russia also sparked a debate for if a defensive weapon can also be ‘lethal’? Colin Clark tried to defend the terminology and argued that “any weapon is defensive if you are using it

to defend yourself or your country. And since Putin is aggressor here, if we supply weapons (be that Juvenile anti-tank missiles) to those fighting against him they are, by definition, defensive” (BBC, 2015). He went on to add that if Russia provides arms to the rebels then “he (Putin) might simply say he is ‘defending’ the rights of Russians” (BBC, 2015).

This also suggests that any weapon, irrespective of its characteristic features, can be labelled as offensive or defensive depending upon the intent; thereby rendering the term ambiguous in its exclusive investigation.

REGIONAL IMPLICATIONS OF INDIA’S BMD

The expeditious military modernization, especially the introduction of advanced BMD, catalyses the existing arms race in South Asia. Feeling disadvantaged from the rapid advancement of India’s military capabilities, Pakistan is likely to augment its military power with more offensive weapons. The acquisition of advanced BMD prompts Pakistan to increase its nuclear stockpile and Low Yield Nuclear Weapons (LYNWs) which will drag down the nuclear threshold between the countries: thereby increasing the chances of nuclear confrontation. This is because India’s military modernization is reducing Pakistan’s conventional deterrent and hence leading to a nuclear arms race (Khan, 2017; p. 196). Referring to this, the former US’ Assistant Secretary of Defense Peter Levoy posits that “India’s military modernization program has led to a growing disparity between the Indian and Pakistani conventional military capabilities”, which will lower the nuclear threshold (Levoy, 2008; p. 134).

The acquisition of S-400 system is likely to ignite a new wave of instability in South Asia. As predicted by a professor at King’s College London, Harsh V. Pant, that “Indian BMD will fuel instability and affect bilateral relations between India and Pakistan, which might further lower the nuclear threshold and tempt Pakistan to go for a nuclear first-strike. The offence/defence paradox explains that in the mind of a state without BMD, the threat of a pre-emptive strike will increase” (Ehtisham, 2017). Such pre-emptive strike could come from India which increases the chances of what New Delhi believes as the ‘limited war’ with Pakistan. For example, the former India defense minister George Fernandez while ‘unveiling Limited War Doctrine’ states that India can execute a limited war against Pakistan in the presence of a sufficient BMD as credible deterrence

by denial (Mohan, 2000). Hence, soon as India acquires sufficient BMD capability as a deterrent by denial, it can embark on a misadventure which could threaten the strategic stability in South Asia.

The long range interception and diverse featured capabilities of S-400 challenge the existing inventory of the Pakistan Armed Forces. However, every weapon renders multiple weaknesses with possible countermeasures that can be employed to neutralize its capability. The long range S-400 ABM, though, is an advanced weapon system but holds enough space for counter-measures. This is because of the rigorous Indo-Pak border region along the Line of Control (LoC) where dense jungles, hills and mountains can impede and distort the tracking capability of the radar of S-400. The system overcomes this impediment by employing the 40V6 mast assembly but this largely reduces its ‘shoot and scoot’ capability; thereby making it vulnerable to a counter strike (Raza, 2018). The exaggerated 40N6E missile of S-400 with a range of 400kms is yet to be displayed and is unlikely to be added to the exported version of the system even if showcased by Moscow. Therefore, the primary weapon used by S-400 is a 48N6 missile with a range of 240km which cannot engage airborne targets at above 27km altitude and hence will fail to intercept modern ballistic missiles. S-400 is useful in targeting US ballistic missiles which lags almost 30kms from the Russian shores but is less likely to benefit India in countering Pakistan’s ballistic missiles due to a travel distance of not more than 5 minutes. Moreover, the S-400 missile system holds a shelf life of just 10 years which means that India will waste US\$ 5.2 billion in case the system is not used in a war until 2030 (Raza, 2018).

COUNTERMEASURES TO S-400 AND OTHER INDIAN AIR DEFENSE SYSTEMS

Responding to the acquisition of S-400 ABM by India, Pakistan pledged to “develop capabilities which render any BMD system ineffective and unreliable” and “to address threats from any kind of destabilizing weapon system” (Ali, 2018). This suggests a possible strategy and countermeasures that Pakistan intends to employ in future so as to neutralize the threat of the Indian BMD shield. Instead of acquiring a similar multi-billion dollar BMD system as a deterrent, Pakistan can employ the following tactics to neutralize or at least minimize the threat posed by S-400. This can be done by employing

both the

- i. Suppression of Enemy Air Defense (SEAD) and
- ii. Destruction of Enemy Air Defense (DEAD) capabilities.

On part of the DEAD strategy, Pakistan can knock out the S-400 battery sites through multiple means. India is likely to deploy three out of five batteries along the Pakistani border to protect its military installations. It means the system will be static and can be destroyed through Human and Remote Intelligence (H&RI). Pakistan can employ its air-launched cruise missiles with enough stand-off range to be fired from safe airspace to knock out the system.

India cannot acquire 100 percent escape from the Chinese and Pakistani nuclear-tipped missile strikes. Balraj Nagal posits that China and Pakistan will rely on "saturation strikes, mixing of conventional and nuclear missiles and extensive use of decoys to confuse the interceptors, and will attack space, cyber and ground systems" to offset India's BMD capabilities (Nagal, 2016; p. 5). This is important because India's nascent BMD will face challenges of "differentiating between conventional and nuclear missiles" which will complicate options for India to counter-strike (Nagal, 2016; p. 5).

The DEAD capability can be assured by acquiring the SY-400 short-range precision-attack ballistic missile system and the YJ-12 air-launched missile from China with an intended strike to hit the Enemy Air Defense (EAD). Multiple Rocket Launcher Systems (MLRS) such as the Chinese A-300 with a CEP of only 30-45 meters can be used to neutralize the S-400 batteries. Anticipating this threat, India will presumably deploy the system at least 300km off the western border, enabling Pakistan Air Force to penetrate.

Pakistan can counter the threat by enhancing its Ababeel based MIRV technology with a multiple numbers of decoys on board along with nuclear warheads. Also, the threat can be mitigated by developing Hypersonic Glide Vehicle (HGV) which can penetrate the multi-layered air defence installations (Raza, 2018). Moreover, Pakistan is also accumulating a huge inventory of drones (having very small signatures) that can enable Pakistan to overwhelm the S-400 ABM in a 'swarm attack' where the target is saturated to respond. This is evident by the immediate Sino-Pak deal for the acquisition of 48 Wing Long-II high-end armed drones following the Indo-Russian S-400 deal on October 5, 2018 (Dhillon, 2018).

FALSE SENSE OF SECURITY AND THE BALAKOT

DEBACLE

Terming as a 'booster dose' for the Indian forces, the Indian Air Force chief reflects India's utmost reliance on the shoulders of its nascent air defense system (Singh, 2018). One of the associated repercussions with its BMD shield is that it will give India a false sense of security; hence enabling New Delhi to go ahead with the pre-emptive strikes against Pakistan. For instance, India attempted to test Pakistan's conventional deterrence by conducting 'missed' airstrikes across the LoC into Balakot which, despite claims of killing over 300 terrorists, inflicted minor damage to the forest (Vijayan & Drennan, 2019). Pakistan called India's air defense bluff by responding the very next morning by successfully striking the intended whereabouts of the Indian military headquarters in Kashmir. In the hot pursuit by the Indian air force, the Pakistan air force shot down a Su-30 MKI and a Mig-21 of the IAF, capturing a Mig-21 pilot who was later handed over to India as a sign of peace gesture (Safi & Malik, 2019). This was not only humiliation for India's offensive firepower but also for its air defense system which, rather than detecting and targeting Pakistan air force, 'mistakenly' shot down its own Mi-17 helicopter in friendly fire. In the nutshell, India, besides underestimating Pakistan's counter-offensive capabilities, exaggerated its offensive strike capabilities and hence the whole episode turned into a nightmare for New Delhi.

Now, it is also a miscalculated assertion that S-400 will become the ultimate safeguard of India in case of a hostile situation between the two countries. India's acquisition of the S-400 ABM system "neither destabilize(s) Pakistan's defensive fence nor make(s) ineffective its offensive strike" capabilities (Jaspal, 2018). Just as described in the previous section, Pakistan can counter the threat of the S-400 system by increasing the size of the attack with cost effective weapons including air-launched cruise missiles like Ra'ad and YJ-12 and SRBM SY-400, MIRV equipped Ababeel with multiple decoys, deploying MLRS such as the Chinese A-300.

Moreover, the three batteries, if deployed at the western border, are unlikely to cover the entire Indian landmass which renders possibilities for counter-value strikes on Indian cities through IRBMs such as Ababeel and Shaheen-III (Ahmad, 2016). Therefore, India should be careful in exaggerating its capabilities and avoid falling into the trap of a false sense of security to avoid

catastrophic results in case of a hostile situation with its neighbours, especially Pakistan.

CONCLUSION

India's attempt to introduce BMD in evolving South Asian strategic environment induces complications for the delicate deterrence and regional strategic stability. In face of its regional ambitions to achieve impunity in terms of its military freedom of action as well as to emerge as the security provider in the region, India has been inspired by the global shift in perception from deterrence by punishment to the deterrence by denial. Over the years, New Delhi has sought to develop a comprehensive BMD system that is supposed to shield India from a counter-offensive in response to its aggression vis-à-vis Pakistan. However, the inability of a BMD system to completely offset the advanced ballistic and cruise missile, especially of the nascent Indian BMD shield, denies New Delhi the ability either to shield itself from the counter-offensives of its immediate adversaries Pakistan and China or enjoy the privilege to carry out its often desired 'surgical strikes' with impunity. The Balakot Debacle is the practical demonstration of India's inability to communicate the delivery of threat that could sufficiently be able in deterring Pakistan's response. Instead, Pakistan's successful counter-offensive wielded the argument that India is not in a position to keep Pakistan at bay and exercise impunity without consequences, even in the presence of an advanced BMD.

Moreover, the more India attempts to employ advanced weapons such as the S-400 air defense system, the more will regional adversaries like Pakistan increase their offensive capabilities including its nuclear stockpile and advanced delivery vehicles such as the MIRV technology counter-measure to maintain strategic balance in South Asia. Hence, India's military modernization, especially its willingness to use advanced BMD systems to enhance its military capabilities of pre-emptive strikes vis-à-vis Pakistan, will accelerate the existing arms race and increase the cost of hostile engagement with terrible consequences for regional peace and stability in South Asia.

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