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The Ballistic Missile Defence Conundrum

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India's stature in the international system has been rising exponentially. The growing stature has also provided a considerable impetus for India to recalibrate its national security matrix in a more holistic manner. One of the pertinent areas where the country is making strides has been the development of the Ballistic Missile Defence System. In the early part of the 1990s, the proliferation of medium and short-range missiles from China to Pakistan provided sufficient incentive for India to develop a limited missile defence cover as a protective shield. Since then, India has been making diligent efforts at developing an indigenous missile defence system. India became the fourth nation to adopt the protective shield after Russia, Israel and the United States. Missile defence technologies are a complex system whose seeds were sown during the early Cold War period creating a furore across the international community. It will take years before India gets a fail-safe system. Nevertheless, India's shield has raised some major debates and deliberations across the world.

History of Ballistic Missile Defence System

In January 1967, US President Lyndon B Johnson announced that the (Union of Soviet Socialist Republics) was building a limited Anti-Ballistic

Key Points

1. India's growing stature in the international community has provided considerable impetus for the country to recalibrate its national security matrix in a more holistic manner. One of the pertinent areas where the country is making strides has been the development of the Ballistic Missile Defence (BMD) System.
2. Missile defence technologies are a complex system whose seeds were sown during the early Cold War period creating a furore across the international community. It will take years before India gets a fail-safe system.
3. India's declaration of the No First Use policy made it all the more imperative to acquire ballistic missile defence capabilities.
4. However, the introduction of BMD has the potential of disrupting the current offense–defence balance.
5. With the major powers providing capabilities like National Advanced Surface to Air Missile System II and S-400 Triumf air. It is not wrong to say that India's defence posture is no more viewed with scepticism rather accepted as a strategic necessity now.

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Missile (ABM) defence system. Deployment of the ABM system would mean that SU would potentially be able to launch a first-strike while preventing opposing missiles from entering its airspace, thus limiting the efficacy of deterrence theory.[1] Consequently, the 1972 ABM Treaty on the limitation of ABM systems was ratified. It ensured that the United States and SU agreed on deploying defences that would protect either the nation's capital or an Intercontinental Ballistic Missile (ICBM) deployment area of the respective nations'.[2] The signatories also agreed "not to develop, test, or deploy additional ABM launchers."[3] Further, the companion Interim Agreement with respect to the Limitation of Strategic Offensive Arms sought to limit the numbers of missiles in each side's offensive forces. Many analysts believed that reductions in offensive forces and limits on Ballistic Missile defences (BMD) could blend together to enhance 'strategic stability'.[4] However, the Strategic Arms Limitation Talks (SALT) treaty only limited the number of missiles each state could possess. It did not address the concerns regarding the deployment and development of Multiple Independently Targeted Re-entry Vehicles (MIRV) wherein multiple warheads could be placed within a single missile. This lead to the second round of discussions and negotiations on SALT focusing on reductions in strategic forces like ICBMs, Submarine Launched Ballistic Missile, MIRVs and even delivery vehicles. However, this treaty never came into force.[5]

In the following years, both countries continued to increase the number of warheads in their offensive forces, despite the agreed limits on BMD. Initially, the ABM Treaty was seen to undermine the American Soviet deterrence policy of Mutually Assured Destruction. The same concerns resurfaced following the announcement of Ronald Reagan's Strategic Defence Initiative (SDI) in 1983. Reagan wanted people to feel safe in the knowledge that their security is not dependent on the US retaliation to deter a Soviet attack. Rather, the state would be able to intercept and destroy any adversary's missile before it touches their soil.[6] SDI program was designed on similar lines. The idea was to create a space-based shield that would render the opponents' nuclear missile attack obsolete. The system was supposed to provide a layered defence using advanced technologies. Many of these technologies were in a nascent stage. Thus, the SDI propelled research of myriad technologies such as interception of SLBMs, ICBMs and their warheads. Even the research on ground-launched interceptor missiles with 'hit to kill technology' gained considerable impetus. Additionally, the SDI program also focused on other unconventional technologies including the ones that could be positioned in space like Directed Energy Weapons.

In the later stages, SDI got stuck in a potpourri of several debates and was replaced by George H. W Bush's more realistic vision of Global Protection against Limited Strikes (GPALS). GPALS was introduced with a mandate of blocking small ballistic missile attack on the United States and thwarting limited strikes against the country by theatre ballistic missiles rather than merely defending the homeland from an all-out Soviet ICBM assault.[7]

With Clinton taking the office in 1993, his administration directed the resources towards theatre missile defence. By that time, with the collapse of the SU, the threat perception of US had also changed. Now the country was focusing more on states that have begun to flaunt their missile capabilities such as North Korea and Iran. Additionally, US's Patriot System had failed to track and intercept an incoming Iraqi SCUD missile during the Gulf War. Though after investigation, it was found that the cause was an inaccurate calculation of the time since boot due to computer arithmetic errors.[8] Nevertheless, this defeat provided sufficient incentive for the country to go for a more robust National Missile Defence System. Thus, in 2001, President George W Bush took a firm initiative and drafted the comprehensive outline of a missile defence system in 2001.[9] The 9/11 attacks acted as a catalyst for the BMD program to gain momentum. The Bush administration withdrew from the ABM Treaty to pursue more rigorous testing of missile defence system. Over the years, the United States has been able to develop and field notable capabilities such as Aegis SM-3 shipboard missile Defence System; a more efficient hit-to-kill Patriot Missile, the Patriot Advanced Capability and the Terminal High Altitude Area Defence system.[10]

India–Pakistan and the Offence–Defence Balance under the Protective Shield

India was one of the first countries to endorse the Bush National Missile Defence program.[11] India took advantage of the opportunity to forward its own agenda of a BMD system. It understood the cruciality of possessing such a protective shield especially in the purview of two nuclear

states in its backyard. Looking at the US chapter, India understood the need to replace deterrence by the defence. However, there is a wide gap between the requirement, rationale and logic of an Indian BMD as compared to the American Missile Defence.

For India, nuclear deterrence has been a paramount factor in possessing nuclear weapons. This deterrent relationship between India and its nuclear-armed opponents is based on the understanding, if not MAD, then at least the belief that each side would be able to inflict considerable damage on the other side, thus maintaining some sort of strategic stability in the region.

Strategic stability as mentioned above connotes to the scenario that is prevalent when two potential adversaries acknowledge that neither would gain an advantage if it were to begin a conflict with the other. In fact, it would be an obvious conclusion by both parties that despite launching the first strike, the cost of conflict would outrun the gains that might be realised.[12] Therefore, this damage would be considered unacceptable and hence not worth the nuclear exchange. This can also be anticipated via cost–benefit analysis, wherein a comparison is made of the attacker's value for territory to the costs that the attacker would incur as a result of nuclear retaliation against its own society. However, many analysts opine that the introduction of BMD has the potential of disrupting the current strategic balance. As BMD would mean a certain loss of vulnerability, it tends to upset the offence–defence balance, shifting it in favour of the defence, that is, India. This creates concern for countries with a relatively smaller arsenal like Pakistan.

This makes sense, as Pakistan appears to be concerned that, in the foreseeable future, if India was to increase the number and capabilities of its missile defence interceptors, the time may come when India might have the ability to launch a first-strike against Pakistan while protecting itself from Pakistan's retaliatory attack with its missile defences. Under such circumstances, Pakistan may believe it had to multiply its offensive forces so that it would have enough surviving weapons to pierce through India's protective shield. This, in turn, would be fuelling the arms race.

Moreover, Pakistan has time and again engaged in sub-conventional warfare with India under the nuclear umbrella. From India's point of view, a BMD would be able to negate the advantage Pakistan considers to have gained by possessing nuclear weapons, thus infusing a certain caution within the minds of the aggressor. Basically, BMD would unfasten India's restraint and pave the way for some sort of conventional response to Pakistan's activities.[13]

While there was certainly a strong case against India deploying missile defences during the era of the 1990s, India's declaration of the No First Use (NFU) policy made it all the more imperative to acquire BMD capabilities. This defence shield would aid in protecting key locations like the National Command Post.[14] An NFU posture tends to limit the probability of a pre-emptive attack and tends to reinstate the deterrence-defence relationship. This observation has been contrary to the concept of strategic stability (as explained previously) that argues missile defences would facilitate arms race in the region. Also, to retain a credible non-proliferation agenda, missile defence against adversaries must be pursued in conjunction with more traditional nuclear deterrence-based relations with strategic competitors. As such, India's BMDs are neither intrinsically destabilising nor a disarmament panacea but deployed in a limited manner to address threats in contexts or environments where the credibility of nuclear deterrence is weak or questionable; they can also be a key part of India's efforts of enhancing the regions' stability and security.

However, a persistent understanding among scholars is that by placing too much faith in its active defence systems, India could become willing to accept certain excessive risks, and also to disavow any remaining pre-emptive options. Obviously, India's nuclear deterrent could never suitably reduce all conceivable threats such as immobilisation by outright irrationality, inadvertence, enemy miscalculation, mechanical accident, false warnings or cyberattacks from adversaries, especially Pakistan.[15] Additionally, the possibilities of miscalculations and irrationality cannot be ruled out, howbeit a few scholars have articulated that in such scenarios, the defensive shield would buy the country some time and space to assess Pakistan's intent, thus providing an opportunity to resolve, reconcile or retaliate rationally, rather than escalate.[16]

India's major focus while building the defence system has been indigenisation. Many scholars have also stated that the defence system would actually aid in maintaining the strategic autonomy of the country at least in terms of security. India always promoted the concept of strategic autonomy though many scholars have speculated that in recent times a strategic bent has been seen towards the

United States.[17] Nevertheless, there has always been a lingering doubt on the latter's long-term objectives. For India, to thrive in the race of becoming a major power, it is pertinent to become self-reliant and missile defence could be the step towards the same.

No matter how many prospective benefits a BMD can bring on the table or however efficient a BMD system is erected by a state, there will always a lingering probability of its failure. Thus, many scholars have varied opinion regarding the system. Some view it as a long-time investment, while others see it as a form of major loss. The answer is not as linear as it appears to be. It has many dimensions attached to it and the same has been articulated below.

The Investment: Hundred Percent Profit or Cent Percent Loss?

As mentioned, BMD has been criticised on many levels and majorly due to its failure to guarantee a foolproof security from missile attacks. These so-called safety shields can be penetrated by attacking missiles using a variety of means. Interestingly, many states that are grappling with the challenge of countering the missile defence system are coming up with countermeasures. For instance, missiles armed with MIRV capabilities.[18] Similarly, Hypersonic Glide Vehicle is another means of piercing through the defence shield. Further, the low-flying Cruise missiles can bypass or under-fly through the missile defences,[19] thus starting another series of the arms race, that is, 'offence versus countermeasures'. This battle between the offence and the countermeasure would weigh heavily on the Indian side for a simple reason that India's BMD capacity is still at an elementary level. For instance, there are persistent doubts that India as of now possesses advanced technologies that can differentiate between decoys and actual warheads. Additionally, achieving other advanced technological means to overcome countermeasures such as electronic jamming, radar and heat absorbing materials or manoeuvrability of reentry vehicles still remains a distant dream. Many scholars believe that Missile Defence is merely an illusion—no matter how much money you invest in it. The statement stands true; even the US's advance technology like Patriot missiles could not stand against Iraqi forces SCUD missiles.[20]

But this is just one part of the story. The overall success of missile defence projects cannot be gauged in a binary manner. Rather, the defence system should be considered a part of a strategic escalation that may have a far-reaching geopolitical impact on adversaries. Indeed, many reports confirm that the Indian defence system has already started playing over the psychology of Pakistan wherein the country's desire for strategic parity with India would mean a tremendous burden on its economy. This was also articulated in a report by the World Politics Review that articulated "India's pursuit of strategic technologies, including BMD capabilities, has created extreme paranoia in the Pakistani defence and security establishment. Pakistan has drastically increased its nuclear arsenal in recent years in response to India's BMD efforts."[21] Pakistan as of now is not satisfied with having the adequate number of arsenals to deter India. In working to increase the size of its nuclear arsenal, Pakistan continues to allocate a disproportionate amount of fund. These actions are also in line with the Former President Zulfikar Ali Bhutto's statement "eat grass and make bombs."[22]

A similar kind of situation was seen during the Cold War, where the desire for strategic parity led to the collapse of SU. This became one of the major reasons for the downfall of the Soviet, thus highlighting that a combination of failing economy and high-end desire for missile and advanced weapon system may not go well in the foreseeable future. This raises a potent question of how long will Pakistan withstand the economic pressure? Despite the China Pakistan Economic Corridor, which is said to bring economic prosperity in Pakistan, one cannot overlook China's debt trap strategy.[23] The strategy, in which the borrowing country is saddled with onerous debts that it cannot repay on time, or at all, renders it more vulnerable to China's influence and control. Critics assert that the ultimate cost of the loan is nothing short of the borrower's economic sovereignty. In such a scenario, the ball lies in the Pakistani court as short-term benefits may eventually lead to long-term devastations.

Another aspect of the missile defence system has been the reliability and effectiveness. One must understand that missile defence systems are not stand-alone systems rather the integration of various radars, sensors and interceptors. An effective defence also includes competent tracking and detection of the threat. Holistically thinking, missile defence would not only protect from incoming

missiles but also aid in strengthening the eyes and ears of the country against the actions of adversaries. However, it is important to consider that the strongest form of surveillance is through space-based assets, from the launch of the interceptor to navigation, such activities can be best conducted via outer space. This is one of the major reasons that the United States considers outer space as the next domain for the BMD programme. It is also imperative that India takes cognisance of the linkage between outer space and an effective BMD shield. While India continues to use space for civilian purposes, it cannot overlook the significance of space for national security.

There will always be apprehension over the effectiveness of a missile defence system. Currently, India's BMD lacks credibility and is shrouded with inherent weaknesses. However, these things do not deter the country from its goal of strengthening the defence system. This can be seen from the kind of acquisition the country has been pursuing. Besides the expected acquisition of Russia's S-400 missile defence system, New Delhi has agreed to buy a National Advanced Surface to Air Missile System II (NASAMS) from the United States. This announcement comes just prior the scheduled meet of foreign and defence ministers of India and United States. Many reports also claim that the United States is simultaneously moving towards granting a waiver to India from Countering America's Through Sanctions Act, which may be likely to be imposed on India in case of acquisition of S-400 from Russia.[24] This Act mandates the US administrations to 'punish entities engaging in a significant transaction with…. The Defence or intelligence sectors' of Russia.[25] All these scenarios indicate a changing notion of major powers towards India's need for a defence shield.

With nations now taking cognisance of India's security needs, it speaks volume of India's growing stature in the International system. Nevertheless, it is pertinent to understand that efficiency and effectiveness of any defence system will always remain a work in progress vis-à-vis the opponents' capabilities. Although the Indian BMD systems and subsystems require a substantial amount of testing to ensure robust systems in real engagement environments, it is also essential for the country to start developing counter-countermeasures to overcome the threats from adversaries' countermeasures that can render the BMD impotent. Moreover, the BMD should not be gauged for short-term results rather as an instrument to bear fruits in the long term.

Conclusion

Advances in technology have been the most critical factor of influence in the offence–defence balance. Even during the Cold War, defence became an incentive to increase one's own arsenals, thus undermining the opponent's credible offensive forces and fuelling an ad hoc arms race. This stands true even in case of India–Pakistan, wherein the BMD system appears to favour the defence. Yet, it is too early to predict the same in India–Pakistan's case. This is because the coverage area has not yet been clearly specified from the Indian side and no date of deployment of the BMD has been fixed so far. Moreover, lack of transparency in the actions of Pakistan and China complicates the situation.

Though the Indian administration has not so far announced any official statements on the Missile defence system, it appears to be committed to missile defence as a national security strategy. With major powers like the United States and Russia providing capabilities such as NASAMS and S-400 Triumf air, respectively. It is not wrong to say that India's defence posture is no more viewed with scepticism rather accepted as a strategic necessity now.

The manner in which the Indian administration has been pursuing the defensive shield, it appears that the day is not far when India would have established, if not a foolproof, at least a moderately efficient BMD system. After all, the ultimate objective of every state is not to fight a war, rather weaken its enemies without engaging in armed combat. Today, this advice may seem too obvious, yet many scholars are of the opinion that the future strategic posture of India will depend considerably upon the deployment of Missile Defences. Thus, India must remain realistic in its vision. In no way should it undermine the offensive capabilities of Pakistan while building its protective armour. Realising India's threat perception, the technological development regarding BMD must continue in a steady manner without attracting unwanted clamour and without muddling the strategic equation status quo of the region.

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Notes

1. Manpreet Sethi, "Nuclear Strategy: India's March towards Credible Deterrence," (New Delhi: KW Publications, 2009).
2. Steven A. Hildreth and Amy F. Woolf, "Ballistic Missile Defense and Offensive Arms Reductions: A Review of the Historical Record," *Congressional Research Service,* (May 25, 2010). https://fas.org/sgp/crs/nuke/R41251.pdf, accessed on July 15, 2018.
3. Atomic Heritage Foundation, "Strategic Defense Initiative," https://www.atomicheritage.org/history/strategic-defense-initiative-sdi, accessed on July 18, 2018.
4. Ibid.
5. Atomic Heritage Foundation, "Non Proliferation, limitation, and Reduction," https://www.atomicheritage.org/history/non-proliferation-limitation-and-reduction, accessed on July 22, 2018.
6. Ibid.
7. Atomic Heritage Foundation, n. 3.
8. "The Patriot Missile Failure," http://www-users.math.umn.edu/~arnold/disasters/patriot.html, accessed on August 26, 2010.
9. Atomic Heritage Foundation, n. 3.
10. Steven Pifer, "The Limits of U.S. Missile Defense," *The National Interest*.https://nationalinterest.org/feature/the-limits-us-missile-defense-12503, accessed on August 02, 2018.
11. Sethi, n. 1.
12. Charles L.Glaser and Chaim Kaufmann, "What is the offense-defense balance and can we measure it? (Offense, Defense, and International Politics)," *International Security* n. 4, 1998, p. 44.
13. Manpreet Sethi, "Conventional War in the Presence of Nuclear Weapons," *Taylor and Francis,* (June 06, 2009). https://www.tandfonline.com/doi/abs/10.1080/09700160902790100, accessed on August 06, 2018.
14. Sethi, n. 1.
15. Andrew Futter, "Getting the Balance Right: U.S. Ballistic Missile Defense and Nuclear Nonproliferation," *Taylor and Francis,* 2011.
16. Balraj Nagal, "India and Ballistic Missile Defense: Furthering a Defensive Deterrent," Carnegie Endowment for International Peace, (June 30, 2016). https://carnegieendowment.org/2016/06/30/india-and-ballistic-missile-defense-furthering-defensive-deterrent-pub-63966, accessed on August 08, 2018.
17. Rajesh Rajagopalan, "India's Strategic Choices: China and the Balance of Power in Asia," *Carnegie India,* (September 14, 2017). https://carnegieindia.org/2017/09/14/india-s-strategic-choices-china-and-balance-of-power-in-asia-pub-73108, accessed on August 10, 2018.
18. Brig (retd) Vinod Anand, "Why India needs to strengthen its nuclear deterrent," *The Economic Times,* (February 22, 2018). https://economictimes.indiatimes.com/news/defence/strengthening-indias-n-deterrent/articleshow/63025373.cms, accessed on August 11, 2018.
19. Ibid.
20. Mitch Ginsburg, "They couldn't stop Saddam's Scuds, but now it's finally Patriots' day," *The Times of Israel,* (January 22, 2015). https://www.timesofisrael.com/the-patriots-day/, accessed on August 12, 2018.
21. Rakesh Krishnan Simha, "India's missile defence system can bankrupt Pakistan," *Russia Beyond,* (May 30, 2016). https://www.rbth.com/blogs/stranger_than_fiction/2016/05/30/indias-missile-defence-system-can-bankrupt-pakistan_598529, accessed on August 12, 2018.
22. Ibid.
23. Ronak D. Desai, "Pakistan and China's debt trap diplomacy," *The Straits Times,* (January19, 2018). https://www.straitstimes.com/opinion/pakistan-and-chinas-debt-trap-diplomacy, accessed on August 12, 2018.
24. Rajat Pandit, "Like Washington and Moscow, Delhi too to get Missile shield," *Times of India,* (July 29, 2018).https://timesofindia.indiatimes.com/india/like-washington-moscow-delhi-too-to-get-missile-shield/articleshow/65181833.cms
25. Yashwant Raj, "US closely watching India's plan to buy S-400 air defence system from Russia," *Hindustan Times,*(April 01, 2018). https://www.hindustantimes.com/india-news/us-closely-watching-india-s-plan-to-buy-s-400-air-defence-system-from-russia/story-j1iiz3hcH9Gzvw1LptLYhI.html

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