

**THEATRE MISSILE DEFENCE (TMD) AND
INDIA'S SECURITY**

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Certified that the dissertation entitled "**Theatre Missile Defence (TMD) and India's Security**" submitted by **Deepak Sharma** is in partial fulfilment for the award of the degree of **Master of Philosophy** of this University. This dissertation has not been submitted for any degree to any other university and it is his own work.

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TO MY BIJI - MY ETERNAL GUIDE FOREVER

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ABBREVIATIONS

ABM	Anti Ballistic Missile
BMD	Ballistic Missile Defence
BMDO	Ballistic Missile Defence Organisation
CIA	Central Intelligence Agency
CBM	Confidential Building Measure
CTBT	Comprehensive Test Ban Treaty
DEW	Directed Energy Weapons
FMCT	Fissile Material Cut Off Treaty
GPALS	Global Protection Against Limited Strikes
ICBM	Inter-Continental Ballistic Missile
INF Treaty	Intermediate range Nuclear Force Treaty
IRBM	Intermediate Range Ballistic Missile
KKV	Kinetic Kill Vehicle
MBT	Main Battle Tank
MEADS	Medium Extended Air Defence System
MIRV	Multiple Independently Targeted Re-entry Vehicles
MRBM	Medium Range Ballistic Missile
MTCR	Missile Technology Control Regime
NAD	Navy Area Defence
NBC	Nuclear, Biological, Chemical

NMD	National Missile Defence
NPT	Non Proliferation Treaty
NTW	Navy Theatre Wide
NWS	Nuclear Weapon States
PAC	Patriot Advanced Capability
SDI	Strategic Defence Initiative
SDIO	Strategic Defence Initiative Organisation
SLBM	Submarine Launched Ballistic Missile
SRBM	Short Range Ballistic Missile
START	Strategic Arms Reduction Treaty
SU	Soviet Union
THAAD	Theatre High Altitude Area Defence
TMD	Theatre Missile Defence
US	United States of America
WMD	Weapons of Mass Destruction

CHAPTER ONE: INTRODUCTION

Search for the security has been the central most guiding factor behind man's unending search for newer weapon systems. But each escalation in weapon power, aimed at lessening the danger for one, has resulted in increasing the sense of insecurity amongst the other. As a result, military history has been a constant process where every improvement in weapons is eventually met by a counter improvement. In the current age of warfare, the chief effect of this constant improvement in the armament is blurring of historic distinction between war and peace and fewer chances of a quick victory.¹

Indeed, technology-driven-war-fiction has come to be one dominant stream of war analysis with authors building scenarios where only few men smuggling atom bombs in suitcases through enemy's customs line could win the war. Certain others have gone to the extent of suggesting that the future wars will be won by scientists and engineers and *soldiers* would have a little role to play in future war-fighting. There is of course no denying the fact that technology has come to obtain a great importance in modern warfare. Nevertheless the situation remains to be like a pair of cogwheels, where achieving a perfect fit depends not merely on the shape of the teeth, but as much, on that of spaces, which separate them. This means that strategies of war-fighting have become equally critical. Especially, the fear of a single

¹ S.L.A. Marshal, *Men Against Fire* (Dehradun: Natraj Publisher, 1997), p. 30.

nuclear weapon attack has strengthened the need to neutralise the attacking nuclear weapon before it reaches the target and to explore technological feasibility of this proposition.

Historically the man has tried to neutralise weapons either by producing the same or by improving upon it or by producing countermeasures to negate the effect of adversary's weapons. Over a period of time we have graduated to swords and shield against swords; then on to double-hull vessels; to stronger armoured main battle tanks (MBTs); to fighter jets; to missiles and now to anti-missiles. Will this type of warfare be known as total war in which missile is used against missile? On the contrary, in the nuclear age, there simply is not enough elbowroom for total war of the kind that characterised the period between 1919 and 1945.² The forces would be held back short of complete victory, for if the opponent is cornered, he might end up destroying the enemy, himself and perhaps the entire world. Clausewitz's form of extremes of violent action in the nuclear age may not be possible.

Missile against Missile

Ballistic Missiles are the first global range weapons. This assumes special importance when warheads are nuclear. They also have guiding system which makes them more sophisticated and un-defeatable. Ballistic missile is a pilotless vehicle propelled into space by rocket engines. Thrust is

² Martin Van Creveld, *Supplying War* (Cambridge: University Press, 1977), p. 263.

terminated shortly after launch and the missile's re-entry vehicles are released to follow free-falling trajectories toward their targets on earth's surface.

The threat posed by the proliferation of ballistic missiles has been looming large across the world for a long time. Nevertheless, there has been no credible defence built so far against these missiles. Diplomacy, arms control, deterrence, conventional counterforce strikes may be some of the potent alternative ways to discourage or even forestall missile attacks but these measures have not been enough. Indeed, missiles with conventional warheads have already become an accepted reality. Assuming that alternative measures have failed to work, it is the use of missiles against missiles, (known as ballistic missile defence or BMD) that is expected to provide insurance against the failure of these alternatives.

Very briefly, the US BMD is like an umbrella concept that has given birth to defence projects like the National Missile Defence (NMD) and Theatre Missile Defence (TMD). In this, while the NMD would be designed to protect US homeland, the TMD would be aimed at protecting US military assets stationed abroad and its allies from Short-Range Ballistic Missiles (SRBMs) or Medium-Range Ballistic Missiles (MRBMs) of its adversaries.³ The Bush

³ The ballistic missiles are classified as either SRBMs (range less than 500 km), MRBMs (500 to 5,500 km) or Inter-Continental Ballistic Missiles (ICBMs) (greater than 5,500 km). For more details see, "Ballistic Missiles and the World Security Environment," *Ballistic Missile Defence Organisation Fact Sheet No. DSI 9801 (July 1998)*; and "Executive Summary" (full report classified), *Report of the Commission to Assess the Ballistic Missile Threat to the United States*. The summary is available on-line at <http://www.fas.org/irp/threat/bm-threat.htm>.

administration, however, no longer makes any clear distinction between the NMD and the TMD as it feels that the meaning of words - 'national and theatre', depends on where one lives.

In this debate on using missile against missiles, there are many unanswered questions regarding whether these systems will work at all and, if they do, whether they will trigger the chain reaction leading to the development and eventual use of even more powerful offensive weapons and shields. The experts seem to portray opposing scenarios equally convincingly. There's a concern that a truly workable defence against strategic nuclear missiles will make the world further unsafe as one nation with assured defence will feel free to aggress. Conversely, it could make the world safe for conventional warfare.⁴ It is in this larger context that this study is an attempt to examine these and many other unanswered questions of this kind.

As regards TMD, the largest missile threat in terms of numbers, to deployed US forces and the allies as per certain estimates is perceived to be from SRBMs, with ranges up to about 300 km with a 1 ton payload. Out of twenty-five developing countries, which have such missiles, only five - North Korea, Iran, Iraq, Syria and Libya (described as "rogue states" or "states of concern") - are generally regarded as being hostile to the US. These five had, to start with, received Scud-B missiles with a range of 300 km from the Soviet Union (SU), although almost all of Iraq's missiles were destroyed

⁴ John Rhea, *SDI-What Could Happen* (Harrisburg, PA: Stackpole Books, 1988), p. 5.

following the Gulf War.⁵ North Korea has also been able to produce and export (to Iran and Syria) a reverse-engineered version of the Scud-B.⁶

US BMD Programme

The BMD projects of the successive US administrations have been primarily aimed to meet the following three threats⁷:

- An accidental or unauthorised launch of Russian missiles.
- An intentional attack by China or a third world country against US territory.
- Attacks on US forces deployed abroad or the cities of US allies.

As for the chances of the BMD systems protecting the given areas of responsibility, in the case of massive ballistic missile attacks (accompanied with or without countermeasures), the success rate as yet remains quite limited. The US Air Force though had begun examining the technical feasibility of the BMD as early as 1946 and due to the similarity between air defence and missile defences, the US Army eventually entered the BMD field in 1955 when it began developing Nike-Zeus, a nuclear-tipped interceptor.⁸

Active defence against ballistic missile attack in a major way, however, was

⁵ Lisbeth Gronlund and David Wright, "Threat Assessment Part A: Third World Missiles," in *The Last Fifteen Minutes: Ballistic Missile Defence in Perspective* (Washington: Coalition to Reduce Nuclear Dangers, 1996), pp. 16-21.

⁶ David C. Wright, "Will North Korea Negotiate Away Its Missiles?" *Breakthroughs* (Mass.: MIT Security Studies Programme), Vol. 7 (Spring 1998), pp. 29-36.

⁷ Feiveson, Harold A. (Ed.), *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-alerting of Nuclear Weapons* (Washington, D.C.: The Brookings Institution, 1999), p. 97.

⁸ Jeffery A. Issacson and David R. Vaughan, *Estimation and Prediction of Ballistic Missile Trajectories* (Santa Monica: RAND Paper, 1996), p. 1.

demonstrated for the first time during Operation Desert Storm in the last Persian Gulf War of 1991.

In the decade preceding 1972, a German-American analysis had come to conclude that "NMD was *not needed* because of deterrence, *not feasible* because of technological difficulty, and *not desirable* because of the superpower arms race and crisis instabilities it could aggravate." The analysts further agreed that only the US had the potential to overcome the technical and economic obstacles to developing and deploying an effective BMD.⁹ This triggered an arduous process of diplomatic negotiations between the two superpowers resulting in a historic ABM Treaty, which has been the guiding force behind the entire range of BMD programme.

The ABM Treaty prohibits either the US or Russia from developing mobile ballistic missile defences; as also from deploying more than 100 ABMs on not more than two sites, yet this is exactly what BMD would try to achieve. The new US administration under Bush Jr. seems inclined towards its commitment to go ahead with the NMD programme which is intended to provide a missile shield for the US as also to extend it to Asia under the rubric of TMD; to protect interests of its allies against the *states of concern*. When fully developed TMD is likely to be deployed with US forces around the

⁹ David C. Gompert and Klaus Arnhold, *Ballistic Missile Defence: A German-American Analysis* (RAND, 2001), p. 4. The research in this report was conducted jointly by Stiftung Wissenschaft und Politik (SWP) and RAND Europe.

world as a standard organic capability.¹⁰ But the current US programmes of TMD (and NMD) were expected to breach ABM Treaty and George Bush Jr. has, therefore, given the notice to withdraw from this treaty.

Historically, the vision of BMD programmes have been exaggerated given US President's political compulsions for rhetoric and posturing. But there have also been serious deliberations on the need to examine from the technology point of view; as to whether such systems are feasible and, whether they will be able to certainly defend any country or its assets especially against slower moving SRBM and MRBM attack.

As of now the proposals for TMD are based on the assumption that the *states of concern* would be able to deploy just these two types of missiles (SRBM and MRBM). Secondly, the dominant argument of *deterrence* theories - which has continued to this day and provides some sort of stability - has been based on the logic that the nuclear wars could be prevented by threatening retaliation and not by creating a defence against the nuclear missiles. Just like its predecessor strategic defence initiative (SDI) during President Reagan's time, the introduction of TMD aims at changing this historic logic and alter the state of equilibrium in favour of one side.

Apparently the pursuit of TMD systems is likely to adversely affect the non-proliferation efforts around the world and this chain reaction can create new difficulties. Most important of all, it will deal a deathblow to strategic arms

¹⁰ Dr. David M. Finkelstein, *TMD in Asia*, the report is available on net [http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelstein paper.html](http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelstein%20paper.html).

control arrangements and lead to a renewed reliance on larger stockpiles by other countries. China, for example, is likely to give a relook to their weapons' capability forcing India to have a fresh look at its security imperatives. Given India's stakes in these developments, therefore, this complex inter-relationship needs deeper analysis by Indian analysts. For sure, all these TMD systems when developed by the US for the protection of US allies and its own troops in Asian theatre, would have major repercussions for China and therefore, for India's security.

At the most visible level, the obvious victim of the development of TMD by the US could be the pace of progress expected from the Strategic Arms Reduction Treaty (START) negotiations. As first thing, all nuclear weapon states would aim at possessing enough numbers to overcome the defensive shield of this new BMD system. Though the chances of major conflict breaking out in the world have dropped since the end of cold war, but the chances of having regional conflicts have probably increased. It is in this context that development and deployment of TMD systems will create new difficulties.

Accordingly, this study has been undertaken in the broader backdrop of the problems of missile proliferation and the technological challenges that lie in the development of BMD systems. It examines the TMD in the specific context of evolution of BMD as a defensive strategy and especially its linkage to US's earlier BMD programme on Strategic Defence Initiative (SDI). It also

tries to elucidate the reasons for shift in the US policy from SDI to TMD in order to draw out its implications for Asian theatre in general and for India's security in particular.

China's reaction, (with its being recognised now as the major strategic player in Asia,) has been given utmost importance given its linkage with India's security. An attempt has also been made to give recommendations as to what course(s) of action should India take in responding to the TMD and why?

CHAPTER TWO: MISSILE PROLIFERATION AND BMD

Since World War II, guided missiles have come to the forefront in military operations. German rocket research and development before World War II were outstanding and during the war Germany created the first operational guided missiles, the V1 and V2. The advent of nuclear warheads later brought guided missiles to the forefront in strategic spectrum and made them corner stone of deterrence theologies.

The defence problem that these ballistic missiles, especially the strategic ICBMs posed was that a missile now itself was seen as a critical target. But missile versus missile presented a far more complex target than the case of a missile versus any other target. Here the reaction time was most vital. Within the total flight time of an ICBM from its launch to its target, the anti ballistic missile had to detect, track, classify and destroy the high-flying warhead, the penalty for failing being very 'dangerous'. The engagement of SRBM and MRBMs was still a bigger and more difficult challenge, as the reaction time for BMD system stood further reduced. The development of this difficult anti-missile system was further complicated by the possible use of multiple warheads, decoys and post-boost control systems.

The early years of the missile proliferation observed that the policies binding transfer of missile technology with restrictive national laws or international regimes were easily ignored or countervailed. Certain important

watersheds in the history of proliferation of ballistic missiles would include the following collaborations¹:

- Egypt started her programme in the mid-1950s, initially with German assistance and later with Soviet acquisitions.
- At the height of cold war, Moscow provided Scud missiles and associated technologies for conventional operations to its Warsaw Treaty allies.
- North Korea's test of a surface-to-surface missile in 1978 and later, Iraq's attempt to purchase rocket stages from Italy and Libya getting German technology assistance in testing (unsuccessfully) a rocket stage in 1981 surprised the world.
- China's supply of missile technology seems to have begun in the 1980s concurrently with assistance in the nuclear field. China became the only country to commercially transfer Intermediate Range Ballistic Missiles (IRBMs) to Saudi Arabia in 1988.
- China and North Korea are also known to have supplied missile technology to Iran, which has developed the Shahab-3 and Shahab-4, IRBMs.
- The Chinese and North Koreans have played a stellar role in proliferation of missile technology to Egypt, Syria, Iran, Saudi Arabia, Pakistan and, until recent years, to Iraq as well.
- The trend of development in Asia indicates that greater emphasis for development has been towards SRBMs (300km) and IRBMs (1,500-1,800 km).

In the case of US, defending against these ballistic missiles, in an actual war scenario was demonstrated for the first time, during the Operation Desert Storm of the last Persian Gulf War of 1991. However, preparations for such exigencies had begun far earlier. By 1963, technological advances in the areas of computing, radar and propulsion had established the feasibility of an

¹ Kapil Kak, "Missile Proliferation and International Security", in *Missile Development and its Impact on Global Security*, Department for Disarmament Affairs Occasional Papers No. 2, (New York: UN, September 1999), pp. 21-37.

endoatmospheric interceptor Nike-X that was later renamed Sentinel. Due to strategic considerations raised by US Secretary of Defence, Robert McNamara, the prospect that missile defences could stimulate a destabilising arms race with the Soviet Union (SU), Sentinel was also suspended in 1969 by the Nixon administration to be later replaced by Safeguard system. But on signing the ABM Treaty in 1972 between the SU and US even Safeguard was terminated in 1976.² On March 23, 1983, famous Star War speech by President Ronald Reagan once again brought BMD to the fore and set in motion an extensive research and development effort known as the Strategic Defence Initiative (SDI). And US programmes on BMD have continued to be off-again on-again since then.

US Threat Perceptions

While the end of cold war era has meant reduction of threats from ballistic missiles for the European theatre, US interests in other regions have indeed become more vulnerable. Especially, in the Asian Theatre, arms races involving ballistic missiles and weapons of mass destruction (WMD), often supported by external suppliers, have especially proliferated in the Asian region. Israel, Iran, India, Pakistan, and North Korea already possess MRBMs. So would Iraq if the UN inspection regime in that country did not

² Jeffery A. Issacson and David R. Vaughan, *Estimation and Prediction of Ballistic Missile Trajectories* (Santa Monica: RAND, 1996), p. 2.

exist.³ All these continue to impinge on US security interests given its presence and stakes in the Asian region.

That a number of countries are in fact acquiring these weapons suggests that they have become weapons of choice amongst these countries. Also amongst Asian states, various legal barriers to the spread of WMD and missiles are porous. The integration of the world economy and illegal trafficking in WMD and missile technology make it more difficult to deny a determined state access to such materials and know-how.⁴

Although there have been some arms reductions by both Moscow and Washington yet these are in fact producing another set of challenges as the amount of surplus weapons-usable material grows. For example, there is not enough information about the status, location, and numbers of surplus Russian and Chinese weapons-usable materials. The issue of surplus weapons-usable materials (separated plutonium and highly enriched uranium) that could be refashioned into bombs is a serious one. The uncertainties are no less dramatic, ranging from between 700 and 1,200 tonnes of highly enriched uranium and 135 and 150 tonnes of separated plutonium. The difference between the high and low numbers here is quite

³ David C. Gompert and Klaus Arnhold, *Ballistic Missile Defence: A German-American Analysis*, (RAND: 2001), p. 5, the research in this report was conducted jointly by Stiftung Wissenschaft und Politik (SWP) and RAND Europe.

⁴ *Ibid.*, pp. 6-7.

significant, being equivalent to over 23,000 advanced nuclear warheads.⁵ The unaccounted fissile materials are a cause of major worry for the US. It feels threatened as these materials can even find their way to the *states of concern* or non-state agencies.

Compounding this growing and uncertain overhang of Russian military materials are the large and expanding stockpiles of weapons-usable plutonium extracted from civilian spent fuel in Japan, India, Russia, and Western Europe. Although exact figures are unavailable, the best current estimates indicate that world civilian inventories contain at least 32,000 crude weapons worth of separated civilian plutonium.⁶ These figures are large. Unless these surplus stockpiles stop growing and become less accessible, the risks of their theft or illicit transfer will only grow. To control proliferation the trick here will be to reduce existing strategic weapons inventories without increasing the world's access to ever larger and more uncertain amounts of strategic materials and capabilities.⁷

Nuclear, Biological, Chemical (NBC) weapons using these missiles as vehicles can destroy large areas and population. Apart from the five nuclear powers, there are about 25 states, which either have, or are trying to

⁵ For additional details and analysis, see Henry Sokolski, *What Post-Cold War Proliferation Controls Require*, testimony before a hearing of the Senate Governmental Affairs Committee, April 12, 2000, available on web at <http://www.Wizard.net/~npec>.

⁶ Henry D. Sokolski, *Best of Intentions: America's Campaign against Strategic Weapons Proliferation* (Westport: Praeger Publishers, 2001), p. 106.

⁷ *Ibid.*, p. 107 and for additional information/ connected issues also see, Brian G. Chow et al., *A Concept for Strategic Materials Accelerated Removal Talks (SMART)* (Santa Monica: RAND Paper, April 1996).

acquire, ballistic missiles. North Korea, Iran, Iraq and perhaps Syria and Libya "pose the most serious threats to the US because of their modest ballistic-missile capabilities coupled with their antagonism towards the US or its Allies."⁸

In August 1998 North Korea carried out its first flight test of its two-stage *Taepodong-1* missiles, the second stage of which overflew Japan. North Korea is reported to be working on the *Taepodong-2* with a range possibly as great as 6,000 km.⁹ According to one estimate, the *Taepodong-1* can deliver a 1,000 kg payload to a range of 2,500 km and a 500 kg payload to 4,100 km.¹⁰ As per logic, it could potentially deliver a small payload to intercontinental range. Iran is believed to be developing two medium-range missiles, *Shahab-3*, with a range of 1,300 km and the *Shahab-4*, with a range of 2,000 km.¹¹ China sold 3,000 km range DF-3 missiles to Saudi Arabia, which ironically, contributed to efforts to strengthen antiproliferation measures such as the MTCR. Beside five nuclear powers, Saudi Arabia and possibly North Korea, the other Asian countries possessing missiles or space launchers with ranges greater than about 1,000 km are Japan, Israel and India.¹²

⁸ Dean A. Wilkening, *Ballistic Missile Defence and Strategic Stability*, Adelphi Paper 334, (Oxford: Oxford University Press, 2000), p. 9.

⁹ Rowan Scarborough and Bill Gertz, "N. Korea Fires Missile over Japan", *Washington Times* (Washington D.C.), September 1, 1998, p. 1.

¹⁰ David Wright, "An analysis of the North Korean Missile Launch of 31 August 1998", *INESAP Information Bulletin*, No. 16, November 1998, pp. 23-25.

¹¹ Bill Gertz, "Pentagon Confirms Details on Iranian Missiles: Russia, China Provided Technology", *Washington Times* (Washington D. C.), March 27, 1998, p. 10.

¹² Harold A. Feiveson (Ed.), *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-alerting of Nuclear Weapons* (Washington, D.C.: The Brookings Institution, 1999), p. 70.

In most recent months, in its fierce fight against Osama bin Laden and the Taliban, the US has shown an astounding degree of forgiveness for Pakistan's nuclear armament thus undermining its anti-proliferation credentials. Sanctions were lifted, terrorist activities in Kashmir relatively mildly condemned, and an erstwhile partnership revived. This could be interpreted as an American willingness to downgrade the importance of nuclear proliferation if and when other, more urgent security concerns have to be addressed. It implies that the changed strategic priorities can be interpreted to mean that the acquisition of nuclear weapons (or nuclear proliferation), dangerous as it may be, can be a lesser evil – or can be negotiated – if and when more direct threats to US security emerge.¹³

Culprits are also within. And here, apart from "states of concern", the other important factor of proliferation is the lucrative business of the sale of technologies, which has been a reliable source of income for industrial countries. In the case of Russia its military technologies sale constitutes the third largest source of foreign exchange after oil and gas. It is estimated that cash starved Russia generated \$3 billion in arms exports in 1999.¹⁴

Linkage with Space Technology

Many of the states including the "states of concern" are pursuing the

¹³ Views of, Curt Gasteyger, Director, Association for the Promotion and the Study of International Security, Geneva, expressed during a Seminar on, "National Missile Defence: Some Indian and French Perspectives" held at New Delhi on November 9, 2001.

¹⁴ "Russia Merges Arms Agencies", *Strategic Digest* (New Delhi), March 2001, Vol. XXXI, No. 3, p. 413.

space-launch technology either to disguise their development of ballistic missiles or to benefit from its commercial spin off. For example, the total global demand for space products in 1999 was \$21.2 billion, of which national-security satellites and rockets comprised only 20 percent or \$4.4 billion.¹⁵ Conversion of such technologies into ICBM systems can be done with comparative ease as many strands of overlaps exist between the two technologies.

Besides the five nuclear powers; Japan, Brazil, India, Israel and Ukraine have active space-launch-vehicle programmes, while North Korea and Iran have also entered the race during recent years.¹⁶ But most of them as yet, possess only short and medium range ballistic missiles. As of now Russia and China are the only two countries that can pose ICBM threat to the US and its allies. The others remain as yet only threats in the realm of probability.

Then there are other problems like China's transfer of missile related technologies to Pakistan? Some analysts argue that the Chinese are the ultimate realists. Strategic and commercial interests govern China's proliferation and non-proliferation policies. Even more significantly, China calibrates its proliferation behaviour and compliance with global arms control

¹⁵ "Makers of National-Security Spacecraft Face Trouble: Pentagon", *Strategic Digest* (New Delhi), March 2001, Vol. XXXI, No. 3, p. 389.

¹⁶ n. 8, p. 10.

regimes and cartels to gain bargaining leverage in negotiations with the US over Taiwan.¹⁷

Commercial motives also determine national decisions about Ballistic missile transfers. After Chinese leader Deng Xiaoping launched his modernisation drive in the 1980s, state-owned firms came under enormous pressure to adhere to market principles and show profit. Exports of dual-use nuclear technologies, ballistic and cruise missiles, especially those that were regulated by international cartels or subject to export denials by other countries, became a lucrative means of generating profits. China earned nearly \$ 3 billion from its CSS-2 IRBM sales to Saudi Arabia in the 1980s. Similarly, Chinese cruise missile sales to Iran and SRBM sales to Libya and Syria were primarily guided by profit motives.¹⁸

The proliferation of ballistic missiles went on regardless of consequences till Operation Desert Storm heightened concern about the spread of crude missiles and NBC weapons. US, it is believed, is not defenceless against international ballistic-missile proliferation. First, diplomacy and arms control are expected to halt or at least delay the proliferation of long-range ballistic missiles. Second, if negotiations fail, the US still has an overwhelming deterrent conventional and nuclear force. Here it must be recalled that only US has ever, in fact, actually employed nuclear weapons in the world to

¹⁷ For additional information and analysis see, Philip Saunders and Jing-dong Yuan with Gaurav Kampani, *How and Why China Proliferates Ballistic Missiles to Pakistan*, at <http://www.rediff.com/news/2000/aug/22spec.htm>

¹⁸ *Ibid.*

subdue a determined enemy. "Negative security assurances notwithstanding, there should be little doubt that the US would respond with overwhelming force against a state that attacked its territory with NBC weapons".¹⁹ Finally, if US leaders believe that the first and second conditions above are likely to fail they have the capacity to undertake conventional pre-emptive counterforce attacks, against fixed sites. However, the strikes may not be possible against mobile launchers (as was experienced during Desert Storm against Scud launchers).

The critics of BMD opine that limited threat to the US homeland could be overcome by the massive retaliation capability, which the US possesses. But for the safety of the US military stationed abroad and its allies, the US still continues to worry and feel threatened. For example, Chinese missile attacks on Taiwan are unlikely to involve long-range missiles. The worry of US is based on the missiles fired by China into waters near Taiwan in March 1996 which were reportedly 600 km-range DF-15s (also known as M-9s).²⁰ Therefore, US has to enhance the NMD with TMD.

Does the solution lie in the deployment of the TMD system? Can the idea of BMD system be transformed into reality, for the US allies and forces in different regions, and one that is absolutely fail-proof given vagaries of

¹⁹ n. 8, p. 13.

²⁰ Michael A. Dornheim, "DF-15 Sophisticated, Hard to Intercept", *Aviation Week and Space Technology* (New York), March 18, 1996, p. 23.

regional threats and adversaries? These are certain important questions that need to be deliberated.

BMD and Arms Control

As for the theoretical evolution of BMD concept there have been three major debates on the subject so far. The first concluded in the form of 1972 ABM Treaty. The second emerged in March 1980s when President Reagan proposed the SDI concept and concluded with formation of the Missile Technology Control Regime (MTCR). And, the third debate has commenced in the US because of the perceived threat from the "states of concern", since the early 1990s. All of these debates have been triggered due to (and have triggered in turn) new technological concepts presented by the scientists and engineers in developing the BMD systems and strategists of BMD theologies.

All these US strategic debates have been dominated by the threat to ICBMs while failing to be 'disturbed by the fact that the Russians could have easily wiped out those submarine launched ballistic missiles (SLBMs) which were in port ... and [was] not concerned about Soviet "suitcase" bombs being brought into Washington, circumventing all radars and destroying the US leadership without any warning'.²¹ Professor Robert Jervis argues that part of the explanation of threat construction lies in the terrible nature of the conditions created by the nuclear weapons.²² The explanation perhaps lies in the

²¹ Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca: Cornell University Press, 1984), p. 54.

²² *Ibid.*

thought, 'When one faces a set of terribly unlikely but catastrophic contingencies, it is hard to sort out which should be of concern'.²³ The picture of uncertainty painted in these debates is quite frightening and no easy solution is in sight.

Since the early 1990s, the BMD has once again become one of the most contentious issues being debated amongst American strategic circles. In the new millennium the age of deterrence seems to be coming to an end. The repercussions of the new technological developments likely to take place shortly to put the BMD system(s) together are going to be at least as serious as was the invention of offensive nuclear weapons. Amongst the very first things where the impact of the development programme of the BMD would be felt, is on the strategic stability that exists between some of the nuclear adversaries.

Anti Ballistic Missile Treaty 1972

US President Richard Nixon and General Secretary of the Central Committee of the CPSU Brezhnev had signed the ABM Treaty at Moscow on May 26, 1972. The Treaty entered into force on October 3, 1972 with provisions made for Standing Consultative Commission for making amendments for further limiting strategic arms through consultations. The Treaty was intended to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures toward reductions in

²³ *Ibid.*, pp. 114-116.

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strategic arms, nuclear disarmament, and general and complete disarmament. Two important Protocols were also signed on July 3, 1974 for laying down various procedures and limiting the deployment sites for BMD by each Party. The main features of the ABM Treaty are:²⁴

- Only one geographically limited regional BMD system with not more than 100 launchers and 100 interceptors can be deployed by the two member nations. The strategic capable BMDs can not cover the entire nation except the single region (either Capital City or an ICBM site) as mentioned above.
- Sea, air-based or mobile BMD elements, neither can be developed nor tested nor deployed.
- Radar meant for BMD systems can be deployed only at one site. Non-BMD launchers, radars or any other connected components are prohibited from upgrade to the BMD status.
- Transfer of BMD systems out of the national territories is prohibited to block any proliferation.
- Transfer of technical information of BMD system or its components to any other country is prohibited.
- Air defence or any other type of defence can not be tested against strategic missiles.
- Both the parties must ratify any amendment to the Treaty.
- Treaty will be reviewed every five years.

The Implications

As the first thing in examining the ABM Treaty is that it has to be viewed in the context of super power politics. Besides, it has a direct relationship with offence and defence, as these two are inseparable. To be precise, any

²⁴ Web site US State Department/ABM Treaty.

enhancement in defensive capability to a large extent would mean 'improved offensive capabilities' as well. It is this aspect due to which a need arose to conclude the ABM Treaty at the first place. By the same logic, developing BMD systems beyond the permitted or agreed terms of reference, with a view to deploy; the US would greatly enhance its overall offence-defence balance of power which is the bone of contention between the two signatories and another emerging world player in this nuclear power struggle. For example, China's nuclear capability vis-à-vis US would stand neutralised.

There are some advocates in America who describe ABM Treaty as part of the Cold War mentality and recommend it be discarded or revised. "Like all the other arms control treaties, it reflects the interdependent relationship among contracting parties (SU, now Russia) and US in security matters. Such a relationship did not disappear with the end of Cold War, but rather is becoming even stronger in the era of globalisation.

With the ABM Treaty at its root, many international agreements on arms control and disarmament have since been concluded. These include, the SALT I and SALT II, Intermediate-Range Nuclear Forces (INF) Treaty eliminating IRBMs and SRBMs, followed by START I and START II-on implementation the warheads will be reduced fourfold. With the drafting of START III still deeper cuts in strategic offensive arms would be expected.

The other important issue is of commonalties of certain features of TMD and NMD. There are three principal areas of the TMD programme where overlap might occur and go against the spirit of ABM Treaty, these are:²⁵

- TMD ground based interceptors may prove sufficiently accurate and versatile to intercept slower ICBMs re-entering the atmosphere at speeds, which TBMs now achieve.
- The upper-tier TMD interceptors are aboard ships and are, therefore, mobile and might violate the ABM Treaty's prohibition against mobile ABMs.
- The boost phase interceptors (BPI), if deployed in areas near Russian ICBM fields, might be able to destroy ICBMs during their slow-moving, lift-off stage.

The Missile Technology Control Regime

MTCR has been second most important effort at controlling spread of ballistic missiles, after ABM treaty of 1972. It was the US and its G-7 partners who had formed an informal cartel, the MTCR in 1987, which sought to ban the export of ballistic missiles, cruise missiles and rocket systems capable of delivering a 500-kg payload over a range greater than 300 km. Since then it has become to be the most effective body of regulations with regard to controlling state behaviour on spread of ballistic missiles. The MTCR's provisions are divided into two categories.

- Category I include complete rocket and ballistic missile systems, cruise missiles, their manufacturing facilities and sub-systems – all these are subject to export denial.

²⁵ Igor Ivanov, "The Missile-Defence Mistake: Undermining Strategic Stability and the ABM Treaty", *Foreign Affairs*, (New York), September/ October 2000, Vol. 79, No. 5, pp. 15-16.

- Category II items cover a wide range of missile parts, components, and subsystems, viz., propellants, structural materials and flight test instruments, which can be exported at the discretion of an MTCR partner government depending on the merit of each case.

The MTCR initially focused on nuclear capable delivery systems; but in 1993, after the experience of the 1990-91 Gulf War, the guidelines were further amended to cover all delivery systems capable of delivering weapons of mass destruction (WMD). In October 1994 Chinese pledged that they would abide by Category I of the MTCR and ban exports of all ground-to-ground missiles exceeding the primary parameters of the MTCR. More significantly, China also agreed not to export any missile that is inherently capable of delivering a 500-kg payload over 300 km. For example, the Chinese M-11 can deliver a 500-kg payload over a range of 280 km; but the missile's range can be extended to cover distances beyond 300 km with a reduced payload. Hence, by agreeing to the inherent capability clause, China agreed to prohibit future exports of the M-11 missile and other longer-range missile systems. China also agreed to actively consider joining the MTCR.²⁶

In June 1998, after India and Pakistan conducted nuclear tests, China and the United States issued a joint statement affirming that they would strengthen their export control laws to "prevent the export of equipment, materials or technology that could in any way assist programmes in India

²⁶ n. 17.

and Pakistan for nuclear weapons or ballistic missiles capable of delivering such weapons".²⁷

Although Beijing has complied with the MTCR's Category I restrictions and stopped the transfer of complete missile systems, it has not extended the ban to cover specific missile components and related technologies covered under Category II of the MTCR. In addition, China has kept the precise scope; content and extent of its internal missile export control list a secret.

Nevertheless, in the field of ballistic missile proliferation, the MTCR has so far been one of the most effective body co-ordinating national export controls. And, it is here, that the development of BMD by the US threatens to marginalise this and other such regimes. As of today, almost every potential supplier of advanced missile technology adheres to the MTCR. There are, of course, exceptions like China and North Korea. China though claims to be its "adherent" since 1994, but this is the only country that is known for exporting missiles and there are allegations that China has also assisted the missile development programmes of other countries.²⁸ China sold Silkworm anti-ship missiles to both sides during the Iraq-Iran War. In 1989 it was reported that Syria was trying to acquire Chinese M-9 SRBMs (having a range of 600 km and using solid fuel).²⁹ This makes M-9 capable of carrying a

²⁷ *Ibid.*

²⁸ n. 10.

²⁹ *Stockholm International Peace Research Institute Yearbook* (Stockholm: SIPRI, 1990), p. 47.

nuclear or chemical warhead. In 1988 the sale of Chinese DF-3A ballistic missiles to Saudi Arabia was also revealed.³⁰ This makes China the only state that is known to commercially export ballistic missiles.

In sum, "China now seems to be situated in the middle road between faithful compliance with the NPT and the MTCR and secret dealings with commercial and strategic interests in selling arms and strategic materials to the countries with which it wants to preserve or pursue national interests".³¹ And here apart from directly impacting on China's security, US deployment of BMD systems will also force China to abandon its commitments to MTCR. China's policy and behaviour with regard to export of nuclear and military technology of mass destruction, however, remain questionable.³²

Financial Cost of BMD

The opponents to the programme point out that "US has spent some \$ 3.5 billion a year on missile defence programmes since Reagan announced the SDI in 1983... Since then the spending has accelerated and there are plans asking for well over \$ 4 billion a year into the indefinite future".³³ The advocates of the BMD opine that of late US might be required to spend up to 2 to 3 percent of defence budget (from over one percent currently being

³⁰ Yong-Sup Han, *Nuclear Disarmament and Non-Proliferation in Northeast Asia*, Research Paper No. 33, UNDIR, (New York, 1995), p. 23.

³¹ Richard Fieldhouse, "China's Mixed Signals on Nuclear Weapons", *The Bulletin of the Atomic Scientists* (Chicago), May 1991, Vol. 47, p. 42.

³² n. 30, p. 25.

³³ Michael E. O'Hanlon, *Defence Policy Choices For the Bush Administration: 2001-2005* (Washington D.C.: The Brookings Institution, 2001), p. 153.

spent) on the programmes for further progress, which they feel is justified for own security, this being much less than 10 percent required for defending Persian Gulf oil or South Korean security.³⁴

The missile defence programme is very expensive to pursue due to new technologies involved in the development. The US as per certain estimates has already spent over \$60 billion. In spite of heavy demands being made to meet the inflated requirement for homeland protection and anti-terrorism by the administration since September 11 (2001) attacks, about \$8.3 billion budget allotted for fiscal 2002 for missile defence programme is unlikely to be reduced.³⁵ The figures have been marginally adjusted to cater for homeland security.

Missile defence is likely to absorb a substantial and growing share of the defence budget in future as well. The Bush administration's request and approval of missile defence expenditure of \$8.2 bn, i.e., 2.2% of defence budget is on track. Indeed the attack of 9-11 has helped in pushing it through. The missile defence is now draining close to one fourth of overall US military "research and development" expenditure (\$37.7 bn). The expenditure is likely to grow further during the following years. It is inferred therefore, that BMD programme will henceforth represent a sizeable chunk of

³⁴ Ibid.

³⁵ Rajesh Rajagopalan, P.K. Ghosh and M.V. Rappai, "Abrogating the ABM Treaty", *The Hindu* (New Delhi), January 1, 2002.

American defence capital investment.³⁶

In the near term, the financial burden of developing and building US BMD system would exceed the savings from possible US strategic offensive force cuts. Unless the US defence budget is raised to cover the near term gap, resources will have to be reallocated from the power projection and engagement missions of US forces. At the same time, unless investment in BMD is made to avoid the power vulnerability of US forces and territory to WMD-armed ballistic missiles, US projection and engagement could be undermined.³⁷ But in the end, financial constraint has not been one of the limitations of US BMD projects. As their track-record shows, it is the development of technologies that has provided a far bigger challenge.

³⁶ Views of, Francois Heisbourg, Director, Foundation pour la Recherche Strategique, Paris, expressed during a Seminar on, "National Missile Defence: Some Indian and French Perspectives" held at New Delhi on November 9, 2001.

³⁷ n. 5, p. 22.

CHAPTER THREE: US JOURNEY FROM BMD TO TMD

The BMD debates in the 60's and early 70's were the basis of formulating the ABM Treaty 1972 that envisioned only the ground-based interceptors to engage the re-entry vehicles. It tended to visualise one-point defence, with very limited area coverage and used for the defence of silos and offensive strategic forces to ensure the survivability of counterforce offensive forces. The old BMD system used nuclear tipped warheads. But soon it was realised that all kinds of decoys and offensive countermeasures could relatively easily overwhelm such a system. This set out certain events over the next two decades:

- In 1983 President Reagan's vision of SDI for the first time formally emphasised that anti-missile system should not wait until the missiles have finally re-entered the atmosphere. The old concept of engagement was declared not good enough any more. He introduced exotic space-based beam weapons, the so-called Star Wars systems.
- The concept of space-based shield against Soviet Nuclear missiles was embraced by Reagan that faded away with the end of Cold War. In the early 1990s, the Pentagon shifted its focus and financial resources from celestial defences to land-based theatre systems that would protect troops from short-range tactical missiles.

Dr. Swaran Singh wrote in 1999 that, "American Presidents have been using this technique to their arms build up e.g., 'bombarlag' under Eisenhower, 'miserable gap' under Kennedy, 'ABM gap' under Johnson and 'Window of vulnerability' under Reagan".¹ The new vision now of the SDI was

¹ Swaran Singh, "Strategic Defence Initiative", *Journal of Political Studies* (Jalandhar), Vol. xxiii, No. I, February 1990.

to achieve a layered approach (instead of one-point approach) in which the enemy missiles must be engaged all along their path at least at four points:

- Firstly, the boost phase when the first and second stage rockets are burning and are visible to the detectors.
- Secondly, the post-boost or bus deployment phase, when multiple independently targetable re-entry vehicles (MIRVs) and the decoys accompanying them are being released.
- Thirdly, the midcourse phase when they are on ballistic trajectories above the atmosphere.
- And finally, the terminal phase, in which the enemy missiles are zeroing in on their targets on ground.

In this manner change over from one-point (of 60's and 70's) to multi-point (SDI) engagement is termed as a major step forward in the evolution of BMD strategy. The task given to the scientific community was apparently challenging. A missile launched from the centre of Siberia for instance can reach the US in 20 to 22 minutes that would leave very little time for any diplomatic actions. SDI, therefore, involved engaging the missile at all the stages, viz., boost, post boost, midcourse and re-entry.

Secondly after Reagan had gone, the notion of deploying a missile defence system in space did not vanish entirely, the funding for military space research continued. Though such weapons are banned by the ABM Treaty, yet it appears that such a system comprising of space-based megawatt laser or chemical laser, beam control optical mirrors and a beam director telescope is achievable. A chemical hydrogen-fluorine (HF) laser for space vehicle and a chemical oxygen-iodine laser for jet mounted system are still

under investigation. And the US Air Force along with the BMDO are continuing the research and testing of the same from a technological standpoint, thus making SDI one most critical stage in the evolution of US BMD programmes.

The Policies of SDI

The famous SDI speech by Reagan of March 1983 was kept a rather closely guarded secret till the last minute. This put national defence bureaucracy in bewilderment. The questions being raised at that time were numerous. Was this a new policy? Was this a new doctrinal shift? What should occur next in terms of developing the SDI programme? The media had immediately coined the term "star wars" going by the potential innovations in technology, some of which were yet to be attempted by the scientific community. Reagan in his speech referred to making nuclear weapons "impotent and obsolete", which had drawn considerable controversy. Robert W. Helm calls it, "principally a speech writer's phrase, the President was (in fact) referring to making obsolete the political utility of offensive nuclear weapons as instruments of coercive power". Helm further clarifies that the speech itself was not a doctrinal shift *per se*. It was a technology programme as there was no mention of any decisions to deploy anything.²

² Robert W. Helm, "Genesis and Transformation" in C. James Haug (Ed.), *The Strategic Defence Initiative: International Perspective*, Social Science Monographs, (New York: Columbia University Press, 1987), p. 5.

Dr. Louis Marquet compared the SDI with Apollo Programme and said, "When we set out to go to the moon we knew that the moon could take no countermeasures. It didn't move from its trajectory. It was quite predictable. It didn't hide by trying to put some kind of reflecting shield around its face and it didn't shoot back at us".³ In fact the problem not only involved coming up with a system that would have defeated missiles of the 80's but also countermeasures, to be developed a few decades later.

But scepticism about and criticism of SDI had cast a shadow on this programme right from its inception. During a speech, noted science fiction writer Albert C. Carlson warned of SDI's potential offensive capabilities and said, "If a laser could destroy a missile thousands of kilometres away, what could it do to a target on ground only a couple of hundred kilometres below ... this would amount to a predictably unacceptable sword of Damocles poised over every nation of the world".⁴

On further analysis the discussions on laser, revealed that it is not the only form of directed energy, the particle beam, which can enter deep within an object and penetrate the skin offer certain advantages over laser, like telling what the object is made up of and how much it weighs. This could decide whether or not it is a decoy or an actual target.⁵ During these deliberations

³ *Ibid.*, p.16.

⁴ John Rhea, *SDI- What Could Happen*, (Harrisburg, PA: Stackpole Books, 1988), pp. 14-15.

⁵ Dr. Louis Marquet, *The Strategic Defence Initiative: A Technical Overview*, in C. James Haug, n. 2, p. 20.

SDI confronted an awkward dilemma: the desirable goal of population defence was not feasible, the feasible goal of protecting the nation's ground based nuclear deterrent (weapons) from a pre-emptive Soviet attack only threatened to accelerate the nuclear arms race.⁶ It was predicted in 1990 that the US would probably be in a materially more difficult security situation in 2010 and it was suggested that the "cure" of SDI might be worse than controlling the "disease" of current strategic nuclear parity.⁷

Ten there were others who viewed SDI as a "top-down" effort.⁸ The practical aspects of SDI were adversely effected by unrealistic claims regarding its performance and frequent changes in the designed architecture for the system. The SDI Organisation (SDIO) was torn internally between those advocating Directed Energy Weapons (DEWs) and those who favoured Kinetic Kill Vehicles (KKVs) and after controversies, finally by the time the SDIO had switched its support to Brilliant Pebbles (a low cost and technically efficient form of space-based kinetic energy weapon), the Cold War had abated and there was little support for it.⁹ In sum the SDI was purely a scientific research dream/utopia and there were doubts from the very beginning.

⁶ n. 4, p. 44.

⁷ Jeffrey Simon, Ed., *Security Implications of SDI: Will We be More Secure in 2010*, (Washington D.C.: National Defence University Press, 1990), p. 26.

⁸ David B. H. Denoon, *Ballistic Missile Defence in the Post-Cold War Era* (Colorado: Westview Press Inc., 1995), p. 90.

⁹ *Ibid.*, p.p. 90-91.

Nevertheless, SDI was an important step forward in the BMD vision of evolution from the original BMD idea (up to 70s), to SDI (of 1980s) to counter massive Soviet ballistic missile strike, Global Protection Against Limited Strikes (GPALS) (of early 1990s) to defeat ballistic missile accidental or unauthorised launch and the current programme (mid 2000s) of limited NMD (and TMD) for defence against very small rogue state threat.¹⁰ Before going into the implications of the current programmes initiated after Bush Jr.'s recent speech, of May 1, 2001, it is perhaps in order to first understand America's TMD Programme in general.

What is TMD?

US plans to develop TMD to protect its forces and allies in various theatres (like Asia Pacific), which have become more volatile since the early 1990s. TMD systems as envisioned in the US, are categorised by the altitude at which they intercept targets; above 80-100 km the systems are called exoatmospheric defences and below this height, are known as endoatmospheric. There is a further distinction between 40-80 km and below 40 km. It is important because between 40-80 km altitude (due to the atmospheric forces), only well designed decoys accompanying the theatre ballistic missiles (TBMs) can deceive the TMDs. Below 40km, the atmospheric (aerodynamic) forces are much more appreciable, causing the TBMs to manoeuvre continuously, this results in making intercept even more difficult.

¹⁰ Michael E. O'Hanlon, *Defence Policy Choices For the Bush Administration: 2001-2005* (Washington D.C.: The Brookings Institution, 2001), p. 150.

"The defended area (the 'footprint') for lower-tier (below 40km altitude) systems is small, while upper-tier systems have larger defended footprints".¹¹

The TMD programmes under development by the US include the following¹²:

- **Lower Tier.** It is to be provided by a short-range endoatmospheric interceptor such as the Patriot Advanced Capability-3 (PAC-3), Navy Area Defence (NAD) and the Medium Extended Air Defence System (MEADS), the last one is under development by the US in collaboration with Germany and Italy.
- **Upper Tier.** It is to be provided by long-range exoatmospheric interceptors such as Theatre High Altitude Area Defence (THAAD) and Navy Theatre Wide (NTW).

George Bush's Proposal

President George Bush's speech on May 1, 2001 took a fresh look at America's security needs. While addressing the National Defence University at Washington, he laid out his administration's future strategy in two parts: arms cuts, unilateral if necessary, and missile defences to fend off smaller, less predictable *states of concern*. Bush outlined how US must deal with a different post-cold war world. The picture changed since 1998, when North Korea tested a surprisingly sophisticated rocket, which convinced America about the necessity for strengthening its missile defences. In addition, illicitly

¹¹ Dean A. Wilkening, *Ballistic Missile Defence and Strategic Stability*, Adelphi Paper 334, (Oxford: Oxford University Press, 2000), p. 46.

acquired weapons technologies finding their way into Asia was quoted as another reason for the strategic shift in the missile defence programme.

Meanwhile, arms control talks with Russia were not progressing at a satisfactory pace. Bush impatient with this, had repeatedly expressed that he would take his own view of America's nuclear requirements, by:

- Cutting weaponry where it is safe to do so.
- And also taking remaining weapons off the high alert.

However, Bush also gave the impression of becoming an enthusiastic explorer of missile defences. At the same time he continued to deny any intention of sparking another arms race with Russia, China or any other country. He described his policy as "a search for security, not a search for advantage".

Since then in his May 1st 2001 speech, Bush has proposed more robust defences than what was being pursued in the past i.e., only ground based interceptors, radars and sensors. The planned defences are likely to be layered to counter missiles at different stages in their flight-paths. Although space-based lasers are still many years away, the intermittent research of the past two decades seems likely to continue in the same slow and erratic manner.¹³

¹³ "Bush Calls for Nuclear Cuts, Missile Defence Development", Official Text of Speech, *Public Affairs Office (PAO), US Embassy, New Delhi, May 2, 2001* and also see, "George Bush's Revolution", *The Economist* (London), May 5, 2001, p. 17.

In a follow up action US Defence Secretary, Donald Rumsfeld also gave notice of a sharp acceleration in the pace of testing, designed to create, an anti-missile defence system consisting of three layers – ability to hit missiles during ascent, mid-point and on their way down. The US has so far conducted six tests of prototype interceptors of which three have been failures. There are expected to be ten tests in 2002 alone. The first one in March 2002 had been successful in destroying a warhead at 225 km above the Pacific Ocean and was able to identify warhead from decoys.¹⁴ Philip Coyle, who supervised the Pentagon's testing programme till early 2001, opines that a minimum of 24 tests would be required for each layer. Presuming that ten would be conducted each year, it might be realistic to presume that a reliable defence against a limited strike can be deployed by about 2010.¹⁵

But, apart from surmounting technical challenges, US also has to deal with international opinions. Bush is clearly hoping that his promised deep cuts in America's nuclear arms will serve to reassure his allies, and also Russia and China, that his arms-control revolution can bring big benefits. But for others, his proposal to "move beyond" the ABM Treaty, and not to ratify the test ban treaty would risk achieving the worst of all the worlds: one in which suspicion and rivalry, not security and stability, were the name of the game.¹⁶

¹⁴ "US Missile Defence Test Succeeds", *Hindustan Times* (New Delhi), March 17, 2002.

¹⁵ "If at First You Don't Succeed...", *The Economist* (London), Jul 21, 2001, p. 30.

¹⁶ "Bush's Nuclear Umbrella", *The Economist* (London), May 5, 2001, p. 11.

The impact on international politics of the US BMD programme has been equally enormous. Amongst the countries the reaction of Russia needs utmost attention. The three objections put forward by Russia to US TMD at least until early 2001 adequately reflected Russia's stance concerns on the following issues:

- Undermining of the ABM Treaty as well as the confidence in the retaliatory capacity of its current strategic forces;
- Threatening of global strategic stability; and,
- Launching a new arms race, including one in outer space, that would further strain Russia's already insufficient resources¹⁷. Moreover, there are concerns in Russia about her present nuclear forces nearing the end of their useful lifetime.¹⁸ However, after his first – and for both sides apparently positive meeting with the President Bush in Ljubiana in July 2001-Putin gradually softened his position on NMD/ TMD issues. Two months later, he used his first formal press conference to temper Russian attack. He said his country would not act jointly with China to counter such a missile shield should it be built.¹⁹

Such contradictory statements leave most observers somewhat puzzled. It has certainly not escaped Russian attention that influential conservative circles in Washington consider the ABM Treaty as obsolete and have no intention whatsoever to enter into new negotiations with the aim of replacing it by a new one.²⁰ And yet, the Russian position, as President Putin's statement implies, is not carved in stone. Consequently, a senior Russian

¹⁷ Charles L. Glaser and Steve Fetter, "National Missile Defence and the Future of U.S. Nuclear Weapons Policy", *International Security* (Cambridge), Vol. 26, No. 1, Summer 2001, p. 73.

¹⁸ For additional details see, Dean A Wilkening, "The Future of Russia's Strategic Nuclear Force", *Survival* (London), Vol. 40, No. 3, Autumn 1993.

¹⁹ "Putin Tempers Missile Shield Stance", *International Herald Tribune* (New York) July 19, 2001.

²⁰ Thad Cochran, "ABM: A treaty America Doesn't Need", *International Herald Tribune* (New York), August 28, 2001.

official insisted, however, that the ABM Treaty "had to be preserved in negotiations that would probably be long and complex".²¹

From these contradictory declarations one can conclude that Russia has not developed a coherent position on this delicate issue but wants to show flexibility. The real challenge to TMD comes from the feasibility of developing appropriate technologies within an anticipated time frame.

Technical Limitations of BMD

Right from the very beginning, the most potent criticism of BMD was that a wide range of potentially very effective countermeasures were available to defeat exoatmospheric BMDs.²² Exoatmospheric defences vulnerability to countermeasures has long been recognised as their greatest weakness; there is no reason to expect it to change.²³ There are a number of countermeasures, which can be employed to defeat the defences as discussed below:

- Firstly, at the end of its boost phase an attacking missile could deploy large numbers of lightweight decoys such as metallised balloons. These balloons could be the replica decoys shaped to mimic the actual warhead, or more likely and probably more effectively would be spherical balloons,

²¹ "Russia Regrets Refusal to Discard ABM Treaty", *International Herald Tribune*, (New York), September 8, 2001.

²² Harold A. Feiveson, Ed., *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-alerting of Nuclear Weapons* (Washington, D.C.: The Brookings Institution, 1999), pp. 81-82.

²³ For additional details see, Richard L. Garwin and Hans A. Bethe, "Anti Ballistic Missile System", *Scientific American* (New York), Vol. 218; March 1968, pp.19, 21-23 and May 1968 issue, pp. 7-8.

with the real warhead enclosed in an identical balloon. The balloons could be equipped with small heaters and other devices to prevent the defence from using thermal, vibrational, or rotational signatures to identify the balloon containing the warhead. The real target can not be identified until it re-entered the atmosphere and the lightweight decoys rapidly decelerated by air resistance, by which point it might be too late to make an intercept.

- The second countermeasure could be the deployment of clouds of chaff and hide the warhead in one of these clouds to beat the missile defence radars. Such chaff would consist of inch long pieces of wire or metal-coated glass.²⁴ Depending on its orientation relative to radar, each piece of chaff could have a radar cross-section comparable to that of a warhead properly shaped to reduce radar reflections. An attacking missile could deploy many chaff clouds, only one of which would contain the actual warhead, thereby preventing the defence from locating the warhead till the atmosphere, on re-entry, stripped away the chaff.²⁵
- The third method could be to reduce the signature of the warhead by enclosing it in a thin metal shroud with a pointed nose and rounded back

²⁴ For maximum effect, pieces of chaff should be cut to a length one half of the radar wavelength.

²⁵ n.22, pp. 82-83.

end, which could be cooled using a small quantity of liquid nitrogen.²⁶

- Such countermeasures, which could certainly be implemented by any country capable of building a long-range ballistic missile, could certainly be used to defeat an NMD or exoatmospheric TMD system.²⁷

The endoatmospheric countermeasures for BMDs that operate within the atmosphere, such as Patriot PAC-3, can generally wait until the atmosphere has filtered out any exoatmospheric countermeasures. But these systems are also vulnerable to countermeasures.

- For attacks using conventional high explosive, chemical, or biological weapons, dividing the payload into submunitions can defeat any terminal or midcourse defence (including exoatmospheric ones) simply by overwhelming it.
- For missiles armed with nuclear warheads, which cannot be subdivided or separated by dividing the payload below a certain point, the most important countermeasure against the BMDs that operate within the atmosphere is likely to be intentional atmospheric manoeuvres. These could be similar to or even more vigorous than the inadvertent manoeuvres, such as corkscrew re-entry trajectories.²⁸

²⁶ Shaping to reduce the radar cross-section would not be effective at long wavelengths as in use with current early warning radars.

²⁷ These countermeasures pose severe difficulties for designing missile defence systems, therefore, the quest for new technologies is taking up time and large amounts of funds.

²⁸ These manoeuvres enabled Iraq's Al-Hussein missiles to defeat PAC-2s during the 1991 Gulf War. Such manoeuvres may be difficult to counter, but in contrast to the situation with

The recent Rumsfeld Commission, while it did not examine the cruise missile threat in detail, concluded, "cruise missiles have a number of characteristics which could be seen as increasingly valuable in fulfilling the aspirations of emerging ballistic missile states".²⁹ The wide spread availability of Global Positioning System data greatly simplifies what is probably the most difficult problem of developing such cruise missiles, that of guidance.³⁰ Cruise missiles are likely to be much more effective as a means of dispersing chemical and biological weapons than ballistic missiles.

From SDI to TMD (Via NMD)

Rumsfeld in an interview with a television channel in early 2001 said that Moscow had no reason to feel threatened by the US missile defence programme because it could only stop a "handful" of enemy missiles, not the thousands the Russians possess. This has been the underlying philosophy of the US development programme for the TMD.³¹

Rumsfeld Commission established to assess the ballistic missile threat observed in July 1998 that the threat is broader, more mature, and evolving more rapidly than has been reported in estimates and reports by the

exoatmospheric countermeasures, at least it is clear to the TMD designers as to what steps must be taken to deal with the situation. For additional details see, n. 22, pp. 83-84.

²⁹ "Executive Summary", *Report of the Commission to Assess the Ballistic Missile Threat to the US*, is available on web at, <http://www.fas.org/irp/threat/bm.threat.htm>.

³⁰ For additional details on cruise missile threat see, Dennis M. Gormley, "Hedging Against the Cruise missile Threat", *Survival* (London), Spring 1998, pp. 92-111.

³¹ "US, Russia Clash over NMD", *The Hindu* (New Delhi), February 16, 2001.

intelligence community. The report further inferred that there is a possibility that within five years or so Iran or North Korea might be able to develop and deploy a missile reaching the US.³² The intelligence community however, reiterated that it is unlikely that countries other than Russia, China and perhaps North Korea will deploy an ICBM capable of reaching any part of the US, before 2010.³³

The thinking of protecting US forces and allies in operational theatres began on the second day of Operation Desert Storm of 1991 when modified Scud missiles landed on Tel Aviv (Israel). Although few people were injured in the initial attacks, but it threatened drawing Israel into the Gulf conflict, potentially undermining a fragile coalition of Arab states allied with US against Iraq.³⁴ The use of theatre ballistic missiles (TBMs) could be highly destabilising in the political arena, if not the operational one. Although the defensive performance of Patriot missiles was not up to the mark, it provided a psychological victory and Israel stayed out of the conflict.

It is said that this experience crystallised US interest in the TMD in view of large number of nations possessing TBMs and not all of them being friendly towards the US and its allies. As a result the budgetary emphasis between 1994 and 2000 had shifted to TMD, with spending two to three times higher

³² n. 29.

³³ "Ballistic Missiles Threat and US Policy", available on web, <http://www.fas.org/irp/news/1998/07/980714-threat.htm>.

³⁴ Jeffery A. Issacson and David R. Vaughan, *Estimation and prediction of Ballistic Missile Trajectories*, (Santa Monica: RAND Paper, 1996), p. 3.

than that on NMD. Negotiations also focussed on clarifying the distinction between theatre and national defence systems in the ABM Treaty, culminating in the 1997 TMD Demarcation Accords which included following important issues amongst others:³⁵

- TMD systems would not be used as elements of a US NMD, thereby circumventing the ABM Treaty.
- TMD systems will not be deployed by the parties for use against each other'.
- Space-based lasers were banned for TMD systems (for NMD, space based lasers were banned by the ABM Treaty).

The evolution of the US TMD program is explained by the confluence of two trends. Firstly, the slowdown in the late 1980s of the efforts of the old SDIO created during the Reagan Administration and secondly, the concurrent rise in the late 1980s and early 1990s of the development, deployment, and actual employment of TBMs around the world.³⁶ The Scuds fired by Libya in 1986, the Iranian missile problem faced by the US Navy in the Persian Gulf in the late 1980s, or the hundreds of Soviet Scuds that were deployed in Afghanistan from 1988 to 1991 strengthened the resolve for the TMD programme. And clearly, if there was no real operational impetus for developing TMD prior to 1991 there certainly was one as a result of the Gulf War. According to certain estimates, during that conflict Iraq fired some 90

³⁵ n. 11, pp. 45-60

³⁶ Dr. David M. Finkelstein, "TMD in Asia", The report is available on net at [http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelstein paper.html](http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelstein%20paper.html).

Scuds against Saudi Arabia and a few against Israel as well.³⁷

The very mixed performance of US Army's Patriot batteries against Iraqi Scuds is attributed to the argument that the Patriot was not designed to be an anti-missile system. The Patriot deployed in the Gulf War was an anti-aircraft system and the US had best do something to deal with the very real threat of such regional ballistic missiles. So, to a certain extent, Patriot and other US TMD systems are not the "Son of Star Wars" as some have in the past derisively labelled it, but more properly, "Son of Saddam".³⁸

The old SDIO transformed in the early 1990s into the current Ballistic Missile Defence Organisation (BMDO) with a mandate to consider ways to deal with the emergent threat posed by TBMs in general and to provide impetus to the various TMD programmes that were underway within the Services. The point here is that the US TMD programme was driven by, and continues to be driven by the perception that a generic threat to US forces exists in the form of TBMs and that these missiles have spread to areas of the world in which the US armed forces often operate or might have to operate. The US TMD programme, in Dr. Finkelstein's opinion is not directed against any specific country or any particular region of the world.³⁹

³⁷ *Ibid.*

³⁸ *Ibid.*

³⁹ *Ibid*

Strategies versus Technologies

- TBMs are usually defined as having a range of 100 to 3000 km. The problem for designing missile defences against most TBMs is the speed with which they approach the target (upto 3 km/sec). The boost phase of the TBM is critical because that is the time most heat is generated, thus making it possible to identify its precise location with thermal imaging satellites.
- The second important characteristic of TBM is that, for ranges upto 500 km they spend much of their time inside the atmosphere. Travelling in the atmosphere gives rise to frictional heat and it is far easier to track by radar than a missile travelling higher and outside the atmosphere (in vacuum).
- Third, because the terminal velocities in the case of a TBM are slower than an ICBM, thus a TMD has more time to take repeated shots at an incoming missile or warhead.⁴⁰

Dr. Louis Marquet spells out that the last ditch terminal phase to intercept what has gone through is least stressing of technologies as this is based on matured concepts. The most stressing on the other hand is the intercept in boost phase, which is one of the more exotic aspects of the programme, which perhaps gave it the title of "star wars". It assumes that some systems

⁴⁰ n. 8, p. 54.

would have to be deployed in the space in order to meet the stress time line.⁴¹

Three important aspects about TMD need to be highlighted for better understanding of linkage between strategies and technologies, which are:⁴²

- Firstly, in a "stand alone" configuration, TMD can not solve incoming ballistic missile problem. Technical experts feel that TMD will be most effective when it is part of a multi-layered air defence system. The system must comprise the existing (or their improved variants) air defence guns and missiles, as also various components of the TMD family of weapon systems under development. Mere acquisition of TMD systems to be employed in stand-alone mode may provide some psychological advantage but they may not necessarily solve the in-coming ballistic missile problem.
- Secondly, all TMD systems need not be "netted" to satellite systems, sensors and a host of other systems to work. In other words, hypothetically, if a TMD system was sold to a second party, that second party would not be dependent upon US - controlled peripherals such as satellites for target acquisition and tracking.⁴³ Lower-tier systems are designed as stand-alone point-defence systems. Though such peripherals

⁴¹ n. 5, p. 21.

⁴² n. 36.

⁴³ *Ibid.*

could enhance the capabilities of upper-tier systems. Both upper-tier TMD systems - the Army's THAAD and the NTW - are apparently capable of operating as self-contained units. Hence, the hypothetical sale of an upper-tier system does not *ipso facto* require active US involvement for its operation and networking for the new owner.⁴⁴

- Thirdly; the word "theatre" in Theatre Missile Defence does not mean that TMD will cover the entire "theatre" of a unified command, such as (US) Pacific Command (PACOM) or (Indian) Southern Command. The word "theatre" really means that TMD would be used for force protection within a specified "theatre of war" or "theatre of operations," both of which are vastly smaller areas geographically.

Also to talk about TMD strategically or politically without taking into consideration its technology remains a difficult proposition. There is a need, therefore, of combining this discussion with debate that seeks to differentiate between different types of systems with various components with different theoretical capabilities. All the components, viz., lower-tier systems and upper-tier systems, ground-based systems, sea-based systems, air-borne systems, associated radars and C⁴I systems and the like need to be considered together. Consequently, Dr. David M. Finkelstein observes that discussions about TMD can degenerate into exercises in political rhetoric while technology gets blurred gradually, capabilities are confused or ignored,

⁴⁴ *Ibid.*

and arguments go in a straight line from lower-tier to upper-tier to even NMD systems, and from stand-alone systems to fully-integrated regional architectures.⁴⁵

Impact of 9-11 on TMD Debate

A novel feature suggested in Chairman Mao's revolutionary methods was that in the face of a more powerful enemy a war could nevertheless be won if one had the patience to avoid seeking a decisive action until the enemy's frustration and exhaustion robbed him of the chance of victory. This theory of 'protracted war' will be remembered as Mao's principal contribution to military theory.⁴⁶ Christian revulsion from war, on the other hand, hedges about any humane intellectual approach to the subject. War, in Christian theology, is a sinful activity, unless carried on within a framework of rules, which few commanders are in practice able to obey; in particular, those which demand that he shall have a just aim and a reasonable expectation of victory.⁴⁷ The impact of September 11, 2001 (9-11) attacks on US homeland has to be studied within the broad backdrop of these two streams of war theories.

The first thing that these attacks highlighted was that while the US NMD or TMD remain oriented towards an external enemy they would not be effective

⁴⁵ *Ibid.*

⁴⁶ John Keegan, *History of Warfare* (London: Cox and Wymen Ltd., 1993), p. 51.

⁴⁷ John Keegan, *The Face of Battle* (London: Cox and Wymen Ltd., 1976), p. 60.

against such attacks from within. It also proved that there might be rogue organisations (in addition to rogue states), which can perpetrate such national calamities. Will the events of 9-11 effect the American resolve to press on with the BMD programmes? This question has since been debated with some vigour.

For the US, wars were always fought somewhere else. The US chose to participate when and if it wanted. But 9-11 left no choice. The 9-11 attacks brought out another factor to light that the WMD can be put together with in the US or can be brought assembled. What is the relevance of BMDs in such a scenario? As of now the US administration does not appear to have recast its thinking on the issue of BMD in the background of 9-11, and the testing of BMD components is going on unabated.

These incidents have also strengthened the argument that the US remains excessively focussed on technological solutions to intercept missiles without paying adequate attention to political, economic, international law enforcement, anti-terrorist and anti-proliferation aspects of the WMD threat. US will have to now factor these larger aspects while deciding on the future of BMD programme. And there are indications of this new thinking in the recent trends in US strategic debates, post 9-11.

The US decision to withdraw from the ABM Treaty at a time when both, Russia and US were coming closer on the issues relating to anti-terrorism in a way appears to be one such calculated move. Mr. Bush and Mr. Putin

recognise the need to address nuclear terrorism. Both the leaders have identified new priorities – the anti-terror campaign and the oft repeated pledge to prevent the proliferation of nuclear weapons and ballistic missiles across the world. These priorities could be seen by Russia as a chance to enter the inner circle of the leaders who initiated the current international campaign against terror. Although international scepticism is strong with regard to the capabilities of non-state actors like AL-Qaeda to acquire and deliver viable nuclear weapons as instruments of terror, Russia now appears to share America's anxiety.⁴⁸

Recently, well-known scholar Naom Chomsky pointed out that if anyone wants to cause immense damage in the US, they are unlikely to launch a missile attack. "There are innumerable easier ways that are basically unstoppable." Yet the situation will, very likely, be exploited to increase pressure to develop the missile defence project.⁴⁹ The intelligence fraternity in the US was convinced that if there were threats to the US, they were external. This had led the US to propound the ambitious BMD programme and unilaterally junk the Comprehensive Test Ban Treaty (CTBT).

The *fidayeen* attacks have redefined the way future wars may be fought. The adversaries will fight through mercenaries and terrorists. The theory that each nuclear power possesses a retaliatory capacity that in turn prevents a

⁴⁸ "The US-Russia Consensus", *Times Of India* (New Delhi), November 18, 2001.

⁴⁹ Shastri Ramachandaran, "Holiday from History: The Discovery of Another America", *Times of India* (New Delhi), September 9, 2001.

first strike but this logic may not hold well for ever. In the changed pattern of war fighting where non-state actors are playing a major role, even if a country does want to retaliate, whom does it retaliate against?⁵⁰ Whether nuclear deterrence will work against suicide squads of terrorist is rather difficult a question to find easy answers.

The irony is that the first catastrophic attack on US homeland was administered not by a rogue state or 'state of concern', or 'axis of evil' against which the TMDs are being developed but by a few terrorists carrying box cutters and plastic knives. Mr. Bush may still push for the BMD programme, but suicide attacks like those happened on 9-11 have forever shattered the myth of nuclear deterrence. The hijackers could have dropped a suitcase nuclear bomb or employed a chemical or biological weapon. No one can certify that such weapons are not already in the hands of non-state actors.⁵¹

In a press communiqué in November 2001, IAEA opined, "Although terrorists have never used a nuclear weapon, reports that some terrorist groups, particularly al-Qaeda, have attempted to acquire nuclear material is a cause of great concerns".⁵² As of now, of course, no one seems to

⁵⁰ Rahul Shivshankar, "Armageddon on the Way: Pull Back from the Nuclear Precipice", *Times of India* (New Delhi), September 19, 2001.

⁵¹ Vidya Subrahmaniam, "CTBT, NMD & New War: Don't Play Second Fiddle to US Tunes", *Times of India* (New Delhi) September 18, 2001.

⁵² "Calculating the New Global Nuclear Terrorism Threat". *IAEA Press Release*, November 1, 2001.

challenge the relevance of TMD after 9-11 though there has been felt need for modifying certain parameters of controlling missile and nuclear proliferation.⁵³ But there are indicators that US TMD programme is very likely to be continued with same vigour. Indeed, 9-11 attacks have made US strategists more concerned with views of its allies and friends regarding their perceptions on the likely impact that development and deployments of TMD systems will have on the evolving bilateral and multilateral equations in these theatres especially the Asia-Pacific region.

⁵³ Brahma Chellaney, "A New Nuclear Idiom", *Hindustan Times* (New Delhi), March 21, 2002.

CHAPTER FOUR: **IMPLICATIONS FOR ASIAN SECURITY**

Despite the fact that TMD was conceived as a defensive shield for US military deployed abroad and its allies all over the globe, the TMD has today become almost synonymous with Asia. Two events brought Asia into a sharp focus for US TMD programmes: North Korea's launching of a *Taepodong* missile in August 1998 and the two instances of Chinese missile firings in the Taiwan Straits during 1995 and 1996. Firstly, even if one argues about the fact that the North Korean *Taepodong* launch in August 1998 was merely part of a satellite programme, and not part of an offensive missile programme, the point remains that the launch demonstrated a capability. But most unnerving was the fact that the trajectory of the projectile was dangerously close to Japan.¹

The original impetus for the US to develop TMD systems began with the actual use of TBMs (Scuds) by Iraq during the Gulf War. Nevertheless, TMD became "Asian centric issue" because Chinese and North Korean missile programmes and launches justified the original decisions to move forward with the programme. They no more signal intent at the strategic level other than a sophisticated air defence system. At the same time, the decisions surrounding the future sale or transfer of these systems to second parties

¹ Dr. David M. Finkelstein, *TMD in Asia*, the report is available on net at <http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelsteinpaper.html>.

will have strategic-level political-military implications.² The unprecedented proliferation and development of TBMs in Asia did give the required incentive to TMD programme being pursued by the US currently. Though the programme encompasses global interests of the US, it is for the time being more focussed for its implications with in Asia.

TMD and the Future of Arms Control

TMD would spark a new arms race and threaten world peace as it has already adversely affected the 1972 ABM Treaty, which was the corner stone for safeguarding global strategic balance. The international arms control process and non-proliferation efforts will also be impeded. As the first thing in examining the ABM Treaty in the light of development of BMD systems is that it has to be viewed in the context of super power politics. Besides, it has a direct relationship with offence and defence, as these two are inseparable. To be precise, any enhancement in defensive capability to a large extent implies strengthening and enhancing the potential of one's offensive capabilities. It is this aspect due to which a need arose to conclude the ABM Treaty at the first place. By the same logic, developing BMD systems beyond the permitted or agreed terms of reference, with a view to deploy; the US would be disturbing the agreed offence-defence balance of power between parties to the ABM Treaty. This has been the bone of contention between the two signatories and another emerging world power in this nuclear power

² *Ibid.*

struggle. China; for example, fears of its nuclear capability vis-à-vis US would stand neutralised. China's dream of unifying with Taiwan would be shattered in case the TMDs are provided for latter's protection against the Chinese.

There were some advocates in the US, on the other hand, who describe ABM Treaty as part of the Cold War mentality and recommend it be discarded or revised. But the Chinese do not believe that the end of cold war era has completely transformed bilateral rivalries. "Like all the other arms control treaties, it reflects the interdependent relationship among contracting parties that is, former Soviet Union (now Russia) and US in security matters. Such a relationship did not disappear with the end of Cold War, but rather is becoming even stronger in the era of globalisation. The ABM Treaty is self-evidently effective. It is not outdated". Says Chinese Foreign Minister Tang Jiaxuan.³

Similarly, Russia's position on START III did not include the right to MIRVed ICBMs, it was reported that certain US negotiators had more than once hinted, privately that MIRVs might be allowed in exchange for concessions on ABM Treaty amendments. However, Russia considered amendments to the ABM Treaty an excessive price to pay for the right to MIRV mobile ICBMs.⁴

³ *The Times of India* (New Delhi), March 31, 2000.

⁴ "Putin sets out Arms Control Agenda", *Strategic Digest* (New Delhi), February 2001, Vol. XXXI, No. 2, p. 189.

The other important issue is of commonalties of certain features of TMD and NMD. Igor Ivanov, the Foreign Minister of Russia, said in September 2000, that there are three principal areas of the TMD programme where overlap might occur and go against the spirit of ABM Treaty, these are.⁵

- TMD ground based interceptors may prove sufficiently accurate and versatile to intercept slower ICBMs re-entering the atmosphere at speeds, which TBMs now achieve.
- The upper-tier TMD interceptors are aboard ships and are, therefore, mobile and might violate the ABM Treaty's prohibition against mobile ABMs.
- The boost phase interceptors (BPI), if deployed in areas near Russian ICBM fields, might be able to destroy ICBMs during their slow-moving, lift-off stage.

Earlier, in one part of the interview, Mr. Putin appeared to propose sharing technology with the US and other countries to create missile defence.⁶ After the disintegration of the former Soviet Union, the Russian leadership had expressed their interest in co-operating with the US to develop an integrated Global Protection Against Limited Strikes (GPALS) system, which could serve to defend against the ballistic missile threats from the Third World.⁷

It is feared that TMD deployments may hinder further reductions in Russian strategic nuclear forces. Russia may withdraw from the ABM Treaty if US fails to abide by it. If Russia refuses to amend the ABM Treaty, the US had stated that it will consider unilaterally withdrawing from it on six months' notice, as

⁵ Igor Ivanov, "The Missile - Defence Mistake: Undermining Strategic Stability and the ABM Treaty", *Foreign Affairs* (New York), September/ October 2000, Vol. 79, No. 5, pp. 15-16.

⁶ Vladimir Putin interview, *Voice of America*, Dateline Berlin, February 6, 2000.

⁷ Christoph Bluth, *The Nuclear Challenge: US-Russian Strategic Relations after the Cold War*, (Hants: Ashgate Publishing Ltd., 2000), p. 114.

allowed by Article XV, though no US ally, much less Russia or China, favours this. TMD systems are too expensive and may stimulate arms races with Russia or China which could further increase the cost of maintaining security and may result in undermining the independent nuclear deterrent of France and the UK.⁸

Advocates of the BMD programme in the US feel that its deployment is essential for the US security, irrespective of its effect on the ABM Treaty. Critics on the other hand, fear that the adverse effect on the ABM Treaty might upset the strategic stability and may result in a renewed arms race. And any arms race between Russia and US may have a cascading effect amongst smaller powers. The nature of threat to the US needs detailed analysis before the debate on the development of BMD systems and their implications on the ABM Treaty can be concluded. The logic behind the ABM Treaty of 1972 was that the deployment of any more defensive means would 'restrict reduction' in the number of nuclear warheads mounted on offensive missiles. This would, therefore, impede the progress expected from the START negotiations, as nuclear weapon states would aim at possessing enough numbers to overcome the defensive shield.

The US President, Mr. George W. Bush ended months of speculation by announcing that the US would definitely pull out of the 1972 ABM Treaty.⁹

⁸ Dean A. Wilkening, *Ballistic Missile Defence and Strategic Stability*, Adelphi Paper 334 (Oxford: Oxford University Press, 2000), pp. 16-17.

⁹ *Time* (Singapore), September 3, 2001, p. 8.

Signals for possible accommodation or adaptations multiplied after 9-11. In fact, President Putin's somewhat surprising, almost unconditional support for his American colleague's fight against international terrorism attenuated what in the early stages of the NMD debate, looked like a clash of almost diametrically opposed positions. At their meeting in Shanghai on October 21, 2001, the two Presidents stated that "they had made progress in narrowing their differences on the ABM Treaty."¹⁰

In December 2001, the US gave Russia the required six months' advance notice of its intentions to withdraw from the ABM Treaty as per Article XV of the Treaty. This is the first time since the end of World War II that the US has decided to withdraw from a major international treaty. The US reasons for withdrawal could be summarised as given below:

- Quest for missile shield.
- Inception of a new strategic order in the post-cold war era.
- New possibilities of rapid progress in the field of technology and space research, as further development would have violated the ABM Treaty.

The choice Bush had to make was either to curtail further research or amend/abrogate the Treaty as the negotiations with Russia on the issue had reached a dead end. Once the US decision to withdraw from the Treaty was learnt, China started negotiations with Russia by invoking the "Good Neighbourly Treaty" agreed upon in 2001. Surprisingly the reaction of Beijing has been much milder than expected. China may respond, however,

¹⁰ *International Herald Tribune* (New York), October 23, 2001, p. 5.

in actions, i.e., adopt a tougher posture at the Conference on Disarmament, increase the deployment of SRBMs quantitatively near Taiwan, go in for rapid development in MIRVing and decoys to neutralise US TMD and last but not the least accelerate the work on cruise missile.¹¹

In the past with the ABM Treaty at its root, many international agreements on arms control and disarmament have since been concluded. These include, Intermediate-Range Nuclear Forces (INF) Treaty eliminating IRBMs and SRBMs, followed by START I and START II on implementation of which the warheads will be reduced fourfold. With the drafting of START III still deeper cuts in strategic offensive arms are expected. Igor Ivanov had warned, "If the US unilaterally withdraws from the ABM Treaty, Russia will no longer be formally bound by its obligations to reduce strategic armaments, and the very process of disarmament will be inevitably terminated, if not reversed." He further added, that as long as nuclear arsenals exist, Russia and the US would not be able to do without the ABM Treaty.¹² The reaction of Russia on the notice given by the US to withdraw from the ABM Treaty has so far been much milder. But irrespective of Russian immediate reactions, the Treaty's abrogation could derail other international arms control efforts as well.

China could build a strategic missile force large enough to overwhelm US ABM system. This would have direct strategic implications for the South

¹¹ Rajesh Rajagopalan, P.K. Ghosh and M.V. Rappai, "Abrogating the ABM Treaty", *The Hindu* (New Delhi), January 1, 2002.

¹² n. 5, pp. 164-165.

Asian region amongst others. Looking at trends in China's modernisation and expansion of its capabilities India would be forced to further expand its stockpile, which will eventually have an adverse effect on Pakistan and an arms race may ensue involving a number of countries. Implications of the development of TMD system, therefore, remain very grave and far reaching and they may disturb the strategic equilibrium of the entire world.

Response of Major Powers

There has been a severe criticism of the TMD programme by the two out of the balance four nuclear powers - Russia and China - and the degree of scepticism has been far more modest in the case of France while Britain is the only one of the five nuclear powers that has not criticised TMD. Response of China will be discussed under local powers, in the subsequent section.

To begin with Russia's response; on 23 October 1995, in continuation to their ABM Treaty of 1972, the US and Russia had agreed that TMD systems would be tested only against targets with a velocity of less than 5 km/sec and a range of less than 3,500 km. They had also agreed that the interceptors with velocities less than 3km/sec would only be regarded as in compliance with the ABM Treaty. Another problem relates to the proposals to introduce space-based systems for tracking ballistic missiles. This would consist of between 12 and 40 low-orbit satellites with infrared and visible spectrum sensors, which was debated. Russia and the US did eventually

resolve their differences and reached a 'TMD Demarcation Agreement' which included very important issues such as¹³:

- ABM Treaty was extended to include Belarus, Ukraine and Kazakhstan.
- The agreement on low-velocity TMD interceptors was accepted.
- Neither Russia nor US would deploy either low-velocity or high-velocity TMD systems against each other.
- Parties would not develop, test or deploy space-based TMD interceptors or TMD systems based on other physical principles (e.g., lasers).

Colonel General Vladimir Yakovlev, Commander of the Russian Strategic Missile Forces, however, said in August 2000, "The shield is always weaker than the sword. Developing new weapons is likely to give much better value for money than the NMD (or TMD) system. But this would lead to a new version of the cold war, and that is not in any body's interest...The likely threats are, in fact, closer to Europe and Russia than to the US".¹⁴ This was the stern Russian warning to the US, conveyed in no uncertain terms threatening of a new Cold War.

In a press conference, Sergei Ivanov, Russia's second senior-most leader and chief of the Russian Security Council told the Associated Press that, "The threat from rogue states is greater to Russia than the US. We're closer and even a medium-range rocket can threaten us while it can't at all threaten the US ... Even the modernisation, as the Americans say, of the ABM Treaty will

¹³ n. 7, pp. 119-120.

¹⁴Views available on web at, http://www.basicint.org/nuk_ooglobal_quotes.htm#Russia

lead to extremely dangerous and unpredictable tendencies".¹⁵ In this message, the Russian's views on the consequences of tinkering with the ABM Treaty were fully clarified. They do not seem to agree with the US threat perception, which 'allegedly' is the basis for initiating the TMD programme.

Vladimir Putin, President of Russian Federation summed up his views regarding the US ABM programme and said, "We're against having a cure, which is worse than the disease"¹⁶. Igor Sergeyev, Russian Defence Minister opined against American ABM plans that such a step would trigger an uncontrollable missile and nuclear weapons race. He said that such actions may narrow down the prospects for further nuclear disarmament and may considerably weaken the non-proliferation regime.¹⁷ All these warnings by senior Russian leaders (teaming up with China on this issue) convey their opposition to the US idea of ABM programme in general and TMD in particular.

Similarly, the well-known French Foreign Minister, Hubert Vedrine, believes that there is no translation for rogue state in French. "It's not a geopolitical category we use", he said, "It is difficult for Europeans to imagine one of these rogue states attacking the US".¹⁸ President Jacques Chirac, opined that the European Union (EU) and Russia have an identical viewpoint - they

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ *Ibid.*

¹⁸ *Ibid.*

(France and Russia) had condemned any potential revision of the ABM Treaty - believing that such a revision will involve a risk of proliferation that will be very dangerous for the future.¹⁹

In a joint press conference, held on October 25, 1999, with Jiang Zemin, President of the People's Republic of China, Jacques Chirac had noted that any undermining of the ABM Treaty would be dangerous and destabilising and therefore, carried risks.²⁰ Alain Richard, French Defence Minister in February 2000 declared that France does not know how to evaluate the side effects of the missile defences. "We need much more information and consultation with in NATO before any realistic decision about deployment can be made".²¹ This was the mildest comment from a French leader; however, France in general has been the most vocal opponent of the US missile defence programme in the Western Europe.

Britain has been the only one of the P5 where at least some segments of the government have clearly supported US vision on the TMD projects. Iain Duncan Smith, Conservative defence spokesman had created a doubt by saying that the Foreign Office and the Ministry of Defence on BMD, is clearly hopelessly split.²² It implied that one of these departments was in favour of the US programme. Robin Cook, UK Secretary of State for Foreign and

¹⁹ *Ibid.*

²⁰ *Ibid.* – discussions during Joint Press Conference held on October 25, 1999.

²¹ *Ibid.*

²² Iain Duncan Smith's views expressed are available at, http://www.basicint.org/nuk_ooglobal_quotes.htm#Euro.

Commonwealth Affairs, on the other hand was more precise in his criticism and said, "The Government has repeatedly made clear that it values the stability, which the ABM Treaty provides, and wishes to see it preserved".²³ This shows that even its staunchest ally continues to have reservations on the US TMD programme. NMD/TMD, of course, have other technical and political pitfalls that make it appear as another utopian mirage. And the debate on its cost/benefit analysis remains inconclusive to say the least.

Response of Local Powers

China

China believes that nuclear weapons have been a contributing factor to the enhancement of its influence in international affairs ever since their development. It is, therefore, expected that China will continue to seek the improvement of ICBMs, hoping that it will add strategic importance in dealing with the US. China's efforts to maintain and improve nuclear forces are expected to give it a valuable edge in the post-Cold War era.²⁴ It will be fair to infer that Induction of TMD in Asia by the US will provide sufficient impetus to China to change its present nuclear policy for worse.

China's main concern is that TMD will be shared with other US allies in the region and it would serve as the technological glue for an anti-China

²³ n. 14.

²⁴ Zhihai Zhai, "The Future of Nuclear Weapons: A Chinese Perspective", in Patrick J. Garrity and Steven A. Maaranen (Eds.), *Nuclear Weapons in the Changing World: Perspectives from Europe, Asia, and North America*, (New York: Plenum Press, 1992), p. 170.

coalition. China's core objections to the TMD programme are, at this point, mainly political and tied to Taiwan. China's Foreign Minister Tang Jiaxuan's expression sums up their response to the BMD programme under development by the US. He says, "It is therefore, neither wise nor advisable to build a so-called missile defence system, whose effect is questionable, at the expense of compromising or even quitting the international arms control and non-proliferation system after so many years efforts, including by the US".²⁵

China has the potential of becoming "rich and powerful" and can afford to divert resources for its own security if challenged by the US. Moreover, "China is the only country to have succeeded in obtaining massive technological assistance from its ally-turned adversary (Soviet Union) as well as from an adversary-turned supporter (US) in order to become a major military power".²⁶ China has often turned the international strategic difficulties to its advantage. The question is whether this can happen again in China's response to the US TMD programme?

Despite the fact that Beijing is not a signatory to the ABM Treaty, both Chinese and Russian leaders, view TMD as part of grand design of the US to maintain global strategic superiority. Beijing holds the view that Washington

²⁵ n. 3.

²⁶ Matin Zuberi, "Soviet and American Technological Assistance and the Pace of Chinese Nuclear Tests", *Strategic Analysis* (New Delhi), October 2000, Vol. XXIV, No. 7, p. 1263.

will act unilaterally to pursue its interests without any regard for the provisions of the UN Charter or ABM Treaty or even Chinese sovereignty.

US-led NATO bombing in Kosovo in 1999 without authorisation by UN Security Council, accidental bombing of the Chinese Embassy in Belgrade, US moral and military support for Taiwan, the revision of US-Japanese Defence Co-operation Guidelines, 1999 Cox Report alleging Chinese nuclear spying in the US and continued US allegations of human-rights violations in China; are some of the examples which are quoted by Beijing for their inhibitions against the US real motives. Chinese leaders fear that US missile defences are aimed at them, and the US is emerging as the main threat to China's security.²⁷

China's greatest concern is the deployment of TMDs in the territories on its periphery. The upper-tier TMD systems can cover the entire territory of US regional allies though designated as 'theatre' missile defences, and these are virtually 'national' missile defences for these countries. US TMD may not cause much concern when deployed in South Korea as China's relations with South Korea have been on the upswing since the early 1990s. And while, TMDs deployment in Japan would pose a long-term challenge for China, it is the US TMD assistance to Taiwan that would be most provocative.

Beijing places Taipei in a special category of international relations and any interference in Taiwan is taken as a challenge to China's sovereign affairs.

²⁷ n.8, p. 18.

Chinese leaders argue that the US TMD co-operation is tantamount to a military alliance with Taiwan, and it would encourage further moves towards independence. This equation could bring war between China and Taiwan, possibly involving the US. The entire exercise is threatening and intimidating as viewed by Beijing. Chinese leaders oppose TMDs because they believe that the military balance in Asia would shift against Beijing.²⁸

China's response could include launching a massive nuclear force modernisation drive, withhold ratification of the CTBT and withdraw from negotiations on disarmament and arms control.²⁹ China's co-operation with Russia on countermeasures can not be ruled out as both the countries share similar concerns. In the later half of 1998, the Presidents of China and Russia had agreed in a joint statement upholding the ABM Treaty as, "one of the foundation stones for maintaining the World's strategic stability".³⁰

Although not officially declared, the position of "limited deterrence" seems to be gaining ground in China. Limited Deterrence means, "having enough capabilities to deter conventional, theatre and strategic nuclear war and control and suppress escalation during a nuclear war".³¹ To counter the TMD, China can simply build more missiles. According to a 1997 US's Defence

²⁸ *Ibid.*, p. 21.

²⁹ John Wilson Lewis and Hua Di, "China's Ballistic Missile Programmes: Technologies, Strategies, Goals", *International Security* (Cambridge), Autumn 1992, Vol. 17, No. 2, pp. 21-22.

³⁰ Editorial, "The Dragon and the Thunderbolt", *Journal of the United Service Institution of India*, (New Delhi), April-June 2000, Vol. CXXX, No. 540, p. 229.

³¹ Ehsan Ahrari, "China Eyes NATO's Nuclear Doctrine", *Jane's Intelligence Review* (London), April 1999, Vol. 11, No. 4.

Department Report, China has developed the capability to build as many as 1,000 new ballistic missiles by the Year 2010.³²

To allay concerns that the US might use TMD systems to beat Russian ballistic missiles, the US and Russia had agreed as part of the TMD Demarcation Accords that TMDs 'will not be deployed by the Parties for use against each other'.³³ To reduce concerns further and for confidence building, it was suggested that the US should consider allowing on-site inspections at garrisons and at facilities producing TMD missiles, launchers and radars, so as to reassure at least Russia that it is not about to expand its capabilities rapidly.³⁴ There has been no such negotiation or understanding between the US and China.

The overt milder reaction of China to the US notice to withdraw from the ABM Treaty could be attributed to certain compulsions:

- Since the Chinese government's priorities lie in economic development at present, she would consider that nuclear modernisation does not become a financial burden.
- Therefore, in deciding the response to US TMD the timing and affordability would remain the central issue.
- China would also not like to create a perception of increased threat to other countries, which can interfere with the modernisation and economic

³² Shulshy Khalilzad, *The United States and a Rising China: Strategic and Military Implications* (California: RAND Project Air Force, 1999), p. 38.

³³ n. 8, p. 57.

³⁴ Ibid.

development.

Japan

The reaction of Japan must be seen in the light of its nuclear capability. Japan is called a recessed nuclear threshold country because of its capacity to achieve the status of the Nuclear Weapon State at a short notice.³⁵ Japan already possesses the most advanced state of technology in the field, i.e., gas configuration and atomic vapour laser isotope separation enrichment techniques. These capabilities enable Japan to convert its enrichment facilities and spent fuel-reprocessing facilities for military uses. Japan is one of the two countries in the region, which have nuclear-powered submarines. It is therefore, inferred that Japan has sufficient capabilities to develop hundreds of nuclear weapons without difficulties once the political leadership changes mind and policy.³⁶

The controversy over the future deployment of the TMD systems in Asia Pacific region is much more political rather than operational. Without doubt sharing TMD with Japan may take Tokyo down the road to a more active military role in the region. The potential transfer of TMD to Japan has many facets.³⁷ Japan, though already has some lower-tier TMD systems. Would possessing upper-tier systems make a difference, this is an open-ended

³⁵ Jasjit Singh, "Prospects of Nuclear Weapons Proliferation", The UNIDIR Conference Paper on *Nuclear Deterrence: Problems and Perspectives for the 1990s*, (Paris: UNIDIR, December, 1992).

³⁶ Yong-Sup Han, "Nuclear Disarmament and Non-Proliferation in Northeast Asia", *Research paper No. 33, UNIDIR*, (New York: UNIDIR, 1995).

³⁷ n. 1.

question. Tokyo's future role in the region will surely rest upon Japanese domestic political decisions rather than the physical possession of new TMD systems. This only makes China far more sceptical about TMD's implications.

Koreas

US has had some kind of TMD systems deployed in the Asia-Pacific for some time now. There have been batteries of Patriot missiles organic to US Forces in Korea for quite a couple of years; certainly since 1994 at the height of US-DPRK tensions over North Korea's nuclear programme.³⁸ But it is argued that the dispatch of TMD to Korea under those circumstances was an act to demonstrate political resolve on the part of the US and not one of real military significance. Being within range, the major threat to Seoul is not from missiles but conventional artillery. Therefore, the deployment of TMD batteries in South Korea was really a political and psychological act as in the case of Patriot deployments in Israel during the Gulf War.

North Korea is the only country that is likely to sell complete missile systems - based on 1940s/1950s-vintage Soviet Scud technology, to the *states of concern*. The US has had a near-total trade embargo on North Korea for over 45 years; worked hard to stop individual shipments of North Korean missile technology; and has imposed sanctions on Iranian (1992 and 1996), Pakistani (April 1998), and Syrian (1992) entities buying missile technologies. US had also made missile non-proliferation a prerequisite for

³⁸ *Ibid.*

normalising bilateral relations with the DPRK.³⁹ In response to the deployment of TMD by the US in East Asia, it will become very difficult for any control regime to dissuade North Korea from not selling complete missiles or their components commercially.

Taiwan

In the case of Taiwan, China's ballistic missile threat makes TMD an attractive system to consider. But in 1999 TMD became enmeshed in Taiwan domestic politics as the Legislative Yuan took up and debated the pros and cons of whether to consider "joining" the US TMD programme. The Taiwan debate was clearly a notional and domestic debate because Taiwan was never invited by the US to join in the TMD programme at first place. Though this was a matter of domestic politics and domestic posturing but it raised the profile of TMD.⁴⁰

Transferring TMD to Taiwan may encourage Taipei to continue to resist coming to terms with Beijing and later selling additional TMD systems to Taiwan could provide the technological impetus under which US-Taiwan military co-operation would be resurrected. Without prejudice to the issue of whether or not the US should sell additional systems to Taiwan it could be said that possessing additional TMD systems might provide Taiwan with a false sense of military security. A decision to revive the defence relationship

³⁹ "Ballistic Missile Threat and US Policy", July 14, 1998, available at <http://www.fas.org/irp/news/1998/07/980714-threat.htm>.

⁴⁰ n. 1.

with Taiwan could cause serious policy questions about the basic US stance toward China.

To sum up, despite political rhetoric being focussed on *states of concern*, it is China that remains the target of TMD in Asia. At least in Beijing it is perceived that the US has a strong desire to neutralise Chinese missile capability vis-à-vis Taiwan through the TMD cover. While pursuing the policy of political and economic relationship with China; US, with the help of TMD deployment in Japan, Korea and Taiwan, can achieve its aim of strategic containment of China. Especially, in the case of deployment and technological co-operation in the field of TMD with Japan, US is likely to tread carefully as it may rekindle the fears of Japan dominating the region one day and challenging the dominating position of the US itself. As a result, China is also likely to be the only power that may launch its own political or technological initiatives to counter TMD systems deployment in the Asian Theatre. This, for sure will have far reaching implications for China's neighbouring countries, especially those that do not enjoy a very comfortable equation with China. India, by extension then, is sure going to have its own share in responding to new security challenges that deployment of TMD in Asia may throw up at India's policy makers.

CHAPTER FIVE: IMPLICATIONS FOR INDIA'S SECURITY

Amongst various other developments like the rise of China or East Asian financial crisis, the May 1998 nuclear tests in South Asia drew the world focus on the Asian region. India's nuclear tests were followed by Pakistan conducting similar tests of their own nuclear weapons. Indian government justified the tests by giving reasons like, not so friendly Pakistan; nuclear powered China and a long-standing complaint about an inequitable international non-proliferation regime seen as denying India right to have nuclear weapons.¹ The immediate international pressure on two states following the nuclear tests, combined with a desire on the part of India and Pakistan to restore some appearance of respectability in the international community, might have led to restraint in the deployment of their nuclear arsenals. Yet these have added to the problems of India with the US.²

Neither India nor Pakistan perceives any direct nuclear threat from the United States. Yet any US decision to deploy TMD in Asia region will have to take into account the new profile of South Asia and this is bound to alter the global nuclear weapons environment. To the least, US response would

¹ "India's Letter to Clinton on the Nuclear Testing", *New York Times* (New York), May 13, 1998. And the site of Government of India (then) updated on May 27, 1998 available at <http://www.indiagov.org/govt/evolution.htm>.

² For additional details on problems see Bharat Karnad, "A Thermonuclear Deterrent", in Amitabh Mattoo (Ed.), *India's Nuclear Deterrent: Pokhran II and Beyond*, (New Delhi: Har-Anand Publications, 1999).

provoke negative reactions from Russia and China, further affecting the nuclear stability in South Asia. The potential impact of TMD on China and in turn on South Asia can not be, therefore, either neglected or undermined.

NMD/TMD also represent some kind of a return to unilateralism in US foreign policy that would be to signal the absence of confidence in global non-proliferation norms, institutions, and regimes. It would communicate the presumption that states must rely on their own resources and technical means to deter and ward off threats to national security, as against building a common global community of security interests. This would complement the argument of nuclear hard-liners in India and Pakistan that nuclear weapons are essential to safeguard national security and retain strategic autonomy.

The end of Cold War meant a diversion from earlier style of international relations based on the balance of power and shifting alliances. The vast destructiveness of nuclear weapons and much improved lethality of conventional weapons call into question the utility of war as a policy instrument. The wars fail to settle the conflicts that lead to them e.g., the Arab-Israel conflict or that between India and Pakistan.³ Yet the security situation remains unchanged between most of these regional conflicts.

Unlike NMD, certain experts feel that TMD in any of its variants does not

³ Joseph Rotblat, Jack Steinberger and Bhalachandra Udgaonkar, (Eds.), *A Nuclear Weapon Free World: Desirable? Feasible?* (Colorado: Westview Press, 1993), p 39.

automatically raise questions about the future of international nuclear arms control regimes. TMD, they believe, is a theatre level system that aims to defend against conventional ballistic missiles, not nuclear weapons. Over the past couple of years the low profile of TMD has changed because TMD is now being viewed through the lens of some very significant security issues which are now being examined. Especially, its linkage with rising China has been a matter of debate.

Linkages of China, India and Pakistan

US plans to develop and deploy a surface-to-air missile capable of shooting down a ballistic missile in Asian region have been in the pipeline for quite some time. Patriot system has already been fielded and put to use. Other variants and more advanced systems are still in different stages of research, development and testing. China, the emerging Asian power, has been one country most concerned with these developments. Should the US decide to deploy a limited NMD (and TMD, due to systems' overlaps), China's small long-range nuclear force is likely to be rendered worthless and its SRBM-MRBM potential reduced considerably. China, therefore, would take the changes brought about by the US BMD programme very seriously and accelerate the modernisation of its nuclear arsenal. And, this in turn is bound to have major implications for the strategic postures of most of China's neighbours, including both India and Pakistan.

The problem with US non-proliferation policy with regard to South Asia has been that whereas the US advocates a regional nuclear rollback, its policy on missile defence threatens to wreck any meaningful efforts towards nuclear disarmament. However, before dwelling on the security implications for India from the induction of TMD systems, it seems worthwhile to highlight the linkage of BMD with Indian and Pakistani Nuclear tests and to outline certain imperatives, which brought India and Pakistan to their current state of equations with the US.

One of the major principles behind India's nuclear weaponisation is the doctrine of equality in both seeking security and disarmament. In the context of nuclear proliferation, India has clarified its stand that accepting a nuclear rollback can only be possible as part of a globally negotiated, time-bound, and verifiable nuclear disarmament regime. Unless that happens, India will build, deploy, and maintain a minimal, survivable, and credible deterrent. This doctrine is one of the principle reasons why India continues to reject the Treaty on the Non-proliferation of Nuclear Weapons (NPT), and other non-proliferation regimes.

On the other hand, Pakistan has always sought to match India and maintain parity, if possible. Pakistan, too, has rejected the NPT for its unequal obligations. However, it has been observed that Pakistan's security interests are tied to India's military posture. As a result any alteration in the nuclear equilibrium between China and India would result in quantitative

increase in Pakistan's nuclear weapons. This would adversely effect the regional arms control initiatives and may serve as an incentive for other potential proliferators to follow suit.

Although India and Pakistan have ruled out an immediate moratorium on fissile material production, neither country is averse to accepting a fissile material cap as part of a globally negotiated agreement. Both countries may use this interval, until such a treaty is negotiated, to augment their stocks of fissile material. However, the expansion of China's nuclear arsenal could change India and Pakistan's strategic calculus, causing both countries to seek delays in negotiating a Fissile Material Cut Off Treaty (FMCT).⁴

China's Likely Response

China's current ICBM force is small (about 20) and possibly a robust low-end US NMD could nullify it. As the Chinese modernise they are likely to increase and improve their nuclear forces, including those that can reach the US. Additional resources for the Chinese military have been spent mainly on improving its ability to resolve the Taiwan issue and also raise the cost of US intervention in defence of Taiwan.⁵ China has also shown concern about potential sales of advanced TMD systems by the US, such as THAAD to other

⁴ Gaurav Kampani, *How a US National Missile Defence Will Affect South Asia*, Report of May 2000 available at <http://cns.miis.edu/pubs/reports/usmsla.htm>.

⁵ David C. Gompert and Klaus Arnholt, *Ballistic Missile Defence: A German-American Analysis*. The research in this report was conducted jointly by Stiftung Wissenschaft und Politik (SWP) and RAND Europe (RAND, 2001), p. 17.

Asian countries.⁶ For example, the sale of highly capable systems to Japan, is viewed by some Chinese as the shield to complement a potential future nuclear sword.

It is probably true that future TMD programmes have the potential to cause the planners in Beijing to worry about the viability of their missile forces. But, it is an obvious fact that it is faster and cheaper to build more conventional missiles than to build and buy more TMD systems. In other words some Chinese argue that the simplest antidote to TMD is to overwhelm it. Some in China feel this would not be a problem for them. So, while there are some likely operational concerns about TMD, they do not seem to threaten the core of China's concerns. The core objections seem to be political.⁷

China has warned that it will respond to TMD deployments by not only accelerating its own nuclear modernisation programme; but also expand its strategic deterrent quantitatively. China is thus likely to invest in a more robust nuclear triad, in that, single warhead liquid-fuel missiles would be replaced with longer-range, multiple warhead missiles fired by solid-fuel systems.

⁶ These views were expressed by Sha Zukang, ambassador of China for Disarmament Affairs at the First Committee of the Fifty-First Session of the UN general Assembly, October 1996; and quoted in Feiveson, Harold A., (Ed.), "The Nuclear Turning Point: A Blueprint for Deep Cuts and De-Alerting of Nuclear Weapons" (Washington, D.C.: The Brookings Institution, 1999), p. 90.

⁷ Dr. David M. Finkelstein, *TMD in Asia*, The report is available on net <http://www.nautilus.org/nukepolicy/workshops/shanghai-01/finkelstein.paper.html>.

China also uses missile sales and the ambiguity of its commitment to MTCR standards as a bargaining chip to achieve other foreign policy goals with the US. For example, during negotiations with American diplomats, China linked the M-11 transfers to Pakistan with the US sale of 150 F-16s to Taiwan.⁸ Similarly, continuing technological assistance to Pakistan may be linked to US threats to transfer TMD systems and other sophisticated conventional arms to Taiwan. China probably hopes to use the threat of ballistic missile proliferation to persuade the US to forego any potential transfer of TMD systems to Taiwan.

US development of TMD systems could also force changes in China's deployment posture. China's nuclear warheads are currently stored separately from their ICBM launchers as these are liquid-fuelled and requiring lengthy launch preparations. However, TMD could prove to be the decisive factor that might persuade Chinese leaders to transform a small strategic deterrent into a full nuclear war-fighting capability to be maintained at a higher state of alert.

China could also react by ending its informal commitment to abide by the MTCR. Chinese officials had warned the US against modifying the ABM Treaty and deploying TMD or co-operating with Taiwan on such a BMD system. They also draw links between offensive and defensive missile systems and have

⁸ For additional information and analysis see, Philip Saunders and Jing-dong Yuan with Gaurav Kampani, *How and Why China Proliferates Ballistic Missiles to Pakistan* at <http://www.rediff.com/news/2000/aug/22spec.htm>.

argued that Taiwan could use technologies acquired for a missile defence to develop offensive systems. To what extent these changes in Beijing would effect South Asia?

Impact on South Asia

A modernised Chinese nuclear force and more robust posture will have a negative cascading effect in South Asia. Notwithstanding China's declared intentions, changes in its force capabilities and deployment posture will influence the nuclear debate in India and in turn affect Pakistan's strategic response.

The likely Chinese response to TMD activities in Asia could also cause problems like, arms control and non-proliferation efforts and declining to participate in a fissile material cut-off in order to retain option of producing more material for additional warheads. China may view US-Russian co-operation on BMDs as directed against it and as an even more serious threat than unilateral US defence activities. In response to all the points discussed above Chinese build-up of offensive forces would be expected. As long as it would be possible to saturate the opponent's missile defence, it might seem appropriate to China to acquire more numerous or more sophisticated TBMs.

Pakistan

Pakistan is China's time-tested ally in South Asia and the two countries are united by their rivalry with India. In the context of the nuclear arms competition in the region, China views Pakistan as the underdog and has,

therefore, accepted the task of underwriting Pakistan's security against advances in the Indian nuclear and missile programmes. The Chinese have also probably calculated that aiding Pakistan with nuclear and missile technologies will divert India's military attention and prevent it from focusing on China. This goal might have assumed added priority after May 1998, when India decided to deploy a minimum deterrent with China as its primary target.⁹

Pakistan's leaders have far simpler motivations and far smaller ambitions. They remain engaged in a bitter competition with India; whether affordable or not. Pakistan's nuclear weapons were perceived, as a counter to India's nuclear weapons by some as also as an equaliser against India's conventional military superiority.¹⁰ It is unimaginable to many experts to think that Pakistan leadership would give up nuclear weapons without achieving parity not only in these but also in conventional weapons. Pakistan's refusal to agree to a no first use of nuclear weapons proposal offered by India is a result of the perceived imbalance.¹¹ Any changes in the nuclear policy of India as a result of modernisation of Chinese ballistic missiles to meet the challenge posed by US NMD and TMD would directly effect Pakistan.

⁹ *Ibid.*

¹⁰ Also see for additional information on this issue; Zia Mian, "Renouncing the Nuclear Option", in Samina Ahmed and David Cortright (Eds.), *Pakistan and the Bomb*, (University of Notre Dame Press, 1998).

¹¹ Zia Mian and M. V. Ramana, "A Nuclear Gordian Knot: South Asia and the Limits of Deep Cuts" in Harold A. Feiveson (Ed.), *The Nuclear Turning Point: Blueprint for Deep Cuts and De-alerting of Nuclear Weapons* (Washington D.C.: The Brookings Institution, 1999), p. 361.

US officials have reported a nexus between North Korean officials and important figures in Pakistani nuclear establishment. The implication is that Pakistan may be funnelling nuclear weapons technology to North Korea in response to North Korea's ballistic missile technology. This would assist both the countries receive what they lack in technology.¹² And here success of North Korea's nuclear bargaining vis-à-vis United States will only further inspire Pakistani nuclear weapons proponents.

India

A study conducted by RAND in 1998 inferred that, given current trends, India would become the world's fourth largest economy some time in the first quarter of twenty-first century.¹³ The study further forecasts that it will remain the weakest of the Asian great powers (China and Japan) and will nonetheless become the dominant entity along the northern Indian Ocean and will serve to diminish emerging Chinese power by possibly participating in some future US led containment strategy aimed at restraining China. As a consequence, India will increasingly play an important role in continental geopolitics thanks to the fact that it will "emerge as the only Asian power not seriously challenged regionally".¹⁴

¹² "Pakistan-North Korea Nexus Upsets Us", Chidanand Rajgatta, *Times of India*, (New Delhi), June 3, 2001.

¹³ Ashley J. Tellis, Chung Min Lee, James Mulvenon, Courtney Purrington and Michael D. Swaine, "Sources of Conflict in Asia" in Zalmay Khalilzad and Ian O. Lesser (Eds.), *Sources of conflict in the 21st Century: Regional Futures and US Strategy*, (Washington: RAND, 1998) p. 153.

¹⁴ Sandy Gordon, "South Asia After the Cold War", *Asian Survey* (Berkeley), Vol. 35, No. 10, October 1995, p. 895.

To achieve this distinction, India will have to remove all possible obstacles, which have the potential to retard its economic growth. Political and military relations with neighbours would emerge as the most important security elements in which unhindered growth can take place. But this report clearly seems to discount the fact that India's security is directly linked with Pakistan and China. Besides this, what happens in East Asia is also important to India. Any disturbance in the peace and tranquillity in East Asia due to deployment of TMD systems would result in provocation for China. A similar adverse situation can arise in North Korea in case the TMD deployments take place in Japan and South Korea. In a state of confrontation it would become difficult for India to take sides. Therefore, the implications for India of TMD are equally critical.

As of today, as many as eight countries are capable of targeting India's heartland with missiles. In response, India has acquired capabilities and developed its missile programme with a view to safeguarding its national security interests.¹⁵ However, the diffusion of missile technologies in case of certain other countries (like China and North Korea) is also motivated by strategic-commercial interests resulting in "selective proliferation" without regard to the vulnerability of nations to missile attacks. India has never been accused of seeking diplomatic or commercial gains from its know-how of

¹⁵ Besides five nuclear powers, which have targeting capability including missiles launched from submarine; Pakistan, Iran and Saudi Arabia also have the capability to target India's heartland. For additional details see, Kapil Kak, "Missile Proliferation and International Security", in *Department for Disarmament Affairs Occasional Papers (UN)*, No. 2, September 1999, (New York), pp. 21-37.

missile technology inspite of the fact that India is not even a member of NPT or the Nuclear Suppliers Group.

Questions are often raised regarding India's security imperatives for giving support to President Bush's May 1, 2001 speech on this issue. India in its reaction had supported US in the hope that the sanctity of the ABM Treaty would be preserved, which now does not appear to be possible. The Indian support perhaps, was based on the following considerations¹⁶:

- US will, somehow, (with or without the political endorsement by India) move ahead with the development and deployment of BMD systems, irrespective of global reaction. The deployments would be limited to preventing unauthorised or accidental launches and limited attacks by the *states of concern*.
- US would reduce strategic weapons in the light of "new thinking". As Bush had made "deep-cuts" proposal of unilateral reduction of strategic nuclear warheads to a 'manageable' level of 1,500 to 2,500.
- US and other nation states including India do have a shared reason to fear non-deterrable states (*states of concern* and non-state actors) that have or may procure nuclear weapons in the future. There is a need to meet such a threat collectively especially after the attacks of 9-11.
- India can reap the benefits of collaboration by endorsing US BMD and gain diplomatic, technological, economic and many more benefits from the US and its allies.

It was expected that Mr. Bush would be amenable to lifting a few sanctions that remain in the wake of India's 1998 nuclear tests. In case the US went a

¹⁶ Views of, Dr. Kanti Bajpai, Professor, School of International Studies (JNU), New Delhi expressed while speaking on "India, the NMD and Asia's Security", during a Seminar on, "National Missile Defence: Some Indian and French Perspectives" held at New Delhi on November 9, 2001.

step further it could even help India to make its nuclear weapons safer, as also assist India in its other defence projects.

In the wake of 9-11, there have been significant developments in bilateral military talks between India and Russia on one hand and India and the US on the other. There are indications that Russia and India are preparing for a new defence protocol regarding developing a new futuristic weapon system. Russia has also gone beyond leasing nuclear submarines and long range bombers and has offered to look at new generation weapons. Simultaneously, India and US have revived military-to-military interaction, signalling the end of Pokhran-II tensions. There have also been speculations about trilateral co-operation between China, Russia and India.¹⁷ This co-operation though does not appear to be imminent given the asymmetry of power among these nations. Their geographical proximity and attitude of China towards India and its relationship with Pakistan could prove to be the main obstacles.

Recent activities indicate that a radical change in the international security paradigm may be in the offing. Post 9-11, these changes have come into sharp focus, with the realisation dawning on all major powers that they have a mutuality of interests in pursuing the global war against terrorism. Irrespective of unchanged position of US on TMD, it is significant to note that even China, it seems has begun to understand that its proliferation activities

¹⁷ *Times of India*, (New Delhi), February 6, 2002.

in Pakistan have proved counter-productive. US too is bound to ensure Pakistan becomes a moderate Islamic state, albeit with minimum Chinese influence. These changes are better for India's future as a global player.

On crystal grazing, a possible Indian security scenario could be considered as described below¹⁸:

- **Short Term.** Till 2005 TMD is not likely to make any impact on Indo-Pakistani border unrest which will continue, as neither state possesses the capability to pursue other more decisive forms of combat. "Ugly stability", i.e., the state of low-grade violence interrupted by bouts of inadvertent escalation (of the order of Brass Tacks in 1987, Zarbe-Momin of 1990, Kargil of 1999, current eyeball to eyeball confrontation since December 2001 etc.) accompanied by serious form of nuclear brandishing may continue. The Sino-Indian scenario will remain generally quiescent during this period.
- **Medium Term.** In the period extending from 2005 to 2015 deployments of TMD can adversely impact on India's relations with both China and Pakistan. Three scenarios with Pakistan and one with China have been considered:
 1. Conventional war launched by India if Pakistan hampers its economic growth by supporting internal insurgencies.
 2. War of desperation launched by Pakistan if India's economic expansion implies the increasing neglect of Pakistan's outstanding territorial claims by the international community.

¹⁸ n. 13, pp. 162-163.

3. War initiated by Pakistan in the event of (own) state breakdown as a result of relatively successful insurgencies within Pakistan.
 4. Renewal of Chinese-supported low-intensity conflict in the Indian north-east and similar Indian-supported efforts in Tibet and Xinjiang.
- **Long Term.** From 2015 to 2025 rise of China as potent threat to US may bring US closer to India. In that Indo-Pakistan conflicts would continue to resemble those in the previous time frame, whereas the possibilities of direct Sino-Indian conflicts would probably grow. A lot will, eventually depend on the political relationship and economic changes taking place in each country.

In what manner TMD would effect the security calculus of India, given above? It must be highlighted here that focus of the world has lately shifted to terrorism for the time being but the problems due to deployment of TMD in Asia remain unchanged. And here, it remains certain that any deployments of TMD systems in Asia will trigger a missile competition in South Asia, irrespective of any "one" scenario above being played in reality at least in the Short and Medium Terms.

Likely Missile Competition in South Asia

Should China interpret US-Taiwanese co-operation on TMD as a violation of the MTCR, it could retaliate by resuming missile sales to South Asia and the Middle East. In the early 1990s, China sold complete M-11 ballistic missiles to Pakistan. It also helped the latter build a missile production plant in Fatehgunj. Although China has stopped transferring complete missile

systems, a 1999 Central Intelligence Agency (CIA) National Intelligence Estimate concludes that, "China continues to contribute to missile programmes in some countries". Resumption of Chinese missile sales to Pakistan above the MTCR limit would invariably exacerbate the missile race between India and Pakistan.¹⁹

The other link to South Asia might be joint Chinese-Russian or an independent Chinese decision to develop its version of a TMD system. An Indian government that finds the credibility of its strategic deterrent reduced by Chinese TMD capability would be less amenable to any form of missile control regime or norms.

There are number of serious implications for India in the event of China exercising options available to it in reaction to the large-scale deployment of TMD in East Asia. These are:

- Increase in Chinese nuclear forces; this will put political pressure on India to build a larger arsenal, which would have a cascading effect on Pakistan. This will also mean additional security burden and increased threat perception.
- China could develop good number of countermeasures to neutralise the TMD; this would have marginal effect on India, as it would lock out the future options for India in the event of collaboration with the US in connection with TMD.
- China may decide to further proliferate to Pakistan and North Korea to meet the challenge of any Indo-US collaborations; this would have the worst effect on India's security environment.

Continuing Chinese missile proliferation to Pakistan will have the unfortunate effect of accelerating the nuclear domino dynamics in South

¹⁹ n. 4.

Asia. During the 1980s China helped Pakistan acquire a nuclear weapons capability and in the 1990s it proliferated ballistic missiles to Islamabad. Some analysts opine that India's own nuclear and ballistic missile advances might have played a role in China's decision to help Pakistan develop missile capabilities; but India cited China's policy of covert proliferation as one of the principal reasons why it made its own nuclear capability overt. Renewed Chinese missile assistance to Pakistan as a result of cascading effect of TMD, will not only help Pakistan weaponise its nuclear forces, but it will also increase pressures on India to redefine and operationalise its proposed minimum deterrent.²⁰ These problems will significantly increase the chances of emergence of a dangerous nuclear arms race in South Asia.

Regardless of whether Pakistan's ballistic missile programme is the result of India's own advances or otherwise, analysts have interpreted the Chinese transfers as another example of Beijing's attempts to contain India. Pakistan has been developing several MRBMs, apparently with assistance from China and North Korea. In 1997 Pakistan may have conducted a test launch of its 600-km range Hatf-3 missile, believed to be based on Chinese technology. In April 1998 it flight-tested Ghauri, reported to have a range of 1,500 km but may actually be considerably less (700 to 1,100 km).²¹ Pakistan is also

²⁰ n. 8.

²¹ David C. Wright, "An Analysis of the Pakistani Ghauri Missile Test of April 6, 1998", *Science and Global Security*, Vol. 7, 1998, pp. 227-236.

reported to be developing two solid fuel MRBMs, the Shaheen-1, with a range of 700 km, and the Shaheen-2, with a range of 2,100 km.²²

It will be incorrect to say that Sino-Pakistani armaments relationship has been "all milk and honey". Dr. Swaran Singh has observed that, "The 1990s witnessed a strategic shift, and in its efforts to build ties with the US, Beijing has come under tremendous pressure not to supply sensitive military technologies to countries like Pakistan and Iran".²³ He further opines that in the event of China emerging as a super power these pressures are going to increase.

The nuclear security dilemma in South Asia remains centred on the fact that nuclear proliferation and nuclear security are interlinked: Pakistan versus India; India versus China; China versus Russia, and (China and) Russia versus the US.²⁴ Therefore, any alteration in the links described above would have a definite cyclic effect on the entire equilibrium.

Future Trends of India's Missiles

Following the US example, several leading Indian defence scientists have begun lobbying for a limited anti-missile defence that would provide protection against a small Pakistani nuclear force. As per media reports,

²² Umer Farooq, "Pakistan Needs Up to 70 Nuclear Warheads", *Jane's Defence Weekly* (London), June 10, 1998, p. 3.

²³ Swaran Singh, "Sino-Pakistani Defence Co-operation: Joint Ventures & Weapons Procurement", *Peace Initiatives* (New Delhi, May-December 1999), Vol. V, Nos. III-VI, p.13.

²⁴ "Ballistic Missiles Threat and US Policy", available on web at, <http://www.fas.org/irp/news/1998/07/980714-threat.htm>.

India has begun exploring the feasibility of modifying and deploying Russian S-300 surface-to-air missiles in a missile defence mode. The technologies involved in such a programme are very sophisticated and costly. And it would not be possible for India to make an attempt on its own for the present. India per force has to, either seek assistance from its old ally Russia, or plan a tie up with the US. An Indian BMD programme, indigenous or otherwise will definitely force Pakistan to seek countermeasures or to expand and diversify its nuclear arsenal.

The central question facing the international community is not whether India will have significant missile capabilities, but rather how best to deal politically with India as a missile power and how to ensure that India does not become a missile exporter.²⁵

The hard-liners in India favour a triad nuclear force comprising large number (in hundreds) of nuclear warheads. They advocate the resumption of nuclear testing to develop lighter thermonuclear and enhanced radiation warheads for a potential MIRVed ballistic missile force; the hard-liners are also sceptical of the value of an FMCT. Thus far, the moderates, led by Prime Minister Mr. Vajpayee have prevailed in this debate. If current trends persist through this decade, India will probably field a modest nuclear force in the low hundreds.

²⁵ Timothy V. McCarthy, "India: Emerging Missile Power", in William C. Potter and Harlan W. Jencks (Eds.), *The International Missile Bazaar: A New Suppliers' Network* (Boulder: Westview Press, 1994), pp. 224-225.

However, quantitative and qualitative improvements in China's nuclear capability as a result of TMD deployments would undermine the moderates in India and Pakistan. A higher Chinese alert status would invariably increase threat perception in India and eventually Pakistan; it would intensify pressure on governments in both the capitals to accelerate the integration of nuclear weapons into their security system. These actions will have adverse consequences for security imperatives in South Asia.

For both India and Pakistan, TMD would also signify a shift from multilateral efforts at preventing the spread of WMD to unilateral defensive measures. US doubts the efficacy of the non-proliferation regime in stemming such threats, and that proliferation of long-range delivery systems such as ballistic missiles and other WMD, is inevitable. The lesson drawn in India and Pakistan would be therefore, to continue investments in nuclear weapon and missile capabilities, not only to deter identified nuclear adversaries, but also as a hedge against strategic uncertainty.

There is also the possibility that India might participate in the global non-proliferation regime with the exception of the NPT. Pakistan, which also favours "strategic restraint," and is likely to adopt a similar policy.²⁶ Notwithstanding the effectiveness or otherwise of international MTCR, or commercial gains proliferation can offer, India's policy of strict self-restraint must continue. To sum up, the continuation of current US programme on

²⁶ n. 4.

TMD-NMD will have following major implications for South Asia:

- A US decision to deploy TMD will have negative and destabilising effects in South Asia. It will come at the expense of furthering global nuclear disarmament.
- Because India and Pakistan draw linkages between global disarmament and regional non-proliferation, the goal of seeking a nuclear rollback in South Asia will recede further on the horizon.
- Any changes in China's nuclear modernisation and deployment plans in response to the TMD deployments will have a cascading impact on India and then Pakistan. The outcomes would probably negate the US attempt at institutionalising some form of "strategic restraint" in the region.
- A strategic-arms race will very likely be triggered in South Asia leading to making both sides more vulnerable each other's intentions though stronger against larger regional and global pressures.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

When first presented with the level of destructive firepower during his initial security briefing on the US nuclear arsenal, President George W. Bush Sr. reportedly replied, "I had no idea we had so many weapons... what do we need them for".¹ A long history of US presidents have sought to reaffirm their humane qualities by reacting with shock to the vast quantities of destructive power that have been entrusted to them. Most famously John Kennedy, upon receiving his first briefing in 1960, had commented, "and we call ourselves the human race".² The shocked US Presidents, however, have never attempted to effect any major changes to the "huge superiority" in numbers of nuclear weapons they possess.

An attempt is being made now, for the first time to achieve unilateral "deep cuts" under US BMD programme, though it still remains linked with the success of missile defence. Deep unilateral cuts in the US nuclear arsenal are a key component of Bush Jr.'s security policy. He has stated that he is committed to "achieving a credible deterrence with the lowest-possible number of nuclear weapons consistent with our national security needs, including our obligations to our allies".³ The extent of these cuts is still being debated, but various luminaries of the Cold War build-up have been meeting

¹ Quoted in Mark Bromley, *One Step Forward or Two Steps Back? Upcoming Cuts in the US Nuclear Arsenal*, September 2001, No. 38, (Basic Publication) available at <http://www.basicint.org/>.

² Ibid.

³ Ibid.

in recent months to show how much further they are willing to go than the US administration's proposals.

The key role of guided missiles in military operations for the future got validated when intense missile attacks were carried out by Iraq against Israel in 1991 Persian Gulf War and later in Yugoslavia. It proved the point that missiles would be the standard equipment for war and deterrence in the future and therefore, are as much a part of a country's defence as aircraft, tanks and guns.⁴

The future wars, will be conducted based on precision weaponry, "weapons based on information instead of the volume of fire power... In 1881, a British fleet fired 3000 shells at Egyptian forts near Alexandria. Only ten ever hit their targets... In the Vietnam War American pilots flew 800 sorties and lost ten planes in an unsuccessful attempt to knock out the Thanh Hoa Bridge. Later, four F-4s armed with some of the earliest smart bombs did the job in a single pass... Today one F-117, flying a single sortie and dropping one bomb, can accomplish what it took B-17 bombers flying 4,500 sorties and dropping 9,000 bombs to do during World War II, or 95 sorties and 190 bombs during Vietnam".⁵ This data has been projected for engagement of a fixed target. The question is, will it be possible to track down a ballistic missile, launched from an unknown source (land or air or sea or under water) flying at a very

⁴ K. Subrahmanyam, "Agni-Ghauri Tests No Cause for Alarm", *The Times of India*, (New Delhi), April 14, 1999.

⁵ Alvin and Heidi Toffler, *War and Anti War* (Boston: Little Brown & Company, 1993), p. 73.

high speed and then kill it before it reaches any where near its destination?

The BMD vision is based precisely on the belief that it is possible.

Paul Kennedy has described an interesting link between the technology, wealth and war, which he says is triangular. He elaborates that the development of steam power from the coal and metal resources increased the relative power of certain nations. Once their productive capacity was enhanced, these countries found it easier to sustain the burdens of paying for large-scale armaments, maintaining and supplying large armies and fleets in wartime. History proves that wealth is usually needed to underpin military power, and military power is usually needed to acquire and protect wealth.⁶ Even at the current level of technology, development of the BMD programme requires the best of precision and wealth. Can US provide both, and will it then be ready to complete the triangle and declare war on the *states of concern*, especially in the nuclear environment?

Assuming that the Bush Administration is right in its pessimistic assessment of the "states of concern", it would have to contend with the idea of the possibility of these states being even more tempted to acquire nuclear weapons and the appropriate missiles for their delivery. Therefore, the contention expressed by many countries that "the BMD is likely to spur rather than prevent nuclear proliferation", must be considered very seriously by the US.⁷

⁶ Paul Kennedy, *The Rise and Fall of Great Powers*, (New York: Random House, 1987), p. xvi.

⁷ David Mutimer, "Good Grief! The Politics of Debating NMD", *International Journal* (Toronto), Vol. LVI, No. 2, (Spring 2001), p. 333.

In his First State of the Union speech on January 30th, 2002, President Bush singled out Iran, Iraq and North Korea as pursuing WMDs and used aggressive language calling them, "an axis of evil" that could attack US allies or blackmail America. Although both Russia and China have expressed their readiness to talk to the US about BMDs, both remain somewhat hostile to the concept. Earlier in 2001, Russia's then Defence Minister, Marshal Igor Sergeyev, accused America of a "desire to achieve strategic domination of the world". China too accused America of "unilateral nuclear expansion". Unlike Russia, China is just as opposed to less powerful regional missile defences (TMDs), since it fears these could be used some day to protect Taiwan. If Russia and China react to the US BMD plans by deploying many more nuclear weapons (in an attempt to overwhelm US BMD defences), India, no doubt followed by Pakistan, might follow suit.⁸ Similarly, a limited BMD shield that relied on space-based sensors could provoke the speedier development of anti-satellite weapons resulting in an arms race in space.

Is BMD Needed?

On the other hand, the US theory that BMD could augment deterrence by raising doubts about the success of a missile attack could also be considered. The advocates say that BMD by itself could discourage proliferation of WMD. BMD could also reduce the danger so that the US will not be forced to threaten or resort to the use of nuclear weapons. From the US point of view,

⁸ "George Bush's Revolution", *The Economist* (London), May 5, 2001, p. 19.

this may in turn reduce or remove the payoff for acquiring WMD and ballistic missiles. It can of course serve these purposes only if it works totally accurately.⁹ Today, the world is full of ballistic missiles of assorted ranges with different modes for launch. The BMD may not provide immunity from the attacking ballistic missiles, but it does to an extent provide certain amount of confidence to the people and the leadership of the countries, which have the economy to support such a system.

Is BMD feasible?

It is unclear whether BMD is technologically feasible and economically viable or not. However, it is clear that the US is going ahead with its development programme. After 9-11 the US efforts have not declined in any manner, presuming that a non-state agent can even get hold of a TBM and put it to the same use. Missile defence is already more or less feasible at the theatre level, TMD systems, such as PAC-2 (US), Arrow (Israel) and S-300 (Russia), are already fielded.

Is TMD a possibility?

Ongoing development is aimed at achieving higher effectiveness and reliability. Though NMD against strategic ballistic missiles is technically more challenging than TMD because of the higher speed and range of such

⁹ David C. Gompert and Klaus Arnholt, *Ballistic Missile Defence: A German-American Analysis*. The research in this report was conducted jointly by Stiftung Wissenschaft und Politik (SWP) and RAND Europe (RAND: 2001), p. 9.

weapons. But Washington policy makers should focus more on the strategic and political cost effectiveness (of deploying TMD) rather than technical and financial ones.¹⁰ Non-nuclear hit-to-kill defence of the US against low-end (double-digit) attacks appears technologically feasible within a decade or so.¹¹ Due to overlapping technology, TMD is also feasible around the same time frame.

Recommendations

As they say the world of the future will not be completely different from the world of the past. Conflicts within and among nations will not disappear. But the nature of relations between nations will continue to evolve. Like many earlier revolutions, the successful introduction of TMD is bound to hasten this process. By the middle of this century, former US Defence Secretary McNamara predicts, several of the countries, which have been termed as the Third World, will have grown so dramatically in population and economic power so as to become major forces in international relations. For instance, to the least, India is likely to have a population of 1.6 billion; Nigeria 400 million; Brazil 300 million. And, if China achieves its ambitious economic goals and maintains satisfactory pace of progress, rates for the next fifty years, it will be a power to be reckoned with economically, politically and militarily. These projections, McNamara points out are simply to emphasise

¹⁰ Hu Yumin, "A Preliminary Survey of US Post Cold War Non-proliferation Policy", *Foreign Affairs Journal* (New York), No. 51, March 1999.

¹¹ n. 9, pp. 9-12.

the magnitude and pace of the changes that lie ahead and recommend that there is a need to adjust the US goals and policies.¹² Will the BMD technologies help the US to build its security strategies to deal with future scenarios or defeat the very purpose of developing such programmes?

In the post World War-II years, the US had the power to shape the world as it chose. In this century, that may not be possible for long. From India's point of view, there is a need for the international organisations, the nuclear weapon powers and regional institutions (in various regions) including the South Asian countries to realign their policies on nuclear issues in order to achieve peace and security for all. It must be ensured that these weapons are not employed and if they are, then the knowledge of how to deal with them is there. The recommendations below have been made for possible action from various levels purely from India's security perspective:

United Nations

- A UN resolution, especially in the current environment of uncertainty, making first use of WMD a war crime would create a clear and useful new global norm.¹³
- The deployment of TMDs would trigger an arms race in outer space that would destabilise regions and possibly lead to the revival of Cold War. A

¹² Robert S. McNamara, "Reflections on War in the Twenty-First Century", in Maxwell Bruce and Tom Milne, Eds., *Ending War: The Force of Reason*, (London: Macmillan Press Ltd., 1999), pp. 87-87.

¹³ n. 9, p. 27.

comprehensive and non-discriminatory treaty prohibiting ballistic missiles along a time bound programme is presented as the only measure to serve the interest of international security in the long run.¹⁴

- Alton Frye's proposal that nuclear warheads are placed in "strategic escrow" and ballistic missiles banned for security in the twenty-first century must be worked on more seriously.¹⁵ In quest for a permanent solution, the UN must consider this step for which the nuclear weapon powers themselves would have to take an initiative.

The Nuclear Weapon Powers

- In addition to maintaining existing global mechanisms to control proliferation, the nuclear weapon powers must themselves move away from reliance on nuclear weapons for their security, if they expect other countries to do the same and to respect global non-proliferation norms.
- The new weapons employment policy of the nuclear weapon states, as well as justifications for nuclear and missile proliferation in Asia, must be effectively countered and rejected in multilateral fora such as the NPT review process, the Conference on Disarmament, the First Committee, and the NATO Strategic Concept Review.

¹⁴ Kapil Kak, "Missile Proliferation and International Security", in *Department for Disarmament Affairs Occasional Papers (UN)*, No. 2, September 1999, (New York), p. 21.

¹⁵ Alton Frye, "Banning Ballistic Missiles", *Foreign Affairs* (New York), November/December 1996, p. 99.

- The US decisions to test and deploy TMDs will not only ensure that the arms control agenda gets nowhere but may result in reducing Chinese incentives to participate in the Conference on Disarmament. It will also provide added incentive for China to speed up its nuclear modernisation programme. The changed nuclear posture of China under these circumstances would have an adverse repercussion on peace and stability in Asia. In view of this all responsible powers must prevail upon the US to further examine its planned TMD development and subsequent deployment.
- The US should especially re-consider transfer of TMD systems or connected technology into regions where doing so could result in the growth of missile arsenals. This would, of course, not include NATO Allies. It must however, include East Asian allies of the US. Such an assurance vis-à-vis Taiwan would satisfy Chinese anxiety. However, US might ask for a reciprocal assurance from China regarding the use of force against Taiwan.¹⁶
- Recent developments in the West indicate resumption of interventionist strategies. Under NATO's new strategic concepts, unilateral military forces, beyond the scope of the UN Charter, could be applied in areas outside NATO geographical limits to address regional and ethnic conflicts.¹⁷ The developed countries with far more advanced technologies

¹⁶ n. 9, p. 24.

¹⁷ Additional analysis on NATO's future role also available at, V. R. Raghavan, "NATO's New Strategic Concept", *The Hindu*, (New Delhi), April 17, 1999.

are also seriously looking at counter measures (TMD) against the threat posed by ballistic missiles of the new entrants (developing countries). The policy of interventionist strategy of the West should be given a re-look to avoid an arms race in Asia.

- The US has a consistent record of initiating arms races under the assumption that other nations cannot catch up with it technologically. But the action of introducing TMD in Asia is to ignore the inevitable spread of technology.¹⁸ US, therefore, must consider the serious repercussions of the development and deployment of the TMDs.

South Asia

- Regional security efforts in South Asia can be served only by recognising that both Pakistan and India are at a strategic crossroads. They can either opt for the continuing development and later deployment of nuclear and missile forces or they can reduce the proliferation dangers through confidence building measures (CBMs) that strengthen mutual trust and regional security.¹⁹
- A regionally focused approach to deal with the proliferation dilemma in South Asia lies in resolving the security concerns that have generated the requirement for the development and acquisition of nuclear weapons in

¹⁸ K. Subrahmanyam, "Offence as Defence", *The Times of India*, (New Delhi), March 24, 1999.

¹⁹ "Ballistic Missiles Threat and US Policy", available on web, <http://www.fas.org/irp/news/1998/07/980714-threat.htm>.

South Asia at first place. At the same time, it is important that the political currency of nuclear weapons be devalued by mutual discussions. As long as India and Pakistan rely for their security on nuclear weapons, it is perceived that South Asian Region will remain unstable denying the people their fair share of economic growth and peace.

- In the foreseeable future, however, a nuclear South Asia is here to stay for better or for worse. Pragmatic arms control strategies must therefore, focus on prudent accommodation, not appeasement or confrontation. India must maintain cordial relations with the P5 and other regional powers without getting embroiled in any full-fledged war with Pakistan as it will not serve any useful purpose in the short term.

India

- As regards India's response to TMD, New Delhi should evolve such an approach towards its nuclear policy that would support its national interest with an appropriate mix of principle and pragmatism.
- India must pursue security and strategic dialogues with major powers and key partners in order to analyse the problem whether a more peaceful and stable world would emerge on ushering in of TMD. Only then the final position must be taken in full measure.
- The new policy enunciated by Bush on May 1, 2001, must not be totally endorsed or rejected by India without doing its cost/benefit analysis. It

needs to be occasionally reviewed as to whether India should support global missile defence or oppose the deployment of missile defences. In case of former India must invest further in the strategic partnership with the US, Russia and Japan.²⁰

In the scenario where China is forced to take certain unilateral steps towards altering its nuclear status, as a reaction to the development and subsequent fielding of TMD system by the US, the following actions are recommended for India's security policy makers:

- While missiles fired from Asia or Europe will take 18-20 minutes to reach US, India is targeted by Pakistani and Chinese missiles which can reach the target in 5-8 minutes. Hypothetically, while the US aims at stopping 18-20 ICBMs at one go, India too would need a system capable of stopping a salvo of no less than 20 ballistic missiles. But there is a very big gap in India's capability as of now.
- At present India does not have missile detection satellites, and it can only pick up the warhead already on its way to the target, using ground-based radars. This mechanism will not work and would delay any worth while reaction. India must take a fresh look at its nuclear weapons

²⁰ It is a known fact that in the wars between third world countries, the international environment and diplomatic factors are of crucial importance. The example of intervention by the US and for warding of a direct confrontation at the Indo-Pak border after December 13, 2001 attack on Indian Parliament is very relevant.

strategy in concert with the overall changes brought about due to TMD in Asia and particularly in South Asia.

- Deterrence being a mind game – unless India produces a certain number of nuclear weapons it cannot deter China. India must take advantage of the “shifted world focus on terrorism” and improve upon the nuclear weapon delivery systems, warheads and command and control facilities, in order to create a credible deterrence capability. India must create a secure and effective deterrent against the use or the threat of use of WMDs against it.
- India, however, must continue to pursue a policy of good neighbourliness with China albeit in an equitable manner. Promoting further economic and security co-operation (especially in controlling terrorism) with other neighbouring countries especially Pakistan, in the aftermath of 9-11, would be of immense advantage for India.
- India should upgrade the state of readiness of its modest nuclear arsenal and continue to improve its nuclear warhead and ballistic missile capabilities to counter any strategic uncertainty that may be unleashed as a result of TMD deployments. In this India could focus on the joint development of anti-missile defences, at least to defend most important strategic targets like New Delhi, and nuclear installations among others.

- Although none of the Indo-Pak crises involved deployed nuclear weapons, the nuclear threats loomed large in the background and affected the decisions made on both sides of the border.²¹ The Kargil crisis occurred after both sides had declared their nuclear capability. The prospect of nuclear war makes it imperative for India and Pakistan to find political solutions to the conflicts that are fuelling a regional tension. In the meantime both sides should exercise restraint and explore arms control and CBMs to create a stable deterrent situation in South Asia.²²
- The new millennium has started with an advantage for India as the world focus has now shifted to the problems of terrorism which were already being addressed only by India amongst few other effected countries. If India plays its geo-strategic cards well, it should go a long way in meeting its national objectives. The only missing link is an appalling state of governance, which must be rectified if India is to genuinely move ahead.

Choices for India

Just as the genie of nuclear weapons can not be stuffed back into the bottle, the issue of how to counter these BMD concepts and technologies is

²¹ Waheguru Pal Singh Sandhu, "India's Nuclear Use Doctrine", in Peter R. Lavoy, Scott D. Sagan and Lewis A. Dunn (Eds.), *Planning the Unthinkable*, (New York: Cornwell University Press, 2000), p. 132.

²² The crisis did not escalate into a full-fledged war, it is believed, because of the presence of nuclear weapons on both sides. For additional details see, *ibid.*, Zafar Iqbal cheema, "Pakistan's Nuclear Use Doctrine and Command".

with us for the rest of our lives. How well we sort out the conflicting choices may determine for how long we can ensure peace. In 1947, Jawaharlal Nehru told the constituent assembly, "It is difficult in world wars now-a-days to be neutral. Any person with any knowledge of international affairs knows that we are not going to join a war if we can help it and we are going to join the side which is to our interest when the time comes to make the choice".²³

Today, for example, the influential powers of the world have "chosen" to unite behind the US in a common fight against terrorism. And in this fervour of joining the US in its global war against terrorism these powers have overlooked (or not protested with the same vigour as expected) the US notification to withdraw from the ABM Treaty, which the latter has done in order to accelerate the progress of the NMD and TMD programmes. The question of a "choice" confronts India today. The Indian aim should be to ensure that any chain reaction triggered by the US TMD in Asia in general and South Asia in particular must leave India with enough options to safeguard its national interests. The decision is not an easy one as the geopolitical environment in South Asia is greatly influenced by the nature of US deployments in Asia and by the nature of China's response to such deployments.

Nuclear weapons and missiles cannot be compared to any other conventional weapons; they are the most potent political weapons of a state,

²³ *The Times of India*, (New Delhi), September 9, 2001.

which can deliver victory without an actual combat. The influence of international terrorism is not likely to dilute the importance of these weapons. India cannot rely only on nuclear tests and must move out from its Pak-centric threat perception and must broaden its strategic vision to larger region where TMD is going to have such a direct impact on the future of India's security and peace. It is in the broadening of India's 'self-image' that one can crystal-gaze for India's destiny and respond to future challenges.

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