INDIAN BALLISTIC MISSILE DEFENCE SYSTEM AND SOUTH ASIAN DETERRENCE EQUATION

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Abstract

Since the overt nuclearization of South Asia, nuclear deterrence has been prevailing between India and Pakistan owing to their mutual vulnerability. India, however, is trying to develop a Ballistic Missile Defense System primarily motivated by hegemonic pursuits. This paper analyses India's development of the Ballistic Missile Defense System and its effect on the deterrence equation in South Asia. It argues that the introduction of Ballistic Missile Defense (BMD) in South Asia would supplement volatility in the region threatening the precarious strategic stability. India is doubling down on its hegemonic designs by riding on multiple boats and is trying to diversify its counterforce options. This Indian behavior challenges the very essence of deterrence as India is endeavoring to eliminate the existing mutual vulnerability in South Asia. This prestige and power-driven pursuit of India will exacerbate the security dilemma, which undermines the strategic stability. Pakistan, alluding to the Indian BMD, has rationalized the development of Multiple Independent Re-entry Vehicles (MIRVs), cruise missiles, and other technological modernizations to ensure the perseverance of strategic stability and deterrence equation in the region.

Keywords: Ballistic Missile Defence System, Strategic Stability, Deterrence, Multiple Independent Re-entry Vehicles (MIRVs), Arms Race.

Introduction

The South Asian deterrence equation between the two arch-rivals Pakistan and India has been stabilized after nuclearization and mutual vulnerability has prevailed. The essence of mutual vulnerability is that the two states found themselves to be vulnerable to attack hence they barred themselves from attacking the adversary with the fear of terrible retaliation in response. Thus, the nuclear deterrence amongst the two states prevents war and becomes the reason

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for regional stability. Nonetheless, India is gradually shifting its posture and desires to eliminate this sense of mutual nuclear vulnerability, with advancements in technology and attainment of aggressive force postures. This technological innovation is a prestige-driven exertion of the Indian civil-military establishment, in an endeavor to achieve regional hegemony. India is yearly increasing its military budget for the procurement of arms. The military expenditure of India has been $76.6 billion in the year 2021, which is the third highest military expenditure in the world, according to the SIPRI report.[1] India is the world's largest importer of major arms in 2017-2021, which accounts for 11% of the global arms import.[2] This also makes India a lucrative market for arms sale. India has made several defence agreements and deals with the US, Russia, Israel and France to diversify its arms suppliers base. This purchasing power of arms has made India to further its goal of regional hegemony by importing more sophisticated technology in its endeavor to diminish the deterrence equilibrium in South Asia.

India has acquired the technology of BMD system from Israel and Russia in addition to US. The acquisition of Ballistic Missile Defence System and concurrent procurement of innovative technology from US has created a false sense of security in the minds of Indian strategic thinkers, and they look forward to deteriorate the existing stability in the region by escalating any conflict and skirt around Pakistan's nuclear threshold. Pakistan has in turn opted for the cost-effective solutions for countering the India's aggressive designs and maintaining the deterrence equation in South Asia.

The paper analyses the security paradigm in context of nuclear arms race and its effects on the deterrence stability in South Asia. The paper goes in line with the Realist perspective, the theory of Offensive and Defensive realism plays best in case of South Asia. John Mearsheimer's theory of 'Offensive Realism' argues that the ultimate aim of the state is to tilt the balance of power in their favor and be a hegemon, for which it maximizes its power.[3] The military-muscle buildup is one of the major aspect for the maximization of power. India is trying to come at par with the great powers of the world for which it is modernizing its conventional and unconventional arms- a part through indigenous development and a major portion through arms import- in its bid to hegemonize the regional states; attain its much wanted status of Greater India; and eventually in its pursuit to be a great power in the world.[4] Such Indian actions greatly destabilizes the South Asian strategic stability. The development of Ballistic Missile Defence

System is one of the significant Indian development that impacts the regional peace and stability.

The theory of 'Defensive Realism' argues that states adopt defensive and restraint strategies when their security is threatened. Kenneth Waltz argues that the states in an anarchic system are compelled to go defensively in order to maintain the balance of power. [5] It argues that states preserve the power distribution and maximizes its security. One of the offshoots of defensive realism is the 'security dilemma'. Security dilemma is such condition in which a state tries to heighten its security in terms of military, economy or alliance formation in such a way that it creates threat for other states. Robert Jervis explains security dilemma as an anarchic scenario wherein the increase in the security of one state decreases the security of the other.[6] The theory of security dilemma is implied on South Asia to trace the action-reaction syndrome in the region. Indian acquisition of Ballistic Missile Defence System will augment the Security Dilemma in the volatile South Asian region. In South Asia, the mutual vulnerability is observed between the two nuclear rivals. India tries to tilt the balance of power in its favor by going for offensive military buildup. This provokes Pakistan to take effective countermeasures to ensure the perseverance of strategic stability in the region.

Descriptive and analytical both types of research is conducted by the researcher. The tools relied upon are the secondary sources like newspapers, reports, books and journal articles. The descriptive research attempts to interpret conditions of the present on the basis of previous incidents. So, the purpose behind this descriptive research is to examine a phenomenon that is occurring at a specific place and time.

The Research paper aims to identify the Indian pursuit for the development of Ballistic Missile Defence System. The efficacy of Indian BMDS, and the appropriate and befitting countermeasures by Pakistan for the maintenance of deterrence and strategic stability in South Asia. Would and why India be able to overcome CAATSA? The paper concludes after examining in detail the Indian BMDS and Pakistan's effective and liable countermeasures for the perseverance of deterrence stability in the region. It also suggests the initiation of dialogue and CBMs instead of arms race for the prosperity of the region.

Evolution of BMD

Some scholars are of the view that due to living under the threat of nuclear missiles for years, Ballistic Missile Defense turns the technological cycle towards the defense.[7] This system was based upon the concept of protection from the weapons that could result in Mutual Assured Destruction (MAD). But for defence, immense energy and effort is required either through technological use or efficient planning. The cycle of defense and offence went on with the technological advancement and innovation of new strategies. The advent of air power spread the fret and created an urge for the effective defensive measure, which led to the brilliant invention of radars and radio beacons. But this all was undermined as the first missile hit, and spread ripples of anxiety and fear round the world. The significance of the new weapon holds immense importance, with the realization that missiles are impossible to be halted immediately. The dominant countries thereof went for the replication of these missiles. But this doesn't mean that the chances of defensive response were completely discarded. The Soviets and US, both went for the development and deployment of BMD in the late 1950s.[8]

The assessments of national missile defense during cold war were based upon two assumptions. Firstly, it would cause a destabilizing effect on the region.[9]It would erode one's faith on nuclear deterrent and thus would increase the risk of nuclear war, as one would feel secure under the nuclear deterrent and no fear of retaliation would be there. Secondly, it would trigger an arms race, by the enhancement of offensive capabilities of one state for attacking the other, with perceived sense of invulnerability.[10]

The step taken by the US of ballistic missile defense has disturbed the international nuclear fabric. It has compelled the states to go for the effective measures and evaluates the potential ramification for their security. Most of the countries, including Russia, China and even US and its allies, are skeptical about the efficacy of Ballistic Missile Defense,[11] and are also concerned about its implications on the international security, which wouldn't be much positive.

Development and Evolution of India's BMD System

India's indigenous development of BMD system was envisioned by DRDO in 1983, but the significant development on the project took place in mid-1990s.[12] Presently, for the application of Ballistic Missile Defence System, DRDO has a two-tiered missile defence shield, Ashwin Advanced Air Defense (AAD), the low

tier theatre that can intercept missile at 15-30 km range- endo-atmospheric interception; the other is Prithvi Air Defense (PAD), the upper tier- exo-atmospheric interception- that can detect missiles at ranges of 80-120 km.[13] The two-tiered system is indigenously developed by India to intercept and destroy the incoming ballistic missile both inside and outside the earth's atmosphere. India became the fourth country to develop and test the ballistic missile defence system, by testing the upper tier missile defence shield (PAD) in 2006[14], followed by lower-tier defence shield (AAD) in December 2007[15]. After that several tests have been conducted in continuation for finessing the nuclear shield.

India claims to have made the whole defence shield indigenously, which is objected by many analysts, as it is the byproduct of the assistance from US, Russia and Israel and many other nations in Europe. Whereas, the above mentioned two-tiered missile defence shield AAD and PAD which makes the outermost layer of the Ballistic Missile Defence Systems, has been indigenously made by India. India went for the acquisition of Russian S-400 Triumf Air defence System to complement the defence shield, which forms the second layer of the system. India signed an Inter-Governmental Agreement (IGA) on October 15, 2016 with Russia in BRICS Summit for the supply of five S-400 regiments[16]; India and Russia formally inked US$5.43 billion deal on October 5, 2018, the delivery of S-400 began on November 14, 2021.[17] S-400 can primarily engage the aircrafts, ballistic and cruise missiles and Unmanned Aerial Vehicles (UAVs). It can target the missile at an altitude of 30 km, within the range of 400 km.[18] Moreover, it has the ability to track 300 targets simultaneously, which will abet the Indian BMD program. The acquisition of Barak-8 missiles which is joint product of DRDO and Israel Aerospace Industry (IAI) forms the third layer of the Ballistic Missile Defence System, which is a medium range, Surface-to-Air missile system having a range of 70 km.[19] The fourth layer of the system comprises of Akash air defence missile system, which has a range of 25 km.[20] The innermost layer of the system comprises of National Advanced Surface-to-Air Missile System II (NASAMS II) from the US.[21] The 2005 India-US bilateral agreement also specifically mentions the collaboration in missile defence.[22] This Indian Defence System will act as a force-multiplier to Indian military and will complement its aggressive doctrines and nuclear force postures.

Indo-US Nuclear Cooperation & CAATSA

The strategic nuclear partnership between India and US would be in India's best regard as the pressure over nuclear issue on India would be

diminished. The Indo-US deal of January 2004- Next Step on Strategic Partnership (NSSP), which provided the basis of bilateral activities between the two countries - also includes the point of Missile Defense.[23] US-India signed several agreements under this intiative, and India along with strategic and economic benefits, is enjoying exmptions from US on several forums. The agreements signed includes, General Security of Military Information Agreement (GSOMIA) in 2002; Logistic Exchange Memorandum Agreement (LEMOA) in 2016; and Communications; Compatibility and Security Agreement (COMCASA) in 2018; the latest one is the Basic Exchange and Cooperation Agreement (BECA) deal in 2020, under which US supplements India with latest technology, including the interoperability of forces and exchange of classified information.[24] The access to military-grade data will aid India in long range navigation and missile targeting.[25] The BECA deal aims at further strengthening the defence ties between the two countries, and would enhance India's ISR capabilities by getting hands on geospatial satellite data, increasing India's situational awareness, hence, aiding BMD technology. Such kind of data acquisition will be beneficial to both India and US against the potential rival, China, which is a threat to both the countries and against Pakistan, to which India would have a preference. Under these deals India would attempt to exploit the differences between China and US to greater extent to acquire more sophisticated technologies. [26] The US, has also tried to convince India for the acquisition of US produced THAAD system, instead of Russian S-400 Triumf. The Terminal High Altitude Air Defence (THAAD) is considerably expensive than the Russian S-400. Moreover, S-400 is capable to target against advanced stealth aircrafts, unlike THAAD system; and defence against short to medium range ballistic missiles, enemy fighters, and bombers, which India pronounces a significant threat in its region, whereas, THAAD is applicable against high altitude intermediate range and inter-continental ballistic missiles.[27] Moreover, India will integrate the S-400 with its Air Defence system, which is compatible with its Russian imported Su-30KI, whereas, the THAAD system is not compatible with the Indian Air fleet.[28] This makes S-400 a striking option comparatively for India. India has thus gone ahead with its deal with Russia for S-400.

But in case of this deal with Russia, sanctions could be imposed on India, as the US introduced the federal law for 'Countering America's Adversaries Through Sanctions Act (CAATSA) on 2 August 2017[29], and imposed sanctions on countries that transacts the military and intelligence contracts with Russia. The CAATSA is a law through which the US could impose sanctions on countries purchasing military hardware from Russia, as a tough stance against Russia in response to the annexation of Crimea in 2014 and its alleged meddling in 2016 US

Presidential elections.[30] India has purchased five units of S-400 Triumf from Russia, despite the warnings by the then Trump administrations that such a deal could result in the sanctions.[31] The US has imposed the sanctions on Turkey for the purchase of similar S-400 Missile Defence System from Russia in a deal of US $250 billion, and deprived with the acquisition of F-35 fighter jets.[32] China was also economically sanctioned for the purchase of S-400 and Sukhoi Su-35.[33] There are apprehensions that similar kind of sanctions could be imposed on India. India is the biggest arms importer of Russia, with a total import of 23% of Russian arms. The two countries signed a 10 year defence cooperation pact, along with 28 other agreements in the 21st India-Russia annual summit in December 2021.[34]

India, however, feels confident over the wavier of sanctions under CAATSA, due to its robust strategic relations with the US. The US President is authorized by the congress to waive off the sanctions, if the waiver is found in America's vital national security interests.[35] Congressman Ro Khanna, the democratic lawmaker from California, has presented a legislative amendment in the US House of Representative, in which he seeks wavier for India against US sanctions CAATSA.[36] The US considers India as its key-ally in the Indo-Pacific Ocean in order to keep an eye on the increasing influence of China in the region and beyond, and such sanctions would spur the relations between the two countries and will push India towards Russia. Whereas, the US desires to strengthen India against China in the region, and want to build alliance with India.[37] For that reason Washington has given several exemptions to India in the past as well, including the exemption to India for the India-US civil nuclear cooperation agreement, for which US amended its own laws, as otherwise it could have been done with only NPT signatory states.[38] US is also advocating for India's membership in the Nuclear Suppliers Group (NSG) which was formed as a result of India's misuse of imported civil nuclear technology for military purposes.[39] US wants to give India a formal recognition as a nuclear weapon state, without any reciprocal commitment to work towards nuclear disarmament.[40] Moreover, US also went for the deal of NASAMS-II, which is the part of Indian defence system, despite the latter's deal with Russia of S-400. Thus, US doesn't seem to be jeopardizing its relation with its strategic partner in the Indo-Pacific, which makes India confident to move ahead in its deal with Russia, even so if some sort of sanctions would be imposed they would be delayed, as seen in the US behavior, and would be of less intensity.

This, however, indicates India as an unreliable ally, who is going for just its hegemonic interests. India is sailing on two boats, it has become economic ground for Russia, and getting latest technology and has become the biggest arms importer of Russia, and on the other hand exploiting US by gaining latest technology under Indo-US deal, as US needs India against China. Thus India is getting benefits as per its concerns and enriching its endeavor of gaining regional hegemony.

India's BMDS and Implications for Regional Stability

The development of Indian Ballistic Missile Defence System indicates India's historically persistent and insatiable desire for regional hegemony. Deployment of BMD systems is threatening regional security because it also gives birth to action-reaction chain and security dilemma that leads to arms race and offensive technological build-up. Moreover, as BMDS undermine the essential logic of mutual vulnerability which the cornerstone of theory of nuclear deterrence, their development and deployment by adversary also put other states in more ready and offensive position, under the risk of "use it or lose it" phenomenon. Under this phenomenon states stay in ready position and tempted towards preemptive strike options because they fear that if they did not use the weapons, adversary's first attack will take its weapon first. National Security Advisor of Pakistan stated in one of his speeches that Pakistan would not follow Indian actions and develop a BMD system because there is little value of these defence systems.[41]

Missile defenses would negate the concept of deterrence. Deterrence works where both the sides have the fear of retaliation and remain vulnerable to the nuclear attacks. If one of the adversaries feels secure, and have no fear of nuclear retaliation, it could go for a large scale attack, which would have a destabilizing influence on strategic balance. The other side in return will have to go for the effective countermeasures for neutralizing the defenses. In case of South Asian region, this scenario is observed, if India would go for the missile defense shield, it would undermine the deterrence capabilities of Pakistan, to a larger extent, and of China as well, to a minor level.

Moreover, the power transition, from National Command Authority to local power commanders as in case of quick launch strategy, the misperceptions can be raised, that could possibly lead to an all-out war in South Asia. As, on March 9th, 2022 an Indian missile BrahMos landed in Pakistan due to irresponsible

behavior of India.[42] Moreover, it indicates that the Indian nuclear missiles are set on launch on command position against Pakistan.[43] South Asia could have experienced a nuclear war, which was only saved by Pakistan's pragmatic approach. India, however, should behave responsibly and shouldn't seek for limited ventures under nuclear overhang.

Furthermore, the development of BMDS would embolden India to go for counterforce temptations against Pakistan. As further supported by US, India will be in a stronger position to go for pre-emptive strike against Pakistan, while having reliance on its BMDS, as a shelter in response to the attack by Pakistan. This also indicates a deviation form India's stated No-First Use posture, set out in its Draft Nuclear Doctrine (DND) 1999[44], followed by India's first amendment in January 2003.[45]

As Indian Nuclear draft 2003 depends on counterforce strategy, the introduction of BMD would entice the hawkish Indian leadership to go for counterforce surgical attack on the Pakistan's military bases, missile batteries and other strategically important locations. Considering its capabilities, India can go for the pre-emptive or preventive nuclear strike against Pakistan, without the fear of retaliatory nuclear strike and would subvert the balance of terror which prevails between the two countries and is an essential ingredient for enduring South Asian strategic stability.

India's development of offensive weapons goes against its policy of minimum credible deterrence. Thus, the Indo-US nexus and the India's concealed change in its nuclear posture creates instability and security dilemma. In this war-prone scenario, the onus of maintaining strategic stability lies on Pakistan. Pakistan has entered the nuclear club only after India went for the nuclear weaponization. Pakistan nuclear weapon development is totally defensive, and it strongly maintains the posture of Full Spectrum Deterrence, which is in line with the posture of Credible Minimum Deterrence.[46]

The tensions between the two states are increasing, and could come to boil any time and can escalate to a nuclear weapon contest between India and Pakistan. The troops of both the countries remains actively deployed on their borders, the firing at the border line of Kashmir occur almost daily, and the acts of terrorism continue to occur in Kashmir. Moreover, India obstinately refuses to enter into the dialogue stage with Pakistan. This kind of military development

entices the security dilemma at Pakistan's end. Pakistan though has cost effective solutions to this Indian technological buildup. Any kind of offensive attack from India in such a scenario would prompt Pakistan for the deployment of missiles on high alert. Moreover, Pakistan might become willing to launch the first strike. Pakistan wouldn't compromise on its deterrence credibility and any economic or geographical thrust by India would lead to horrendous circumstances.

The economic and social development of the region would also be negatively affected. The region that is already poor and underdeveloped, the increase rate of nuclear arsenals would noticeably increase the poverty in such region. The defense budget would require to be increased, and both India and Pakistan would create the burden on their economies and the resources would all be diverted from the other developments. The enhancement of both offensive and defensive capabilities would cause a huge burden on the defense expenditures. Thus, the offensive measures would resultantly become more expensive than the defensive ones.

Skepticism Regarding India's BMD

There is divergence in the opinion of actual and perceived threats to India; moreover, the ambiguity on the indigenous production or reliance on foreign support is also there. Furthermore, there are fragments inside India, who are skeptical about the BMD technology, which isn't proven even, and the huge cost being spent on it.[47] On the other hand, some of the people are in favor of establishing this defense shield, either indigenously or through gaining the foreign help. [48]

The designing of the missile defense architecture involves various decisions to be taken before hand, which includes the nature of the system, deployment priorities, identification of the vulnerable areas (VAs), identification of vulnerable points (VPs), and the cost involved as well.[49]The task of determining the vulnerable points and vulnerable areas is really a complex one, as that has to be protected as well. Indian officials claim that the BMD system will protect the major cities i-e New Delhi and Mumbai. But the main problem is the deployment outside Delhi, where there would be different commercial centers, counter value population, and the counter force nuclear installations as well, which all needs to be safeguarded. Though an agreement is there between India and Pakistan, according to which the nuclear installations wouldn't ever be targeted, but the situation can get worse at any time, and they can be attacked.[50] However, in case

of China, there isn't such deal, which demands the protection of nuclear installations. So, the decision is dependent purely upon the preference and affordability of the state.

India's BMD system is designed for the security of only strategic points and not all of important areas could be defended. Moreover the accuracy of Indian Anti-Ballistic Missiles is not hundred percent, so the chance of failure are there. Technologically the BMD are defensive weapons but they can be used to augment the offensive ballistic missiles. The possession of BMD would allow India to go for the offensive nuclear strikes without the fear of retaliation. However, once the nuclear strikes will start, it will ultimately lead towards the Mutual Assured Destruction. Thus, Missile defenses would bring insecurity, not for Pakistan only, but for India as well. It would only greet instability and insecurity in the already volatile region.

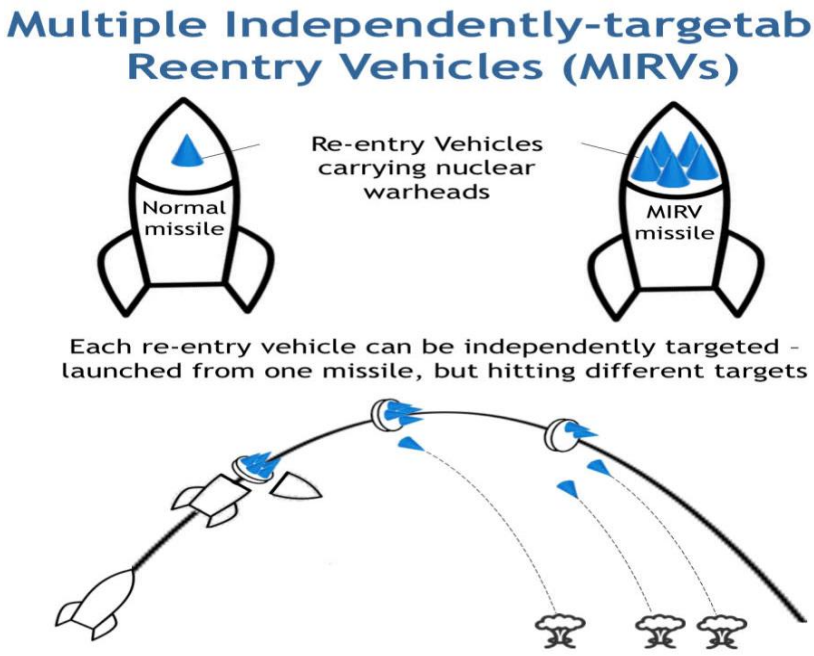
Pakistan's Response to Indian Ballistic Missile Defence System

The deterrence stability between India and Pakistan has been destabilized by the development of the Indian BMD system. Deployment of missile defenses by India would make imperative for Pakistan to upgrade its offensive force to maintain the credibility of its nuclear deterrence. As, Pakistan's nuclear deterrence is based on its strategic and economic considerations.[51] Thus, Pakistan has not invested in BMD technology but has taken the measures for countering this technology to an extent, which is economically viable and ensure the strategic stability in the region. Although, with BMD systems 100% efficacy is still not possible and chances of penetration always exist. Moreover, considering the short response time between both states and ability of interceptors to destroy missile only at re-entry phase would cause damage to India as well. Therefore, India's BMD system is not for giving it defensive capability but by putting its nuclear arsenals under the defensive shield, it wants to put Pakistan's nuclear arsenals in range of its offensive missile to target them.[52] Thought of such a scenario would give India a strategic advantage in any crisis situation where it could use its position to coerce Pakistan.

Therefore, Pakistan has to make sure the credibility of its nuclear deterrent in face of emerging threats from India. The short range ballistic missiles, both Nasr and Abdali, have added significance with the testing of maneuverable re-entry vehicles, which is aimed basically against the ballistic defense capability of India. They are basically deployed for countering the surprise attacks by India,

and as a response to their Cold Start Doctrine and other forces close to the border.[53] Therefore, to maintain deterrence vis-à-vis India, Pakistan has invested in the technologies like cruise missile -Babur and Ra'ad missile, and also Multiple Independently Reentry Vehicles (MIRV)-Ababeel missile.

- **Multiple Independently Reentry Vehicles (MIRV)**: The MIRV is a technology in which a missile carries multiple warheads as compared to the traditional missile, which carries one warhead per missile. The MIRVs are programmed to attack different targets at different speeds. MIRV is economically cheap and is an effective BMD countermeasure. BMD intercepts and strikes one warhead per missile, whereas, in case of MIRV, multiple warheads could be launched together, making the BMD least effective. In other words it is easier to send more warheads to the target than can be defended from the other end. MIRV comprises of a complex technology, entailing large missiles, small warheads, and an accurate guidance system.[54] US is the first country to develop and deploy the MIRV technology in early 1970s, followed by Soviet Union who developed the technology by the late 1970s. UK, France and China has also followed the suit and have developed the MIRV technology. [55]



Source: Center for arms Control and Non-Proliferation Infographics

Pakistan's first surface-to-surface medium-range ballistic missile, capable of carrying Multiple Independently Targetable Reentry Vehicles (MIRVs) is 'Ababeel'. Ababeel has a range of 2200 km and is a solid-fueled propellant, which can carry both nuclear and conventional warhead.[56] The Ababeel missile has multiple warheads, each of them designed for different targets, with in-built decoys which misdirects the Ballistic Missile Defence system, at mid-course and terminal stage, which depicts the effectiveness of MIRV. Moreover, when a MIRV is launched, due to high velocity and independent guidance of each missile, the interceptor isn't able to detect whether a single missile has been launched or multiple ones, making the BMD system not worthy, as the terminus of the missile can't be detected in the re-entry phase.

On January 24, 2017 Pakistan tested its MIRV missile Ababeel, it is the only test so far conducted by Pakistan of MIRV technology by Pakistan.[57] Moreover, ISPR in its statement stated that Pakistan's development of MIRV technology is aimed at "ensuring the survivability of its ballistic missiles in the growing regional Ballistic Missile Defence environment." [58] According to the further details made public by the ISPR the Ababeel has the capability of surface to surface launch/attack, it is a three stage, medium range missile with 2,200 km range and is based on solid propellant. According to CSIS Missile Threat, the development of MIRV technology by Pakistan most likely to begin in early 2000s, which is as soon as Pakistan realized India is heading towards acquiring BMDs, it went ahead with countering technology.[59] Pakistan's Shaheen Missile is also medium range missile; therefore many sources claim that Ababeel shares many similarities with the design of Shaheen II, Shaheen III and Chinese CSS-7 SRBM. Other than Shaheen missile, Pakistan's progress in miniaturization of nuclear weapons and delivery system achieved in case of Nasr technology is also said to help its objective of achieving MIRV technology. To improve the technology and track the capability of all missiles in MIRV simultaneously Pakistan imported optical missile tracking system, [60] before the import of this sophisticated technology Pakistan was relying on indigenous weapon tracking system. This system enables to track missile up to range of several hundred kilometers from the launch till the impact phase with the help of its pair of high performance laser ranger telescopes, which are also equipped with infrared detector and high speed camera and centralized computer system. MIRV not only maintains deterrence vis-à-vis India, but according to Ankit Panda they give Pakistan a strong retaliatory capability as well, where Pakistan can use small level nuclear weapons without the concern of escalation.[61]

Other than MIRV, if Pakistan possesses the aircraft that could penetrate deep into enemy's territory, even then BMD capability of India is nullified.

- **Ballistic and Cruise Missiles**: Pakistan has the capability to indigenously develop short and medium range ballistic and cruise missiles. The continuous up gradation of these missiles, the improvement in their ranges and penetrability, and further enhancing the stealth technology in these missiles could enable Pakistan to hit the assigned target effectively, without hindrance of being intercepted. Besides, with the increase in the flight altitude of the ballistic missiles, they could surpass the defence shield. Moreover, the cruise missile, such as Babur, with its features like terrain-hugging and maneuverability can't be intercepted by the BMD. Thus, Pakistan has adequate and economic response options to the India's billions of dollars BMD project, making it inefficient against Pakistan.
- **Supersonic and Hypersonic Missiles**: Development of supersonic and hypersonic cruise missile would also enable Pakistan to defeat India's BMD system, as travelling at a speed of Mach3 or Mach 5, makes it nearly impossible for the BMD to intercept.
- **Jamming / Spoofing**: Moreover, with the help of advance technology, the enemy's radars could be jammed through active and passive techniques. This could be done before the launch of missiles. Once the radars would be jammed, the BMDs wouldn't be able to detect the ballistic missiles and objective can be achieved.
- **The Balloon Technique:** The balloons could be launched with ballistic missiles. The number of balloons could be opened up with the ballistic missile as it re-enters the space. Through this many dots would be shown by the radars on the screen, and would make the interception of actual warhead difficult.
- **Drones/Decoys**: The swarm of drones or decoys could concurrently be launched to create confusion for the enemy and the radars of the BMDs would be overwhelmed to intercept all the incoming missiles. The unmanned drones could be launched, which either produces small undetectable marks or don't produce any mark at all. This will allow the drone to surpass the BMD system.

Path Forward

The concentrated diplomatic efforts are required for halting India's progress towards the development of ballistic missile defense. Initiatives of nuclear confidence building measures (CBM) should be taken, the matter should be discussed on table and make them realize that the project is quite expensive and that can't be perfect as well, as US despite huge economy and possession of technology has spent decades and millions of dollars on it, still are unable to make the full proof shield. So this thing isn't possible as India doesn't have the technology and economy comparable to that of US. The possibility of hitting the nuclear missile despite having the defense shield still persists. There is no country in the world that can render itself invulnerable to attacks.

India needs to realize that this capability would be highly costly, with no proven credibility against the ballistic missiles as well. Failing in this, rigorous efforts would then be required for the restoration of the minimal deterrence credibility. But once the deterrence equation would be disturbed, the outcomes would be disastrous for both the countries.

Missile technology would create hurdles for India as well. As, once the protective shield would be developed, the traditionally emotional public, of both India and Pakistan, would be putting pressures on their decision makers for taking effective steps. The negative trend would start, as Indian public would feel secure from the attack and would put pressure for the attack on Pakistan.

Missile defense can't be replaced with disarmament, nor can it become the source of nuclear stability in South Asia. Instead it would make such processes even more difficult. If the defense shield would be developed that would necessarily be the substitute of disarmament, and such a thing is completely impossible in a region like south Asia.

The mandatory mania in the international political system is, nuclear for nuclear, and shield for shield. But Pakistan wouldn't go for the making of its own defense shield. As, Pakistan doesn't have that sophisticated technology or resources where it can invest on BMD even when they are not hundred percent effective and the technologies that counter these systems do have the chances of success.

The discussion on the table makes perfect sense that the notion is destabilizing and we are concerned about this shield, but in the real world it has no effect, not even the psychological one, as it is well understood that India can't make a full proof shield. Unlike the myth promoted by India that BMD is a game changer, it only gives India a false sense of security. Therefore, India has to accept the deterrence values, if dismissed, nothing remains behind. Though, India's BMD remains vulnerable and unreliable, Pakistan still has to be prepared with the proportionate and impressive countermeasures in order to avoid any kind of Indian aggressive action and for keeping the South Asian deterrence equation intact.

Conclusion

India is trying to destabilize the South Asian deterrence equation through the development of Ballistic Missile Defence System. The introduction of BMDS indicates India's belligerent and irrational behavior considering the prevailing asymmetries in South Asia. India, despite its strong relations with US has acquired S-400 system through Russia, evading the threat of US sanctions under CAATSA, and has acquired technology from both US and Russia, along with Israel.

The introduction of BMDS has severe implications despite all its vulnerabilities, as it destabilizes the strategic equilibrium in South Asia, provoking arms race in the already volatile South Asian region. The notion of nuclear deterrence entails mutual vulnerability between two states, which India in its hegemonic aspirations trying to alter in its favor. As India is advancing towards counterforce strategy and its policy of NFU is ambiguous, this development of BMD creates a false sense of security at the Indian end which could provoke India for inadvertent escalation, igniting a strong threshold from Pakistan, thus, increasing the salience of a nuclear war in South Asia.

Pakistan has opted for the cost-effective solutions in response to this Indian development, for maintaining deterrence and stability in the region. The development of MIRV by Pakistan is an implication of the India's development of Ballistic Missile Defence System. India is investing in a technology that is universally challenged. Thus, the sanity prevails in realizing the destabilizing effects of BMDS, as Pakistan does not compromise on its national integrity and sovereignty and is always ready for any kind of aggressive challenge coming from the adversary.

Nonetheless, Indian BMDS intensifies the unending South Asian arms race. It is the need of the hour that the two countries should indulge themselves into some meaningful arms control mechanism, for the peace and prosperity of region. As, through arms control engagement, both states can refrain from war and strain of arms race in the region.

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