IDSA Issue Brief

The Dragon's Shield: Intricacies of China's BMD Capability

A. Vinod Kumar

A. Vinod Kumar is Associate Fellow at the Institute for Defence Studies and Analyses, New Delhi.

Summary

China undertook a BMD test on January 11, 2010, which it claimed was an exo-atmospheric interception. Though Beijing was known to be developing missile defence systems for long, there were very few indicators on how far it has gone in terms of technological prowess. By releasing very few details on the nature of the test, China has left many questions on its actual capability. Nonetheless, the Chinese surge towards a BMD capability will have reverberations throughout Asia.

China's demonstration of its ballistic missile defence (BMD) capability on January 11, 2009 was anticipated for long, though it came with much lesser shock and awe. Exactly three years ago, China shook the world on January 11, 2007 with the display of its Anti-Satellite (ASAT) capability, by intercepting and destroying a weather satellite in low-Earth orbit. Since then, it was widely expected that China's next technological breakthrough to be displayed to the world would be its ballistic missile interception capabilities. Though Beijing was known to be developing or improvising missile defence systems for long, there were very few indicators from the Communist state on how far it has gone in terms of technological prowess and sophistication.

Though Beijing was known to be developing or improvising missile defence systems for long, there were very few indicators from the Communist state on how far it has gone in terms of technological prowess and sophistication.

The purported exhibit of a BMD system in the 60th anniversary military parade (as described by some reports) was a harbinger of things to come, at least to BMD watchers. While the world watched in awe the fledging missile inventory of the Peoples Liberation Army (PLA), very few noticed a BMD system being lined up among the other big-ticket missile systems. Though two surface-to-air (SAM) missiles with theatre defence capabilities of the Hongqi (HQ) series conspicuously led the missile parade, the handful of photographs of what was termed by some reports as a Chinese BMD system was in fact of missile tubes, which were lined up along with Hongqi systems. While they seemingly looked like tubes of the paraded HQ systems, not many analysts could conclude whether new BMD systems were displayed on trucks which carried numbers without any specific nomenclature.

True to China's deceptive strategies and postures, there were few indicators to the existence of a new, exclusive longer-range BMD system, outside the Hongqi series. That Beijing deliberately withheld details of the system involved in the January 11th intercept only added to the ambiguity on the nature and capabilities of the system supposedly used for this intercept – prompting China watchers and military analysts to speculate on the Chinese BMD programme and the permutations of systems and capabilities.

Video grab of a S-300 PMU 2 as listed by Xinhua announcing the BMD test

On the political side, the January 11th intercept unravelled yet another instance of Chinese hypocrisy on major security issues including space weaponisation and ballistic missile defence. Like the manner in which China conducted the ASAT test in January 2007 after years of activism against weaponisation and military uses of outer space, the BMD intercept also contradicted China's long-standing opposition to ballistic missile defences and concerns over their potential to trigger regional arms races and instability. Yet, a sense of déjà vu prevails as the Chinese demonstration of a BMD capability was long overdue given its innate ambitions to counter the US-backed theatre missile defence (TMD) deployments in East Asia and the potential implications of the Eastern European BMD deployment on its nuclear deterrent. Though Beijing ostensibly used the US transfer of theatre defence systems to Taiwan as a red herring for the BMD capability demonstration, this could in fact be attributed as a natural chain-reaction.

That China launched the BMD system on the third anniversary of its ASAT test shows that the intent was clear and the launch pre-planned.

Needless to say, just as the US BMD plans in Eastern Europe and TMD deployments in East Asia complicated the deterrence equations vis-à-vis Russia and China, the Chinese demonstration of a purported mid-course or an exo-atmospheric (outside Earth's atmosphere) interception capability is destined to dramatically alter the strategic equations in the Eurasian region.

Technology: A Systems Survey

A release in the Xinhua website on January 11 said: "China conducted a test on ground-based midcourse missile interception technology within its territory. The test has achieved the expected objective. The test is defensive in nature and is not targeted at any country."[1] It is quite typical of China to give bare minimum details on a major technological capability demonstration and then leave the rest of the world to do the guessing. The text was accompanied by photographs of four systems without naming the first two. The last two systems were identified as the HQ-9 medium and long-range air-defence system and the HQ-12 air defence missile system. The first two unnamed systems were, in fact, the Russian S-300 PMU-2 and a longer-range ballistic missile system, which could possibly be the DF-21 or DF-25.

A Hongqi-9 missile tube displayed in the Xinhua release

Besides the primary information that the test was of a ballistic missile interception, the other significant element in this brief was the reference to "ground-based midcourse" interception, which implied that the system undertook exo-atmospheric interception against a longer-range incoming target. Currently, only a handful systems like the US Aegis Standard Missile-3 (SM-3), the Ground-Based Mid-Course Defence System (GBMDS), and the Theatre High-Altitude Area Defence (THAAD), along with Russian systems like the *Gorgon* and S-400 have this capability, with the THAAD (100+km range) capable of interception at the threshold of Earth's atmosphere. The US is developing the GBMDS with its Ground-Based Interceptor (GBI) as its flagship mid-course interceptor. A handful of GBIs are deployed in Alaska and California though this system is in the development stage and is not deemed to be fully-operational. Russia is attempting a similar longer-range capability through its S-500. The Chinese claim of a mid-course interception capability at this juncture is thus unique but also intriguing in many respects.

It is quite typical of China to give bare minimum details on a major technological capability demonstration and then leave the rest of the world to do the guessing.

There might be a few questions on whether the interception actually happened in exo-atmosphere as reported. A Pentagon spokesperson confirmed detection of "two geographically separated missile launch events with an *exo-atmospheric collision* being

[1] "China conducts test on ground-based midcourse missile interception", Xinhua, Beijing, January 11, 2009, http://news.xinhuanet.com/english/2010-01/11/content_12792329.htm.

observed by (US) space-based sensors".[2] The actual area of speculation then is the system being used for the exo-atmospheric interception which could confirm the Chinese entry into this select league. The fact that the Xinhua release showed photographs of many interception systems reveals a deliberate design to maintain ambiguity on its capability. Adding to this speculation is the assessment that most air/theatre defence systems in Chinese inventory have only endo-atmospheric (within Earth's atmosphere) range, though China has used a re-designed version of one of its long-range ballistic missile for the ASAT test in outer space in January 2007.

A HQ-12 truck-mounted system on display

There are a handful of indigenous air-defence systems in Chinese inventory of the Hongqi series, which have applications ranging from surface-to-air defence to theatre defence. The HQ series itself has had a steady evolution since the late 1960s with over six variants – HQ-1, 2, 9, 12, 15, and 16 - being developed and deployed at various stages. With due application of its mastery in reverse engineering, China has over the years built indigenous systems with technological derivatives based on Soviet/Russian systems and commensurately deployed them alongside advanced versions of imported Russian systems. The early variants like HQ-1 and 2 were derivates of the Russian S-75, with the HQ-2 projecting a range of 34 km and deployed in large numbers around strategic installations. For long, these systems were the air defence mainstay until the arrival of advanced versions of Russian S-300 PMU series, including ALMAZ-PMU/SA-10B/C *Grumble*; PMU-1/SA-20A *Gargoyle A*; PMU-2 *Favorit*/SA-20B *Gargoyle B*.[3] In fact, the PMU-1 and 2, with their 90-150 km range, gives China potential coverage over Taiwan when deployed along the coastline.[4] Advanced indigenous derivatives of the Hongqi series like HQ-9 and HQ-12, along with the original Russian systems, endowed the PLA with augmented theatre and missile defence capabilities, enabling it to establish a multi-layered Integrated Air Defence (IAD) network. Interestingly, pictures of most of these new-generation variants were listed in the Xinhua release of January 11th.

While Russia has shared its TMD mainstays with China to provide an edge to the PLA's air defence architecture, it had largely withheld such cooperation on longer-range systems.

The pattern of acquisition and development of these systems highlights unique traits of the Chinese theatre defence programme. While Russia has shared its TMD mainstays with China to provide a distinct edge to the PLA's air defence architecture, it had largely withheld such cooperation on longer-range systems, including the exo-atmospheric ones, by abstaining from technology or systems transfer of its primary Anti-Ballistic Missile (ABM) systems like the long-range *Gorgon* (SH-11/ABM-4/51T6) or the


File photo of a HQ-2 SAM

2 Quoted by Associated Press, "China Says Missile Defense System Test Successful", New York Times, 11 January 2010.

3 Carlo Kopp, "China's Air Defence missile systems", Defence Today, http://www.ausairpower.net/DT-PLA-SAM-2008.pdf; accessed on 20 February 2009.

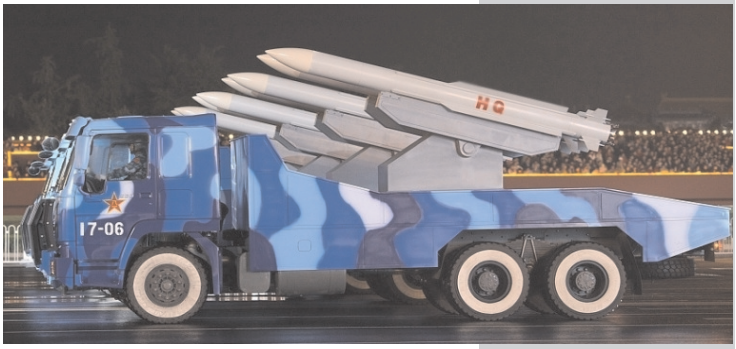
4 Ibid.

shorter range *Gazelle* (SH-08/ABM-3/53T6).[5] Nor are there any reports which confirm transfer of the recently deployed advanced Russian TMD system – the S-400 *Triumf*.[6] As a result, current Chinese efforts seemingly focus on acquiring these capabilities through indigenous baseline technological development, and in the process matching longer-range interception capabilities, currently a preserve of US and Russia. In a way, Beijing might have realised the utility of ballistic missile defence and space weaponry in the military element of its rising power profile and posturing.

In a way, Beijing might have realised the utility of ballistic missile defence and space weaponry in the military element of its rising power profile and posturing.

The current generation of Chinese air defence and TMD systems like HQ-9 and 12, besides being derivative augmentations of Hongqi and S-300 variants, are also designed to emulate Russian and American capabilities of that genre. The HQ-9 was developed to provide a long-range SAM capability, distinct from the medium-range capabilities of the HQ-12.[7] With a 90 km range and 27 km altitude, it tries to match the S-300 PMU and the PAC-3. Another advanced version of this system – the FT 2000 - is fitted with anti-radiation seeker, which can be programmed before launch based on characteristics of the intended target. An export version, FD-2000, has also reportedly been made, intended at 'friendly' countries. The twist to the tale is that some reports suggest the January 11, 2010 interception could have been done by a HQ-9. If this is indeed the case, and supposing that even an advanced version of the HQ-9 could only have an altitude range of below 50 km and a 90 km coverage range, then the declarations on exo-atmospheric or longer-range mid-course interception could be questionable.

In fact, the HQ-9 only emulates the best of altitude range being provided by Russian TMD systems like S-300 PMU 1 and 2, at around 27-30 km, underlining the fact that none of the Chinese TMD systems could perform an exo-atmospheric interception. The other systems with similar or lesser ranges are the HQ-12 (50 km range and 25 km altitude), which replaced the HQ-2s; and the HQ-15, which is a Chinese version of S-300 PMU-1.[8] A largely unexplored system is the HQ-16, supposed to be a surface-to-air missile, about which very few details on actual range and altitude has been disclosed by the Chinese.



A HQ-16 truck-mounted SAM: this system led the missile group in the 60th anniversary parade

[5] These systems are part of the current Russian A-135 (ABM-3) architecture with both endo and exo-atmospheric interception capabilities. For more details on the A-135 system, see www.missilethreat.com/missiledefensesystems/id.7/system_detail.asp.

[6] On August 6, 2007, Russia deployed the S-400 Triumf air defence system in Elektrostal, 50-km outside Moscow. See "Russia unveils air defence, eyes U.S. missile shield", 6 August, 2007, http://in.reuters.com/article/worldNews/idINIndia-28484820070806?sp=true.

[7] Carlo Kopp, "PLA Area Defence Missile System", Air Power Australia, April 2009, http://www.ausairpower.net/APA-PLA-IADS-SAMs.html#mozTocId934076.

[8] "Bluffer's Guide: Fortress China", http://www.sinodefence.com/special/airdefence/fortress-china2.asp, accessed on January 14, 2010.

Interestingly, the HQ-16, without being named or designated, led the missile group in the 60th anniversary parade, probably followed by its missile tubes (trucks listed as 19-11). Behind them were the HQ-9 tubes (without the missiles being displayed) and the HQ-12 missiles with clear nomenclature listing on the missile bodies. The longer-range Dong Feng (DF) 11 and 15 took up the rear of the missile group parade. The reasons or intentions behind limiting the information on the HQ-16 are unclear. Notwithstanding its heralding of the missile group parade, reports however suggest that the HQ-16 could only be a limited range SAM, derived from the Russian BUK SA-11 *Gadfly* or SA-17 *Grizzly* medium range semi-active radar homing SAM, with not more than 30 km range – and thus potentially adding marginal value to missile defence applications.[9]

A tangible conclusion can thus be drawn from this technological spectrum of air and theatre defences that none of these systems were involved in the January 11th intercept, if at all it was an exo-atmospheric interception. Which system then undertook the actual intercept? The natural direction to seek for an answer would be the ASAT test of January 2007, in which a reconfigured Chinese medium-range ballistic missile (MRBM) hit a weather satellite in low-earth orbit, which is in the 100-500 km altitude range. Western observers designated the ASAT missile as KS/SC-19, a reconfigured version of the DF-21C or DF-25. Another variant of this reconfiguration – the Kaituozhe 1 (KT-1) - was known to be the vehicle for China's commercial space launches.[10] Both these missiles are two-stage missiles with around 1500-1700 km range capable of carrying a 600 kg payload to these distances. Reconfiguring these missiles for a precision hit, especially of a satellite-size target, would not be a tough task, though hitting another missile moving at a higher velocity might be a challenging endeavour. The PLA was known to have attempted this mission first at a North Western desert in March 2006.[11] If assumed that this was the same system used for the January 2007 ASAT test, it could also be concluded that this would be the only system in the Chinese inventory that could have undertaken an exo-atmospheric interception in January 2010.

A tangible conclusion can thus be drawn from this technological spectrum of air and theatre defences that none of these systems were involved in the January 11th intercept, if at all it was an exo-atmospheric interception.

A DF-21 listed in the Xinhua release. A redesigned DF-21 could have probably been used for the ASAT as well as exo-atmospheric intercepton on January 11, 2010.

9 n. 7.

10 See "Kaituozhe 1 (KT-1) Launch Vehicle", http://www.sinodefence.com/space/launcher/kaituozhe1.asp; accessed on 20 January 2010.

11 "China Testing Missile Defense System", The Donga-A Ilbo, 28 March 2006.

Chinese Responses to US BMD

Despite its vehement opposition to space weaponisation and missile defences, it was clear that China would initiate commensurate actions to strengthen its deterrent capability by improvising alternate or secondary response systems to the US missile defence. As a natural consequence, western observers felt, China would build more warheads and incrementally augment its offensive missile forces in an attempt to overwhelm the US missile defences. A parallel expected measure was development of passive counter-measures, including penetration aids, anti-simulation (disguise the warhead with a camouflage) and decoy technologies, among others. In fact, China was known to have integrated penetration aids during the flight test of the DF-31 ICBM in August 1999.[12] Another key strategy on which the PLA was expected to heavily rely on is the concerted integration of Multiple Independent Re-entry Vehicle (MIRV) technology in its longer-range ICBMs, against which ABMs are deemed to be largely impotent.

Despite its vehement opposition to space weaponisation and missile defences, it was clear that China would initiate commensurate actions to strengthen its deterrent capability by improvising alternate or secondary response systems to the US missile defence.

Such efforts notwithstanding, the Chinese interest in tit-for-tat responses to the US BMD through similar systems was never underestimated even before the ASAT test. In fact, Beijing hinted about its intentions to develop a ballistic missile defence capability at the Zhuhai Air Show in November 2006 where the China Aerospace Science and Industry Corporation displayed a conceptual ballistic missile defence system.[13] Months later, through the ASAT test, China implicitly proved its capability for exo-atmospheric targeting and interception. The technical features of the ASAT missile test including the use of phased array radar and kinetic-kill vehicle are similar to the templates of a ballistic missile intercept, though the challenge of precision targeting and hitting would be higher for BMD systems. Hence, from the technology demonstration perspective, the January BMD test could be seen as a consequential progression from the ASAT technological template. With its ballistic missile defence intentions (as well as capability) being unequivocally pronounced, the next major breakthrough could be on kill vehicle technology – especially kinetic and directed energy weapons.

In fact, China's kinetic kill-vehicle (KKV) capability has already been demonstrated through the January 2010 test. In its improvisation efforts, China might focus on smaller KKVs for ASAT application and on exo-atmospheric high-velocity KKVs for its longer-range BMD systems. However, the domain where China would attempt to challenge the US would be directed energy interceptors (DEI) or high-energy laser weapons (HEL), though not exactly following US models like the Airborne Laser (ABL). China is known to have initiated research in HEL since 1980s, probably as a response to the US Strategic

---

12 "NIE: Foreign Missile Development and the Ballistic Missile Threat through 2015", National Intelligence Council, December 2001, http://www.dni.gov/nic/PDF_GIF_otherprod/missilethreat2001.pdf.

13 Reported in Wen Wei Po, November 10, 2006, and quoted by Joseph E. Lin, "Cold War Redux: China Responds to the Russo-American BMD Dispute", China Brief, Vol. 7, Issue 4, 12 July 2007.

Defence Initiative (SDI).[14] As part of the 'National 863' programme for high-technology development, Beijing was known to have sanctioned R&D efforts on HEL medium including deuterium fluoride chemical lasers, free-electron lasers (FEL), hydrogen fluoride chemical lasers and x-ray lasers, among others.[15] The unique nature of this exploration is the correlation between aspirations and actual development capabilities. Despite struggling for decades on rudimentary air defence, China had sought to make inroads into advanced and futuristic technologies like DEI or exo-atmospheric KKV. That it pursues these technologies with perseverance reflects well on its power aspirations. Consequently, it is obvious that China would now emerge as the primary competitor on BMD and ASAT technologies to the US in coming decades. Considering that it would be a strongly-contested race for ascendancy in futuristic technologies, this competition will have major political ramifications.

Despite struggling for decades on rudimentary air defence, China had sought to make inroads into advanced and futuristic technologies like DEI or exo-atmospheric KKV.

Political and Security Implications

When the Eastern European BMD plan was announced by the Bush administration, both Russia and China staunchly opposed it citing a negation of their nuclear deterrence. China had felt the heat on both flanks, with its minimum deterrence also violated by the East Asian theatre defence deployments in Japan, South Korea and Taiwan. The challenge to its missile inventory from Taiwanese defences could disarray Chinese calculations. A majority of the reports after the January 2010 demonstration cited the recent arms transfers to Taiwan as a rationale for the BMD test. However, what was puzzling about this assertion was the question whether a country would spontaneously project a military capability merely as a riposte to a political event. By doing so, will such technology demonstration not confirm that the capability actually pre-existed and that the event was only a catalyst? In China's case, it was obvious that the capability existed since the ASAT demonstration in January 2007 and intentions pronounced months before through the concept display in November 2006.

Indeed, since the late 1990s, there were sufficient indications that China could come up with suitable responses to the US National Missile Defence (NMD) project of Clinton years, which also envisaged the East Asian TMD. The Chinese government, along with its media and think tanks, have constantly attacked the US BMD plans through a persistent spotlight on their destabilising impact on global and regional security, with potential for triggering arms races as well as their inherent implications for nuclear deterrence equations. One such critique by the PLA Daily, after the announcement of the Eastern European BMD deployment plan, termed the development of the US ABM system as aimed at "changing the 'mutually assured destruction' nuclear deterrent

14 Pavel Podvig and Hui Zhang, "Russia and Chinese Responses to U.S. Military Plans in Space", American Academy of Arts and Sciences, 2008, http://belfercenter.ksg.harvard.edu/files/militarySpace.pdf.

15 Ibid.

concept left over from the Cold War," through a "weakening of the enemy's nuclear missile deterrent, thus achieving 'attack through defense'."[16] China also highlighted the proliferation quotient by citing the Russian test of the Topol ICBM system as a direct arms race consequence of the US BMD plans.[17] By making this specific mention of the Russian action, Beijing was implicitly making a veiled reference to its own preparations for similar responses.

The accumulating fear of subjection had forced Beijing to not just invest on counter-measures and space engagements, but also expand its range of options across a wide array of defensive systems

The Chinese ASAT, when viewed in this context, is an asymmetric response to the US plans in space, with Beijing treating even the American BMD, especially systems like the GBMDS, as a space weapon capability.[18] This logic explains the Chinese urge to graduate from air defence systems to an exo-atmospheric capability which can countervail US supremacy in this spectrum. Beyond the space competition, Beijing's concerns on the devaluation of its nuclear deterrent by the US BMD also stems from the fact that China's no-first-use (NFU) policy places a disadvantage on its nuclear deterrent even when US gains a force multiplication through its missile defences, which will strengthen or ensure survival of its first and second strike systems. Further, a direct mitigation effect of US BMDs could be on China's long-range strike capability, like its ICBMs which supposedly has the range to reach US shores. For, China believes even a limited US BMD can neutralize its limited strength of ICBMs capable of hitting US territory.[19] The TMD presence in East Asia, and a potential BMD deployment in Europe, adds to this neutralising effect on its strategic deterrence and regional supremacy as its response options are heavily constrained in the event of a conflict. Missile defences surrounding its hinterland restrict China to two strategic options: (a) launch on warning of threat as a first strike or (b) negate the intensity of such threats through missile defences even while preparing its offensive forces for a second strike. With its pledge of a NFU doctrine, China now has its stakes on the second option as an equitable balance that can mitigate the potential of (or restrain from) a forced first strike. Missile defences thus becomes imperative for China's strategic dominance.

The accumulating fear of subjection had forced Beijing to not just invest on countermeasures development and space engagements, but also expand its range of options across a wide array of defensive systems for a multi-tier architecture to complement its offensive forces. In effect, this could be a replica of the US and Russian defensive models. Much like the Pentagon lingo, China too calls this its 'active defence' strategy, which it has reiterated in all its Defence White Papers since 2000. While noting that "China adheres to its military strategy of active defense," the 2004 White Paper

16 Jiefangjun Bao, June 18, 2007, as quoted by Joseph E. Lin, n. 13.

17 Peoples Daily, June 12, 2009, as quoted by Joseph E. Lin, n. 13.

18 Liu Huaqiu, ed., "Arms Control and Disarmament", Handbook, National Defence Industry Publishing, Beijing, 2000

19 Sha Zukang, "The Impact of the US Missile Defence Programme on the Global Security Structure," paper presented at the CPAPD/ORG Joint Seminar on Missile Defence and the Future of the ABM Treaty, Beijing, March 13–15, 2000 quoted by Hui Zhang, n. 14.

directly attacks the US BMD efforts and its permeation in China's neighbourhood, including Japan and Taiwan. The 2008 White Paper again reiterates reliance on active defence, and asserts that "strategically, China adheres to the principle of featuring defensive operations, self-defence and striking and getting the better of the enemy only after the enemy has started an attack. In response to the new global trends in military developments and the requirements of the national security strategy, China has formulated a military strategic guideline of active defence for the new period." This is a clear indication of the pursuit of offensive-defensive models (a format BMDs have now metamorphosed into), with the rationale that this is only to negate the advantage to a first striking enemy – a logic propounded by all BMD-pursuing countries.

With the U.S. BMD triggering tit-for-tat responses from Russia, and subsequently China, a surge towards missile defence capability by China will have reverberations pervading the Asian region.

The greater intricacies of missile defences – of creating a domino competitive effect - come into play at this juncture. With the US BMD triggering tit-for-tat responses from Russia, and subsequently China, a surge towards missile defence capability by China will have reverberations throughout the Asian region. Beyond the domino effect, a plausible explanation would be the existence of a *security dilemma* in this region. For example, Taiwan had suggested the increasing presence of Chinese tactical missiles in its coastline, entwined with its space postures, as a factor for demanding US arms supplies including Patriot systems.[20] The Chinese build-up, along with North Korean nuclearisation, had convinced its East Asia neighbours to deploy US BMD systems. On the other hand, China seeks to augment its options in outer space and exo-atmospheric defence citing influx of US BMD in the region – thus prompting a "which is the chicken and which is the egg" question. Both sides justify their security deficits and dilemmas created by the rival's actions, thus adding to an inequitable and unstable equation.

Thence, the Chinese actions and postures, and the strategic arms competition in East Asia, has a domino effect on South Asia as well. For example, the Indian BMD venture is seen as a means to counter Chinese MRBMs supposedly deployed in Tibet, along with the inherent threat from Pakistan's fledging ballistic missile capability. India thus ends up in a situation like China with nuclear armed rivals posing a challenge to its nuclear deterrent, thus encouraging it to creating a defensive layer that mitigates a nuclear first strike from its rivals. This sets off a chain reaction in South Asia as Pakistan now feels its nuclear deterrence against India will be ineffective if India develops a counter to its delivery vehicles. Though Pakistan is not known to pursue technological development or acquisition beyond air defence systems, the day is not far when it would seek longer-range and higher-velocity ballistic missile defence systems from its 'all-weather friend' China or from other sources.

---

[20] Martin Andrew, "Theater Ballistic Missiles and China's Doctrine of Active Defense", China Brief, Volume 6, Issue 6, March 15, 2006.

Conclusion

Missile defences were initially seen as an ideal way out of the Mutually Assured Destruction 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. A nuclear weapon state, backed by a BMD shield, is perceived to have a natural advantage through its ability to offset first-strike from the enemy through its defences, while also ensuring survivability of its assured destruction/massive retaliation capability through a second strike. As a result, instead of creating stability, the shift from offensive to defensive postures through BMDs has produced a contrarian effect, one which postulates competition for interception capabilities that could consequently trigger arms races rather than containment of proliferation.

The shift from offensive to defensive postures through BMDs has produced a contrarian effect, one which postulates competition for interception capabilities that could consequently trigger arms races rather than containment of proliferation.

The need for multiple strategies to manage potential arms race and formulate a new BMD-driven deterrence equation is hence imperative – a la the ABM Treaty. There could be scope for stability among nuclear weapon states with an offensive-defensive balancing equation – through a balanced co-existence of BMD capabilities alongside nuclear forces. This could potentially lead to a zero-sum equation as BMDs would plug mutual vulnerabilities while limiting scope for massive retaliation or even first-use. If executed in a bilateral framework, this could mean a (mutual) defensive deterrence arrangement. Even in the scenario of a nuclear forces reduction, BMDs could act as a stabilizer when such movements are executed. In the long run, balancing of missile defence capabilities might devalue the gains of nuclear deterrence and encourage their timely reduction, potentially leading to total elimination. However, such optimistic scenarios presently seem to have limited possibilities considering that security dilemmas are dynamic, uncontrollable processes being created and influenced by offensive (or even defensive) postures of each other.